

Personalized Semantic Cueing Treatment for Naming Deficit in a Person with Conduction Aphasia



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INTRODUCTION

Naming

- **Naming deficits** are the most common form of impairment in people with aphasia (Davis, 2000; Kiran & Thompson, 2003)
- **Persist across all types and degrees of aphasia** (Boyle, 2004)

INTRODUCTION

Aphasia Syndromes

	Fluency	Aud Comp	Verbal Rep	Naming	Typical Lesion at Onset
Global	-	-	-	-	Anterior & Posterior
Broca's	-	+	-	-	Anterior
Transcortical Motor	-	+	+	-	Anterior
Wernicke's	+	-	-	-	Posterior
Transcortical Sensory	+	-	+	-	Posterior
Conduction	+	+	-	-	Posterior
Anomic	+	+	+	-	Posterior

INTRODUCTION

Semantic Cueing

- Theoretical basis: semantic features provide access to the phonological form of the word
- Though difficulty producing targets persist, access to certain **features of those targets** is often intact (Beeson, Holland, & Murray, 1995)
- Wambaugh et al. (2001) reported that 1 of their participants, whose lexical processing impairment was described as predominately phonologic, showed a better response to treatment designed to target the semantic level of processing than to treatment designed to target the phonologic level.

INTRODUCTION

Treatments

- **Semantic Feature Analysis (SFA)**, with and without phonological cueing, has been utilized to treat naming deficits (Boyle & Coelho, 1995; Beeson, Holland, & Murray, 1995; Lowell, Beeson, & Holland, 1995; Drew & Thompson, 1999; Kiran & Thompson, 2003; Boyle, 2004)
- *Personalized* semantic cues lead to better long-term naming accuracy than other semantic cueing techniques (Marshall, R. C., Karow, C. M., Freed, D. B., & Babcock, P., 2002)

INTRODUCTION

Single-Subject AB Design

- This single-subject AB design study investigated the use of a linking of personalized cueing and SFA treatments for naming deficits in a person with conduction aphasia.

INTRODUCTION

Questions

- 1) Does the use of a personalized semantic cueing treatment to learn functionally relevant nouns improve naming of treated nouns for a person with conduction aphasia?
- 2) Does this generalize to other pictured nouns?

METHODS

Participant Profile

- 63-year old male, living alone
- 2 adult sons, 1 daughter, 2 grandchildren
- Loved motorcycles
- Retired auto painter with high-school education
- 21 months post-onset of Left Parietal CVA
- Severe reading and writing deficits
- Acute rehab for 2 months following CVA
- Hearing WFL
- Diagnosed with conduction aphasia (WAB scores)
- Concurrent enrollment in group treatment

METHODS

Western Aphasia Battery

Sections	Initial Eval Score July 2005	Pre-Tx Score October 2005
<i>Spontaneous Speech</i>		
Information Content	7	5
Fluency	8	7
<i>Comprehension</i>		
Yes/No Questions	51	54
Auditory Word Recognition	56	50
Sequential Commands	40	61
<i>Repetition</i>	29	45
<i>Naming</i>		
Object Naming	6/60	8/60
Word Fluency	0/20	2/20
Sentence Completion	3/10	5/10
Responsive Speech	0/10	4/10
<i>Aphasia Quotient</i>	52.3	55.3
<i>Reading and Writing</i>		
Reading	0	17
Writing	4.5	13.5

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Cueing

METHODS

Client-Directed Functional Stimuli

- **16 treatment nouns:** pictures printed in color on 4x6 index cards
- **5 categories:** Body Parts, Communication, Clothing, Transportation, Food



METHODS

Procedures: Probes

Baseline and Treatment Probes:

Participants chose 16 pictured items for training (out of 50)

Generalization Probes: 10 untrained items presented at the beginning of 2 sessions

