Return-On-Investment: Applying it in Education

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The Problem with ROI in Education

Let’s say your school district wants to invest in an after-school tutoring program to support struggling students, staffed by community members. Is that a good idea? The expected costs are low, as the tutors are paid only a small stipend, and the effect of individual attention on student learning is probably quite good. From a simple cost-benefit analysis, this seems to be a winner.

But school district leaders want to deploy their limited resources most effectively; any time, money, or staffing put toward supporting this project could possibly be spent elsewhere to greater effect. In the business world, return-on-investment (ROI) analysis is commonly used to compare investment options and identify which of them provides the most “bang for the buck.” In business, this is relatively easy: if you invest $100 and collect $110 at the end of the year, you have a 10% return on investment. But if you spend $100 on a tutoring program, or iPads for students, or something as complicated as instructional coaches for teacher teams—how do you determine your return?

Historically, districts have struggled to apply ROI analysis to schools for four main reasons. Firstly, the evidence of impact for any particular initiative is messy. Whereas businesses usually measure impact in profit dollars, school districts often want to measure “student learning”—but sometimes other outcomes as well, like equity. The available data about impact on student performance is limited, fragmented, frequently provides inconsistent answers, and can be hard to evaluate. It is difficult to control for all of the variables that contribute to a given change in student
performance, and the tests used to measure performance frequently vary from study to study.

Secondly, districts often carry many “misalignments” of resources due to historic district spending patterns, decades of increases in spending, and disconnected budget processes across district functions. This means that people, time, technology, and money may be invested in ineffective ways, and any new initiatives will flounder until those basic structures are adjusted. For example, a district may want to introduce a new approach to teacher teaming, but those teams need time to meet, student data, and expert support to succeed—and responsibility or funding for those functions is tied up elsewhere.

Thirdly, traditional program evaluation doesn’t typically consider how each initiative fits into the larger resource picture. Though something like the after-school tutoring program seems low-cost, it involves less obvious investments in time and staffing to secure the rooms, support tutors, and track progress—and it may not even address the district’s core priorities. Similarly, a particular PD program may seem cost-effective on its own, but it is possible that fundamental workforce management changes will impact student learning more for less cost. Districts need to start with the fundamental student need (or other outcome) that they would like to address, and holistically evaluate the ROI of many options—including doing nothing—and think broadly about how resources need to be allocated to reach that outcome.

Finally, decision-making historically happens in silos, and different departments lack a structure for working together even where resources target the same outcomes or student needs. The CAO’s office may know a lot about what strategies impact student learning, while the CFO’s office knows where the district allocates its funding. The two sides need to work together to shift resources to the actions that are both impactful and cost effective.

Given all of these factors, it is understandable that districts often do not attempt a holistic assessment of ROI. And unfortunately, as with most things, there is no silver bullet. However, we can provide a “road map” to guide the thinking of districts who do wish to try an ROI analysis—with the goal of making resource decisions that are more evidence-based, structured, and aligned with the district’s goals. As the research on student impact improves, and districts gather more data on what works in their context, this roadmap will become an even stronger tool for effective resource allocation. Ultimately, the question districts must use ROI thinking to answer is,
“How do we use all our limited resources strategically in ways that will transform student outcomes?”

**Where Do We Start?**

As with most strategic projects, the first step is to get the right people “on the bus.” The right people to involve will depend on the decision, but districts should try to gather input from anyone with relevant experience, data, or insight to the student need being addressed, as well as potential solutions. Instructional expertise can come from the academic side or schools, while analytic tools and modeling may lie in the Finance or Accountability and Assessment departments. In addition, the district may want to draw on external experts. Some districts may form project teams, whereas others will simply solicit feedback from many quarters—the nature of the collaboration is not important, as long as diverse perspectives can contribute.

Secondly, it is important to ask a structured set of questions. Whatever the approach, it should be deliberate and systematic, combining science and judgment to make investment decisions in the context of student need, district priorities, and implementation capacity. We offer these key questions to guide your thinking:

**KEY GUIDING QUESTIONS**

1. What fundamental student performance need are we focused on, and why do we believe a particular investment will address that need?
2. What are all the investments we currently make to address this need, and what else could we do?
3. What are the relative returns (costs weighed against benefits) to the set of current/potential options?
4. What else do we need to consider, in order to select from among the options?
5. How can we free the resources to do what we want to do?

