

**BAR-ILAN UNIVERSITY**

The impact of child's initial language level and gender on  
words learning after using a digital e-book with dictionary  
and background music

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## **Abstract**

In recent years, electronic books (e-books) have gained a respectful place alongside printed books for adults and children, including preschoolers. E-books can include various types of technologies that may support children's learning of new words; one of which is the dictionary function. These types of books have been found to support preschoolers' learning of new words. Many of these books also include background music, yet it remains unclear whether this music supports or interferes with word learning. Some studies have found that background music can interfere with the process of learning and understanding while other studies have found that background music does not interfere with learning, and at times can even support it. Similarly, it is known that there is significant variation between preschoolers in terms of their language level, and that boys' language often emerges later than girls'. It is generally assumed that children with a higher language level will advance more following an intervention than those at a lower language level. Nonetheless, the literature dealing with technology and multimedia has shown that at times, it is the children with lower language levels who improve more with the use of a multimedia activity than those with higher language levels.

The current study examined the combination of definition provision of difficult words via a dictionary in an e-book along with background music, and the impact of this combination on the learning of new words, taking into account children's initial language level and gender. We asked the following research questions: (1) Does background music in an e-book with a dictionary (that includes definitions and animations) provide greater support in the learning of new words compared to an e-book without the background music; (2) To what extent does children's initial language level influence word learning; and (3) Will these processes influence boys' and girls' learning differently?

Participants in the study included 59 preschoolers (30 girls and 29 boys), aged 5-6 years old, from a middle-class socio-economic level. The children were randomly assigned to the intervention or the control group. The groups were balanced in terms of gender. Basic language measures were administered at pretest, including vocabulary, non-words, and sentence repetition. Similarly, children's target word understanding was measured via a receptive test, a definitions test, and a usage test. At the intervention phase, the intervention group read the e-book independently with the dictionary and accompanied by the background music, while the control group read the e-book with the dictionary without the background music. The children read the book "The Bridge" that was developed for research purposes. The book was read four times with an interval of one to three days in between. At posttest, target word knowledge was tested in the same way as at pretest. We hypothesized that: (1) children who read the e-book with the dictionary and without the music would focus more on word learning than those who read with the background music. We anticipated that the background music would distract the children and interfere with the learning process; (2) children with a lower initial language level would benefit more than those with a higher initial language level; and, (3) gender would have a significant impact on word learning from the e-book – boys would benefit more than girls due to their lower initial language levels.

Results from the study showed that, in contrast to the hypothesis, background music while reading an e-book with a dictionary did not interfere, though it also did not support the learning of new words amongst preschoolers. The intervention and the control groups advanced to a similar degree in their acquisition of new words on all the measures. In line with the second hypothesis, results showed that the dictionary improved receptive understanding of the target words to a greater degree in those children with a lower initial language level. At the same time, results did not show significant differences between

boys' and girls' word learning across the three word learning measures. Limitations, and educational implications are expanded upon in the discussion section .