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Semantic Effects on Implicit and Explicit Morphological Knowledge in two Socioeconomic Backgrounds

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Abstract

The primary goal of the current study was to examine the effects of semantics on implicit and explicit morphological knowledge among readers of low socioeconomic status (SES) compared to readers of middle-high socioeconomic status. Findings from different studies conducted in Israel and abroad indicated that low SES readers experience difficulties and encounter gaps with syntactic, lexical and morphological abilities. Morphological knowledge has a primary role in literacy skills. Therefore, it is vital to assess this knowledge among readers who experience difficulties with such abilities.

Morphological knowledge is the knowledge of the smallest units of meaning in a language and the manner in which they are combined into words. Findings from prior studies indicate that during the process of written-word recognition, an automatic morphological decomposition occurs by extracting the root morpheme. This process reflects implicit morphological knowledge. The evaluation of this knowledge contributes to an understanding of the organization of the mental lexicon. Further, studies indicate the existence of explicit morphological knowledge, expressed in the ability to consciously identify and manipulate the morphological components of the word. This type of knowledge is related to the development of reading, spelling and vocabulary expansion. Assessment of this knowledge will shed a light on the deliberate use of morphological knowledge in the analysis and production of words.

Studies examining explicit morphological knowledge among low SES readers found that these readers exhibit lower morphological abilities in this area. In addition, low SES readers make more mistakes affected by semantic characteristics compared to middle-high SES readers, who are more affected by morphological characteristics.

However, in these studies there was no control over the semantic characteristics, and words with a morphological connection (common root) also shared a semantic connection with respect to the meaning of the word.

A study dealing with implicit and explicit morphological knowledge with control over the processing of the semantic characteristics, found that the effect of semantics diminishes with the increase of the reader's age among middle-high SES readers. Thus, among fourth-grade readers semantic proximity was found to influence the processing of explicit and implicit morphological knowledge. On the other hand, among seventh graders semantic proximity had a lower effect on the processing of explicit morphological knowledge. Moreover, among these readers the degree of semantic proximity had no influence whatsoever on the implicit morphological knowledge. This finding shows that the organization of the mental lexicon among middle-high SES readers is based on a structural-abstract morphological principle.

Thus far, no studies have been conducted in the field of implicit morphological knowledge among low SES readers, and no studies have examined the influence of semantic characteristics on morphological knowledge, both implicit and explicit, among low SES readers. An examination of these effects may shed light on the way in which morphological knowledge is organized at different levels of knowledge (explicit morphological knowledge, implicit morphological knowledge), while comparing readers of different SESs (middle-high, low). This examination will contribute to understanding the differences between readers of both statuses and will reflect the morphological processing level of the readers in each socioeconomic status. The purpose of the current study is to fill in an existing gap in the research in this field and to examine implicit morphological knowledge among low SES readers and the influence of semantic characteristics on these readers' morphological knowledge

(implicit and explicit). The uniqueness of this study is in it being the first of its kind to examine the extent of the effect of semantic proximity on implicit morphological knowledge in parallel to explicit morphological knowledge, among low SES readers compared to middle-high SES readers.

The effect of semantics was examined by applying the degree of semantic proximity between words with a morphological connection (the same root) in two tasks reflecting both levels of knowledge - implicit and explicit. Seventy-three ninth graders (37 boys, 36 girls) participated in the two tasks - 38 low SES and 35 middle-high SES. The subjects' ages ranged from 14 to 15.

The first task examined implicit morphological knowledge via a lexical decision task in the masked priming paradigm. In this task, we examined the manner in which a semantic connection between words contributes to speed and accuracy in word recognition (morphological priming effect). In the second task, explicit morphological knowledge was examined via a morphological analogy task. In this task, we examined the manner in which the semantic connection between pairs of words that share a common root contributes to speed and accuracy in solving analogies and the percentage of error types performed by the subjects. All tasks were sampled among the same subjects.

The results of this study show that the influence of semantic characteristics increases with the decline in the reader's socioeconomic status. The findings of the first task, which examined implicit morphological knowledge, showed that among low SES readers the morphological priming effect was significant only when the words were semantically close. In contrast, among the middle-high SES readers, the morphological priming effect was significant regardless of the semantic characteristics of the words. Similar results were obtained in the second task, which examined explicit

morphological knowledge. In this task, a standard accuracy rate was observed among middle-high SES readers regardless of the semantic characteristics of the words. In contrast, low SES readers exhibited higher accuracy rates only when the word pairs were semantically close, as opposed to analogies where words with common roots were semantically distant. It should be noted that shorter response times were measured among readers of both SESs when the word pairs were semantically close. Nevertheless, a significantly higher effect of semantic proximity on reaction times was found among low SES readers.

These findings indicate the reliance of low SES ninth graders on semantic characteristics involved in early stages (morpho-semantic) of morphological knowledge, as found among young readers (fourth grade). In contrast, it was found that the middle-high SES ninth graders based their ability to process words almost entirely on abstract-structural morphological knowledge.

Analysis of the types of errors also indicated of a developmentally delayed morphological procedure among low SES readers. A single significant effect of semantic proximity was found in pattern-type errors among low SES readers only. Thus, in the analogies with semantically close words, there was a significantly lower number of pattern errors than in analogies with semantically distant words. These findings indicate a qualitative gap between SESs with reference to word structure. Readers of the lower SES rely on morpho-semantic knowledge during word processing procedures, while middle-high SES readers rely on abstract morphological knowledge.

In conclusion, the findings of this study indicate that semantic effects on morphological knowledge, at implicit and explicit levels, vary as a function of socioeconomic status. It is evident from the findings of the two tasks that beyond the quantitative differences in the time variables, accuracy rates and the percentage of

errors, qualitative differences arise from the processing of morphological knowledge. This processing, among low SES readers, reflects dependence on semantic characteristics, a dependence characterized by an initial stage in morphological processing ability, which indicates a developmental delay. In contrast, middle-high SES readers exhibited a prevailing use of morphological knowledge in word processing procedures, and also of abstract morphological processing ability. The differences in implicit knowledge between SESs reflect the principles of delayed mental lexicon organization among low SES readers, while the differences in explicit morphological knowledge between SESs indicates the weakness of morphological representations among low SES readers and their consequent difficulty in intentionally using these representations.

The findings of the study have both a theoretical and a practical-educational contribution. Theoretically, examining the effects of semantics on morphological knowledge at different levels contributes to the understanding of the processing stage of morphological knowledge among low SES readers compared to middle-high SES readers. From a practical and educational point of view, these findings can contribute to a distinctive diagnosis of the source of the gaps sources and, to the construction of an appropriate intervention program, accordingly. The intervention programs will aid in promoting the linguistic abilities of low SES readers, while addressing morphological knowledge and its central role in spelling, reading and reading comprehension skills.