METHODS

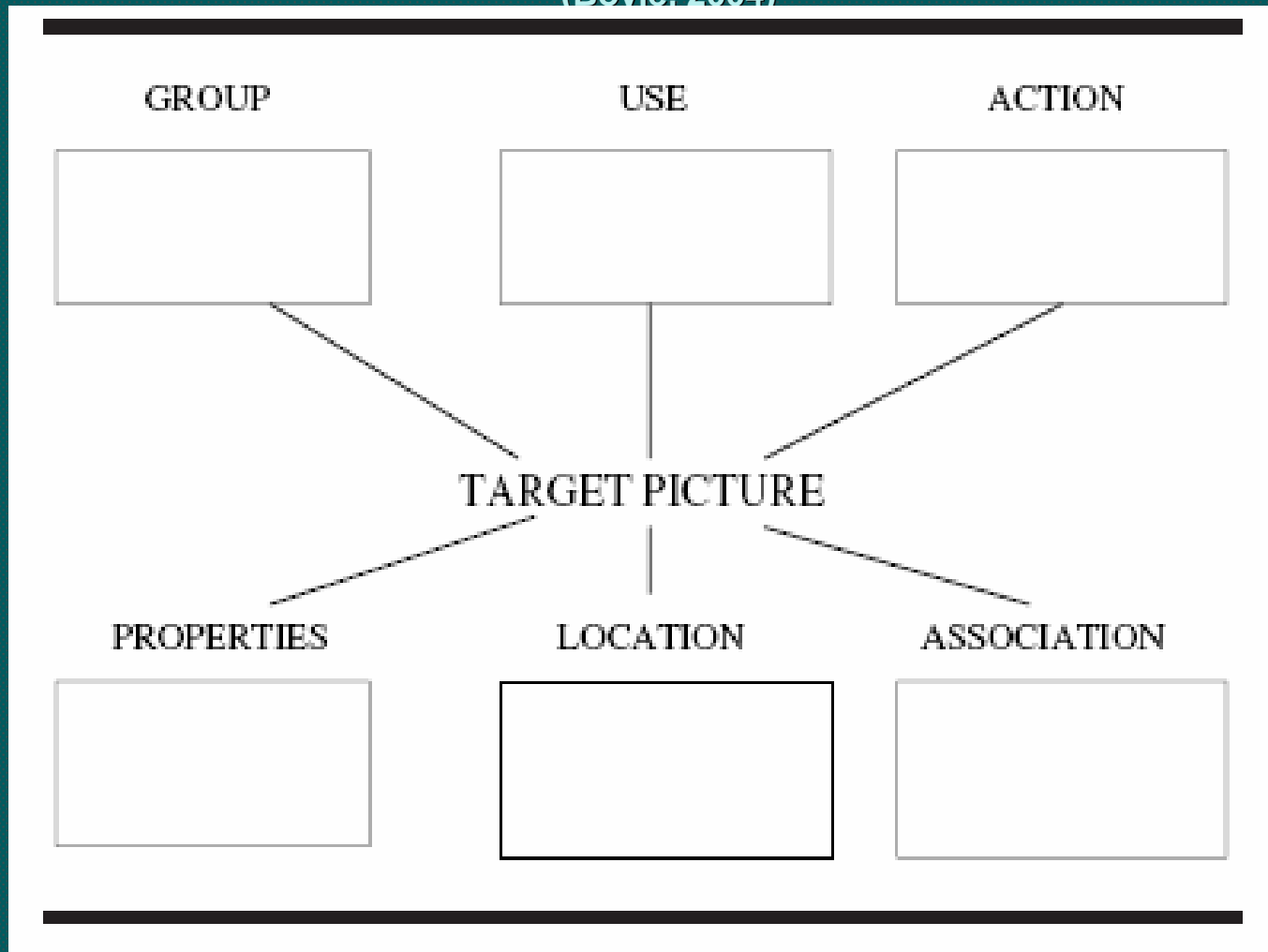
Procedures

- **Twice** per week for **20** minutes for **8** sessions
- **Cooperative** session with a partner undergoing the same treatment (Avent, 1997)
- **Procedure**: choose nouns → discuss semantic features → create 3-4 personalized cues → choose the best cue → rehearse → recall

