Methods for Increasing the Intensity of Reading Instruction for Students with Intellectual Disabilities

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Overview of Presentation

- Overview of Overall Research Project and Recent Findings
- Strategies for Increasing Intensity
  - *Everything but the kitchen sink…*
  - Key Factors
  - Word and Sentence Level Strategies
  - Book Level Strategies
Overview of Project Maximize:

Project Staff

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Overview of Project Maximize: Purpose

Determine if a comprehensive, phonics-based, direct instruction reading program would be effective in teaching early reading and language skills to students with IQs ranging from 40-79.
Overview of Project Maximize: Design

- Longitudinal – 4 years (05-06 through 08-09)
- Random assignment to intervention or contrast group
- Within school
- Within IQ range (40-54; 55-69; 70-79)
- Students in Grades 1-4 when they began the study
Participants in 08-09 (last year)

Note: 186 different students participated at least one year; 3rd - 6th grade in 08-09

<table>
<thead>
<tr>
<th>IQ Category</th>
<th>Treatment</th>
<th>Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borderline IQ (70-79*)</td>
<td>n = 18</td>
<td>n = 16</td>
</tr>
<tr>
<td>*WASI or school testing</td>
<td></td>
<td></td>
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<tr>
<td>Mild IQ (55-69)</td>
<td>n = 18</td>
<td>n = 15</td>
</tr>
<tr>
<td>Moderate IQ (40-54)</td>
<td>n = 18</td>
<td>n = 11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>n = 56</strong></td>
<td><strong>n = 42</strong></td>
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</table>
Literature Review: Reading and Intellectual Disabilities (ID)

- Minimal amount of research
- Focused on mild ID, not moderate ID
- Focused on isolated subskills
  - Even students with moderate to severe levels of ID can learn to automatically recognize a fairly large number of words (sight words)
- Phonics research is promising

Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006; Conners, Rosenquist, Sligh, Atwell, & Kiser, 2006
No research has been conducted to determine whether students with ID can learn to read by fully processing the print and meaning of connected text, as is consistent with current theories of reading development.
Findings and Manuscripts

- Working on Final Data Analyses
Research Questions: 
*Year 3, Psychology in the Schools*

Do students with IQs between 40 and 69…

1. …make significant progress on a variety of standardized measures of reading-related variables?

2. …who participate in a comprehensive reading intervention outperform similar peers receiving typical special education instruction?
Design and Participants

- Longitudinal – 2 to 3 academic years (05-06 through 07-08)
- Random assignment to intervention or contrast group, within each of the 10 schools
- IQs ranged from 40-69
- treatment, $n = 34$; contrast, $n = 25$
- Intervention ranged from 46 to 106 weeks (mean = 79.54; $SD = 15.37$)
Intervention: Components

- Early Interventions in Reading (EIR)
  - Explicit, systematic and comprehensive
  - Foundation, Level 1*, Level 2*
  - *published by SRA/McGraw-Hill
- Supplemental language instruction
- Supplemental home-school connection materials
- Instructional Sessions
  - Daily by research teachers for 40-50 minutes
  - Taught in groups of 1-4
Overview of Instructional Strands Content

**Foundation**
- Phonological Awareness
  - Phonemic Blending
  - Phonemic Segmenting

**Level 1**
- Letter Names
  - “Tricky” Words (Irregular)
- Letter-Sound Correspondences
  - Sounding Out Strategy
  - Flexible Decoding
  - “Stretch and Spell” (links PA segmentation to print)
- Syllable Types

**Level 2**
- Common “Tier I” Words Linked to Text
- “Tier II” Words – Direct Instruction; Linked to Text
- “Tier III” Words – Expository/Narrative

**Fluency**
- Cumulative Review of Word Recognition Skills
- Word-Level Fluency
- Passage Fluency

**Comprehension**
- Listening Comprehension
  - Simple Strategies
  - More Complex Strategies

*Level 1 supplemented with additional Language Component  
*Published by SRA
Measures by Construct

- **Phonological Awareness**
  - CTOPP subtests (untimed)
  - DIBELS Phoneme Segmentation Fluency (timed)

- **Phonemic Decoding**
  - DIBELS Nonsense Word Fluency (timed)
  - TOWRE Phonemic Decoding (timed)
  - WLPB Word Attack (untimed)

- **Word Identification**
  - TOWRE Word Reading Efficiency (timed)
  - WLPB Word Identification (untimed)
Measures by Construct (cont.)

- **Comprehension**
  - WLPB Passage Comprehension (untimed)

- **Language**
  - WLPB Language Subtests
  - PPVT (untimed)
  - EVT (untimed)
Question 1: Do students with IQs between 40 and 69 make significant progress on a variety of standardized measures of reading-related variables?

- On average, participants made educationally meaningful, statistically significant progress on standardized measures of reading and language after 2-3 years of instruction

- Caveats
  - High variability
  - Some students did not show gains on standardized measures, but did show gains on progress monitoring measures
Question 2: Do students with IQs between 40 and 69 who participate in a comprehensive reading intervention outperform similar peers receiving typical special education instruction?

