Semantic and Contextual Writing Treatments for Severe Anomia

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BACKGROUND & PURPOSE

Background

- Writing may be a beneficial augmentative and/or alternative communication modality for individuals with severely impaired spoken output (Beeson, 1999; Beeson & Egnor, 2006)
- Writing treatments, at least in some cases, have spurred generalization to spoken naming (Murray & Karcher, 2000) and spoken sentence production (Murray et al., 2007).
- Researchers have begun to explore whether the context in which target words are trained might influence generalization of anomia treatment effects (Gordon, 2007).

Purpose

- To explore the effectiveness and generalization potential of two writing treatments for severe anomia: Semantic Treatment (ST) and Context/Story Treatment (CT).
- Experimental Questions:

1. Would both treatments evoke similar amounts and rates of improvement in YR's written naming of trained words?
2. Would either treatment evoke improvements in YR's written naming of untrained words, and if so, would they evoke similar degrees of generalization?
3. Would either treatment evoke improvements in YR's spoken naming of trained or untrained words, and if so, would they evoke similar degrees of cross-modal generalization?

PARTICIPANT & PRE-TESTING

Participant

- YR, a 43 year old, right-handed male 1.5 years post left hemisphere stroke
- Severe global aphasia (including significantly impaired oral naming, written naming, repetition, and reading aloud)
- Apraxia of speech; dense right hemiparesis

Pre-Treatment Testing

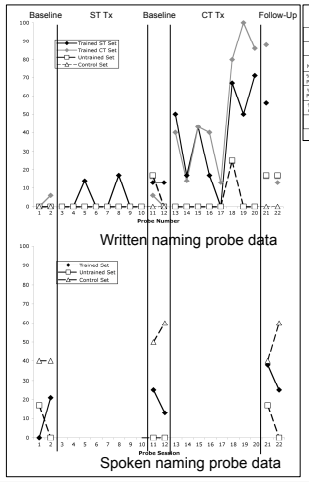
- *Western Aphasia Battery* (WAB; Kertesz, 1982); Subtest #53 of the *Psycholinguistic Assessment of Language Processing in Aphasia* (PALPA; Kay, Lesser, & Coltheart, 1992); written and spoken narrative discourse samples.

METHODS

Methods

- Multiple baseline, within-participant single-subject design
- 8 weeks of the ST, 5 week break, 8 weeks of the CT
- Stimuli: 40 pictured words from 4 categories, divided into:
  - (a) trained ST and trained CT
  - (b) untrained ST and untrained CT
  - (c) control
- Probing: Trained and untrained words probed at the beginning of each session; all words probed at baseline and follow up phases
  - Some items from each set received a dynamic probe (i.e., cueing hierarchy provided via scrambled anagram)
- Treatment: picture with either 5 fill-in-the-blank sentences about the semantic features of the target word (ST) or 5 fill-in-the-blank sentences forming a story about the target word (CT); YR wrote target; if correct, moved to next sentence, if incorrect, provided cueing hierarchy

RESULTS



Probe Data: Error Analysis

Tx	Semantic Treatment (ST)								Context/Story Treatment (CT)							
WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
% Neologisms	77.8	68.7	45.5	85.3	91.7	94.5	83.3	75	50	83.6	28.8	80	50.2	83	80	25
% Phonemic Paraphasias	0	8.3	10.2	5	8.3	10.2	0	25	25	27.3	71.4	40	83.6	20	0	25
% Semantic Paraphasias	0	8.3	5	5	0	10.2	0	0	0	0	0	0	0.1	20	40	25
% Incorrect Word Attempt	22.2	16.7	36.4	16.7	0	0.1	16.7	0	25	0.1	0	0	0.1	0	0	25
% Correct Letters	19.4	17.5	30.9	27.8	24.7	35	17.5	34.7	68	45.9	73.8	81.5	90.9	71.7	69.6	75

Pre- vs. Post-Tx Assessment Results

Western Aphasia Battery: Pre- versus Post-Treatment	Maximum	Score Jun-06	Total AQ Jun-06	Score May-07	Total AQ May-07
SPONTANEOUS SPEECH					
Information Content	10	6		7	
Fluency	10	2		4	
Spontaneous Speech Composite	20	8	8	11	11
COMPREHENSION					
Yes/No Questions	60	42		54	
Auditory Word Recognition	60	20		23	
Sequential Commands	80	11		29	
Comprehension Composite	200	73	3.65	106	5.3
REPETITION					
Repetition Composite	100	39	3.9	21	2.1
NAMING					
Object Naming	60	23		23	
Word Fluency	20	2		5	
Sentence Completion	10	4		2	
Responsive Speech	10	0		0	
Naming Composite	100	29	2.9	30	3
Aphasia Quotient			36.9		42.8
Aphasia Type			Global		Global
Severity Rating			Severe		Moderate

PALPA: Pre- versus Post-Treatment	Pre-Treatment September 2006	Post-Treatment May 2007
Oral Naming	7/40 (17.5%)	12/40 (30%)
Written Naming	0/40 (0%)	2/40 (5%)
Repetition	36/40 (90%)	36/40 (90%)
Oral Reading	2/40 (5%)	6/40 (15%)

Discourse Samples	Written Jun-06	Written May-07	Spoken Jun-06	Spoken May-07
Total Word Count	1	0	15	40
Utterance Count	5	0	8	29
CIUs	1	0	5	7

DISCUSSION

- Similar to Gordon's (2007) findings, both ST and CT evoked improvements in the written naming ability of YR
- Greater improvements demonstrated in writing accuracy and speed during CT versus ST
- Fewer unrelated errors (i.e., primarily neologisms and unrelated word errors) and an increase in related errors (i.e., phonemic paraphasias, semantic paraphasias, and increased %correct letters) with treatment
- Modest generalization to spoken naming observed
- No improvement in written discourse samples from pre- to post-treatment; modest improvements in total words, total number of utterances, and correct information units in his spoken discourse samples
- Data indicate that both writing treatment protocols may enhance recovery from severe anomia

FUTURE DIRECTIONS

- Replication of this protocol with additional participants, providing ST and CT in reverse order, to determine if YR's better response to CT vs. ST reflects order effects or treatment specific effects
- Explore further the relative treatment efficiencies of written versus spoken naming protocols in terms of their cross-modal generalization potential

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