Finally, it is important to establish and spread a culture of tolerance for imperfection. At the end of the day, you can’t have all the data you need to make perfect decisions, so you want to enable your best judgment through a process that captures a range of inputs, asks the right range of questions, and stays focused on key district priorities.
Five Key Guiding Questions

1. What fundamental student performance need are we focused on, and why do we believe a particular investment will address that need?

A good decision-making process always starts with clearly defining the decision at hand. Districts need to identify what improvement in student performance they want to achieve and for which students. This allows the decision-making team to develop clear hypotheses about solutions and gather data to test them. If the investment does not address a strategic district priority, you should probably not consider it and can move on to the next decision.

If a proposal comes in about investing in a specific activity (e.g., summer school) or technology (e.g., iPads), it is critical to step back and assess the theory of action for why this particular investment or activity will have the intended impact on students. In describing the theory of action it is important to think about the timing to desired outcome as well as the additional aligned spending necessary for full implementation to ensure success. For example, you can invest in collaborative planning time for teacher teams, but if you are not providing student data and expert support on how to use that data to change instructional practice, you will see little student performance impact.

QUESTIONS: STUDENT NEED AND THEORY OF ACTION

- What fundamental student need are we targeting?
- Why do we believe this investment will have the desired impact? How will it work?
- How long will it take?
- What are the necessary and sufficient levers to achieve the expected impact? What happens to the magnitude of the expected impact if some components are not fully implemented?
2. What are all the investments we currently make to address this need and what else could we do?

Given that you are focusing on a fundamental student need that is a district priority, there are likely already resources allocated to help these students achieve the desired outcome. Over time, districts accumulate legacy spending patterns: aging programs that may not be achieving the currently desired result, or different investments that accumulated across decision-making silos and are not aligned with each other.

Step two of the process asks teams to identify the range of options for more detailed analysis by looking at the spending already in place as well as deliberately looking more broadly for other alternatives.

QUESTIONS: CURRENT AND ALTERNATIVE OPTIONS

- What else are we currently investing in this area or toward this end?
- What people, time, and money are we currently investing in programs, instruction, and support targeted at related outcomes for this particular student group?
- At a high level, do current investments align with our theory of action and do we believe they are working?
- How does what we are currently doing support or interact with the proposed option? Are there dependencies we should be clear about?
- Are there things that are not working as well as expected? If we stop them, can we redirect those resources toward more productive options?
- What broader alternatives can we imagine that would address the same set of student needs? How do they compare?
- What would have to be true of any new investment for it to be better than what we are currently doing? Based on what we know, how likely is that scenario?
3. What are the relative returns (costs weighed against benefits) to the set of current/potential options?

This is where we look at the ROI measures for our specific district context — assessing full costs, expected outcomes, and student impact for the range of options under consideration. We need to find the relevant data that exists within and outside of the district, and, based on our student impact hypothesis and our theory of action, focus on the essential elements that will inform our choice.

This approach expands on the basic ROI idea promoted by Nate Levinson, which he calls, “a framework for making the thinking explicit and taking the emotional arguments out of it”:

\[
(\text{Student Learning}) \times (\# \text{ Students}) \\
\text{(Cost-per-pupil)}
\]

Let’s take each component of this equation in turn:

\text{a. How many students will this impact?}

This is usually fairly straightforward. What student sub-group(s) will benefit from the investment? Be sure to deliberately consider the primary and secondary effects. Are there students who are not targeted but will also be affected? For example, if you pay high-performing teachers to move to low-performing schools, many students will benefit, but some may also lose out. They need to be factored into the equation.

\text{b. How much will it cost to fully fund? Over what period of time?}

Though cost can also seem simple, teams need to thoughtfully consider all the elements of cost over time. It is important to critically assess the fully funded cost—all of the direct and indirect costs that are required to achieve the expected outcome—reflecting on the “necessary and sufficient” question in Key Guiding Question #1.

