



BAR-ILAN UNIVERSITY

**Are Readers with Dyslexia Impaired in Reading
Comprehension beyond their Reading Deficit? Inference
Generation, Text Processing, and Working Memory of Readers
with Dyslexia**

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Abstract

Dyslexia is a common disability in the population and therefore, a lot of research has been focused on the causes for the disability, its characteristics, and tested the abilities of readers dealing with dyslexia. Even though dyslexia is defined as a reading disability, people with dyslexia experience additional difficulties, which affect their learning capabilities. While some of these difficulties, such as weak phonological skills and a slow naming pace, which have been studied substantially in the past, fewer studies examined the influence of dyslexia on high-order abilities of reading comprehension.

Reading comprehension is a complex task, which relies on many abilities and cognitive skills. Making inferences is one of the central processes that supports reading comprehension. These inferences allow us to understand the text and establish coherence. Previous research has shown that readers with dyslexia had difficulties in making inferences, using a variety of empirical methods: offline measurements and online measurements, such as eye tracking and think-aloud tasks.

This current study examined reading comprehension ability among readers with dyslexia in order to identify the cognitive deficits underlying their difficulties in reading comprehension. The study tested the ability of children with dyslexia to generate inferences and process textual information "online" during reading, using the 'probing' paradigm. This method examines the immediate activation of information by readers while reading and control over individual differences in expression and memory abilities (as in offline and think-aloud methods). The participants in the study were asked to name, as quickly as possible, textual and inferred word-probes, which were presented in three positions within short narratives. Inference probes examined the activation of predictive and bridging inferences, and text probes examined retention, suppression and reactivation of text information relevant for inferencing. Naming times to probes were measured using a special Voice Key microphone.

The results of the study has shown that readers with dyslexia did not make predictive and bridging inferences while reading. There were no differences in processing the text (i.e., retention, reactivation, suppresion) between the participants with and without dyslexia. In addition, participants with dyslexia did not show difficulty in answering questions, although they answered the questions more slowly compared to control readers. Taken together, we suggested that low working memory, slow reading fluency, as well as low motivation for understanding the text, may explain the difficulty of readers with dyslexia in generating inferences while reading. The findings of this study may contribute in developing intervention programs, supporting readers with dyslexia to construct text coherenc and facilitate reading comprehension.