Department of Youth Services StARR Project
Striving Readers Grant

Year 3 Impact Results Summary

Society for the Research on Educational Effectiveness
March, 2011
Local Context

- Incarcerated youth ages 12-21.
- 7 High Schools (6 Male, 1 Female).
- One facility closed in May 2009.
- Youth in this facility were not just dispersed to the remaining facilities; most youth were redistributed.
- There is a decrease in the number of youth bound to DYS care from Year 2 to Year 3.
- Average length of stay at DYS is 10.5 months.
- No consistency in DYS & school entry and exit of students.
- Students with limited reading ability and almost half have a disability.
<table>
<thead>
<tr>
<th>Quarter</th>
<th>Youth Entering ODYS</th>
<th>Ineligible</th>
<th>Assigned to R180 Classes</th>
<th>Assigned to Traditional Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 06 or before</td>
<td>2103</td>
<td>1633</td>
<td>257</td>
<td>213</td>
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<tr>
<td>Winter 07</td>
<td>410</td>
<td>294</td>
<td>62</td>
<td>54</td>
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<td>Spring 07</td>
<td>372</td>
<td>269</td>
<td>58</td>
<td>45</td>
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<tr>
<td>Summer 07</td>
<td>374</td>
<td>268</td>
<td>45</td>
<td>61</td>
</tr>
<tr>
<td>Fall 07</td>
<td>335</td>
<td>226</td>
<td>44</td>
<td>65</td>
</tr>
<tr>
<td>Winter 08</td>
<td>314</td>
<td>215</td>
<td>58</td>
<td>41</td>
</tr>
<tr>
<td>Spring 08</td>
<td>283</td>
<td>197</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Summer 08</td>
<td>208</td>
<td>149</td>
<td>29</td>
<td>30</td>
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<tr>
<td>Fall 08</td>
<td>340</td>
<td>226</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>Winter 09</td>
<td>256</td>
<td>172</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Spring 09</td>
<td>186</td>
<td>112</td>
<td>48</td>
<td>26</td>
</tr>
<tr>
<td>Summer 09</td>
<td>134</td>
<td>72</td>
<td>32</td>
<td>30</td>
</tr>
</tbody>
</table>
Recidivism: 3 Years of Data

Number of times returned:

- Ineligible
- Read180
- Traditional

N=5512
School Mobility: 3 Years of Data

- **N=5512**

The bar chart shows the number of times students moved from school, categorized by program. The categories are:
- Ineligible
- Read180
- Traditional

### Number of Students by Number of Times Moved

- **0 Times Moved**:
  - Ineligible: 68
  - Read180: 23
  - Traditional: 2

- **1 Time Moved**:
  - Ineligible: 57
  - Read180: 70
  - Traditional: 6

- **2 Times Moved**:
  - Ineligible: 5
  - Read180: 29
  - Traditional: 0

- **3+ Times Moved**:
  - Ineligible: 0
  - Read180: 0
  - Traditional: 0

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**Note**: The chart indicates that the majority of students (68) in the ineligible category did not move at all, while a significant portion (23) in the Read180 category moved once. No students in the traditional category moved 3 or more times.
Targeted Intervention Sample: Classrooms/Teachers

- 3 Read 180 classes in a day.
- Maximum number of 15 youth per class.
- 2-12 students per classroom observed depending on facility.
- Theoretically one Read 180 teacher and aide per building/classroom.
- In Year 3, 3 Read180 teachers left; 2 teachers in one school (all replaced).
- In Year 3, 2 Read 180 aides left (one was replaced).
- Theoretically one literacy coach at each high school.
- Four literacy coaches in Year 3 left (1 was replaced; 1 was not replaced because the facility closed).
Impact Design: Targeted Intervention

Population (all students in the ODYS system):
(n=5,512)

Youth with no information in the dataset: (n=47)
(Not included in the analysis)

Number of Eligible Youth*
(n=1,528)
Because:
1. Youth are assigned to the care of ODYS for a planned released date of 6 months or longer.
2. Have a below grade level (e.g. proficient, advanced) and above "below basic" level reading scores (200<Lexile score<1000) at baseline SRI test.
3. The youth is a non-high school graduate.

Number of Ineligible Youth*
(n=3,937)
(Not included in the analysis)
Because:
1. Youth are assigned to the care of ODYS for a planned released date of less than 6 months.
2. Either have an above grade level (Lexile score>1000, e.g. proficient, advanced) or “below basic” level (Lexile score<200) reading scores at baseline SRI test.
3. The youth is a high school graduate.

