

Abstract

The Use of Infographics to Assess Context Processing

by

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Among high-order cognitive functions is the use of context to enhance comprehension of language or visual scenes. Although use of context is known to be impaired in certain clinical populations (e.g., schizophrenia), no existing test adequately assesses this construct. To fill this gap, we developed and attempted to validate a test of context use that employed Infographics (information graphics), which requires the use of context to interpret visual displays. The primary hypothesis was that interpreting Infographics would be sensitive to context processing. We further hypothesized that different levels of cognitive processing (requiring basic perceptual, real-world application, or verbal reasoning), as well as different categories of Infographics (Data Display, Maps, Diagrams, or Timelines) would tap differential cognitive functions. Forty Infographics test items were developed based upon design principles of Infographics. Following development of items, the Infographics test, as well as a battery of neuropsychological tests, were administered to 161 participants. Overall, results revealed that our Infographics did target context. However, the test also places significant demands on verbal reasoning and similar cognitive functions apply to each level of cognitive processing. Finally, results indicated that similar cognitive functions applied to all categories of Infographics, with the exception of the three of the categories of Data Display, Maps, and Diagrams, which were associated with

graphical literacy skills, whereas Timeline was not. In sum, we present data that a newly developed Infographics test is a valuable tool to assess context, and may be applied to evaluate individual differences among healthy individuals, as well as to evaluate impairment in patients with specific clinical diagnoses. However, test performance is not specific to context processing and the test is also sensitive to other high-order cognitive functions, including verbal reasoning.