

INTRODUCTION

For all children, the task in reading is “being able to take the graphic information on the page and convert it to linguistic forms with speed and accuracy”. Spoken language users develop a sound-symbol aptitude (i.e., Alphabetic Principle), that helps them to link orthographic representations with established mental spoken language phonological representations. We propose that a parallel learning mechanism can be developed with signed language users that builds on their established mental signed language phonological representations to facilitate speed and accuracy in accessing and retrieving linguistic forms. Making signed language phonological patterns explicit reduces ambiguity in the input, supports organization of the mental lexicon, and with instruction, enhances connections with symbols in print. We refer to this as building a sign-symbol aptitude.

We conducted a school-based intervention study at a bilingual school for the deaf in Western Canada to examine the effects of explicit signed language phonological awareness instruction on dual language vocabulary learning in young deaf children (grades 1-3).

ASL Phonological Awareness Intervention

Systematic ASL phonological awareness instruction (Handshape, Movement, and Location patterns).

- Structured lessons.
 - Introduction of target HS and sign/word targets.
 - Activities: Identification, categorization, segmenting, blending manipulation (phonological change).
 - Reinforcement/practice activities emphasizing sign phonology-semantic and sign phonology-orthography connections.
- Protocol: 30 min/daily instruction from trained bilingual Deaf teacher for 4 weeks.
- Dual Language Learning Apps developed for practice and reinforcement.



METHOD

RESEARCH QUESTION

Question: What are the effects of systematic, explicit signed language phonological awareness (ASL-PA) instruction on both Sign (ASL) and English print (English) vocabulary learning?

Hypothesis 1: ASLPA training will have a positive impact on the development of both ASL and English print vocabulary in young deaf dual language learners.

Prediction Hypothesis 1: Sign language vocabulary and English word reading vocabulary will increase as determined by children's scores over time on probes assessing trained and untrained ASL and print English stimulus items.

Alternative Hypothesis 2: ASLPA training will impact children's ASL vocabulary development but will have little or no effect on English print vocabulary.

Prediction Hypothesis 2: ASLPA training will lead to increased accuracy on probes assessing children's vocabulary in ASL but not in English print.



SINGLE CASE DESIGN (SCD)

Multiprobe multiple baseline across skills:

- **IV:** explicit ASL-PA instruction using 4 phonologically contrastive handshapes (2 High density, 2 Low density); 20 taught & 20 untaught sign and print targets.
- **DV:** number of items correctly signed and/or read for each Handshape.

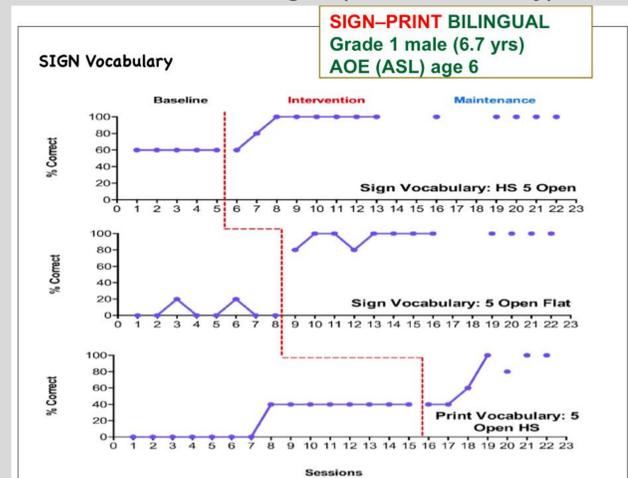
PROCEDURES

- Pre-post assessment battery.
- Assessment Probes: baseline; daily prior to instruction; 2 weeks & 4 weeks following intervention.
- Intervention phase: structured individual lessons 30 min/day 5 days/week for 20 days.
- Fidelity of training: Observation and video recording of instructional sessions.

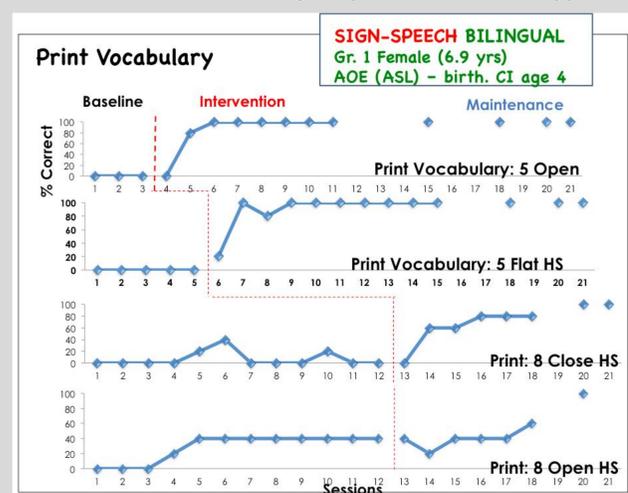
RESULTS

DIVERSITY of POPULATION

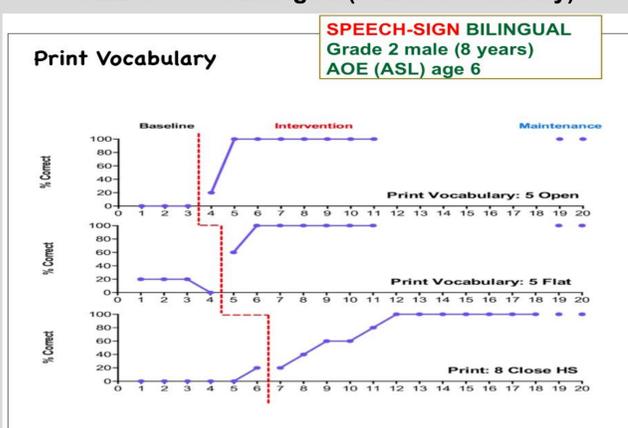
SIGN-PRINT Bilingual (SIGN Vocabulary)



SIGN-SPEECH Bilingual (PRINT Vocabulary)



SPEECH-SIGN Bilingual (PRINT Vocabulary)



SUMMARY

- A functional relation between ASL-PA instruction and skill acquisition (sign and print word learning) for those children who did not have the skills at baseline.
- Percent of Non-Overlapping data points (PND) was between 96-100% across skills (90%+ = Highly Effective).
- Results were confirmed by the marked increase in post scores on the ASL-Phonological Test for each of the student.
- Skill learning maintained 4 weeks beyond intervention and generalized to untrained words.

DISCUSSION

ASL-PA training was a highly effective instructional intervention for each of the students - deaf children who varied in primary communication mode, chronological age, and language ability.

ASL-PA (i.e. HS classification) appears to be an effective mnemonic device to facilitate sign vocabulary and print vocabulary learning.

Additional research is necessary to further tease apart the mechanisms of ASL-PA that facilitate acquisition of an orthographic lexicon.