Springboard Collaborative: Financial Impact Analysis

UPDATE FOR SPRINGBOARD LEADERSHIP TEAM

July 2023
AGENDA

1. Summary
2. Methodology
3. Subgroup Analysis
4. Open questions
SUMMARY

- Springboard Reading Intervention benefits per student exceed ~$9k over a lifetime, while costs are ~$1,000
- Springboard intervention reduces # of kids in Below Basic category by 25%, by raising reading levels to Basic/Proficient
Methodology
Key study links reading proficiency in 3\textsuperscript{rd} grade to likelihood of High School graduation

<table>
<thead>
<tr>
<th>Raw scores from DIBELS 8\textsuperscript{th} tests taken by Springboard students</th>
<th>NAEP level (Below Basic, Basic, Proficient) based on DIBELS cut points\textsuperscript{1}</th>
<th>Probability of high school graduation based on NAEP classification\textsuperscript{2}</th>
<th>Lifetime earnings based on high school graduation\textsuperscript{3}</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>National Longitudinal Study of Youth</td>
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1. Cut points provided by Springboard team via DIBELS (https://dibels.uoregon.edu/about-dibels)
EXAMPLE STUDENT EXTRAPOLATION TIMELINE

Benefit estimation process requires extrapolation of intervention effects to the end of 3rd Grade

1. Some students received intervention in 4th or 5th grade, results were not extrapolated for these students
Analysis used Reading Test Provider’s (DIBELS) classification to generate NAEP reading proficiency

**EXAMPLE TEST / GRADE:** 1st Grade DIBELS 8th NWF Score

<table>
<thead>
<tr>
<th>Negligible risk</th>
<th>Beginning</th>
<th>Middle</th>
<th>End</th>
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<tr>
<td></td>
<td>47</td>
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<td>87</td>
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<table>
<thead>
<tr>
<th>Benchmark (Minimal risk)</th>
<th>Beginning</th>
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<th>End</th>
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<td>30</td>
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<table>
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<tr>
<th>Some risk</th>
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<table>
<thead>
<tr>
<th>At risk</th>
<th>Beginning</th>
<th>Middle</th>
<th>End</th>
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<tbody>
<tr>
<td></td>
<td>24</td>
<td>40</td>
<td>44</td>
</tr>
</tbody>
</table>

**NAEP Classification**

- Proficient
- Basic
- Below Basic
INTERVENTION EFFECT

Difference between treated student’s actual improvement and expected improvement over intervention timeframe
Analysis used extrapolation scenarios to generate end 3rd Grade Scores.
NAEP CLASSIFICATION END OF 3RD GRADE

After extrapolation, DIBELS scores are classified into NAEP levels

Extrapolated DIBELS score → Full sustain → Partial sustain → Revert to Average → Counterfactual

Students ending scores are classified in NAEP levels based on DIBELS cut points

1. Some students received intervention in 4th or 5th grade, results were not extrapolated for these students
ADJUSTED ODDS OF HIGH SCHOOL GRADUATION

National Longitudinal Survey of Youth

- Below Basic: 68%
- Basic: 86%
- Proficient: 94%
LIFETIME EARNINGS

Social Security Administration and the 2004 Survey of Income and Program Participation (SIPP)

Estimated Lifetime Earnings

- Male
  - Drop Out: $1,485,612
  - High School Graduate: $1,926,259

- Female
  - Drop Out: $667,266
  - High School Graduate: $1,095,324

In 2022 dollars
This example student is estimated to produce $49K-$70K in lifetime benefits based on receiving the Springboard intervention in 1st grade.

