



# NSW Speech Pathology Evidence Based Practice Interest Group

## Critically Appraised Paper (CAP)

**CLINICAL BOTTOM LINE:** Mixed results overall – inconclusive. For 9 of 13 of cases, the Metaphon approach was effective in reducing the occurrence of both treated processes to 50% or below, however in 6 of 13 cases the control process also reduced in % occurrence, and in 2 of 13 cases only one of the treated processes reduced in % occurrence.

**Clinical Question [patient/problem, intervention, (comparison), outcome]:** In a child with phonological impairment of unknown origin, is a Metaphon approach effective in improving speech accuracy (e.g., as measured by PCC, error analysis, or consonant probe) over time?

**Citation:** Dean, E.C, Howell, J., Waters, D., Reid, M. (1995) Metaphon: A metalinguistics approach to the treatment of phonological disorder in children. *Clinical Linguistics and Phonetics*, 9(1). 1-58. doi: 10.3109/02699209508985318

**Design/Method:** 13 case studies (collected between 1987 and 1989) documenting preschool children with phonological disorder undergoing Metaphon therapy were reported. Pre- and post-assessment included: linguistic and perceptual assessment, measure of speech sound imitation ability, and detailed phonological assessment.

**Participants:** 13 preschool children aged between 3;07 and 4;07 at the beginning of the study; clinical diagnosis of phonological disorder. No mention of SES, cognitive skills, hearing, or other inclusion/exclusion criteria

**Control Group:** 1 process identified for each subject acted as an untreated control (child using process at, or near 100% of the time). Control process monitored through Metaphon Monitoring procedure (see Dean, Howell, Hill and Waters, 1990) every 3<sup>rd</sup> session.

**Experimental Group:** Underwent Metaphon therapy. Treated by same therapist for average 17 sessions. Sessions lasted approximately 30 minutes and were scheduled weekly. 3 simplifying phonological processes identified (child using processes at, or near 100% of the time as per Metaphon Monitoring procedure [see Dean, Howell, Hill and Waters, 1990]) – 2 were chosen as treatment processes and one as control process. This decision, as well as order of treatment for treatment processes was made by therapist on clinical grounds (grounds not specified in paper). Metaphon Monitoring procedure was repeated every 3<sup>rd</sup> treatment session to monitor change.

Intervention received for 1<sup>st</sup> process until it fell to 50% occurrence, then 2<sup>nd</sup> treatment process was targeted.

**Control Group:** No control group or within subject control measures.

### Results:

5 out of 13 subjects: "process specific outcome group" treatment processes improved only when targeted in treatment, control process remained unchanged.

4 out of 13 subjects: "generalising outcome group" both the treated processes and control processes improved to 0% or near 0% occurrence.

4 out of 13 subjects: "indeterminate outcome group" – less clearly defined patterns of responses e.g. in two subjects only the second treated process and the control process declined to 50% occurrence or less, in another two subjects only second treated process improved.

### Comments – Strengths/weaknesses of paper:

Weaknesses: case study design; small subject group; process declining to 50% occurrence regarded as "cure"; unclear as to whether Metaphon Monitoring procedure is completed at word level versus connected speech – therefore unclear as to which level on the hierarchy the 50% occurrence goal is set; decision for allocation of the processes to treatment 1, treatment 2 or control condition was not specified. No mention of inclusion/exclusion criteria for group in terms of cognitive skills, SES, hearing etc., attendance at "scheduled" sessions was not recorded, no long term follow up.

Strengths: attempted to include control process (although there were limitations to this due to the fact that there is a developmental progression to phon. processes); the detailed specification of the Metaphon treatment procedure allows replication of this work within more extensive experimental investigations; treatment by same therapist;

**Level of Evidence (NH&MRC): IV**

**Appraised By:** Members of the EBP paediatric speech group  
**Clinical Group:** Paediatric Speech Group

**Date:** 7<sup>th</sup> August 2006