Academic Return on Investment
“How to pay for priorities”

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Return on Investment (ROI)

• A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments.

• ROI measures the amount of return on an investment relative to the investment’s cost.

• ROI = Return / Investment
Return on Investment (ROI)

- Return on investment is a very popular metric because of its versatility and simplicity.

- Essentially, return on investment can be used as a rudimentary gauge of an investment’s profitability.

- ROI can be very easy to calculate and to interpret and can apply to a wide variety of kinds of investments.

- If an investment does not have a positive ROI, or if an investor has other opportunities available with a higher ROI, then these ROI values can identify which investments are preferable to others.
Return on Investment (ROI) Limitations

• However, when using ROI, particularly when comparing investments, duration of time must also be considered.

  • \( \frac{\text{Return}}{\text{Investment}} \)
    Duration
Return on Investment (ROI) Limitations

• ROI calculations can be easily manipulated to suit the user's purposes, and the results can be expressed in many different ways.

• A return on investment ratio alone can paint a picture that looks quite different from what one might call an “accurate” ROI calculation—one incorporating every relevant expense that has gone into the maintenance and development of an investment over the period of time in question.

• Always consider the bigger picture.
What is Academic Return On Investment (A-ROI)?
What is Academic Return On Investment (A-ROI)?

• Academic ROI is a translation of the ROI concept into the education world as a way to measure the amount of academic outcome achieved for a given amount of investment made.

• The practice of scientifically evaluating the cost-effectiveness of academic programs / strategies and then deciding on where to allocate resources accordingly.
Why Academic Return On Investment (A-ROI)?

• Academic ROI is taking on a growing role in school decision making as limited resources continue to be a problem and as school administrators are faced with an ever increasing set of purchasing options from which to choose.
Budgeting Today

• “Traditional” budget model
  • Incremental changes in resource allocation
  • Limited resources drive spending plan
  • More reactionary than pro-active
  • More focused on current year challenges than multi-year strategies

• Need for better alignment of budget process with student achievement goals
  • Attempts likely made
  • Potential questions on sustainability
Budgeting’s Future

• Best Practices in School Budgeting and Smarter School Spending
  • Pro-active approach
  • Strategic plan drives budget with focus on student achievement rather than limited resources
• Credibility
  • Continuous improvement principles
  • Strategic financial plan
Background

• “Spending Money Smartly”
  • Gates Foundation Project – Started in June 2013
    • 4 Districts included in original project
      • Lake County Schools, FL
      • Rochester City Schools District, NY
      • Fayette County Public Schools, KY
      • Knox County Schools, TN

• Smarter School Spending
  • The 4 initial districts provided the foundational knowledge for Smarter School Spending.

  • The result of the initial research and work was the development of tools, resources, and a practical step-by-step process that helps districts make smarter budget decisions.
Development

• Best Practices in School Budgeting developed by GFOA with input of several districts and other experts.

• Smarter School Spending initially developed in partnership with four districts - resource library of examples, tools, etc. - http://smarterschoolspending.org/

• Award for Best Practices in School Budgeting is a new GFOA budget award based on the Best Practices in School Budgeting.

• Alliance for Excellence in School Budgeting is an early adopter group of over 70 districts formed by GFOA to aid in implementing the new Best Practices.
Best Practices in School Budgeting

Engage Your Stakeholders. Keep Students at the Center.

What are our Student Learning Goals?
What is Preventing Us From Reaching Our Goals?
Set S.M.A.R.T.E.R. Goals
Use Root Cause Analysis

What are the Best Strategies to Reach the Goals?
Use Evidence-based Decision Making

How Do We Pay for the Strategies?
Use Cost Savings Best Practices

How Do We Prioritize the Strategies Over the Long Term?
Create a Strategic Financial Plan

Student Learning Goals Achieved!!!

Academic

Principals
Teachers
Community
School Board
Finance
Best Practices in School Budgeting

- Focus on 5 major areas:
  - Plan and Prepare
  - Set Instructional Priorities
  - Pay for Priorities
  - Implement Plan
  - Ensure Sustainability
Best Practices in School Budgeting

• 1. Plan and Prepare
  • Establish a Partnership between the Finance and Instructional Leaders
  • Develop Principles and Policies to Guide the Budget Process
  • Analyze Current Levels of Student Learning
  • Identify Communications Strategy

• 2. Set Instructional Priorities
  • Develop Goals
  • Identify Root Cause of Gap between Goal and Current State
  • Research and Develop Potential Instructional Priorities
  • Evaluate Choices among Instructional Priorities
Best Practices in School Budgeting

• 3. Pay for Priorities
  • Applying Cost Analysis to the Budget Process
  • Evaluate & Prioritize Use of Resources to Enact the Instructional Priorities
  • Develop a Plan of Action

• 4. Implement Plan
  • Develop a Strategic Financial Plan
  • Implement the Plan of Action
  • Allocate Resources to Individual School Sites
  • Develop Budget Presentation

• 5. Ensure Sustainability
  • Put the Strategies into Practice and Evaluate Results
  • Evaluate Interim Results throughout the Year
Establish Your Principles

• Education priorities should drive the budget
  • The budget should reflect the most current strategies for providing a world class education to its learners.

