

An AAC pilot study to support conversation in persons with primary progressive aphasia

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Introduction

- Primary progressive aphasia (PPA) is a clinical disorder involving a gradual loss of language function due to neurodegenerative disease. Three PPA variants are associated with characteristic language impairments, as well as atrophy in specific brain regions (1). PPA is often referred to as frontotemporal dementia with language impairment by NIH Alzheimer's Disease Centers.
- Individuals with PPA experience decreased access to lexical and semantic networks (2).
- Intervention principles include a proactive management and staging approach utilizing Augmentative and Alternative Communication (AAC) to maximize communication during disease progression (3). AAC includes gestures, writing, communication boards, and speech-generating devices.
- Conversation necessitates access to shared referents or shared knowledge of events, and placing the lexica visually in front of a person through AAC supports can make these referents more easily accessible for users (3).
- The goal of this pilot study was to determine whether communication supports, a mobile technology AAC app, GoTalk Now®, enhance lexical retrieval during conversation by individuals with PPA.

Participants

Six adults diagnosed with PPA or frontotemporal dementia with language impairment and:

- Speech and language deficits as presenting symptoms, isolated over a 2-year period
- At least 2 of the following:
 - motor speech deficits
 - agrammatism in language production
 - Clinical Dementia Rating (CDR) between .5 and 2

Methods

During each session, participants engaged in:

- A novel activity
- Control conversation
- Experimental conversation

Control Conversation

- Natural communication modalities only
- No AAC app

Experimental Conversation

- AAC app, programmed with activity-specific photos and/or words paired with recorded speech output

Novel activities:

Making a smoothie, making a sandwich, or potting a plant

Conversation:

Describe the activity just completed

- Data were collected for three activities and six videotaped conversations.
- Nine pre-determined target words were identified for each participant based on the activity completed. Target words were used as a measure of coherence and conciseness in discourse.
- Participants could produce target words through spoken words, app output, writing or pointing to written words, or gestures.
- Conversations were videotaped, transcribed and coded.
- Raw counts of target words used by the participant were tallied for each conversation.

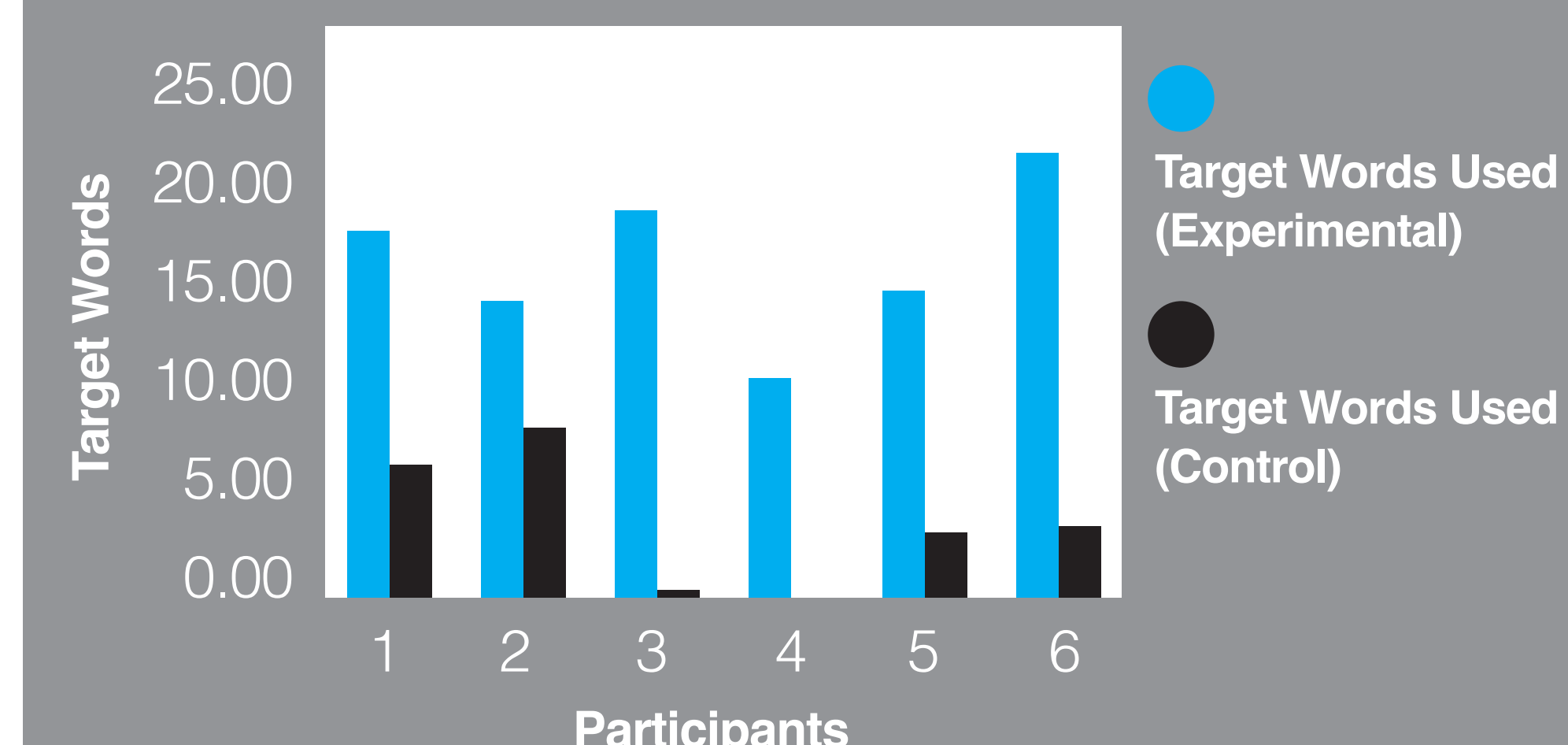


Results

- There was a significant difference in the scores for AAC app support ($M=15.92$, $SD=3.76$) and no AAC app support ($M=3.50$, $SD=3.19$) conditions; $t(4)=5.908$, $p=0.0001$.
- Participants used more target words when they had the AAC app during conversations than when their conversations were not supported by the AAC app.

Participant	Target Words Used (experimental) AAC App	Target Words Used (control) No AAC App
001	17.33	6.33
002	14.00	8.00
003	18.33	0.33
004	10.33	0.00
005	14.50	3.00
006	21.00	3.33

Mean Target Word Use By Participant



Effect of AAC app support was determined by comparing number of target words used during control and experimental conditions. Using averages for each individual, a paired samples t-test was conducted to compare the number of target words used in the two conditions.

Conclusions

- The data provide preliminary evidence to support the use of compensatory AAC apps to improve conversational performance for individuals with PPA.
- By providing visual access to the lexicon for communication, AAC apps can improve lexical retrieval during conversation.
- Future research for language treatment in PPA should focus on developing a larger evidence base for functional interventions aimed at addressing daily communication.
- Future investigations should involve a larger participant group at different levels of disease progression, as well as clear identification of PPA variant.

Literature cited

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