The Response to Intervention of English Language Learners At-Risk for Reading Problems

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What is RTI?

• Response to intervention (RTI) is the degree to which a student who has been identified as at-risk for academic or behavior problems by screening measures has benefited from intervention designed to reduce risk.

• Determining RTI requires:
  • Assessing students to determine risk
  • Providing intervention
  • On-going progress monitoring to ascertain response
Background

• The appropriate application of RTI for identifying students from culturally and linguistically diverse backgrounds as struggling readers is not yet clearly evident.

• Comprehensive reading interventions seem to offer some advantage to EL learners in fundamental skills such as word attack and fluency (Denton et al., 2004; Gunn et al., 2000).

• More research is needed to examine the use of RTI to identify EL learners with reading difficulties.
Purpose of This Study

• Examine the RTI of EL learners identified as at-risk for reading problems in the fall of first grade who received an intensive and systematic intervention from October to May of first grade.

• Determine the number of students who responded to the intervention at the end of first grade but were at-risk at the end of second grade.

• Determine the number of students who did not respond to the intervention at the end of first grade and continued to be at-risk at the end of second grade.
Research Sample

• **Schools**
  – 3 Houston (1 Transitional, 2 English Immersion)
  – 4 Austin (4 Transitional)
  – 4 Brownsville (3 Transitional, 1 English)

• **Intervention Tutors - All bilingual/biliterate**
  – 2 Houston (1 Spanish/English, 1 English only)
  – 3 Brownsville (2 English only, 1 Spanish only)
  – 2 Austin (2 Spanish only)

• **Students**
  – Houston (6 Spanish, 26 English)
  – Brownsville (28 Transitional, 24 English)
  – Austin (33 Transitional, 0 English)
Identifying Students as At-Risk at the Beginning of First Grade

• Students were identified as at-risk for a reading difficulty and randomly assigned to the treatment or control group if:
  • Scores were below the 25th %ile on first grade LWID AND
  • Unable to read 1 or more words on experimental list

• 361 students screened in the Spanish intervention schools—20% met criteria
• 216 students screened in the English intervention schools—26% met criteria
## Research Design

<table>
<thead>
<tr>
<th></th>
<th>Supplemental Intervention</th>
<th>Classroom Instruction Only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>24 Students</td>
<td>24 Students</td>
</tr>
<tr>
<td><strong>Spanish</strong></td>
<td>35 Students</td>
<td>34 Students</td>
</tr>
</tbody>
</table>

Intervention instruction was matched to the language of classroom Instruction.
The Interventions

• Primary focus on reading
• Parallel in Spanish and English
• English version previously validated as effective
• 50 minutes per day October-May
• 1:4 Teacher to Student ratio
• Provided in addition to normal language arts instruction
Proactive/Lectura Proáctica

• Explicit instruction in synthetic phonics, with emphasis on fluency
• Integrate decoding, fluency, and comprehension strategies
• 100% decodable text
• Carefully constructed scope and sequence designed to prevent possible confusions
• Every activity taught to 100% mastery every day
Results for Spanish Intervention

Statistically significant differences in favor of Spanish Intervention treatment group for outcomes in Spanish. Time × Treatment Interaction effects for:

- Letter sounds
- Blending phonemes — words and non-words
- Word attack
- Oral reading fluency — Spanish
- Passage comprehension
- Overall language development
Spanish Letter Sounds: Pretest

Raw Score

Treatment

Control

Posttest
Pretest
Spanish Letter Sounds: Posttest

<table>
<thead>
<tr>
<th></th>
<th>Raw Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>30</td>
</tr>
<tr>
<td>Pretest</td>
<td>10</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>25</td>
</tr>
<tr>
<td>Pretest</td>
<td>10</td>
</tr>
</tbody>
</table>

\[ d = +0.72 \]
Spanish RAN:
Pretest

<table>
<thead>
<tr>
<th>Raw Score</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.25</td>
<td>0.5</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Treatment</td>
<td>Control</td>
<td></td>
</tr>
</tbody>
</table>

- Pretest
- Posttest
Spanish RAN:
Posttest

Raw Score

Treatment
Control

$d=+.46$
Spanish Blending Phonemes Words:
Pretest

Raw Score

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Pretest
Posttest
Spanish Blending Phonemes Words: Posttest

![Graph showing raw scores for Treatment and Control groups in the posttest phase.](image-url)
Spanish Elision: Pretest

![Graph showing raw scores for treatment and control groups in a pretest setting.](image-url)
Spanish Elision: Posttest

Raw Score

Treatment

Control

Posttest
Pretest
Spanish Passage Comprehension: Pretest

Standard Scores

- Treatment
- Control

Posttest
Pretest
Spanish Passage Comprehension: Posttest

$d=+.55$
Spanish Word Attack: Pretest

Standard Scores

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>130</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Spanish Word Attack: Posttest