• You can’t be all things to all people
  • Delivering world class education at an affordable cost demands focus.

• Academic Return on Investment
  • District should get the most bang for its buck.
Evolution of School Districts’ Mindsets

Focus on Outcomes
- No Child Left Behind forced states to set achievement standards and implement standardized tests
- Governments created annual progress benchmarks and report cards
- School districts instituted multiple strategies to improve outcomes

Focus on Cost Reduction
- The fiscal crisis strained local tax revenue
- School districts faced a reduction in funds
- Increasing competition for public funds

Focus on A-ROI
- Rising pressure on school districts to improve outcomes with reduced funding
- Simultaneous consideration of cost and outcomes to drive sustained improvement

Historically, outcomes and costs have not been considered together for decisions around resource allocation.

Source: DMC analysis.
Government Finance Officers Association

Academic Return on Investment: Doing the most good with limited funds

PORTIONS PRESENTED WITH PERMISSION
As funding tightens, the traditional approach of adding resources to fund new initiatives may not be an option in many districts.

Traditional Approach to Funding New Initiatives

Traditionally districts have relied on increasing money, expanding time, or adding people to fund new initiatives.
Many districts are facing a sustained period of limited resources and rising demands.

Pressures Facing School Districts

- Many competitors for funds
- Hard to hold on to existing services
- Uncertain what impacts student outcomes
- Rising student needs

School Systems Under Pressure
It is difficult to know which investments are actually leading to positive outcomes for students.

Common Challenges with District Programming

- **Time**
- **People**
- **Money**

**Investments**

**Programs and Initiatives**

**Better Outcomes?**

- Which programs *drive* student achievement?
- Which programs should be *expanded* to serve more students?
- Which programs are an *ineffective use of funds*?
- Do some programs work for *some students* and not for others?
Objective studies of a program’s Academic Return on Investment (A-ROI) can be powerful ways to build shared understanding and reduce pushback.

Typical Disagreements (Absent A-ROI Studies)

- It works!
- It doesn’t work!
- Increased anxiety and friction
A-ROI analysis involves the interplay of three components: student segments, student outcomes and fully-loaded costs.

DMC Academic Return on Investment (A-ROI) Framework

**Analyze students by:**
- Educational need
- Specific, actionable grouping

**Analyze achievement by:**
- Mastery of learning objectives
- Growth over time

**Analyze costs by:**
- Direct and indirect costs
- Cash and time
In current practice, students with similar test scores would receive the same intervention.

Current Practice: Middle School Students Struggling with Math

<table>
<thead>
<tr>
<th>Student</th>
<th>Math Score</th>
<th>Current Segmentation</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student A</td>
<td>59</td>
<td>Special Education</td>
<td>All four students receive math intervention</td>
</tr>
<tr>
<td>Student B</td>
<td>60</td>
<td>English Language Learner</td>
<td>OR</td>
</tr>
<tr>
<td>Student C</td>
<td>61</td>
<td>Low-Income</td>
<td>All four students get co-teaching</td>
</tr>
<tr>
<td>Student D</td>
<td>60</td>
<td>African American</td>
<td></td>
</tr>
</tbody>
</table>
However, segmenting student needs in a more thoughtful way with A-ROI can provide more actionable insights.

Desired Practice: Middle School Students Struggling with Math

<table>
<thead>
<tr>
<th>Student</th>
<th>Math Score</th>
<th>Root Cause</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student A</td>
<td>59</td>
<td>Has difficulty conceptualizing fractions</td>
<td>Receives differentiated instruction with a highly effective math teacher</td>
</tr>
<tr>
<td>Student B</td>
<td>60</td>
<td>Is tuned out, seldom completes homework, and has substance abuse issues</td>
<td>Receives rigorous content and social work resources</td>
</tr>
<tr>
<td>Student C</td>
<td>61</td>
<td>Learns math very slowly</td>
<td>Receives extra time with math teacher on current material</td>
</tr>
<tr>
<td>Student D</td>
<td>60</td>
<td>Had ineffective 6th- and 7th-grade math teachers</td>
<td>Receives extra time with math teacher on current and past material</td>
</tr>
</tbody>
</table>
Measuring the right student outcomes will yield insights that are easy to translate into action.

