NSW Speech Pathology Evidence Based Practice Interest Group

Critically Appraised Paper (CAP)

CLINICAL BOTTOM LINE: That orthographic cues aid in spoken word retrieval in patients with aphasia- only if the patient shows ability in sub-lexical word reading (e.g. able to identify the first sound of a non-word)

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

Citation: Best, W; Herbert, R; Hickin J; Howard D & Osborne F (2001): Phonological and Orthographic Approaches to the Treatment of Word Retrieval in Aphasia: Immediate and Delayed Effects. *Aphasiology* 16(1&2) January, pp 151-168.

Design/Method: (facilitation study)

- 164 black and white drawings, CVC names selected (with 90% agreement from normal controls)
- Sets of 4 pictures presented and pts to name a picture within 5 sec. If unable to, entered into 3 conditions:
  - Extra time (control)- 5 sec
  - Single cue
  - Choice of 2 cues (e.g. ca / bu for *"cat"*) but pt to name immediately after cue.
- Sets of 4 rotated to 3 conditions until 12 items total in each condition. (i.e. 36 items overall)
- Pictures re-presented for naming after interval of at least 10 mins + tea/coffee
- # of items between the 1st & 2nd presentations of an item was a minimum of 36, max 134 (average: 60 items)
- 4 cue types used for 'single cue' presentations (i.e. repetition of whole word, rime (VC), spoken CV, written CV in large font
- Only one type presented in each facilitation session (sessions were at least 1 week apart)
- Sessions with cues presented in the order listed. Same procedure was used for all the cues. The order of the real and distractor cues (with no phonological/ semantic overlap of target wds) was randomised.

(subgrouped)

- Language abilities assessed in addition to naming test with Pyramids & Palm Trees Test, Auditory Discrimination Test & Short term verbal memory test (for phonemes), Reading and repetition of single words and non-words was assessed.
- Correlation between naming ability and facilitation effect size investigated
- Patients were subgrouped according to the degree of semantic and phonological deficit- so patients's with higher and lower (both semantic and/or phonological impairment) severity were analysed.

Predicting effect of orthographic cues

2 single cases selected from background assessments who have illustrated different patterns of performance.--> differing in repetition ability and in their performance on reading task (but similar on picture naming and naming errors)

Participants:

- 11 adults (4 females, 7 males) with acquired aphasia, all 1-12 years post L) hemisphere stroke & motivated with word finding difficulties; 5 fluent & 6 non fluent speakers.
- Ages: 38- 77 yrs old
- No hearing loss, no severe dyspraxia

Experimental Group:

- Participants were screened using the 24 item-naming test from Comprehensive Aphasia Test and scored between 3-18
- From the subgrouping, three participants fell into each of 3 groups:
    - More semantic impairment, more phonological impairment
    - More semantic impairment , less phonological impairment
    - Less semantic impairment , more phonological impairment
    - Two participants fell into a less semantic, less phonological impairment

Predicting effect of orthographic cues:
PH- able to read 97% of words and 35% of non-words. Able to produce initial phonemes of non-words.
SC- able to read 15% words and none of non-words. No grapheme-phoneme conversion.

Control Group: nil

Results:

- Cues overall made significant effects at both immediate and delayed naming.
- Individual cues (i.e. repetition, rime, spoken CV and CV written) also reached significance for both immediate and delayed.
- At immediate naming, effects of different cue types differ; at delayed naming, effects did not differ between cue types.
- Effect of cues differs for participants.

- Immediate naming with single cue resulted in better performance than a choice of cues whereas,
- In delayed naming, choice conditions and single cue made no difference.

- Correlation between naming ability of 200 items and facilitation effect size was not significant.
- Correlation between naming accuracy and effect of each of 4 individual cue type (both immediate and delayed) were not significant.

- Degree of semantic and phonological deficit:
    - Patients with less semantic deficit showed greater facilitation effects at delayed naming but not immediate naming.

- At delayed naming: Facilitation effects for participants with less semantic deficit is significantly greater than those with more semantic deficits. This does not apply to immediate naming.
- No significant difference in size of cue effects for participants with more and less phon impairment
- Trend towards an interaction between semantic and phonological impairment and the size of the facilitation effect at immediate naming, and significant interaction at delayed naming
- ?lasting effects of cues more likely to occur in those that have word retrieval problem NOT at the level of semantic representation, or in phonological output process but in the mapping of semantics to phonology.

Orthographic cues:
SC- no significant benefit
PH- significant benefit for both immediate and delayed naming.
Therefore, relationship exists between participant's ability in sub-lexical reading and written cues.
There was no significant relationship found between real word reading and benefits from written cues.
Repetition of initial phonemes of non-words also did not correlate significantly with spoken CV cues on immediate naming.

Comments – Strengths/weaknesses of paper

Strengths:

- Clear as to why only 2 participants were chosen for orthographic cues
- Authors provide in depth analysis of potentially clinically relevant interactions between client profiles and effects of cueing.
- Cueing effects were investigated on its own (i.e. one facilitation session = 1 cue type per participant)

Weakness:

- No control group
- small numbers within sub-groups- relied on results of 2 participants for orthographic cues (larger sample size required to see whether same effect occurs with more people)- small #s to start off with.
- Only initial grapheme/ start of word cues used (did not include rimes)- as discussed.
- Word lists not outlined—unsure of the difficulties of the words being used. Mean log frequency however is given, but there are no other indicators of complexity of the word, whether they are mainly abstract/concrete, nouns vs verbs.
- Delayed effects (10 mins) does not naturally reflect generalisation. Generalisation over time were not investigated (e.g. 2 weeks, 6 months post)

Level of Evidence (NH&MRC): (for looking into orthographic cueing)- III(2)

Appraised by: Adult Language EBP group 2008