

Hyunsoo Yoo – Abstract

“Information Processing Speed in People with Aphasia”

The primary goal of this study was to explore whether slow processing speed in persons with aphasia (PWA) is specific to this language disordered population. Based on the two different perspectives of general slowing and reduced processing speed, the information processing speed was explored using reaction time (RT) data.

The following specific issues were investigated: 1) Whether observed significant time differences are aphasia-specific, based on the comparisons between persons with left hemisphere damage without aphasia (LHD) and PWA resulting from left hemisphere damage; 2) whether observed significant time differences are evident in both the nonlinguistic (CRTT-RT1-3 assessing motor speed, simple RT and movement control speed) and linguistic (letter comparison tasks 1 & 2 and lexical decision time) domains, compared between normal healthy controls (NHC) and PWA. The following experimental questions were investigated in this study:

Are there significant differences in the average RT per item among the average of the three identified nonlinguistic tasks and the average of the three identified linguistic tasks among the PWA, LHD and NHC groups?

Are there significant RT differences between PWA and NHC, between PWA and LHD, and between LHD and NHC for each task?

Generalized Linear Mixed Effects Models and Brinley plots, using regression analyses, were used to compare the magnitude of RT differences among groups and tasks.

Results: The results of the mixed effects model revealed significant main effects for groups and domains, and no significant interactions among groups or domains. The two brain-damaged groups (PWA and LHD) produced significantly longer reaction times across tasks than the NHC group. The PWA groups' reaction times were significantly longer than the LHD group across simple perceptual and more cognitively complex tasks except for the CRTT-RT1-3 sensory-motor tasks.

Conclusion: Aphasia-specific slowing, as well as left-hemisphere damage-related slowing was demonstrated as evidence by significant differences between the two brain-damaged groups and the NHC group. Therefore, the observed slowing in the PWA group appears to be due to both aphasia-specific and brain-damaged related slowing. Domain-specificity was not observed as significant slowing occurred in both linguistic and nonlinguistic tasks in both brain-damaged groups.