Early Reading Intervention for Kindergarten English Language Learners

Jennifer Zoski, Ph.D., CCC-SLP
The Center for Literacy and Disability Studies
UNC Chapel Hill
zoski@unc.edu
Disclosures

This presentation is the result of my dissertation research at the University of North Carolina at Chapel Hill.
BACKGROUND
Literacy and Academics

8.7 million fourth through twelfth grade students struggle with reading and writing tasks (NIFL, 2007).

Students who enter kindergarten with low literacy ability tend to stay behind their typically developing peers (Snow, Burns, & Griffin, 1998).

Early intervention for struggling readers can impact later literacy achievement (NICHD, 2000, NIFL, 2007).
English Language Learners

• Spanish is the top native language, representing 79% of all ELLs in the United States (Gorman, 2009)

• 7% of North Carolina students enrolled in ELL programs (Murphey, 2014)

• In 2015, 68% of ELL students included in testing were reading below the *basic* level (www.nationsreportcard.gov)
Response to Intervention (RTI)

- Intensive small-group targeted literacy instruction
  - Phonological Awareness
  - Letter Knowledge

- 75% of kindergarten students who receive up to 7 months of Tier 2 intervention improve their literacy skills and do not require additional intervention (Coyne et al., 2004).
Phonological Awareness (PA)

- The explicit awareness of spoken sound segments, including individual phonemes
- The most stable and robust predictor of later word decoding outcomes for kindergarten students (Lonigan, Burgess, & Anthony, 2000)
- Along with letter knowledge, one of the best predictors of ELLs’ later word reading across all languages (Gorman, 2009)
- Moderate to large effects on the PA and reading skills of elementary students, with the greatest gains made by preschool and kindergarten students at risk for reading difficulties (NICHD, 2000)
Letter Knowledge (LK)

- Knowledge of letter names and their corresponding sounds
- Unique predictor of later decoding and word identification skills in kindergarteners (Lonigan et al., 2000; Schatschneider et al., 2004)
- Students make the greatest language and reading gains when LK instruction is added to PA intervention (NIFL, 2008).
Morphological Awareness (MA)

- The ability to explicitly think about and manipulate morphemes
  - (ex) Farm: My uncle is a ________.

- Predicts word reading, spelling, and reading comprehension in the early elementary grades (e.g., Apel et al., 2012; Nagy et al., 2003; Wolter, Wood, & D’zatko, 2009).

- MA intervention leads to literacy gains in K-2 students (Apel, Brimo, Diehm, & Apel, 2013; Apel & Diehm, 2013; Filippini et al., 2012; Wolter & Dilworth, 2013).

- Kindergarten students with the lowest MA and reading skills seem to benefit most from targeted MA instruction (Apel & Diehm, 2013).
Multi-Linguistic Interventions

- The addition of MA to metalinguistic interventions may increase literacy gains in
  - Word Reading
  - Reading Comprehension
  - Spelling

(Filippini et al., 2012; Morris et al., 2012; Wolter & Dilworth, 2013)
Purpose of the Study

Early Reading

PA/LK

MA

PA/LK/MA

Early Reading
METHODS
### Participants

<table>
<thead>
<tr>
<th>Participant Demographics</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>8</td>
<td>47%</td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
<td>53%</td>
</tr>
<tr>
<td>Students Receiving Special Education</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>English Language Learners</td>
<td>10</td>
<td>59%</td>
</tr>
</tbody>
</table>
# English Language Proficiency of ELLs

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean &amp; SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA/LK (n=4)</td>
<td>20.50(2.65)</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>MA (n=4)</td>
<td>18.25(7.59)</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>PA/LK/MA (n=2)</td>
<td>16.50(3.54)</td>
<td>14</td>
<td>19</td>
</tr>
</tbody>
</table>
Procedures

- Recruitment & Screening
- Pre-Testing
- Assignment to Intervention Condition
- 6 Week Intervention
- Post-Testing
Interventions

PA/LK

- Blending & Segmenting
- Letter-Sound Relationships

MA

- Spelling Patterns and Meanings of Affixes and Derived Forms

PA/LK/MA

- Blending & Segmenting
- Letter-Sound Relationships
- Spelling Patterns and Meanings of Affixes and Derived Forms
Phonemic Awareness/LK

- Introduction/review of letter and the sound(s) it can make (5 mins)
  - Sound detectives
  - Letter cards
  - Use of engaging puppet
Phonemic Awareness/LK

• PASS lesson (25 mins)
  • Blending
  • Segmenting

S-U-P
Morphological Awareness

- Inflection
  - Plural -s
  - -ing
  - Past -ed

- Derivation
  - -er
  - -y
Morphological Awareness

• Guided Word Sort (5-10 mins)
  • Word detectives
  • Goldie puppet
  • Words and morphemes written and spoken
Morphological Awareness