METHODS

Semantic Feature Analysis Chart

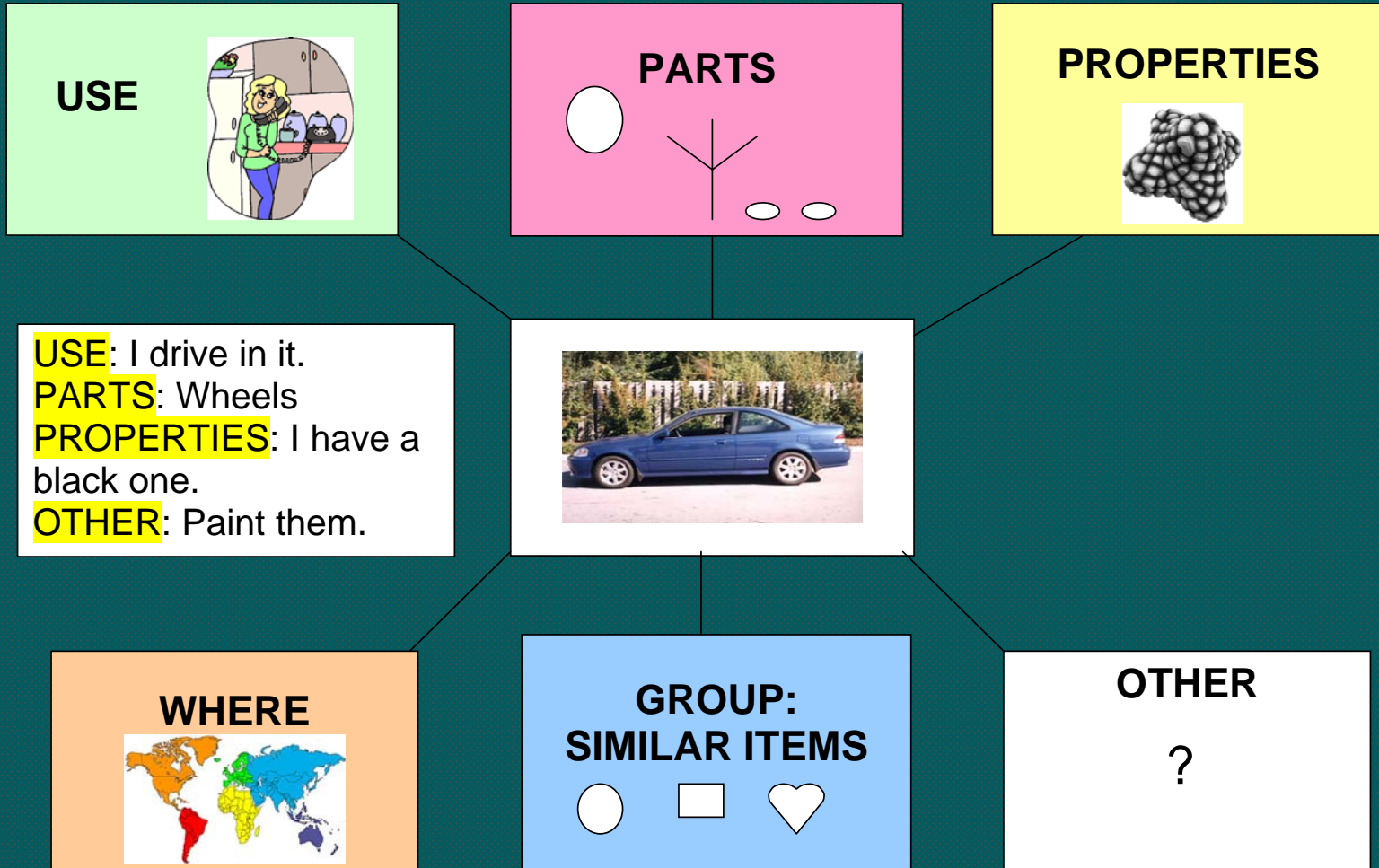
(Boyle, 2004)



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METHODS

Modified Semantic Features Chart



USE: I drive in it.
PARTS: Wheels
PROPERTIES: I have a black one.
OTHER: Paint them.

