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Semantic Effects on Oral Implicit and Explicit Morphological Processing: Comparison between Typical Readers and Readers with Dyslexia

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Abstract

The purpose of the current study was to examine the effect of the degree of semantic proximity between morphologically linked words (identical root) on explicit and implicit morphological knowledge, among readers with dyslexia, compared to typical readers, in auditory mode.

Morphological knowledge is the knowledge of the smallest meaning units in a language and the matter in which they are joined together as words. Findings of prior studies indicated that during the process of word identification, an automatic morphological dismantling occurs via the extract of the root morpheme. This process reflects implicit morphological knowledge. Familiarizing with this knowledge may contribute to the understanding of the organization of the mental vocabulary. Alongside implicit morphological knowledge, there is also explicit morphological knowledge which is expressed by the ability to identify the morphological components of a word and knowingly activate them. This knowledge relates to the development of reading ability, proper spelling and expansion of the vocabulary. Assessing this knowledge may contribute to the understanding of the deliberate use of morphological knowledge for the purpose of analyzing and producing words.

In accordance with the goals of the current study, the literature review focused on studies examining explicit and implicit morphological knowledge, both among typical readers and readers with dyslexia. The uniqueness of the current study is based on the fact that to date, no studies examined the effects of the degree of semantic proximity between words on explicit and implicit morphological knowledge among readers with dyslexia. Examining these effects while comparing between typical readers and readers with dyslexia may shed light on the manner in which morphological knowledge is organized on the various levels (explicit and implicit). Moreover, this examination may

also contribute to the understanding of the difficulties readers with dyslexia face and reflect the manner in which their morphological knowledge is formed, thus easing the task of finding solutions to these difficulties.

The effect of semantics was examined by activation of the degree of semantic proximity between words with a morphological link (identical root) in two tasks reflecting the two levels of morphological knowledge – the implicit and explicit. 40 students participated in both tasks (15 males and 25 females). 21 subjects were defined as typical readers while 19 were defined as dyslexic. The subjects' ages ranged between 19 and 35.

The first task examined the implicit morphological knowledge via a lexical decision task in the short term priming paradigm. The goal of the task was to examine how the semantic links between words contribute to speed and accuracy in identifying words (the morphological priming effect). The second task examined the explicit morphological knowledge via an analogical morphological task. The purpose of this task was to examine how the links between pairs of words with an identical root contribute to speed and accuracy in solving analogies and how it relates to the percentages of errors by the subjects. All tasks were sampled among the same subjects and carried out in auditory mode.

The results of the current study indicated that the semantic characteristics affected both explicit and implicit morphological abilities among readers with dyslexia. In the first task examining the implicit morphological knowledge, it was found that readers with dyslexia exhibited a significant morphological priming effect only when the words were of semantic proximity. However, among typical readers, a significant priming effect was found regardless of the semantic characteristics of the words. The second task examining the explicit morphological knowledge, produced similar results. In this

task, no significant differences were found in precision and reaction times of both words with close semantic proximity and distant semantic proximity, among typical readers. However, a high precision level and short reaction time was found among dyslexic readers only in words with close semantic proximity.

These findings indicate that readers with dyslexia lean on mixed semantic characteristics that are involved in the primary development stages (morpho-semantic) of the morphological knowledge, whereas among typical readers, the ability to process words relies on simple structural morphological knowledge.

An analysis of the types of errors indicates a different morphological processing between the two groups. In the analogy task examining explicit morphological knowledge, analogies that contained words with close semantic proximity led to a lower number of "non-morphological" errors among readers with dyslexia, compared to analogies in which the words were semantically distant. These findings indicate that readers with dyslexia exhibit a low ability of identifying morphological representations and using them deliberately.

The findings of the current study have both a theoretical and practical-educational contribution. Theoretically, an examination of the semantic effects on morphological knowledge of various levels contributes to the understanding of the manner in which morphological knowledge is formed among readers with dyslexia, compared to typical readers. In a practical-educational aspect, understanding the role of morphological knowledge may assist in identifying the focus of the difficulties readers with dyslexia face, and to develop intervention tools that will assist in advancing spelling, reading and reading comprehension abilities among these readers, accordingly.