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c. What is the likely return? What amount of impact should we expect? By when? What measures will we use to assess if our investment is working?

Estimating the expected return for a given initiative or intervention can be challenging. One of the first challenges is simply to choose the outcome by which you want to measure your return. There are several possible options:

- **Financial**: If cost savings is the main objective, one measure of return may be reduced cost in general or for a given outcome.
- **Instructional**: How much improvement in student learning can we expect to see in our context from this investment? Can we frame it in terms of a standard year’s worth of progress?

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**QUESTIONS: COST FACTORS**

**Start-up or transition cost:**

- What are the start-up/one-time costs required to initiate and transition to steady state?
- How long will we need to invest above steady state and at what level to achieve the planned sustained student improvement?

**Ongoing or sustaining cost:**

- What is the annual recurring cost to sustain the initiative at steady state? (e.g., staff, materials, PD, regular updates)
- Is it expected to rise or decline over time?

**Indirect Costs:**

- What else will need to be spent to achieve the desired result?
- Is there infrastructure on which this initiative depends? Will that need to be upgraded?
- What would have to be true of any new investment for it to be better than what we are currently doing? Based on what we know, how likely is that scenario?

**NOTE:** It is usually most helpful to express cost on a per-pupil impacted basis, using the number of students impacted from #1 above.
• **Process**: Some investments may improve instructional or operational efficiency. While this is typically captured as cost savings, there may be additional, less tangible benefits in terms of working conditions or reduced opportunity for error in handling data.

• **Other**: How else might staff or students benefit?

Secondly, while data on predicted impact may exist, it will be far from perfect, so teams need to be able to build from the evidence using logic and judgment. There are three main options for gathering data on likely return:

• **Research**: This refers to formal studies documented in peer reviewed publications.

• **External Examples**: This includes pilots, trials, or full implementations that may be formally or informally studied. Have other districts tried this? How has it worked? What can be learned from the implementation and the outcomes to date that can be applied to our district context? What are the limitations?

• **Internal Examples**: These can be pilots or formal trials, but you can also look for examples where schools with similar characteristics experience different outcomes. Are there pockets of activity, pilots, or analogous programs internally that we can learn from? What are the higher-performing schools doing differently? How scalable are the changes?

Regardless of the source, data from research and examples are valuable input, but need to be used judiciously and placed in context. Teams need to judge the strength of the data to inform their decision and the likelihood that the observed effects are transferrable to their situation. The most common way of comparing the relative impact of multiple options is effect size\(^2\). Researchers use effect size to estimate the “practical significance”\(^3\) of a given intervention, and can compare the effectiveness of one intervention to another by comparing the standard deviations of their impacts. While the interpretation varies based on the study, Hattie (2009) proposed an approach for interpreting effect size in student achievement:


• Below 0.0 – Decreases achievement
• Between 0.0-0.15 – Could be achieved without schooling
• Between 0.15-0.4 – Typical impact of teachers on students in a year of school
• 0.4 – High impact zone

QUESTIONS: MEASURING IMPACT

• What outcome(s) do we want to measure? How does that relate to the fundamental student need we identified in Key Guiding Question 1?
• How relevant is the data to the question at hand? Was the same question studied or an analogous one? How closely does it match our context, capabilities, and planned change?
• How reliable were the observed outcomes? Was there wide variation in results? Was the study design rigorous, with a large sample? Are the same outcomes likely in other situations?
• What is the quality of the study? From a “gold standard” randomized controlled study to a small local pilot?
• Did fidelity of implementation play a role? Or would it in our case?
• What are the mitigating or enabling factors?
• The bottom line: How transferrable are the observed outcomes to our context? How can we connect the research outcomes to our expectations? What are the limitations? Or what could go better?
• Or, to flip the question: What effect size would we need to make our proposed investments worthwhile? Is this at all reasonable to expect based on the evidence available?

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4. **What else do we need to consider, in order to select from among the options?**

Now the team needs to narrow in on a course of action: the most attractive combination of expected student impact for the cost. Concurrently, you should step back out of the details to make sure you have considered the whole picture.