METHODS

Procedures: Treatment

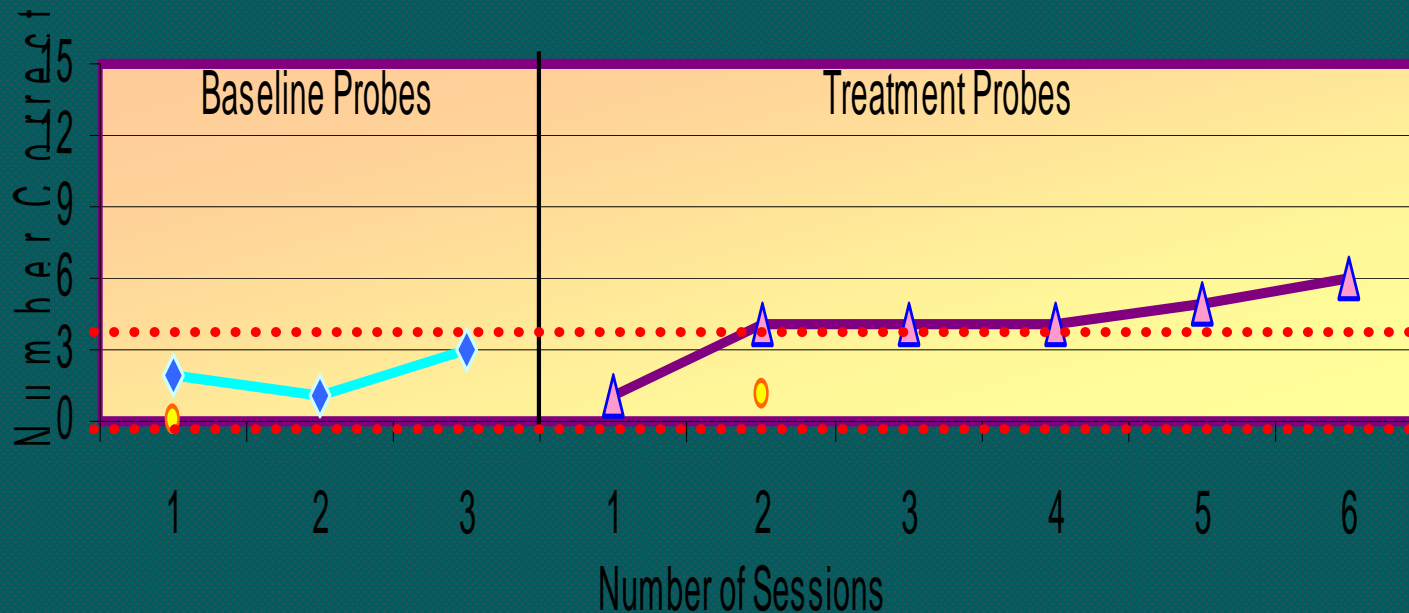
PREPARATION/PRESENTATION OF STIMULI

- **Step 1:** Choose relevant nouns (Participant chose 16/50).
- **Step 2:** Discuss semantic features of target.
- **Step 3:** Record cues on back of photo.
- **Step 4:** Choose the “best” cue, which will be the first cue read in subsequent sessions.
- **Step 5:** Clinician read the “best” cue.
- **Step 6:** Participant repeat/recite “best” cue.
- **Step 7:** Name target.

RESULTS

Probe Data

Figure 1. Correct Naming Responses

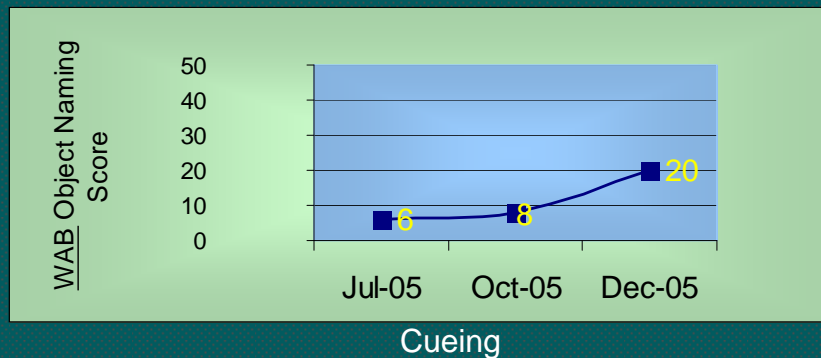


- Treatment trendline with an upward slope of .8 surpassed Shewart chart upper trendline with 5th probe
- Binomial test ($N=6$; $x=2$; $p=.344$) showed no significant change ($p>.05$) due to treatment.

