Pairing gesture with trained verbal responses in severe chronic apraxia and global aphasia

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Why do we gesture?

• may either effectively communicate the response
• may self cue the individual to produce the verbal response
  – (Krauss, Chen & Gottesman 2000)

• Does the same phenomenon occur in individuals with word finding and/or motor programming disorders such as aphasia and apraxia
Functions of gestures in therapeutic intervention for language impaired

• compensation - gestures replace impaired communication
• Restoration - to facilitate or re-establish verbal communication through gesture methods
• functions may occur simultaneously
  – Rose (2006)
Purpose of this study

• To determine the effect of using gestures to supplement trained verbal vocabulary in individuals with severe chronic apraxia and global aphasia. Specifically, the question as to whether or not these gestures will improve verbal output was investigated.
Subjects

• 4 members of the Stroke Comeback Center with global aphasia and severe apraxia of speech
• Ages range from 61 – 76
• Time since onset of stroke ranged from 1 year, 9 months to 4 years, 9 months
• Caregivers agreed to allow participation in the training at the Center and to carry out training procedures on a daily basis at home.
Stimuli: words

- Ten functional vocabulary words were chosen based upon semantic and phonetic value
- All words chosen contained emotional content
- All words were determined to be within the motor capability of each of the subjects
- None of the ten vocabulary words were already within the expressive lexicon of any of the participants
- A colorful picture representation of each word was used to stimulate the target (pictures were normed)
Word list

a) hot
b) what?
c) happy
d) tired
e) pain
f) cold
g) thirsty
h) sad
i) hungry
j) sick
Stimuli: gestures

- Five iconic gestures were chosen to supplement five target words.
- The gestures were created from the influence of American Sign Language.
- The chosen signs were simplified and/or altered for the use of one limb.
- Cold, Thirst, Sad, Hungry, Sick
Procedure: Baseline

• For the first five items, I presented the assigned visual stimulus and a verbal word/utterance based on a predetermined hierarchy, beginning with an independent production and progressing to a full model (Linebaugh and Lehner 1977)

• The final five words presented included the same stimuli with the additional of a gesture whenever the target word was verbalized
Training

• The training was accomplished in a group setting once a week for six weeks, in addition to daily prescribed home practice
Training: group training

- Training occurred at the Center weekly
- The word training was performed two times, once at the beginning of the session, and once halfway through the session
- 7 step cueing hierarchy- began with maximum cueing, progressed to independent production
- 5/10 words- verbal cues and phonetic placement posturing
- Remaining 5- identical cueing with the addition of gestures
Training: home practice

• Identical visual stimuli and a simplified hierarchy was created for caregiver use
• Caregivers were trained in the implementation of the home program and were requested to train the words once daily
• The home practice materials included a daily practice and signature sheet to provide some measure of control over amount of home practice
Probes

- At the end of every other group training session, an assessment trial was performed
- Reversal of hierarchy (independent 1st)
- Data was recorded every other week and tracked:
  - Consistency of the verbal response
  - Intelligibility
  - Level of cueing necessary
Hierarchy

1. Model- All together
2. Model- Phonemic cue
3. Model- Response
4. Utterance- All together
5. Utterance- Phonemic cue
6. Utterance- Response
7. Independently
Results

• Results were calculated by adding the numeric scores representing the stimulated non-gestured and gestured words for baseline and final data (1-7) (a-e, f-j). Results indicate an overall increase in accurate productions for all words with a slightly greater increase of correct productions for gestured words.
Results: KS

KS increased productions in gestured and non-gestured words equally (+4), however, he greatly increased in overall attempts for gestured words (+15) as compared to non-gestured words (-2)
Results: SL

- SL slightly increased more accurate productions of gestured words (+18) as compared to non-gestured words (+15).
Results: AF

- AF also slightly increased more accurate production of gestured words (+11) as compared to non-gestured words (+10)
Results: NB

- NB increased correct production in gestured and non-gestured words equally (+21)
Unanticipated Outcomes

• In therapeutic sessions following this study, it was observed that participants noticeably increased both spontaneous and cued verbal attempts
  – Untrained words initiated by clinician
  – Spontaneous trained and non-trained words

• Structured design of study
  – Consistency/repetition
Resources

Resources cont’d