Phonological Awareness Intervention for Kindergarten Children with Language Impairment

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Phonological Awareness

Phonological awareness is an awareness of the individual sounds of language.
For example:
Printed word: cat
Phonemic segmentation: /k/-/a/-/t/
Printed word: rough
Phonemic segmentation: /r/-/u/-/f/
Rationale for Research

- 7.4% of kindergarten children present with specific language impairment (Tomblin et al., 1997).

  - 42% of children in second grade and 36% of children in fourth grade exhibited reading disability
  - by comparison, 8% of non impaired controls demonstrated reading disability
Can PA be improved?

- Research has demonstrated improvement after intervention with at-risk children
  - Improvement in early reading shown in studies that followed children into Grade 1
- Limited research has addressed PA intervention with children with language impairments (Schuele & Boudreau, 2008).

  - Important for speech-language pathologists and educators to know
Purpose of the Study

To examine the effectiveness of PA intervention in improving PA and letter-sound awareness for kindergarten children with moderate to severe language impairment and low PA skills.
Research Questions

- PA intervention vs. no-intervention control group: effects of program?

- Were the effects maintained?
METHODS
Participant Characteristics

- N=37  27 males, 10 females
- Experimental=22, Control=15
- Between 5;0 and 6;3
- Low PA and receptive and expressive language
- Nonverbal performance- 85 or above: 30, below 85: 7
- English spoken in the home
- 18 children (49%) were Aboriginal (E=8, C=10)
- Hearing within normal limits
Participant Characteristics

- Phonology/articulation impairment in addition to language impairment
- Not yet reading words
- Fine motor concerns
- Low maternal education and SES
- Ten full day kindergarten classrooms in nine elementary schools
- Same teachers and educational assistants remained with the same students through the 5 hour day, 5 day week
Assessment

- Initial Sound Fluency
  - Which one begins with the sound /m/?

- Phonemic Segmentation Fluency
  - Tell me the sounds in “mop.”

- Letter Naming Fluency
  - Tell me the names of as many letters as you can.

- Nonsense Word Fluency
  - Point to each letter and tell me the sound or read the whole word.
Intervention

- Groups of 2 in daily 20 minute sessions over 14 weeks (67 days) ($M = 18.45$ hours $SD = 4.64$)

- As much programming as schedules would permit was provided for children who were low attenders or absent due to illness

- The 22 children receiving the intervention and the 15 children in the no intervention control were in the same classrooms

- all of the children received classroom PA programming
Data Analysis Procedures

Analyses were calculated at post intervention to determine differences between the groups. The between-groups factor, with pretest as covariate, was used for 2 comparisons for each variable:

1. Effectiveness of the intervention at the end of the final week of the intervention.
2. Maintenance of the intervention 1 month after the intervention ended.

Standardized effect size was calculated for each measure.
RESULTS
Initial Sound Fluency

Initial Sound Fluency Scores

Post intervention: intervention group higher than control group. $F(1, 34) = 39.52, p < .001, d = 2.17$ (large effect).

Maintenance: intervention group higher than control group. $F(1, 34) = 16.21, p = .009, d = 1.33$ (large effect).
Phonemic Segmentation Fluency

Post intervention: intervention group higher than control group. $F (1, 34) = 17.00 \ p < .001, \ d = 1.39$ (large effect).

Maintenance: intervention group higher than control group. $F (1, 34) = 12.86, \ p = .001, \ d = 1.25$ (large effect).
Post intervention: intervention group higher than control group. \( F(1,34) = 19.12, p < .001, d = 1.47 \) (large effect).

Maintenance: intervention group higher than control group. \( F(1,34) = 16.30, p < .001, d = 1.50 \) (large effect).
Post intervention: no statistically significant differences between groups were found. $F (1, 34) = 3.17, p = .084, d = 0.72$.

Maintenance: intervention group higher than control group. $F (1,34) = 8.36, p = .007, d = 1.06$ (large effect).
Summary of Results

Statistical Significance (7 measures):

- Initial Sound Fluency (Post intervention & Maintenance)
- Phonemic Segmentation Fluency (Post intervention & Maintenance)
- Letter Naming Fluency (Maintenance)
- Nonsense Word Fluency (Post intervention & Maintenance)

(Post intervention Probe administered final week of the study; Maintenance Probe administered 1 month after the last day of the intervention)
The Intervention was Effective

**WHY?**
- Direct
- Explicit
- Intense
- Included letter sound awareness
- Supplementary to whole class PA programming
Community Collaboration

- Selected an area of study that was useful to the education community and began collaboration early

- Collaborated with stakeholders
  - Program coordinator
  - Speech-Language Pathologists, Teachers, Educational Assistants, Reading Specialists
  - Community Colleagues and Graduate Students Providing Assessments
  - Policy makers including Alberta Education

- Shared back the results with stakeholders and the wider community of professionals and policy makers serving young children
FUTURE RESEARCH
Future Research

- Longitudinal studies
- Developmental sequence of PA for children with LI
- Efficient and effective ways to teach PA to children with LI
- Replicate the findings of the current study with different groups of children
Conclusion
Conclusion

- Early and preventive interventions
- Knowledge and skills for successful literacy experiences
- PA interventions integrated into program plans for children with LI
- Specifically interventions that stimulate awareness that words are comprised of individual sounds represented in print
Thank you!

Contact

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