RESULTS

WAB Scores

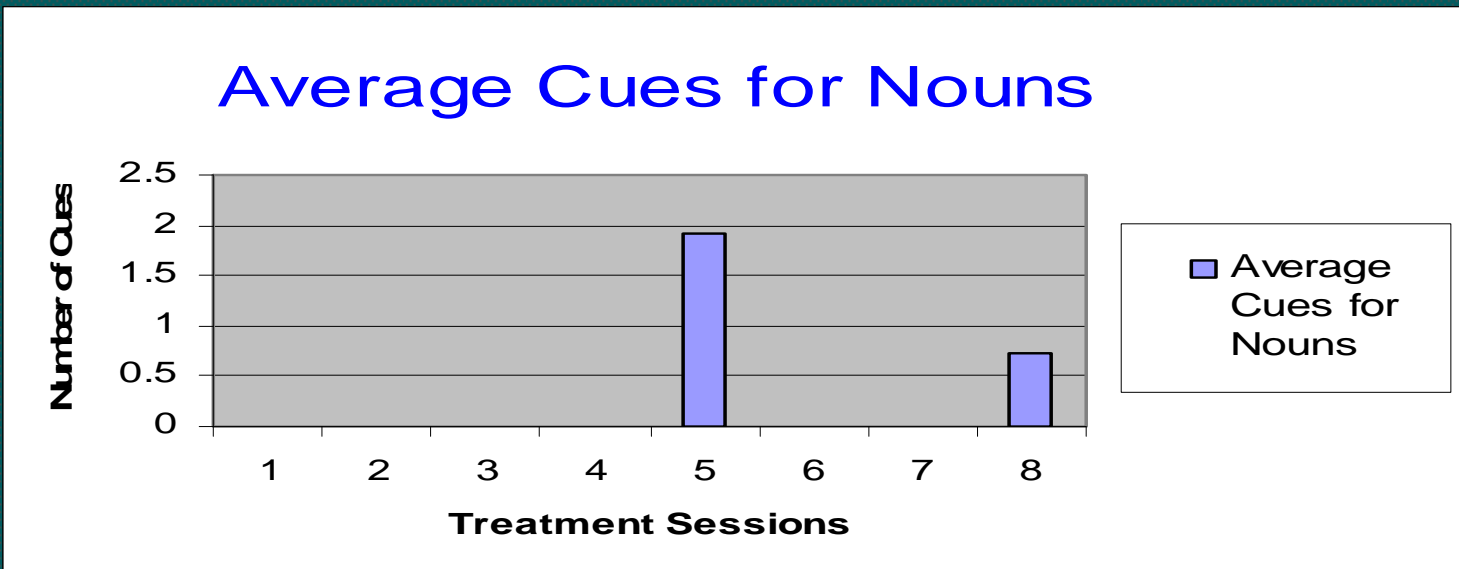
	Initial Eval Score July 2005	Pre-Tx Score Oct 2005	Post-Tx Score Dec 2005
<i>Naming</i>			
Object Naming	6/60	8/60	20*/60
Word Fluency	0/20	2/20	0/20
Sentence Completion	3/10	5/10	7/10
Responsive Speech	0/10	4/10	9*/10
<i>Aphasia Quotient</i>	52.3	55.3	65.9



RESULTS

Clinical Changes: Average Cues

- 5th session = participant required an average of **1.92 cues** to name object
- 8th session = average of **0.73 cues**



CONCLUSION

Questions

- 1) Does the use of a personalized semantic cueing treatment to learn functionally relevant nouns improve naming of treated nouns for a person with conduction aphasia? **YES**
- 2) Does this generalize to untrained nouns? **Unknown**

DISCUSSION

Clinical Importance

- The following clinical changes were noted in the participant:
 - Decreased number of cues needed to recall nouns
 - Increase in speed of naming nouns
 - Improvement in WAB object naming score
 - Decrease in frustration regarding word-finding
- Participant beyond spontaneous recovery period

DISCUSSION

Limitations and Influencing Factors

- Cooperative partner with limited verbal output, yet ability to read, encouraged participant
- Lack of ability to read cues, resulting in:
 - Participant reliance on icons for semantic feature categories
 - Participant reliance on partner and/or clinician for auditory input of cues
 - Lack of word-identification cue
- Concurrent enrollment in group treatment

FUTURE RESEARCH

- Which types of aphasia benefit most from personalized SFA cueing
- Whether semantic or phonemic paraphasias interfere with treatment
- The effects of cooperative partnering for semantic treatments
- Number of treatment sessions
- Determine which of the SFA cue categories is most helpful (Use? Location? Parts?)

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Questions Asked

- As it is common for people with aphasia to have difficulties with phonological access to targets, would phonological cueing have been a better treatment choice?
- How did you present the stimuli to the participant? Could he see the words?
- Did he come up with the cues himself? Could that alone have accounted for his target access?
- It would have been helpful to test whether the lexical deficit resided at the semantic level or phonological level pre-treatment.
- Do you think you might be teaching circumlocution with this approach?