Using a Phonetic Alphabet, the Initial Teaching Alphabet (i.t.a.), to Remediate Reading Disabilities in First-Year College Students

Dr. Susan K. Moore
To investigate a word study strategy for the acquisition of content vocabulary in 4 steps:

1. Segment words by syllables
2. Use a phonetic alphabet (i.t.a.) to transcribe spoken words to phonetic equivalents
3. Find the written word in electronic spell checkers (iPads or online dictionaries)
4. Access the meaning of words
Many first-year college students are unprepared for academic rigor

- Students lack content vocabulary knowledge
- Students struggle in reading comprehension
- Students’ reading difficulties are not properly diagnosed
- Results in high drop-out rates leaving students with financial burden of student loans with little to show for it
Research Questions

- Will the word study intervention result in students’ increase in phonological knowledge?

- Will the word study intervention result in increased vocabulary and improved reading comprehension?
Hypotheses

1. The word study intervention will result in an increase in students’ phonological knowledge.

2. The word study intervention will result in increased vocabulary acquisition and improved reading comprehension.
Key Terms

- Phonological deficit
- Reading disabilities
- Content vocabulary
- Slash & Dash
- Good Phonetic Equivalent
International Dyslexia Association (IDA) defines dyslexia:
Literature Review (cont.)

- Ross, Kena, Rathbun, Kewai-Ramani, Zhang, Kristopovich, & Manning 2012
  - High enrollment in developmental education
  - Large gaps in achievement and degree completion

- Midwestern Higher Education Compact 2014
  - Disparities in remedial enrollment in college developmental courses by ethnicity and income mirror K-12 achievement gaps
Literature Review (cont.)

- **Kitz & Nash, 1992**
  
  When teaching struggling adult learners, focus on:
  
  - phonological awareness (understanding that spoken words are composed of units i.e., syllables and phonemes---the smallest sound units within words—that can be manipulated
  
  - orthographic understandings (alphabetic principle, spelling patterns, and meaning patterns/roots):
Kitz & Nash, cont.

Improvement in:

• Spelling
• Writing
• Reading rate
• Reading comprehension
Research Design

- Single subject design

- Nine college freshmen placed in first-level academic developmental reading course

- Mid-western United States
Instruments

Pre and Post Tests:

- Auditory Analysis Test-Revised
- WRAT 4 Spelling
- Nelson Denny Vocabulary Test
- Nelson Denny Comprehension Test
- Content Vocabulary Test (instructor created)
Procedures

- Pre-tests
- Intervention (Slash & Dash): 8 weeks
  - Two 45-minute sessions per week
  - Four-step process:
    1. Segment words by syllables
    2. Use a phonetic alphabet (i.t.a.) to transcribe spoken words to phonetic equivalents
    3. Find the written word in electronic spell checkers (iPads or online dictionaries)
    4. Access the meaning of words
- Post-tests
Validity

- Testing: Pre and Post tests

Reliability

- Norm referenced assessments
Statistical Techniques

- Summarize data by using:
  - T-tests

- Limitations:
  - No control group
  - Need to replicate study with control groups in several semesters
Results

- Table 1  Results of the paired-sample t-test (n-7) for the Auditory Analysis Test-Revised (AAT)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAT1 (pretest)</td>
<td>27.6</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>AAT2 (post-test)</td>
<td>31.1</td>
<td>5.7</td>
<td>.054</td>
</tr>
</tbody>
</table>
## Results

Table 2  Results of the paired-sample t-test (n=9) for Good Phonetic Equivalents (GFE) of misspellings on the WRAT spelling test.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFE1 (pre-test)</td>
<td>4.1</td>
<td>2.4</td>
<td>.001</td>
</tr>
<tr>
<td>GFE2 (post-test)</td>
<td>5.8</td>
<td>2.9</td>
<td></td>
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</tbody>
</table>
## Results

**Paired-Sample t-Test: Nelson-Denny Comprehension (n=8)**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>s.d.</th>
<th>p. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND Comp Pre</td>
<td>32.8</td>
<td>21.5</td>
<td>.40</td>
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<tr>
<td>ND Comp Post</td>
<td>39.3</td>
<td>23.1</td>
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</tbody>
</table>
Results

- Paired-Sample t-Test: Nelson-Denny Vocabulary (n=8)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>s.d.</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>ND Vocab Pre</td>
<td>25.8</td>
<td>14.7</td>
<td>.005</td>
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<tr>
<td>ND Vocab Post</td>
<td>37.8</td>
<td>14.9</td>
<td></td>
</tr>
</tbody>
</table>
## Results

- Paired-Sample t-Test: Content Vocabulary Test (n = 9)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>s.d.</th>
<th>p_value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content Vocab Pre test</strong></td>
<td>12.0</td>
<td>3.1</td>
<td>.25</td>
</tr>
<tr>
<td><strong>Content Vocab Post test</strong></td>
<td>11.4</td>
<td>2.3</td>
<td></td>
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</tbody>
</table>
Discussion

- Slash and Dash method increases phonological knowledge
- Study supports the findings that a focus on spelling by sound should be considered as an integral part of the curriculum for first-level academic developmental reading courses required by community colleges
- Further study is needed to explore the impact of spelling by meaning
- Results of this study need to presented through staff development to academic development departments in community colleges
Summary

- This study is a call to action for changes in academic development curriculum, instruction, and assessment.
- Spelling by sound and spelling by meaning should be included in daily instruction for appropriate courses.
- This study shows promise in closing persisting achievement gaps for students of color, EL students, and economically disadvantaged students.