**MONETIZED BENEFIT: EXAMPLE**

- **ODDS OF GRADUATING HS**
  - Full sustain: DIBELS ORF = 211, NAEP level = Proficient → 94% → $950,786 → $70,672
  - Partial sustain: DIBELS ORF = 163, NAEP level = Proficient → 94% → $950,786 → $70,672
  - Revert to Average: DIBELS ORF = 115, NAEP level = Basic → 86% → $929,041 → $48,927
  - **Estimated lifetime earnings**
    - NAEP level = Below Basic (does not change from before intervention) → 68% → $880,114

- **Effect Size** = 8.2

- **1st Grade End**
  - Before Springboard Intervention: DIBELS ORF = 27, NAEP level = Below Basic
  - After Springboard Intervention: DIBELS ORF = 40, NAEP level = Basic

- **3rd Grade End**
  - NAEP classification at end of 3rd Grade
  - High school graduation odds based on NAEP classification
  - Estimated lifetime earnings
Impacts: Deeper Dive
RESULTS BY PROGRAM TYPE

- Using NAEP classifications Flagship impact is not significantly different than SLA
- Summer programs have less impact than during the school year
BENEFITS BY PROGRAM TYPE

Academic year results broadly show better results vs. the counterfactual than summer programs
RESULTS BY GENDER

Larger impact on boys than girls
BENEFITS BY GRADE

- Benefits generally are the greatest in earliest years, and decrease as grade level increases
- Note: 4th and 5th grade results require no extrapolation; as such Full Sustain and Partial Sustain are equal to Revert to Avg
BENEFITS BY PROGRAMMING CONTINUITY

Results are stronger for continuous programming compared to interrupted programming.

<table>
<thead>
<tr>
<th>Test</th>
<th>NAEP Class</th>
<th>Program Int.</th>
<th>Percent Diff</th>
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</thead>
<tbody>
<tr>
<td>BB</td>
<td>Continuous</td>
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<tr>
<td></td>
<td>Interrupted</td>
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<tr>
<td>B</td>
<td>Continuous</td>
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**Estimated Average Intervention Benefits per Kid (USD) by Implementation**

- Full Sustain
- Partial Sustain
- Restart to Age
- Cont Dr. Int.

- Continuous
- Interrupted
BENEFITS BY ATTENDANCE AND GRADE

Generally small but increasing benefits with higher attendance rates by grade.
CONCLUSION

The estimated benefits of the Springboard Intervention exceed $10,000, while the costs are ~$1000

<table>
<thead>
<tr>
<th>Method</th>
<th>• Estimates result from incorporating 1) Springboard pre/post intervention test results with 2) US census results indicating the <strong>odds of graduating High School</strong> based on reading levels in 3rd Grade and 3) <strong>lifetime earnings</strong> of HS dropouts vs. graduates</th>
</tr>
</thead>
</table>
| Results | • Springboard’s program **raises reading levels from Below Basic to Basic/Proficient for many kids**, thus generating financial results vs. a counterfactual student  
• If Springboard’s results are **extrapolated to 3rd Grade**, the estimated benefits rise to over $20,000 |
| Key Findings | • Springboard’s **Flagship program results are not significantly different than the SLA** for interventions during the school year  
• Springboard’s program generates **slightly more growth for boys than girls**  
• Springboard’s program generates **better growth for younger children** K-2nd Grade than 3rd-5th Grade |
Appendix
RESULTS BY ETHNICITY

No significant differences in impact by ethnicity

Pct change in # Kid’s NAEP Reading classification
Before -> After intervention
BENEFITS BY ETHNICITY

No material differences in financial benefits by ethnicity
RESULTS BY GRADE

Younger students benefit more from the intervention
Estimated Average Intervention Benefits per Kid (USD) by Attendance for Scenario:
Revert to Avg

I R A H A N D L E R  |  © 2 0 2 3 C O N F I D E N T I A L  2 6
BENEFITS BY PROGRAM DURATION

Dosage effect is small
   https://nces.ed.gov/programs/coe/pdf/2021/coi_508c.pdf#:~:text=In%20school%20year%202018%E2%80%9319%2C%20the%20national%20adjusted%20cohort,since%20the%20rate%20was%20first%20measured%20in%202010%E2%80%9311.

2. Paupers and Princes: Economic Inequality at Public Schools – Public School Review.  


4. NAEP Reading: District Achievement-Level Results – The Nation’s Report Card.  