NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: Children with a phonological impairment who received speech perception plus stimulability plus speech production training made more gains in speech production than those who received speech production training only, especially on non stimulable or poorly perceived sounds.

Clinical Question [patient/problem, intervention, (comparison), outcome]: In children with phonological impairment does the Speech Assessment and Interactive Learning System (SAILS) plus speech production training compared with speech production training alone lead to better speech production outcomes?

Citation: Rvachew S., Rafaat S. & Martin M. (1999). Stimulability, speech perception skills, and the treatment of phonological disorders. *American Journal of Speech - Language Pathology*; 8 (1), 33-43.

Design/Method: Case series with pre and post testing.

Participants: *Study One:* 10 children, mean age 4;6 with a moderate or severe delay in phonological development (as per Goldman & Fristoe). No significant language problems but some had morphosyntactic difficulties that were thought to be constrained by their phonological abilities. Normal oral-motor structure and function and normal hearing. *Study Two:* 13 children, mean age 4;7 other criteria as per Study One.

Experimental Group: Pre and post treatment assessments involved; sound production accuracy, stimulability and speech perception ability (using SAILS). (No control group, given that it was a case series design with pre-post test)

Study One:

- Participants attended a pre-treatment assessment session, nine group treatment sessions of 45 minutes and a post-treatment assessment session. Group sessions had 2-4 children per group.
- Targets: each session targeted one common phonological process with one sound representing the process (Cycles approach with three processes targeted). Targets were developmentally appropriate.
- Activities: auditory bombardment, story time, drawing practice pictures, play activities to drill sounds, and review of individuals progress with parents. Parents were expected to do auditory bombardment and production practise at home.

Study Two:

- Participants attended a pre-treatment assessment session, three individual treatment sessions, six group treatment sessions and a post-treatment assessment session. Group sessions had 2-4 children per group.
- Targets & activities - As per Study One.
- Individual sessions – 20 mins, stimulability and speech perception (SAILS) training for 3 targeted sounds.

Results: *Study One:* Treatment progress was not observed for sounds that were unstimulable before treatment. Sounds that were well perceived before treatment (based on SAILS) showed better progress relative to sounds that were poorly perceived (based on SAILS) before treatment.
Study Two: Participants experienced greater gains in production accuracy for most speech sounds treated (including sounds that were non-stimulable or poorly perceived prior to intervention). A gain in production performance was observed for over 80% of the treated phonemes. These results suggest that stimulability and perception training is a valuable component of intervention prior to a production (output-based) intervention for non-stimulable or poorly perceived speech sounds. The results also suggest that accurate assessment prior to intervention directs decisions.

Comments – Strengths/weaknesses of paper – Strengths: Time/cost effective and clinically applicable.
Weaknesses: Authors state limitations to include the small sample size of children. The SAILS program is suitable only for Western Canadian English speakers. Given the underlining premise of SAILS (in its current form), it could not be used with children learning Australian-English.

Level of Evidence (NH&MRC): IV

DISCLAIMER—THIS CAP WAS COMPLETED by PRACTISING SLPs. YOU ARE STRONGLY ENCOURAGE TO READ THE ARTICLE FOR YOURSELF BEFORE MAKING ANY CLINICAL DECISIONS ASSOCIATED WITH THE CLINICAL QUESTION.
ALSO—PLEASE NOTE THE DATE WHEN THIS CAP WAS COMPLETED. THE CLINICAL BOTTOMLINE MAY HAVE CHANGED IN LIGHT OF MORE RECENT RESEARCH.

Appraised By:
Clinical Group: Paediatric Speech group, May *2011*

May 2002

Form based on Worrall & Bennett, Evidence based Practice: Barriers & Facilitators for Speech-Language Pathologists, *Journal of Medical Speech-Language Pathology* 2:9, xi – xvi