Abstract

Natural communication requires the ability to link related information as it is exchanged in sentences (written) or phrases (spoken) during expressive and receptive acts. Multiunit communication, or discourse, comes in many forms (e.g., conversation, stories, and texts) and is commonly disrupted in persons with prefrontal cortex damage. That is, disordered cognitive processes that rely on the prefrontal networks, such as executive functions, disrupt the content and organization of the discourse message, even if linguistic processing is intact. This research project focuses on discourse organization and how if affects language processing demands in the prefrontal cortex. The purpose of the present study is to compare various organizational structures in discourse to help delineate the most efficient communication processes in support of improving communication in persons with discourse-processing deficits. Because there is currently no effective treatment known to improve communication in this population, understanding the relative contribution of structural organization on processing demands could lead to intervention targets that reduced processing burdens on brain injured populations. It is hypothesized that personal narratives are the least demanding on the brain, because they are the most common.

This study was carried out using 12 stories comprised of 60 words each that appeared on a computer screen in front of the participant. There were four types of narratives, including fictional narratives (i.e., based on story grammar organization), personal narratives (i.e., real life recasts of events), procedural narratives (i.e., how to or step by step textbook instructions) and finally poorly organized narratives from any of the previous categories. Participants are asked to read the prompt while wearing an fNIR headband to monitor blood flow in the prefrontal cortex. The different organizational types of discourse conditions will be compared in terms of prefrontal blood flow as a measure of processing demands and underlying neural organization of processing.