Standard Scores

$\bar{d} = +.85$
Spanish Oral Language Composite: Pretest

![Bar chart showing standard scores for treatment and control groups in pretest and posttest. The chart indicates that the treatment group has higher scores compared to the control group.](image)
Spanish Oral Language Composite: Posttest

\[ d = +0.35 \]
Spanish DIBELS—Oral Reading Fluency WCPM:
Pretest
Spanish DIBELS—Oral Reading Fluency: Posttest

$d = +.75$
## Effect Sizes for Spanish Intervention

<table>
<thead>
<tr>
<th>Spanish Measure</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Name Identification</td>
<td>+.32</td>
</tr>
<tr>
<td>Rapid Letter Naming</td>
<td>+.46</td>
</tr>
<tr>
<td>Letter Sound Identification</td>
<td>+.72</td>
</tr>
<tr>
<td>PA Composite</td>
<td>+.73</td>
</tr>
<tr>
<td>Oral Language Composite</td>
<td>+.35</td>
</tr>
<tr>
<td>Word Attack</td>
<td>+.85</td>
</tr>
<tr>
<td>Passage Comprehension</td>
<td>+.55</td>
</tr>
<tr>
<td>DIBELS ORF</td>
<td>+.75</td>
</tr>
</tbody>
</table>
Results for English Intervention

Statistically significant differences in favor of English Intervention treatment group for outcomes in English. Time × Treatment Interaction effects for:

- Letter naming fluency
- Letter sound identification
- Phonological composite (sound matching, blending words, blending non-words, segmenting words, elision)
- Word attack
- Dictation
- Passage comprehension
English Letter Sound Identification:
Pretest

Raw Score

Treatment  Control

Posttest
Pretest
English Letter Sound Identification: Posttest

$d=+1.01$
English Phonological Composite: Pretest
English Phonological Composite: Posttest

$d=+1.24$
English Letter Name Identification: Pretest
English Letter Name Identification: Posttest

\[ d = +.59 \]
English Rapid Letter Naming: Pretest
English Rapid Letter Naming: Posttest

\[ d = +0.88 \]
English Word Attack: Pretest

![Bar chart showing pretest and posttest scores for treatment and control groups.](image)
English Word Attack: Posttest

\[ d = +1.09 \]
English Passage Comprehension: Pretest

![Graph showing English Passage Comprehension Pretest scores for Treatment and Control groups. The graph compares Pretest and Posttest scores with Standard Scores ranging from 50 to 100. The Treatment group scores are consistently higher than the Control group.]}
English Passage Comprehension: Posttest

\[ d = +1.08 \]
English Oral Language Composite: Pretest

- Treatment: Posttest score - 60
- Treatment: Pretest score - 50
- Control: Posttest score - 50
- Control: Pretest score - 50

Standard Scores
English Oral Language Composite: Posttest

Standard Scores

$\Delta = +0.43$
English DIBELS—Oral Reading Fluency WCPM: Pretest (BOY)
English DIBELS—Oral Reading Fluency: Posttest (BOY)

\[d=+.16\]
English DIBELS—Oral Reading Fluency: Posttest (EOY)

\[ d = +0.18 \]
### Effect Sizes for English Intervention

<table>
<thead>
<tr>
<th>English Measure</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Name Identification</td>
<td>+.59</td>
</tr>
<tr>
<td>Rapid Letter Naming</td>
<td>+.88</td>
</tr>
<tr>
<td>Letter Sound Identification</td>
<td>+1.01</td>
</tr>
<tr>
<td>PA Composite</td>
<td>+1.24</td>
</tr>
<tr>
<td>Oral Language Composite</td>
<td>+.43</td>
</tr>
<tr>
<td>Word Attack</td>
<td>+1.09</td>
</tr>
<tr>
<td>Passage Comprehension</td>
<td>+1.08</td>
</tr>
<tr>
<td>DIBELS ORF (EOY)</td>
<td>+.18</td>
</tr>
</tbody>
</table>
# Standard Score Points Gained Per Hour of Intervention

Nine Studies conducted with English Intervention
(Vaughn & Linan-Thompson, 2003)

<table>
<thead>
<tr>
<th></th>
<th>Word Attack</th>
<th>Passage Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Intervention</td>
<td>.23-.47</td>
<td>.05-.35</td>
</tr>
<tr>
<td>(9 Studies)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish Intervention</td>
<td>.75</td>
<td>.47</td>
</tr>
<tr>
<td>(Proáctiva)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Intervention</td>
<td>.66</td>
<td>.34</td>
</tr>
<tr>
<td>(Proactive)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Response to the Intervention

• Students were placed into one of three groups according to their standard scores

  • Standard score of less than 85 on Word Attack or Passage Comprehension

  • Standard score between 85 and 95 on Word Attack or Passage Comprehension (with no scores below 85)