*a. Which option(s) have the highest likely return in our district context?*

Teams should use the data, intuition, and judgment they have developed to compare their list of options using the ROI formula: return = the increase in student learning x the number of student impacted/ by the total cost. While it may be difficult to do the math using a specific number for the expected increase in student learning, relative estimates of low/medium/high can be useful for comparison. Remember that an expected return needs to be discounted in some way for the likelihood that a specific outcome will be achieved in your particular environment ( Either because the study data was slightly different or because implementation may be a challenge given local capacity).

You should create a list of opportunities ranked in order of ROI. This will include a cost number associated with each option. Before answering the question of how you can free the resources to do the things you want to do, it can be valuable to step back from the details and make sure the top options fit in the big picture context.

*b. What might be wrong with our preferred choice(s)?*

There are a number of ways to reflect on the options to ensure that major knockouts haven’t been missed.

**QUESTIONS: OTHER RISKS**

- Have we fully considered all of the direct and indirect costs?
- What could go wrong that would drive significant additional costs?
- What could go wrong in our implementation?
- Have we considered the potential unintended consequences of this particular course of action?
- What “perverse incentives” could it create?
- How might it impact other students or district priorities? (e.g. equity)
c. What is likely to happen if we don’t do this now?

One reasonable option may be to do nothing or to choose a path of “watchful waiting.” Teams should consider the risk of doing nothing versus options to learn more and implement over time.

QUESTIONS: COST / BENEFITS OF NO ACTION

- What would happen if we took no action? Would we be worse off?
- Could we make a more informed choice by waiting and gathering more data? What data would be most helpful? How would we get it?
- Could we do something in the interim to gather more data or improve our chances of successful implementation?
- Could we stage this investment in a way that would minimize our short-term outlay while providing additional data before we invest fully?
- Could we get 80% of the impact in a more cost effective manner? Would that be a reasonable trade-off?

d. If we don’t take this course of action, what other priorities could we use these resources for?

Finally, teams should cycle back to the overall district priorities and assess the expected return on investment from this course of action and compare to options that support other priorities. While the chosen course may be high return for addressing one priority, we need to assess whether there are higher return options that address other priorities, and would be better use of district resources.

5. How can we free the resources to do what we want to do?

Go back to your list of highest return options and add up the costs you have calculated to pursue them. How does this compare to the resources available to invest? How much additional would be needed to pursue the top options?

Additional resources to fund priority investments can be accessed by reversing misalignments—those accumulated spending patterns based on historical policies and practices which no longer achieve the necessary student impact results nor align with current strategic priorities.
You will have likely uncovered some opportunities already by looking at current and alternative options in Key Guiding Question 2. Are there investments you currently make or activities you currently fund that have lower ROI than your top choice(s)? Is the district pursuing high-cost strategies that are not shown in the literature to be effective (e.g., across the board class size mandates that can’t get classes small enough to have an impact) or investing at a high dollar-per-pupil rate in what may be lower strategic priorities (e.g., very small high school elective class sizes at the expense of investing in high-need ELA or Math gaps)?

While a full map of spending versus district priorities is outside the scope of this article, there are a number of ERS resources that may be useful for identifying strategic resource misalignments:

**School Budget Hold’em** – A tool to help teams identify tradeoffs they can make and the kind of savings that could be redirected to new investments for different types of decisions.

[www.erstrategies.org/library/school_budget_holdem](http://www.erstrategies.org/library/school_budget_holdem)

**Seven Strategies for District Transformation** – A guide to high level transformation opportunities, an online tool – ResourceCheck – and links to more detailed strategic resource guides that provide suggestions for strategies and analysis in a number of key areas: School Funding Systems, Turnaround Schools, School Design, The Teaching Job.

[www.erstrategies.org/library/seven_strategies_for_district_transformation](http://www.erstrategies.org/library/seven_strategies_for_district_transformation)
Conclusion

Making strategic investment decisions in school districts can indeed feel daunting. The questions are big, the players are many, and hard and fast answers practically don’t exist. But in the face of all of that uncertainty, leaders simply need to get started. By getting the right team involved, following a rigorous process and using data to inform judgment, truly bold leaders will increase the likelihood of making the best use of their limited resources.