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Introduction

The variables in the design of augmentative and alternative communication (AAC) interface displays have an important impact on an individual's performance using an AAC system. Currently, research that investigates the effect of different AAC system features on ability of an individual to perform various linguistic tasks is very limited, especially in persons with aphasia. Hence, the current study aims to investigate the effects of grid size (number of symbols per display) and grammatical category of referents on the ability of persons with aphasia to identify symbols in a grid display.

Method

The study participants included 20 persons with aphasia (inclusive of 10 anomic aphasia and 10 Broca's aphasia) and 20 age, gender and education matched neurotypical adults; both native to Kerala, a south-western state in India with Malayalam as their native language. The participants were expected to identify a total of 60 target PCS symbols belonging to different grammatical categories (i.e., nouns, verbs, adjectives and prepositions) from each of the four grid sizes (4, 8, 12 and 16). The accuracy, efficiency, and response time taken to identify symbols in each of the participant group were subjected to analysis.

Results

The results showed that the mean accuracy and efficiency scores declined, and response time increased with an increase in the grid size in both participant groups; however,

the rate of decline in persons with aphasia was much higher relative to neurotypical adults. It was also found that both participant groups accurately and efficiently identified more nouns with shorter response time followed by verbs, adjectives, and prepositions.

Conclusion

The results of the current study are in consensus with findings from previous research. The effect of grid size on symbol identification can be attributed to the increased cognitive demands imposed by the increased number of symbols per display. The effect of the grammatical category of referents can be attributed to the differences in symbol iconicity or referent concreteness. Both increase in grid size and use of less concrete symbols requires PWA to rely on perceptual and conceptual cues to identify symbols, which further taxes the already impaired linguistic and cognitive systems. In line with existing literature, the current study reemphasizes the importance of considering different design variables to minimize the operating demands of an AAC system, thus improving their use in persons with aphasia.

References

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