Randomly Assigned to READ180 Group:
(n=814)

READ180 Group Analytic Target Sample:
(n=534)
Not Included in the Analysis:
(n=281)
1. Youth who were not intended to receive two or more quarters of treatment
2. ITT group but no SRI at 3rd assessment (n=173).
3. ITT group but no Math CAT covariate score (n=8).
4. ITT group but No Read CAT covariate (n=3).
5. ITT group but no Read or Math CAT covariate (n=16).

Randomly Assigned to Traditional English Group:
(n=713)

Traditional English Group Analytic Target Sample:
(n=445)
Not Included in the Analysis:
(n=268)
1. Youth who were not intended to receive two or more quarters of treatment (n=106).
2. ITT group but no SRI at 3rd assessment (n=137).
3. ITT group but no Math CAT covariate score (n=9).
4. ITT group but No Read CAT covariate (n=1).
5. ITT group but no Read or Math CAT covariate (n=15).

*These youth have baseline SRI scores used as an indicator of their eligibility status.
Impact Design: Targeted Intervention

- Random assignment of student to conditions (100% reading below grade level, 6-month stay, no GED/diploma)
  - Condition 1 Read 180 class
  - Condition 2 Traditional English class

- Baseline testing at project start-up & at intake
  - CAT Reading and Math
  - SRI Reading Lexile scores

- End of each term assessments on SRI (baseline; 4 per year)

- CAT assessment timeline varies across facilities:
  - either twice a year; one at the end of the academic year or,
  - Once a year or when youth leave the institution.
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Targeted Intervention Sample: Students

**In the Read 180 group, 95.3% are male and 4.7% are female, in the Traditional group, 96.1% are male and 3.9% are female.**

**In the Read 180 group, 44% receive special education and in the Traditional group, 41.5% receive special education.**
Targeted Intervention Sample: Students

![Bar chart showing comparison between Read 180 and Traditional methods for different age and grade groups.](chart.png)
Targeted Intervention Analyses

- **Intent to Treat (ITT)**
  - Scholastic indicates that treatment is not likely to be effective with less than six months of treatment exposure.
  - This study defines ITT based on intended class attendance for at least 5 weeks in each of the 2 quarters.
  - Cross sectional HLM analysis with SRI at the end of the second quarter as the outcome measure.
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ITT HLM Results: SRI Longitudinal 3 Years of Data

Note: the last 3 assessments are omitted here due to small sample sizes
ITT HLM Results

- Youth (n = 979) who were intended to receive between two and twelve quarters of ITT.

For student $i$ in institution $j$,

**Level 1:**

\[
\text{LEXILE2}_{ij} = \alpha_{0j} + \alpha_{1j} (\text{LEXILE0}_{ij} - \text{LEXILE0}.) + \alpha_{2j} (\text{WHITE}_{ij} - \text{WHITE}..) + \alpha_{3j} (\text{AGE}_{ij} - \text{AGE}.) + \\
\alpha_{4j} (\text{MATHCAT}_{ij} - \text{MATHCAT}..) + \alpha_{5j} (\text{READCAT}_{ij} - \text{READCAT}..) + \alpha_{6j} (\text{DISB}_{ij} - \text{DISB}..) + \\
\alpha_{7j} (\text{GRDLVL}_{ij} - \text{GRDLVL}..) + \alpha_{8j} (\text{MOBL}_{ij} - \text{MOBL}..) + \alpha_{9j} (\text{TRTGRP}_{ij}) + \varepsilon_{ij}
\]

**Level 2:**

\[
\alpha_{0j} = \alpha_{00} + u_{0j} \\
\alpha_{1j} = \alpha_{10} \\
\alpha_{2j} = \alpha_{20} \\
\alpha_{3j} = \alpha_{30} \\
\alpha_{4j} = \alpha_{40} \\
\alpha_{5j} = \alpha_{50} \\
\alpha_{6j} = \alpha_{60} \\
\alpha_{7j} = \alpha_{70} \\
\alpha_{8j} = \alpha_{80} \\
\alpha_{9j} = \alpha_{90}
\]
# ITT HLM Results