  • Standard score 96 or above on WA and PC

Students were assessed at the end of First Grade and the End of Second Grade.
## Spanish Intervention Study

<table>
<thead>
<tr>
<th></th>
<th>End of Grade 1</th>
<th>M, SD End of Grade 1 Oral Language Composite</th>
<th>End of Grade 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>SS below 85 on WA or PC</td>
<td>1/31</td>
<td>10/33</td>
<td>0/22</td>
</tr>
<tr>
<td></td>
<td>3%</td>
<td>30%</td>
<td>0%</td>
</tr>
<tr>
<td>SS between 85-95 on WC or PC with no scores below 85</td>
<td>5/31</td>
<td>4/33</td>
<td>7/22</td>
</tr>
<tr>
<td></td>
<td>16%</td>
<td>12%</td>
<td>32%</td>
</tr>
<tr>
<td>SS above 95 on WA AND PC</td>
<td>25/31</td>
<td>19/33</td>
<td>15/22</td>
</tr>
<tr>
<td></td>
<td>81%</td>
<td>58%</td>
<td>68%</td>
</tr>
</tbody>
</table>
Spanish Intervention Study

SS below 85 on WA or PC

• Of the 10 Controls in this group at G1
  • 1 remained in the group at G2
  • 2 moved to the 85-95 group at G2
  • 2 moved to the above 95 group at G2
  • 5 did not have G2 data

The one Treatment in this group did not have G2 data.
Spanish Intervention Study

SS between 85-95 on WA or PC, with no scores below 85

• Of the 4 Controls in this group at G1
  • 2 remained in the group at G2
  • 2 moved to the above 95 group at G2

• Of the 5 Treatments in this group at G1
  • 2 remained in the group at G2
  • 3 moved to the above 95 group at G2
Spanish Intervention Study

SS above 95 on WA and PC

• Of the 19 Controls in this group at G1
  • 9 remained in the group at G2
  • 1 moved to the below 85 group at G2
  • 5 moved to the 85-95 group at G2
  • 4 did not have data at G2

• Of the 25 Treatments in this group at G1
  • 13 remained in the group at G2
  • 5 moved to the 85-95 group at G2
  • 7 did not have data at G2
<table>
<thead>
<tr>
<th></th>
<th>End of Grade 1</th>
<th>M, SD</th>
<th>End of Grade 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T  C</td>
<td>End of Grade 1 Oral Language Composite</td>
<td>T  C</td>
</tr>
<tr>
<td>SS below 85 on WA or PC</td>
<td>2/22 10/17</td>
<td>T 65.5 (24.8) range 48-83 C 56.7 (20.2) range 12-84</td>
<td>1/18 6/11</td>
</tr>
<tr>
<td></td>
<td>9% 59%</td>
<td>range 48-83 C 56.7 (20.2) range 12-84</td>
<td>6% 55%</td>
</tr>
<tr>
<td>SS between 85-95 on WC or PC with no scores below 85</td>
<td>6/22 4/17</td>
<td>T 65.7 (26.4) range 26-93 C 65.25 (8.9) range 57-76</td>
<td>8/18 4/11</td>
</tr>
<tr>
<td></td>
<td>27% 24%</td>
<td>range 26-93 C 65.25 (8.9) range 57-76</td>
<td>44% 36%</td>
</tr>
<tr>
<td>SS above 95 on WA AND PC</td>
<td>14/22 3/17</td>
<td>T 70.9 (16.2) range 34-99 C 73.7 (7.0) range 67-81</td>
<td>9/18 1/11</td>
</tr>
</tbody>
</table>
|                        | 64% 18%      | range 34-99 C 73.7 (7.0) range 67-81 | 50% 9%
English Intervention Study

SS below 85 on WA or PC

• Of the 10 Controls in this group at G1
  • 3 remained in the group at G2
  • 1 moved to the 85-95 group at G2
  • 6 did not have G2 data
• Of the 2 Treatments in this group at G1
  • 1 remained in the group at G2
  • 1 did not have G2 data
English Intervention Study

SS between 85-95 on WA or PC, with no scores below 85

• Of the 4 Controls in this group at G1
  • 1 remained in the group at G2
  • 2 moved to the below 85 group at G2
  • 1 did not have G2 data

• Of the 6 Treatments in this group at G1
  • 3 remained in the group at G2
  • 2 moved to the above 95 group at G2
  • 1 did not have G2 data
English Intervention Study

SS above 95 on WA and PC

- Of the 3 Controls in this group at G1
  - 1 remained in the group at G2
  - 2 did not have data at G2

- Of the 14 Treatments in this group at G1
  - 7 remained in the group at G2
  - 5 moved to the 85-95 group at G2
  - 2 did not have data at G2