DMC Academic Return on Investment (A-ROI) Framework

Analyze achievement by:
- Mastery of learning objectives
- Growth over time

A-ROI

Student Segments

Student Outcomes

Fully-Loaded Costs
There are many types of student data measures ARO available to analyze.

Examples of Measure Categories and Uses

- Parents’ academic attainment
- Race
- GPA
- Free and Reduced Price Lunch
- In class assessments
- Homework grade average
- % students advance in each grade
- Merits/Demerits
- 5-year graduation rate
- 4-year graduation rate
- Parent-Teacher conference attendance rates
- Drop out rate
- Attendance
- Suspensions/Expulsions
- State test scores
- Mobility
- Detentions
- Tardies
- Parents’ academic attainment
- Parent’s academic attainment
Cost data must include all the indirect and direct costs associated with aiding a student in reaching an achievement benchmark.

DMC Academic Return on Investment (A-ROI) Framework

A-ROI

- Fully-Loaded Costs

**Analyze costs by:**
- Direct and indirect costs
- Cash and time
Measures of direct cost must capture both cash and time investments in the program.

Direct Cost Examples

Direct Costs

- 85%

Indirect Costs

- 15%

Costs associated only with the specific program

Core Staff
- Salaries
- Benefits
- Time spent on instruction, training, planning and other activities

Materials
- Curriculum
- Textbooks
- Instructional aids and materials
- Technology

Fees and Stipends
- Stipends for additional service
- Staff travel stipends

Other staff
- Para-professionals
- School psychologist
- Social workers
Measures of direct cost neglect significant indirect costs spent on staff development, support positions, and operations.

<table>
<thead>
<tr>
<th>Indirect Cost Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Costs</strong></td>
</tr>
<tr>
<td>85%</td>
</tr>
<tr>
<td><strong>Indirect Costs</strong></td>
</tr>
<tr>
<td>15%</td>
</tr>
<tr>
<td>Costs distributed across many programs</td>
</tr>
</tbody>
</table>

### Instructional Coaching
- Full-time coach
- Reduced-load teacher-coaches
- Externally contracted coaches

### Central Office
- Curriculum director
- Transportation
- Utilities

### Professional Development
- Program-specific training for teachers
- Administrator training sessions
- Common planning time

### School Administration
- Principal
- Assistant principal
- Academic dean
The duration to obtain a learning outcome has significant impact on the effective cost to educate a student.

Common Pitfall - Effective Cost Accounting for Duration

<table>
<thead>
<tr>
<th>Student</th>
<th>Duration to Obtain Educational Goal: Achieve 3rd-grade reading level</th>
<th>True Cost to Educate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student A</td>
<td>x2.0 years</td>
<td>$12,000</td>
</tr>
<tr>
<td>Student B</td>
<td>x1.0 years</td>
<td>$6,000</td>
</tr>
<tr>
<td>Student C</td>
<td>x0.5 years</td>
<td>$3,000</td>
</tr>
</tbody>
</table>
Total cost must also be adjusted for the duration to reach the intended outcome.

Total Cost per Student

\[
\text{Total Cost} = \text{Direct Costs} + \text{Indirect Costs} \times \text{Duration}
\]
A-ROI seeks to measure both effectiveness and cost effectiveness.

Sample Data from A-ROI Analysis

<table>
<thead>
<tr>
<th>Program Used</th>
<th>Years Growth/Year of Students in Program</th>
<th>Cost Per Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Struggling Readers Before Intervention</td>
<td>0.6</td>
<td>$0</td>
</tr>
<tr>
<td>Reading Recovery</td>
<td>1.3</td>
<td>$4,500</td>
</tr>
<tr>
<td>Read 180</td>
<td>1.0</td>
<td>$1,500</td>
</tr>
<tr>
<td>Additional Small Group Reading Block</td>
<td>1.3</td>
<td>$1,125</td>
</tr>
</tbody>
</table>

Using a small group intervention block achieves the **same outcomes** as Reading Recovery, but **costs one-quarter** as much.
DMC has developed a detailed process, with associated worksheets and protocols, for conducting an A-ROI analysis.

Ten Step A-ROI Process

Plan
1. Select target
2. Define success
3. Design analysis

Collect data
4. Collect segment and background data
5. Collect outcomes data
6. Collect costs data

Evaluate
7. Evaluate program effectiveness
8. Analyze cost-effectiveness
9. Draw insight

Act
10. Take action
With a proper A-ROI analysis, decisions about a program’s future can and should go beyond simply “keep” or “eliminate.”