• Shared Reading / Sort (15 mins)
  • Students listen for words that end in –ing
  • Words are sorted as a group
Morphological Awareness

- Pair Sort (5-10 mins)
Three-Pronged Intervention

• MA/LK (20 mins)
  • Introduction (Sound/Word Detectives)
  • Shared reading & group sort

• PA (10 mins)
  • Introduce blending or segmenting target
  • PASS activity
RESULTS
Within-Group Intervention Effects: Reading
Within-Group Intervention Effects: PA

![Graph showing mean phonological awareness (PA) with error bars.](Image)
Within-Group Intervention Effects: MA
Within-Group Intervention Effects: Spelling
Did the students in each group improve in each area?

<table>
<thead>
<tr>
<th>Area</th>
<th>PA/LK</th>
<th>MA</th>
<th>Three-Pronged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>$t(5) = 5.36, p = .003$ $d = 2.19$</td>
<td>$t(5) = 5.06, p = .004$ $d = 2.07$</td>
<td>$t(4) = 4.0, p = .016$ $d = 1.79$</td>
</tr>
<tr>
<td>PA</td>
<td>$t(5) = 3.81, p = .013$ $d = 1.55$</td>
<td>$t(5) = 1.78, p = .137$</td>
<td>$t(4) = 3.55, p = .024$ $d = 1.59$</td>
</tr>
<tr>
<td>MA</td>
<td>$t(5) = 3.58, p = .016$ $d = 1.46$</td>
<td>$t(5) = 3.96, p = .011$ $d = 3.96$</td>
<td>$t(4) = 1.27, p = .272$</td>
</tr>
<tr>
<td>Spelling</td>
<td>$t(5) = 1.88, p = .118$</td>
<td>$t(5) = 2.99, p = .030$ $d = 3.0$</td>
<td>$t(4) = 2.97, p = .041$ $d = 1.33$</td>
</tr>
<tr>
<td>Groups</td>
<td>Analysis</td>
<td>Result</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
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<td></td>
</tr>
<tr>
<td>PA/LK vs. MA</td>
<td>MANOVA</td>
<td>$F(4,7) = .645, , p = .648$</td>
<td></td>
</tr>
<tr>
<td>All three groups</td>
<td>Kruskal-Wallis</td>
<td>Reading $\chi^2 (2) = 2.642, , p = .267$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PA $\chi^2 (2) = 1.389, , p = .499$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MA $\chi^2 (2) = .326, , p = .850$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spelling $\chi^2 (2) = .505, , p = .777$</td>
<td></td>
</tr>
</tbody>
</table>
# English Language Learners

<table>
<thead>
<tr>
<th>Pretest Outcome</th>
<th>Outcome</th>
<th>Analysis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
<td>Mann-Whitney U</td>
<td>$U = 42, p = .536$</td>
</tr>
<tr>
<td></td>
<td>PA</td>
<td>Independent t-test</td>
<td>$t(15) = .037, p = .971$</td>
</tr>
<tr>
<td></td>
<td>MA</td>
<td>Independent t-test</td>
<td>$t(15) = 2.094, p = .054$</td>
</tr>
<tr>
<td></td>
<td>Spelling</td>
<td>Mann Whitney U</td>
<td>$U = 37.5, p = .813$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gain Outcome</th>
<th>Outcome</th>
<th>Analysis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
<td>Mann Whitney U</td>
<td>$U = 35.5, p = 1.0$</td>
</tr>
<tr>
<td></td>
<td>PA</td>
<td>Independent t-test</td>
<td>$t(15) = -1.541, p = .144$</td>
</tr>
<tr>
<td></td>
<td>MA</td>
<td>Independent t-test</td>
<td>$t(15) = .616, p = .588$</td>
</tr>
<tr>
<td></td>
<td>Spelling</td>
<td>Independent t-test</td>
<td>$t(15) = .971, p = .213$</td>
</tr>
</tbody>
</table>
IMPLICATIONS & FUTURE DIRECTIONS
Major Findings

• Large treatment effects for all three interventions
• No differences detected between intervention groups
• As effective for ELLs
Future Directions

• Larger sample size
• No-intervention control group
• Longer duration and/or intervention sessions for 3-pronged group
• Follow students from K-2
References

References


Thank you

The Center for Literacy and Disability Studies
University of North Carolina at Chapel Hill
321 South Columbia St, Suite 1100
Chapel Hill, NC, 27599-7335
http://www.med.unc.edu/ahs/clds
Email: zoski@unc.edu