- Statistically significant differences on phonemic awareness, phonemic decoding (word attack, NWF), oral reading fluency
- Effective sizes moderate to high on word recognition, vocabulary, listening comprehension
- No measurable difference on reading comprehension
Limitations

- Performance among students highly variable
- Though relatively large sample size for population, it is a relatively small sample size for the statistical methods
- Intervention was complex and comprehensive, making it difficult to determine which parts were causing positive effects
- Large number of measures required to assess outcomes, but increases probability of Type I error
In 2-3 years of intensive instruction, how much did students learn?

- Predicted value of score of “average” child after 105 weeks of instruction (approximately 3 school years)
  - PSF (segments per minute) 34.5 treatment; 17.83 contrast
  - NWF (sounds per minute) 55.49 treatment; 32.73 contrast
  - ORF (words per minute) 44.30 treatment; 26.69 contrast
- Predicted scores based on hierarchical linear modeling
Conclusions of Study

- Support for use of scientifically-based reading instruction for students with low IQs (ID range)
- IF Individualized and with high degrees of fidelity
- IF provided intensive, comprehensive instruction over an extended period of time
Key Factors in Increasing Intensity

- **Intense**
  - repeated practice across the day and across days

- **Appropriate**
  - practice of key skills at appropriate difficulty level (high degrees of accuracy)

- **Motivating**
  - Set goals to increase self-determination and develop an internal locus of control
  - Track amount of practice AND progress
  - Change rewards frequently

- **Meaningful** (link to meaning as much as possible, but quickly)
Teacher’s Role

- *Plan and monitor* intense, appropriate, motivating, and meaningful practice
- Practice during instruction is implemented by teacher
- Practice outside instruction
  - Independent
  - Families
  - Peers
  - Paraprofessionals
- Still planned and monitored by teacher
Increasing Intensity During Lessons

- Maintain a fast-pace
- Use incentives to manage behavior and increase time on task
- Tailor lessons to individual students/groups
  - Spend less time on clearly mastered skills and more time on challenging skills
    - Ex. Some of our students were doing great on letter-sound correspondences, but still struggling with phonemic awareness. Therefore, we reduced time spent on letter-sound correspondences, just reviewing briefly in each lesson or skipping that activity on some days
Use Technology Wisely

- Remember key factors
- *Letter Factory* Video
- Websites
  - Usually need support
  - Quality varies
- Etc.
Utilize existing resources

- Use activities and materials from curriculum other than your primary curriculum
- Remember Key Factors
Word Level Strategies

- High-Frequency Word Practice
  - Irregular (ex. was)
  - Regular (ex. can, did, had – Fry Word List)
  - Practice small sets of words in a variety of ways (example activities to follow)
- Cumulative
- Apply taught skills
  - Sound out words made up of taught letter patterns
  - Be sure the word follows the rules (ai as in paid, not said)
Activities for Word Level

- Puzzles
- Card Games
  - Old Maid
  - Concentration
  - Go Fish
Sentence Level

- Practice words in sentences in a variety of ways
  - Arrange words to create sentences (video on next slide)
  - Read sentences and match to pictures
  - Fill in the blank sentences
Video

- Jacob
- IQ in low 50s
- Williams’ Syndrome
- Video from 3rd year in our intervention
- At that point, he was in early to mid first-grade level
- During 4th year began to unitize words
- By the end of the study was reading approximately 30 words per minute
Increasing Intensity at the Text Level

- Intensity
  - Independent
  - Families, peers, paraprofessionals

- Selecting appropriate text
  - Instructional Level = 90-95% accuracy
  - [http://www.readinga-z.com/](http://www.readinga-z.com/)

- Motivating
  - Incentive programs
  - Tracking progress
  - Connect to ORF goals

- Meaningful
Increasing Intensity at the Text Level: Application Lessons

- Prepare students for text with “application” lessons that teach them to transfer skills learned during instruction in primary curriculum to specific texts.
- Application Lessons are key activities from core curriculum using exact words in books students are being taught to read.
- Lessons use exact wording of strategies from curriculum.
Crack! The bat hits the ball.

“I did it! I did it!” said Sam. “I hit the ball.”

“Look at the ball!” said Tom. “Look at the ball go up, up, up!”

Where will the ball go?
Will Sam hit the ball?

Bam! Sam hits the ball.
And back to word level…

- Identify words to practice from text
- Error analysis chart

<table>
<thead>
<tr>
<th>Word in Text</th>
<th>Student said…</th>
</tr>
</thead>
<tbody>
<tr>
<td>sat</td>
<td>sit</td>
</tr>
<tr>
<td>slip</td>
<td>--</td>
</tr>
<tr>
<td>sport</td>
<td>spot</td>
</tr>
</tbody>
</table>

- Arrows (post-it flags)
  - Students use these to mark “new” words (words they struggle to figure out)
- Practice these words and similar words
Project Maximize

- For further information: www.smu.edu/Maximize
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