The effects of a classroom-based embedded literacy phonological awareness program on reading and spelling
Sarah Robinson, Ph.D. Candidate
Department of Communication Sciences and Disorder, University of North Dakota

Purpose
This study examined the effects of an embedded phonological awareness program delivered in the regular classroom setting on:
1. phonological awareness abilities.
2. broad-based measured of reading abilities.
3. spelling abilities.

Background
There is a strong research base that supports a relationship between phonological awareness and the development of reading and spelling. The exact nature of the relationship between these two phenomena, however, is not evident. It seems clear that phonological awareness training improves children’s performance on tasks of phonological awareness (Bradley & Bryant, 1983). Also, training children who have deficits in phonological awareness leads to improved word decoding and possibly improved spelling abilities (Castle, Riach & Nicholson, 1994).

Methods
Participants
• 91 kindergarten students at two schools
• 43 students in the intervention group at one school
• 48 students in the control group at another school
• Schools were matched for:
  • Socioeconomic status
  • History of reading achievement
  • Class size

Embedded Literacy Program
• Modeled after Justice and Kaderavek (2004) embedded-explicit approach
• Follows hierarchical phonological development (Swank, 1999)
• Each lesson begins with shared book reading, followed by a group activity to target a specific phonological awareness skill

Service Delivery
• The intervention program was delivered:
  • by an ASHA Certified Speech-Language Pathologist
  • twice weekly for 20 minute sessions
  • in the regular classroom for an academic year

Outcome Measures and Schedule

<table>
<thead>
<tr>
<th>Group</th>
<th>Assessment Tools</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>The Phonological Awareness Test</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>An Observational Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developmental Spelling Test</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Control</td>
<td>The Phonological Awareness Test</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>An Observational Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developmental Spelling Test</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Results

Question 1: Did the intervention school show improved phonological awareness abilities following the program?
Yes. Students performed significantly higher (p<.01) on all measures of phonological awareness from pretest to posttest, with the exception of rhyming. At pretest, students scored below expected levels as compared to normative data. At posttest, students performed significantly higher as compared to normative data.

Question 2: Did the intervention group show differences in broad-based reading measures as compared to the control group following the program?
Yes. The intervention group scored significantly higher than the control group at pretest, but scored significantly higher than the control group at posttest. Both groups showed improved spelling abilities from pretest to posttest. The intervention group demonstrated the greatest degree of change, however.

Conclusion
Classroom-based phonological awareness instruction can be a successful training model. These findings are in accord with other studies showing that phonological awareness training improves phonological awareness abilities, word decoding and spelling phonetically consistent words. Three elements were unique to this study and add novel findings to the substantial phonological awareness research. They included evidence of text level reading gains, a classroom-based approach and use of embedded phonological awareness intervention.

References