Options for Future of Program

- **Expand**
  - If found particularly cost effective, the district may want to expand the program to all students in the segment

- **Keep**
  - If found cost effective, but all students in the segment already receive the program, it may be kept as is

- **Fix**
  - If only some pieces of the program are found to be effective, the ineffective portions may be fixed

- **Streamline**
  - The district may seek to cut out pieces of the program found ineffective or costly

- **Eliminate**
  - If the program does not work for particular segments, the district may want to stop providing the program to that segment
A-ROI can be utilized to evaluate existing programs implemented in the past or new/ongoing programs going forward.

**Evaluation approaches**

1. **Existing Programs**
   - **Backwards-looking approach:**
     - e.g. Did a new curriculum lead to better outcomes?
   - **Why use this approach?**
     - A key initiative implemented in the past has unclear effectiveness and cost-effectiveness for students
     - Existing data in can provide sufficient information to evaluate the program
     - Quick to get started

2. **Proposed Programs**
   - **Forwards-looking approach:**
     - e.g. Will these new iPads lead to better outcomes?
   - **Why use this approach?**
     - An untested, new program will need to be evaluated to guide implementation, expansion, or continued funding
     - Evaluation can be based on data that is specifically aligned with the program’s goals
     - Few doubts about the data available for analysis
A variety of factors must be considered when selecting a target program.

## Target Program Selection

<table>
<thead>
<tr>
<th>Impact on Students and Staff</th>
<th>Ease of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aligned to strategy?</td>
<td>6. Politically feasible to change?</td>
</tr>
<tr>
<td>2. Direct impact on learning?</td>
<td>7. Data available?</td>
</tr>
<tr>
<td>3. Large reach or plans for expansion?</td>
<td>8. Large number of students?</td>
</tr>
<tr>
<td>5. Significant investment of cash?</td>
<td>10. Uncertain effect?</td>
</tr>
</tbody>
</table>
There may be many valid options of metrics to evaluate the target program.

Examples of Outcomes Measures for a Middle School Math Program

**Example outcome measures**

[For a Technology-Based Math Program]

**Potential Measure 1:**
# of students scoring 80% or higher on weekly formative math assessments

**Potential Measure 2:**
% of students scoring proficient or advanced in Math state tests

**Potential Measure 3:**
Growth in math state scores for each pre-determined student segment

**Potential Measure 4:**
Number of math standards mastered by each student monthly
By setting a clear and specific definition of success for the program, the district will have an unambiguous understanding of the results.

Defining Success

How would you know if the program was successful?

Unspecific Definition of Success vs. Specific Definition of Success

“Students achievement will increase” vs. “70% of students will grow by more than 1 year’s growth.”

Program Results:
35% of students met their end of year growth targets.

- Conversation will focus on “was the growth enough?”
- Stakeholders can interpret results as proof of success or failure
- It may be difficult to take action due to a lack of consensus

- Conversation will focus on “Why did the program not meet the definition of success?”
- Stakeholders will have a common understanding of results
- Districts can take action to fix, target, reduce, or eliminate program based on the outcomes
Specify the Outcome
Data analysis is only one part of a strong A-ROI team.

Build the Infrastructure First: Getting the Right Team

A-ROI Team

Key Skills

1. Data Crunching
2. Analysis Design
3. Cost Accounting
4. Knowledge of how schools actually work
5. Knowledge of the story behind district budget line items and spending

What districts typically get

What districts also need to effectively do A-ROI
For A-ROI, capacity is defined by having the infrastructure, will, and skills to undertake the analysis process.

A-ROI Capacity Rubric

**Ready**

- Does the district have the necessary **structures** to support A-ROI?
- Will the student data, budget data, and budget process **systems** support A-ROI?

**Willing**

- How **invested** are the leadership, team, and school staff in A-ROI?
- How well do the key players **understand** the work they need to do?

**Able**

- How **prepared** is the A-ROI team to undertake each step of the analysis process?
- What **skills** do the team members need to build in order to be successful?
Delegating A-ROI to leaders without clout undermines the impact.

Provide Clout to A-ROI Staff and Results

Before

Superintendent

Chief Academic Officer

Budget

Grants

Data & Accountability

A-ROI

Schools

After

Superintendent

Chief Academic Officer

Budget

Grants

Data & Accountability

A-ROI
Districts that take full advantage of A-ROI ensure it has clout in the district.

Provide Clout to A-ROI Staff and Results

1. Ensure analysis staff report to someone influential
2. Create a formal data-review process with senior leaders
3. Build data collection into teacher observations and class walkthroughs
4. Use A-ROI data during budget deliberations
5. Live by the findings!
Equality vs Equity