



NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: "These results suggest that nonstimulable sounds are likely to require direct treatment; thus, generalisation probe responses may be maximised by treating nonstimulable sounds rather than stimuable ones" (p 1318). Stimulable sounds are more likely to improve without treatment than nonstimulable sounds.

Clinical Question [patient/problem, intervention, (comparison), outcome]: In children with a phonological impairment of unknown origin, are intervention gains more widespread and efficient if stimuable or non-stimulable phonemes are targeted during phonologically based intervention?

Search Terms:

Search Systems: Article suggested by academic specialising in paediatric speech sound disorders.

Citation: Powell, T.W (1991) Stimulability as a factor in the phonological generalisation of misarticulating preschool children. *Journal of Speech and Hearing Research*, 34, 1318-1328.

Design: Multiple baseline across behaviour single-subject research design

Participants: Six preschoolers with a phonological impairment (4 males 2 females) aged between 59-66 months with normal language, intellectual and perceptual skills, hearing, and oral structures and functions. Phonological skills were in the lowest 5% relative to peers.

Experimental Group: Pre-testing: 300-item probe was administered to provide data for phonological analyses. Stimulability tasks administered. Parents also completed Likert-type scale (pre-Rx, post-Rx, & follow up) to assess degree to which their perceptions of child's speech agreed with reported data. Baseline measures were taken in the form of 3 experimental, pre-Rx probes to assess generalisation. Subjects were taught to produce /r/ plus one other sound absent from their phonetic inventory using a contrasting minimal pairs approach. Auditory discrimination was

Not treated directly. Five minimal pairs contrasting the target with child's typical error (eg /r/ with /w/) were selected. A four step treatment procedure is described in the appendix (p.1328). Children were seen average of 3x per week, each session consisting of 100 minimal pair responses and lasting about 30 minutes. **Control Group:** Nil

Results: Authors identified two generalisation trends across the 6 subjects that they feel may predict phonological learning patterns post treatment. They are; "1) *If a stimuable sound is taught*, then the subject may learn that sound and its cognate, but generalisation to other sounds will be limited, and 2) *If a nonstimulable sound is taught*, then the subject may learn other stimuable sounds, but probably will not learn other nonstimulable sounds" (p.1326).

Comments on Design: Design limited by small number of participants. Procedure could be replicated by clinician. The study involved sampling and probing with clear guidelines. Treatment steps contained in appendix.

Level of Evidence (NH&MRC): III

Appraised By: EBP Paediatric Speech Group

Date: April 2004

Guidelines for completion of the CAP

Clinical Bottom Line

The consensus of the reviewers on implications of the paper on clinical practice. Whilst this may be somewhat subjective, it is hoped that robust discussion, the Level of Evidence and your comments on the design will enable you to produce a practical/realistic 'bottom line'. Many of the papers in Speech Pathology may have limitations, but the Clinical Bottom line should be aimed to help clinicians apply what evidence there is.

Clinical Question

This should ideally include four components:

- the patient or problem
- the intervention (or diagnostic test or prognostic factor)
- the comparison intervention or test (*optional*)
- the outcome

Design

Refer to pages 12 to 15 of the EBPIG Resource Package for guidance in reviewing the design used.

Comments on Design

Pages 12 to 15 of the Resource Manual should again assist here. You may also find it useful to refer to the forms 'Evaluating case studies/case series' and 'Critical appraisal sheet' adapted from Dr Lil Mikuletic's (see 'Critiquing/Appraising the Evidence').

Level of Evidence

It is recommended that the paper you are reviewing be rated against the NH&MRC Levels of Evidence, as reproduced here. The levels may be updated from time to time by the NH&MRC, but use of the ratings listed here will ensure consistency across CATs and groups. These levels are listed with comments on pages 15 and 16 of the Resource Package.

LEVEL

- I.** Evidence obtained from a systematic review of all relevant controlled trials
- II.** Evidence obtained from at least one properly designed randomised controlled trial
- III.**
 - 1** Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)
 - 2** Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group
 - 3** Evidence obtained from comparative studies with historical control, two or more single-arm studies or interrupted time series without a parallel control group
- IV.** Evidence obtained from case series, either post-test or pre-test and post-test