The Effects of Gesture Frequency On Discourse Production In Anomic Aphasia: A Preliminary Investigation
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INTRODUCTION:
- Hand gestures and body movements are considered a communicative modality (McNeill, 1992)
- Persons With Aphasia (PWA) produce gestures despite inherent language deficits (Goodwin, 2000)
- Anomia is a type of aphasia that is associated with lexical retrieval difficulties
- Gesture can aid in the facilitation of cognition, especially in the lexical retrieval in typical and PWA populations (Kelly et al., 2009; Rose & Douglas, 2001)

A previous study has shown positive correlations between micro- and macro-linguistic difficulties for Anomic PWAs (Andreetta, Cantagallo, & Marinii, 2012)
- Anomic PWAs’ success with greater syntactic complexity and narrative organization may be linked to the facilitation of hand gestures for lexical retrieval

CURRENT QUESTIONS:
- Is gesture frequency during story retelling correlated with micro- and macro-linguistic measures of narrative discourse?
- Is gesture production in PWA discourse associated with appropriate lexical retrieval?
- Does gesture production in PWA have bottom-up effects on narrative production?

METHODS:
- Participants: 41 PWAs (21 male; mean age = 62.8) diagnosed as anomic via Western Aphasia Battery (WAB; Kertesz, 1982)
- Narrative Task: Retell the Cinderella story after viewing a story book without words. Narratives were obtained from AphasiaBank (MacWhinney, 2000)

- Discourse Analyses:
  - Story Length: # of T-Units (Lë et al., 2011)
  - Sentence Complexity: # of subordinated clauses within all matrix clauses (Lë et al., 2011)

- Narrative Organization: # of Complete episodes (Lë et al., 2011)

- Discourse Measures (i.e. Measure/Total T-Units):
  - Mid Group frequency significantly higher than the Low Group for syntactic complexity (p<.05), but no differences between High Group and others (p=ns)
  - No significant differences between any group for organization (p=ns)

- Discourse Measure Ratios (i.e. Measure/Total T-Units):
  - Mid Group ratio significantly higher than Low Group compared to the High Gesture group (p<.001), suggesting that lower gestures are more likely to produce a word only once in a narrative.
  - VOCD significantly higher for the High Group compared to the Low Group (p<.001), suggesting that higher gestures are more likely to produce more related words.

- Lexical Retrieval:
  - Significant differences between groups for incidences of lexical retrieval (Group 1=9.57; Group 2=15.46; Group 3=25.21; p<.001)
  - No significant differences in lexical retrieval resolution (Group 1=85.33%; Group 2=79.10%; Group 3=85.84%; p=ns)
  - Accounting for narrative length (e.g. # of lexical retrieval/Total T-Units), no differences in lexical retrieval incidence (p=ns)
  - Significant differences between groups for number of gestures produced in lexical retrieval, and number of gestures apart of appropriate lexical selection (p<.001)

- Ratio of Appropriate Retrieval with Gesture

DISCUSSION:
- High gesture frequency seems to be positively associated with increased length, syntactic complexity, and narrative organization
- Taking into account the length of each story, syntactic complexity still remains significantly higher for more frequent gestures
- Higher gesturing groups seem to be associated with narratives that produce more related words than unique ones (i.e. TTR & VOCD), which has been linked to improved discourse cohesion (McNamara et al., 2014)
- Higher gesture groups had more incidence of appropriate lexical retrieval online
- Taking into account the sample length, no significant differences for appropriate lexical selection
- However, gesture is significantly more present in lexical selection in longer samples, as well as appropriate selection
- In this study, higher gesture frequency seems to be associated with increased micro-levels of language production
- Gesture may be linked to better discourse in situations that require more language to be produced
- This may be of special interest when examining PWA discourse more frequently used in everyday interactions

REFERENCE: