Effects of familiarity and presentation mode on auditory-visual speech recognition in adults with aphasia

Rachel Hahn Arkenberg

Mary Gospel

Butler University, mgospel@butler.edu

Follow this and additional works at: https://digitalcommons.butler.edu/ccom_papers

Part of the Communication Commons

Recommended Citation

Rachel Hahn Arkenberg, B.A.* and Mary Gospel, PhD SLP
Butler University (Indianapolis IN), Current Address: Purdue University (West Lafayette, IN)

Effects of familiarity and presentation mode on auditory-visual speech recognition in adults with aphasia

Introduction
- Research demonstrates that adults with aphasia can continue improving their speech and language for years after their stroke with therapy.
- People with aphasia and their loved ones are searching for ways to continue speech and language improvements even after insurance runs out, and many are turning to technological therapy programs.
- There is little research on the skills people with aphasia need to benefit from these technological therapy programs. The current study reports on one of these skills, auditory visual speech perception.

Technological Therapy
- Interest since 1992
- Therapy programs focused on naming, sentences, conversational scripts
- Lack of studies on the fundamental skills needed for these programs.

Auditory Visual Speech Perception
- Familiarity Hade, Ellis, and Kay (1989), Stinkey and Noll (1994), and Dresler, Bulter, and Canezio (2009)
- Presentation Mode (live v. recorded speech) Haley et al. (2011)

Participants
- Recruitment: Aphasia support groups in Indianapolis
- Number: 6 adults with aphasia
- Gender: 4 male, 2 female
- Age: 44-70 years old
- Cause: 5 from a stroke, 1 from infection
- Chronic Phase: 6 months to 6 years

Methods

First Visit
- Caregivers introduced to the study (informed consent) and videotaped speaking sentences.

Familiar speaker (Caregiver)
- Live voice: Caregiver reads NU-6 words – Set A
- Recorded voice: Recording of caregiver reading NU-6 words – Set B

Unfamiliar speaker (Researcher)
- Live voice: Researcher reads NU-6 words – Set C
- Recorded voice: Recording of caregiver reading NU-6 words – Set D

Screening Tests
- History, vision, hearing, reaction time, short-term memory test, Western Aphasia Battery

Results
- There is a statistically significant difference between the four conditions, and the live familiar condition appears to be the most favorable.
- These differences were not explained by memory or repetition.
- Clinical Application: Incorporate a live, familiar person into technological therapy.
- Note: The live condition may be even more important than familiarity, so avenues could be explored for volunteers to work with people with aphasia on technological therapy.

Acknowledgements
Special thanks to Dr. Carrie Richie for input and guidance in the preparation and development of this project. This project was made possible thanks to the Holcomb Undergraduate Student Research Program at Butler University.

<table>
<thead>
<tr>
<th>Visual High Span</th>
<th>Recorded</th>
<th>Repeated</th>
<th>Recorded</th>
<th>Repeated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall</td>
<td>0.399</td>
<td>0.356</td>
<td>0.179</td>
<td>0.450</td>
</tr>
<tr>
<td>Correlation</td>
<td>0.971</td>
<td>0.923</td>
<td>0.873</td>
<td>0.972</td>
</tr>
<tr>
<td>Auditory Digit Span</td>
<td>0.817</td>
<td>0.354</td>
<td>0.725</td>
<td>0.431</td>
</tr>
<tr>
<td>Recall</td>
<td>0.873</td>
<td>0.873</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Correlation</td>
<td>0.930</td>
<td>0.930</td>
<td>0.810</td>
<td>0.810</td>
</tr>
<tr>
<td>WAB - 8 Repetition Score</td>
<td>0.235</td>
<td>0.234</td>
<td>0.171</td>
<td>0.132</td>
</tr>
<tr>
<td>Recall</td>
<td>0.880</td>
<td>0.880</td>
<td>0.880</td>
<td>0.880</td>
</tr>
</tbody>
</table>

Pearson's Correlation: In word tasks, only auditory digit span was correlated. In sentence tasks, there were significant correlations between repetition and performance in all four conditions. This high correlation was consistent, so it does not explain the differences between conditions.

Conclusions
- There is a statistically significant difference between the four conditions, and the live familiar condition appears to be the most favorable.
- These differences were not explained by memory or repetition.
- Clinical Application: Incorporate a live, familiar person into technological therapy.
- Note: The live condition may be even more important than familiarity, so avenues could be explored for volunteers to work with people with aphasia on technological therapy.