NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: Orthographic cueing may improve spoken word retrieval in aphasia and may have its effects through various mechanisms . For the individuals in this study, the orthographic cue ha a longer lasting effect compared with a phonemic cue, as the letter cues are presented over a longer period of time. The longer the presentation of the written cue may result in stronger activation within the lexical system. Orthographic cueing makes use of visual short-term memory, of which is often less impaired, whereas phonemic cues make use of auditory short-term memory, which is often compromised. Hence, orthographic cueing aids word retrieval and has long lasting benefit. Initial letter cues are appropriate cues for the effective treatment of anomia and produce effects lasting 1 week. They may be effective even if initial phoneme cues are ineffective. Letter cue effects may take more than one session to become apparent and may not be effective for every individual.

Clinical Question [patient/problem, intervention, (comparison), outcome]: How and in what circumstances does orthographic cueing improve spoken word retrieval in aphasia?

Citation: Lorenz, A & Nickels, L (2007). Orthographic Cueing in Anomic Aphasia: How does it work? *Aphasiology*. 21 (6/7/8) 670-686.

Design/Method:

- Case histories conducted with each participant.
- Facilitation study, encompassing assessment of auditory and visual processing of words and non-words, using PALPA 5, 9, 25, 31, followed by assessment of semantic processing and picture naming (written and verbal), using PALPA 47, 48, 49, 50, 54, Pyramids & Palm Trees and 224 pictures (unpublished). The unpublished pictures were presented on a laptop, timed 10 seconds apart.
- The set of 224 pictures were divided into matched stimuli: 112 items that received treatment and 112 controls that received no treatment.
- Half of the treated pictures were given with phonemic cues, and the other half of these pictures were given with orthographic cues. Treatment only 3 sessions (more 'facilitation' than treatment). The order of presentation of pictures and cues were rotated to minimise order effects.
- The initial segment of the target word was presented before the target picture. The letter cues remained on the screen for 600ms, whereas the phonemic cues varied between 100 and 450ms (this was due to the type of sound produced, e.g. plosive versus vowels).
- Target pictures remained on the screen for 6 seconds.
- If the picture could not be named within 6 seconds, no further feedback was given.
- The pictures belonging to the control group were presented for spoken naming with a time limit of 6 seconds with no cue given.
- Untreated items (i.e. 'unseen' controls) were presented once before and once after the facilitation phase.
- All 4 sets of (phonemic cue, orthographic cue, naming controls and unseen controls) were compared.
- Post-assessments were conducted post-treatment to determine long-lasting effect. This occurred 24 hours post-treatment, and one week post-treatment.

Participants & Experimental Group:

- 2 Females, 1 male (aged 33-66 years)
- All monolingual speakers of English
- All left hemisphere stroke, with stroke occurring between 3-6 years prior to the study
- 2 participants had non-fluent aphasia (male and female), 1 had fluent aphasia (female)
- Normal vision
- No major hearing loss
- No apraxia of speech or dysarthria
- All had word finding difficulties

Control Group:

No control group, however untreated control items ensure adequate experimental control.

Results:

- For 2 of the participants, orthographic cueing alone aided word retrieval.
- For 1 participant orthographic cueing had a similar effect to phonemic cueing.
- Orthographic cueing had an immediate statistically significant effect (1 day) in enabling successful word retrieval. This effect lasted 1 week.
- The effects of orthographic cues do not rely on the same processing mechanisms as phonemic cues, as orthographic cues can be effective even in participants for whom phonemic cues do not assist.
- Mechanism of effects: Likely various mechanisms of effectiveness of orthographic cues for different people: a sub-lexical and a lexical mechanism.

Comments – Strengths/weaknesses of paper

Strengths:

- Conducted pre-and post-testing
- Acknowledges limitations of the study
- Cites literature pertaining to this area
- Acknowledges contributing factors that may impact performance (e.g. impaired auditory STM, nil visual cues provided when given phonemic cues).
- Good use of tables to illustrate results.
- Good to know it may be useful to try phonemic cueing more than once, even if it doesn't work on the first occasion.

Limitations:

- Very small sample size (n=3)
- Assessed long-lasting effects post-24 hours to 1 week post-treatment only.

Level of Evidence (NH&MRC): IV

Appraised By:
Clinical Group: Adult Language EBP

Date: May 2008