Treatment of Anomia: Semantic Feature Analysis Versus Phonological Component Analysis
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Introduction
- Adults with aphasia can have anomia, which is difficulty retrieving words. Anomia can impact everyday communication and relationships for adults with aphasia.
- SLPs provide semantic feature analysis (SFA) therapy to individuals with anomia to improve their word finding difficulties. It is a technique that focuses on the meaning-based properties of words, where people with aphasia describe each feature of a word in a systematic way by answering a set of questions (Boyle, 2004).
- Another therapy is phonetic components analysis (PCA), which is a word-finding treatment that helps the person with aphasia learn to analyze the sounds in words (Bose, 2013).
- It is unclear if SFA or PCA will improve word finding abilities for adults with anomia.

Clinical Scenario
- Brooke is a 53 year old woman with Broca’s aphasia and anomia. Brooke has never received speech therapy before. She would like to return to work.
- Brenna is a speech-language pathologist graduate student at University of Nevada, Reno. She currently sees Brooke twice per week for one hour sessions. This semester, Brenna is using semantic feature analysis therapy approach to increase word finding abilities twice a week throughout one hour sessions.
- Brenna is curious if phonological component analysis would yield better word finding abilities for Brooke than semantic feature analysis.

Purpose
Using the PICO (Purpose, Intervention, Comparison, Outcome) framework from Gillam and Gilliam (2008), the following question was developed: Is phonological components analysis more successful in increasing word finding abilities in adults with anomia (P) when compared to semantic feature analysis (C)?

Methodology
Search terms: semantic feature analysis, SFA, individual therapy or treatment, intervention, anomia, stroke, aphasia, anomia aphasia, phonological components analysis, PCA, phonological treatment

Electronic databases:
PubMed, ERIC, Web of Science, Academic Premier, PsycINFO

Appraisal: Ten research articles were appraised for internal validity. A 10-point CATE form was used for experimental studies and a 10-point CASM form was used for systematic review.

CATE Form: Compelling -8 to -10, Suggestive -4 to 7, Equivocal 0 to 3
CASM Form: Compelling -8 to -10, Suggestive -4 to 7, Equivocal 0 to 3

Discussion
- External evidence: Both SFA (DeLong et al., 2015; Maddy et al., 2014) and PCA (Bose, 2013; Leonard et al., 2008; van Hees et al., 2013) demonstrated improvements in word finding abilities in individuals with aphasia and anomia. When SFA and PCA were compared, analysis in relation to the client: Brooke was informed of the results of SFA and PCA. She prefers to try either of the approaches because she thinks they would provide her with more strategies for her word finding difficulties.
- Internal evidence in relation to the clinician: these approaches allow my client more access to features of a word in an effort to be able to be more comfortable implementing both SFA and PCA into therapy. Using to increase her word finding abilities.

EIBP Decision: Based on the external evidence, internal evidence to clinical practice and evidence internal to my client, we decided to implement both SFA and PCA to improve Brooke’s word finding abilities. Brooke will attend therapy 2 times per week. In three months, word finding abilities will be evaluated using the Boston Naming Test to determine if a combined approach improved Brooke’s word finding abilities.

References

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<tr>
<th>Authors (Date)</th>
<th>Research Design</th>
<th>Purpose</th>
<th>Participants (Age, TPS, Etymology, Diagnosis)</th>
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<td>Bose (2013)</td>
<td>Experimental Single Subject Design</td>
<td>Investigate the effectiveness of a phonological naming therapy on picture naming abilities in individuals with jargon aphasia.</td>
<td>N = 1 Age: 77 years Time post-stroke (TPS): 4 years Etymology: L CVA Diagnosis: NR</td>
<td>30 item probes list used to measure the occurrence of: formal, semantic, mixed, neologisms and miscellaneous errors</td>
<td>Results showed significant improvements in the participants ability to name the treated items. These improvements were maintained.</td>
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<td>DeLong, Nessler, Wright, &amp; Wambaugh (2015)</td>
<td>Experimental Multiple-baseline across-subjects design study</td>
<td>To systematically examine outcomes associated with SFA.</td>
<td>N = 5 Age: 30 - 65 years TPS: 11 - 384 mos. Etymology: L CVA, L MCA Diagnosis: Wernicke’s, Broca’s, Anomic, Global, and Conduction aphasias</td>
<td>Confrontation Naming Probes used to measure: production of semantic information</td>
<td>4 out of 5 participants demonstrated large effects for production of semantic information post-treatment and at follow-up. Findings were mixed for generalization.</td>
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<td>Leonard, Rochon, &amp; Laird (2008)</td>
<td>Experimental Single Subject Design</td>
<td>To document the effectiveness of PCA treatment for the remediation of naming deficits in aphasia.</td>
<td>N = 10 Age: 50 - 73 years TPS: NR Etymology: L CVA Diagnosis: Broca’s aphasia, Wernicke’s aphasia, Mixed nonfluent aphasia, and Anomic aphasia</td>
<td>Philadelphia Naming Test (PNT) used to measure: PCA at post-treatment and generalization</td>
<td>7 of 10 participants demonstrated small to medium effects for using PCA. Results for post-treatment and generalization measures were similar for each participant.</td>
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<td>Maddy, Capilouto, &amp; McComas (2014)</td>
<td>Non-experimental Systematic Review</td>
<td>To examine the effectiveness of semantic feature analysis as an intervention to improve naming abilities for persons with aphasia.</td>
<td>N = 11 Inclusion Criteria: Age: 24 – 85 years TPS: 4 - 187 mos Etymology: L CVA, TBI, CVA Diagnosis: Broca’s aphasia and Wernicke’s aphasia</td>
<td>Confrontational naming ability at post-treatment and follow-up</td>
<td>3 out of the 6 studies that showed statistical significance demonstrated medium to large effects for confrontational naming abilities post-treatment. Additionally, highly effective PND was observed for 6 out of 7 studies that demonstrated significant results. This suggested that SFA is a promising intervention approach for individuals with anomia.</td>
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<td>Van Hees, Angwin, McMahon, &amp; Copland (2013)</td>
<td>Experimental Single Subject Design</td>
<td>To investigate the relative effects of SFA and PCA therapy for naming in a group of people with aphasia.</td>
<td>N = 8 Age: 41 - 69 years TPS: 17 - 170 mos. Etymology: Single L CVA Diagnosis: NR</td>
<td>Naming accuracy at post-treatment and follow-up</td>
<td>Naming Accuracy: PCA: 7 out of 8 participants improved naming accuracy from baseline (Wilcoxon, p &lt; .05, d = 3.93 - 9.45) to post-treatment testing. 6 of those 7 participants maintained improvements (Wilcoxon, p &lt; .05, d = 5.00 - 5.67).</td>
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<td>SFA: 4 out of 8 participants improved naming accuracy from baseline (Wilcoxon, p &lt; .05, d = 4.93 - 6.93) to post-treatment testing. 3 of those 4 participants maintained improvements (Wilcoxon, p &lt; .05, d = 4.14 - 8.66).</td>
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