

Bar-Ilan University

**Combining verbal representation strategies with visual mental
representation strategy, and its contribution to informational text
reading comprehension**

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Abstract

Reading comprehension of informational texts is considered a necessary skill for academic and professional success, but many readers find it difficult to cope with such texts. That is because the structural, content and linguistic characteristics of these texts are usually complex, and are thus difficult to identify and comprehend, and also because readers lack the tools and comprehension strategies that are likely to help them do so. The main purpose of the present study was therefore to develop and evaluate the efficiency of intervention programs for explicit instruction in comprehension strategies, which are intended to advance reading comprehension of informational text.

In the present study three intervention programs were examined: the **TWA** program (**Think Before, While and After** reading – verbal representation strategies), that has proved to be efficient in reading comprehension of informational text; the **VMR** – (**Visual Mental Representation** program – strategy for visual mental representation), that has proved to be efficient in reading comprehension of narrative text, but has yet to be proven efficient for reading comprehension of informational text; and the **COMB** program (that combines strategies of verbal representation with strategy for visual mental representation), which was developed especially for this study, with the purpose of testing its efficiency in reading comprehension of informational text. These programs were selected based on studies which found that explicit instruction of comprehension strategies for verbal representation assists reading comprehension of informational text. Similarly, selection was based on studies suggesting that representation of information read visually as well as verbally, enables optimal reading comprehension.

In addition to testing the efficiency of intervention programs (TWA, VMR and COMB) for reading comprehension of informational texts, the current study also examined the efficiency of these programs for reading comprehension of narrative texts (which was not learned in the programs' framework). Similarly, the efficiency of intervention programs was tested for strategy awareness and self-efficacy. For the purpose of examining the intervention programs' effectiveness, four research questions were defined:

1. Do differences exist between the three intervention programs (TWA, VMR and COMB) in the degree of improved achievements on a reading comprehension test of informational text after intervention, relative to pre-intervention achievements, as well as in the degree of retention of these achievements four weeks after the intervention.

2. Do differences exist between the three intervention programs (TWA, VMR and the combined COMB program) in the degree of improved achievements on a reading comprehension test of narrative text (not learned in the program's framework) after intervention, relative to pre-intervention achievements, as well as in the degree of retention of these achievements four weeks after the intervention.
3. Do differences exist between the three intervention programs (TWA, VMR and the combined COMB program) in the degree of improvement in strategy awareness post-intervention, relative to pre-intervention, as well as the degree of retention of the strategy awareness, four weeks after the intervention.
4. Do differences exist between the three intervention programs (TWA, VMR and the combined COMB program) in the degree of improvement in self-efficacy after intervention, relative to pre-intervention, as well as in the degree of retention of the self-efficacy four weeks after the intervention.

The research hypotheses were that the degree of improved achievements on the reading comprehension test for informational and narrative text, as well as the degree of improvement in strategy awareness and self-efficacy after intervention, relative to pre-intervention achievements, will be found to be greater among participants in the combined intervention program (COMB), compared to participants in the other intervention programs (TWA and VMR) which provided strategies of one type only (verbal vs. visual), whereby results would be retained four weeks after the intervention.

The study included 71 hebrew speakers fifth grade students. All subjects had normal reading skills, non-verbal thinking and working memory, but were low achievers in reading comprehension, as determined by assessment tests administered prior to carrying out the study. Participants were assigned randomly to one of the three intervention programs: the TWA program (33.8%), the VMR program (32.4%), and the COMB program (33.8%). Intervention programs lasted over seven weeks, in which ten two-hour meetings were held. For the purpose of testing the research goals, participants' achievements were examined with four tools: a reading comprehension test of informational text (one of the MEITZAV tests for fifth grade of the Ministry of Education), a reading comprehension test of narrative text (from the MEITZAV fifth grade tests of the Ministry of Education), a strategy awareness questionnaire (Johnson-Glenberg, 2000) and a self-efficacy questionnaire (Yoğurtçu, 2013). The tests were administered at three evaluation points: before intervention, after intervention and four

weeks after the intervention. At each evaluation point a different comprehension test was administered, of informational text and narrative text.

Study findings indicated that the degree of improved achievements in reading comprehension of informational text after intervention, relative to pre-intervention achievements, was greater among participants in the COMB program, compared to participants in the TWA and VMR programs, whereby these results were retained four weeks after the intervention. Furthermore, a significant improvement was found in these achievements, four weeks after the intervention compared to pre-intervention achievements, only among the COMB program participants. In other words, only COMB program participants significantly improved their achievements over time. In addition, the degree of improved strategy awareness after intervention compared to pre-intervention achievements, was also found to be greater among COMB program participants, compared to TWA and VMR program participants, whereby these results were retained four weeks after the intervention. When examining the degree of improved achievements in reading comprehension of narrative text after intervention compared to pre-intervention achievements, the study results indicated a significant improvement in achievement for COMB and TWA program participants, without any significant difference in degree of improvement between the programs, whereby these results were retained four weeks after the intervention. Nevertheless, it was found that only the COMB program participants improved their achievements significantly four weeks after the intervention, compared to pre-intervention achievements. In other words, only the COMB program participants significantly improved their achievements over time. Furthermore, a significant improvement was found in participants' self-efficacy in the three programs (TWA, VMR and COMB) after intervention as compared to pre-intervention achievements, without any significant advantage for the COMB program over the other programs, where these results were retained four weeks after the intervention.

This study makes an important theoretical and practical contribution. Theoretically, the study offers empirical support for the first time, to the theoretical claims raised regarding the importance of combining strategies for verbal representation with visual mental representation strategy for reading comprehension of informational text. Similarly, the research results also shed additional light on the importance of combining these strategies for reading comprehension of narrative text. In addition, the study emphasizes the importance of explicit instruction, of using these

strategies in combination for strategy awareness. In practical terms the study findings are likely to aid instruction of reading comprehension of informational text, as well as development of intervention programs intended to promote reading comprehension.