

BAR-ILAN UNIVERSITY

The influence of frequency on the ability to read words in both deep and shallow orthographic systems: a comparative-developmental research on children from low and high SES.

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Submitted in partial fulfillment of the requirements for a Master's Degree in the School of Education, Bar-Ilan University

Abstract

The aim of the current study was to examine the influence of frequency on the ability of students from high and low socioeconomic backgrounds to read words in deep and shallow orthographic systems. Specifically, the objective of this study was to examine the impact of high- and low-frequency words, as well as rare words, on the accuracy of reading in deep and shallow orthographic systems of students from different age groups and socio-economic backgrounds.

The study assumptions were a) that the frequency of words in the language is one of the main predictors of fluency of reading; and b) that mastery of the written language is influenced by students' socio-economic background. Thus, the main hypothesis was that accuracy would be greater in high-frequency words compared to low frequency, rare, and non-words. Moreover, the expectation was that older students from high socio-economic backgrounds would be more accurate in their reading. Finally, it was assumed that the presence or absence of diacritics would also affect accuracy levels, such that words with diacritics (i.e., shallow orthography) would be more accurately read compared to words with no diacritics (i.e., deep orthography) or wrong diacritics.

To test these hypotheses, 203 (104 girls and 99 boys) Hebrew-speaking students were recruited from five different grade levels (2nd, 4th, 6th, 9th, and 11th grade). Half of the children were from a high socio-economic background and a half from a low socio-economic background. All participants read a list of 150 words which were shown on a computer screen for 3 seconds each. The list was comprised of words of different frequency (high/low/rare) and different diacritics (with/without or wrong). There were also filler words to control for possible priming. The participants read the words out loud and their outputs were recorded and later coded for accuracy (yes/no).

To test the research questions regarding the accuracy of students from different socio-economic backgrounds (high/low), age groups and type of orthographic system (presence/absence/wrong diacritics), three-way analyses of variance (2x5x3) with repeated

measures were conducted. The Kruskal-Wallis test was used to examine the difference among each age group between the two socio-economic statuses and the orthography systems. The results suggest that the accuracy level is greater in high vs. low socio-economic status across the frequency level. The findings amongst students from a high socio-economic background are consistent with the developmental model of reading, according to which 2nd graders tend to stick to the diacritics to achieve accuracy, then abandon it in 4th grade, only to return to the diacritics in high school for meta-linguistic purposes.

In contrast to the hypotheses, no difference was found in the accuracy of reading high-frequency words with or without diacritics. Regarding rare words, a difference was found between the economic statuses but only in 2nd and 4th graders who were less accurate than the older students. In respect to non-words, it seems that students from high socio-economic backgrounds read more accurately across the developmental span, while the reading of students from the low socio-economic background only improves in older ages. When non-words had diacritics there was no difference among the age groups from the high socio-economic status. Students from a low socio-economic status, however, read more accurately in the 9th and 11th grades than in the 2nd and 4th grades. Conversely, when non-words had no diacritics, the same level of accuracy was found among the three higher grades. In high frequency, rare, and non-words that had wrong diacritics, a different pattern was found between the two socio-economic status groups. In the low socio-economic status group, there was a lower accuracy level compared to the younger age group, forming a U-shape curve. Low socio-economic status seems to delay the acquisition of reading throughout its developmental stages.

Theoretically, this study contributes to a deepening of the knowledge of orthographic representation in the mental lexicon of students from different ages and backgrounds. Furthermore, this study highlights the role of word frequency in learning words and predicting reading fluency. Finally, these findings could help detect the source of gaps between students of different socio-economic backgrounds.