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Can oral repetition of a word and its meaning promote word learning? An experiment with e-book support in the Arabic language

Nareman Mahamid

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Abstract

The present study focused on the learning of new words among Arabic-speaking kindergartners through the use of an electronic book (e-book). Previous research has shown that kindergartners' vocabulary influences their future level of reading and reading comprehension and their general level of learning. The contribution of vocabulary to reading and reading comprehension is important in every language, and in particular in Arabic, due to its diglossic nature, which sometimes causes the reading process in this language to be particularly challenging. Knowing the meaning of words facilitates the reading process and supports reading comprehension. Promoting vocabulary learning in Standard Arabic among kindergarteners is therefore an important task. In the present research we tested the possibility of enriching kindergarteners' vocabulary through the use of an e-book which includes a dictionary that has either a static or a dynamic representation of the meaning of the words. Preliminary evidence points to the advantage of a visual-dynamic representation in the e-book compared to a static representation. However, this issue needs to be further investigated in additional studies. The goal of the present study was to add another multimedia component – the aspect of the vocal representation of the new word and its explanation. We investigated whether vocalizing the words that appear in the dictionary by the child, according to the software's request, will also contribute to effective learning of the word. It was assumed that vocal representation of the new word, its establishment in the memory through repeated accessibility in the phonological loop, will increase the effectiveness of the word's acquisition. We therefore examined whether different multimedia means that include a dynamic visual representation (compared to a static representation) and vocalization of the new word and its explanation (compared to not vocalizing it) will improve the learning of new words. We tested each component separately (dynamic versus static representation and with and without vocalization of the word) as well as the combination of both components.

We developed an Arabic e-book for this study, which includes a dictionary with five presentation channels: (A) presentation of a dynamic picture for explaining the word, with the child vocalizing the word; (B) presentation of a dynamic picture without vocalization of the word; (C) presentation of a static picture for explaining the word, with vocalization of the word; (D) presentation of a

static picture for explaining the word without vocalization of the word; (E) reading the text without a dictionary (control group). The research included 163 Arabic-speaking kindergarteners. The words were tested at the receptive and the expressive level, before and after the intervention. After the pretest, the children were randomly divided into five groups. In each group, the child read the e-book individually, using one of the book's channels. We hypothesized that the effectiveness of the reading of the e-book will be in the following decreasing order: (1) combination of a dynamic representation and the child vocalizing the word and its meaning; (2) dynamic representation of the meaning of the word (without vocalization) (3) static representation of the word with the child vocalizing the word and its meaning; (4) static representation without vocalization; and lastly (5) reading of the text without a dictionary (control). We further hypothesized that the child's initial knowledge (level of vocabulary and phonological memory of non-words) and the experimental groups would contribute to the learning of the new words, and that an interaction would be found between these two measures in their contribution to a change in word learning.

The research findings showed that all research groups, including the control group, progressed in receptive learning of the words. However, reading with the dynamic dictionary and vocalizing the words was more effective for receptive understanding compared to the control group. No other significant differences were found between the different groups in this measure. All groups apparently progressed in receptive understanding of the dictionary words due to the ease of this task. Nonetheless, the combination of dynamic representation together with vocalization of the word by the child created an advantage in receptive learning of the words compared to the control group that read the text without a dictionary and without vocalization. Regarding word explanation, the greatest progress was observed following reading the e-book with a dictionary together with vocalization, with similar progress upon exposure to the dynamic or the static dictionary. Progress was smaller following reading with a dictionary without vocalization (dynamic or static) and was smallest in the control group after reading the text without a dictionary and without vocalization. The e-book used in the present study, thus contributed to the children's ability to explain new words, and the highest achievements were obtained by vocalization of the dictionary words. No significant difference was found between the various research groups regarding use of the dictionary words. Support of the animation and vocal repetition of the dictionary words was apparently not sufficiently effective for strengthening the phonological and lexical representation of the new word at a level that would enable its use. It is possible that the

complexity of the task (such as the diglossia, properties of the target words, number of exposures to the word, etc.) delayed this learning. These findings support the hypothesis that progress in learning new words will be different at different acquisition levels. The findings further indicate that the child's initial vocabulary level was a significant factor in learning the new words, in particular when dictionary support was small. The initial vocabulary level had a greater effect on the learning process when reading an e-book which affords less learning support (without a dynamic dictionary or without vocalization) compared to the intervention groups. In this situation the child relies on his or her basic lexical abilities more than on the software, and this occurred especially in a task where the child was required to explain the word. Furthermore, the child's initial vocabulary level contributed to learning the use of the dictionary words, a task that is considered as having high cognitive demands. In contradistinction, the basic ability of repetition of a non-word had a limited contribution to learning the new words, and was found to be specific solely for receptive word learning. This ability appears to be related to new words at the initial level (such as receptive understanding) more than in more complex acquisition.

In the discussion we refer to several limitations of this study, and suggest continuation researches according to these limitations. Our recommendations are that developers of e-books will include not only animations that illustrate the meanings of difficult words, but also the possibility of vocal repetition of the book's dictionary words. We recommend that educators (parents, kindergarten teachers and other professionals) include educational e-books for kindergarteners in general, and for Arabic-speaking children in particular, in order to enrich their vocabulary. It is recommended to develop educators' awareness of the effectiveness of using vocal repetition of new words and exposure to the animation of a visual representation of the word as an effective way for increasing the effectiveness of new words' learning.