## Estimates for the Fixed & Random Effects Using 2-12 Quarters of ITT

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Estimation</th>
<th>SE</th>
<th>t-ratio</th>
<th>p-value</th>
<th>Cohen’s $f^2$</th>
<th>Glass’s Δ</th>
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</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>$\alpha_{00}$</td>
<td>785.460</td>
<td>14.0659</td>
<td>55.84</td>
<td>&lt;.0001</td>
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</tr>
<tr>
<td>Lexile0</td>
<td>$\alpha_{10}$</td>
<td>0.5253</td>
<td>0.0452</td>
<td>11.61</td>
<td>&lt;.0001</td>
<td>0.14</td>
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<td>White</td>
<td>$\alpha_{20}$</td>
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<td>17.9731</td>
<td>-0.89</td>
<td>0.3736</td>
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<td>Age</td>
<td>$\alpha_{30}$</td>
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<td>5.3094</td>
<td>-2.41</td>
<td>0.0162</td>
<td>0.01</td>
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<td>MathCAT</td>
<td>$\alpha_{40}$</td>
<td>6.0789</td>
<td>3.8391</td>
<td>1.58</td>
<td>0.1137</td>
<td>0.00</td>
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<tr>
<td>ReadCAT</td>
<td>$\alpha_{50}$</td>
<td>30.2126</td>
<td>3.9293</td>
<td>7.69</td>
<td>&lt;.0001</td>
<td>0.06</td>
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<td>Disability</td>
<td>$\alpha_{60}$</td>
<td>-4.8438</td>
<td>15.7896</td>
<td>-0.31</td>
<td>0.7591</td>
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<td>Grade Level</td>
<td>$\alpha_{70}$</td>
<td>10.8952</td>
<td>5.4867</td>
<td>1.99</td>
<td>0.0473</td>
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<tr>
<td>Mobility</td>
<td>$\alpha_{80}$</td>
<td>9.5334</td>
<td>14.0234</td>
<td>0.68</td>
<td>0.4968</td>
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<td>TRT</td>
<td>$\alpha_{90}$</td>
<td>57.1216</td>
<td>13.9201</td>
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## Variance Component

<table>
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<tr>
<th>Component</th>
<th>Estimation</th>
<th>SE</th>
<th>z-value</th>
<th>p-value</th>
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<tr>
<td>$\sigma^2$</td>
<td>46283.00</td>
<td>2099.64</td>
<td>22.04</td>
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<td>$\tau_{00}$</td>
<td>514.65</td>
<td>522.25</td>
<td>0.99</td>
<td>0.1622</td>
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### ITT HLM Results

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<thead>
<tr>
<th>Analysis Sample</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>School Sample Size</th>
<th>Student Sample Size</th>
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</thead>
<tbody>
<tr>
<td>All ITT incarcerated youth at end of SY 0809</td>
<td>Control</td>
<td>791.53</td>
<td>278.01</td>
<td>13.18</td>
<td>7</td>
<td>445</td>
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<tr>
<td></td>
<td>Treatment</td>
<td>830.34</td>
<td>267.40</td>
<td>11.57</td>
<td>7</td>
<td>534</td>
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<td></td>
<td>Total</td>
<td>812.70</td>
<td>272.82</td>
<td>8.72</td>
<td>7</td>
<td>979</td>
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<table>
<thead>
<tr>
<th>Population Group</th>
<th>Unadjusted Means</th>
<th>Regression-Adjusted Means</th>
<th>Estimated Impact</th>
<th>Effect Size</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ITT incarcerated youth at end of SY 0809</td>
<td>Control 791.53</td>
<td>Treatment 830.34</td>
<td>Control 784.44</td>
<td>Treatment 841.78</td>
<td>57.34</td>
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## ITT HLM Results: SRI Longitudinal 3 Years of Data

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<tr>
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<th>Overall</th>
<th>READ 180</th>
<th>Comparison</th>
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<tbody>
<tr>
<td></td>
<td>n</td>
<td>col %</td>
<td>n</td>
</tr>
<tr>
<td>Slope &gt; 0</td>
<td>687</td>
<td>61.61%</td>
<td>401</td>
</tr>
<tr>
<td>Slope ≤ 0</td>
<td>428</td>
<td>38.39%</td>
<td>181</td>
</tr>
<tr>
<td>Total</td>
<td>1115</td>
<td>100%</td>
<td>582</td>
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</table>
Summary of Issues

- Release dates
- Schools closures
- Reduction of population size
- Variability of SRI measure
- Accessing data
  - Slowing of receiving current requested data
  - Obtaining additional data
Future Analyses

- Students’ interest in Read 180 and literacy.
- Sub-analysis determining the influence of disability status on program intervention impacts.
- Analysis of the influence of program on recidivism.
- Sub-analysis of reasons for incarceration, reading improvement, and recidivism.