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INTRODUCTION

Students with Learning Disabilities (LD) spend less time planning and organizing a text, produce short texts with lack of coherence, clarity and purpose, use poor vocabulary and incomplete syntactic structure. Furthermore, they experience difficulties with the process of revision and evaluation of their manuscripts (Graham et al., 2017). In fact, only 33% of Greek students with LD upon entering the High School meet the criteria of success in writing. So, there is a need to enhance LD students' written expression by adopting effective methods for teaching this complex skill (Graham & Perin, 2007; Rogers & Graham, 2008). Teaching strategies for planning, editing, and revising (the three phases of the writing process) via self-regulated strategy development (SRSD) improves the overall writing quality (Graham & Harris, 2003).

The goal of the present study was to examine the effects of a new Self Regulated Strategy Development (SRSD) writing intervention program which was designed to address the written expression difficulties of 5th and 6th LD graders.

METHOD

Participants

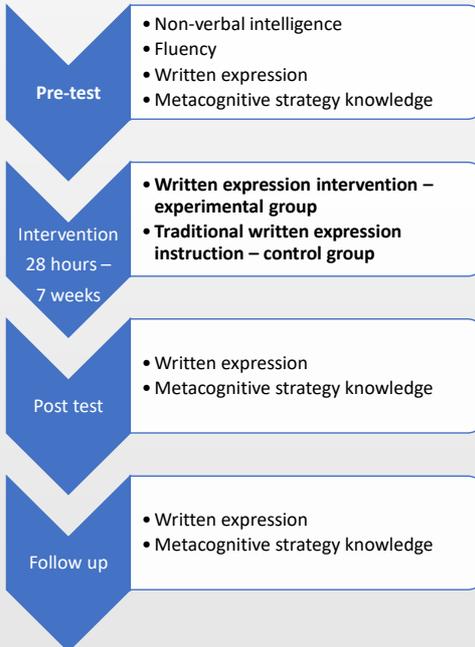
The criteria for inclusion of students with LD in the study were the following:

- (i) achievement of an 85 or above Intelligence Quotient using Raven's Colored Progressive Matrices
- (ii) performance under the 10th percentile in the fluency measured via the standardized Reading Test
- (iii) bilingual students were included only if they had attended Greek schools since kindergarten

GROUP	AGE M (SD)	IQ M (SD)	READING FLUENCY M (SD)	WRITING QUALITY M (SD)	META- COGNITIVE SKILLS M (SD)
Experimental N=36	11.02 (0.59)	102.36 (11.74)	65.94 (15.80)	1.22 (0.38)	0.374 (0.27)
Control N=44	11.15 (0.561)	98.18 (11.467)	67.59 (17.890)	1.31 (0.398)	0.378 (0.216)
N=80	t (1) =-1.000	t (1) =-1.921	t (1) =0.186	t (1) =-0.96	t (1)=-0.004
	p>0.10, , ns	p>0.10, ns	p>0.10, ns	p>0.10, ns	p>0.10, ns
Greek speakers/ non-Greek: $\chi^2 = 0.604$, p>0.10, ns					

Table 1. Descriptive data of participants at the onset of the study

Procedures



Screening process

- (i) Raven's Colored Progressive Matrices: Non-verbal intelligence (Cronbach's $\alpha = 0.693$) (Sideridis et al., 2015)
- (ii) Reading Test: Reading Fluency (Padeliadu, Antoniou & Sideridis, 2019)

Pretest-Posttest-Follow up test

- (i) Unstandardized Written Expression Test: write a story through pictures.
- (ii) Unstandardized Metacognitive strategies knowledge Test: Identify more helpful strategies (6 options) under specific circumstances.

Intervention

The program was based on Self-Regulated Strategy Development, which consists of six instructional steps: 1. Activation of prior knowledge 2. Discussion 3. Modeling 4. Memorization 5. Support and 6. Independent work

The strategies taught were:

- Planning, editing, and revising (the three phases of the writing process)
- Writing quality (organization of the paragraph, genre, content and vocabulary)

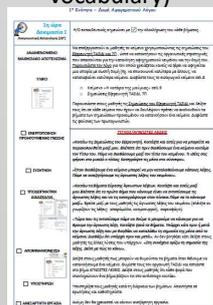


Image 1. Teacher's book



Image 2. Student's workbook

RESULTS

The overall effectiveness of the intervention program was examined using ANCOVA. The mean performance of the two groups at pre-post-follow up along with the related results from ANCOVA are depicted in Figure 1 & 2. The experimental group significantly outperformed the control group in both writing quality and metacognitive strategy knowledge competence.

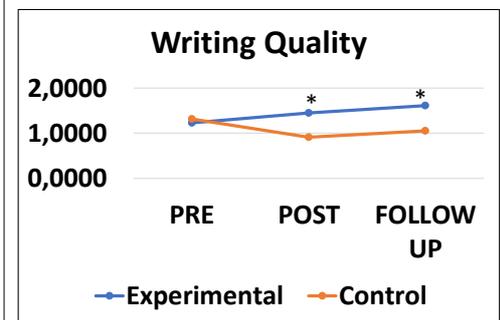


Figure 1. Performance of the EG and CG at PRE-POST-FU on Writing Quality

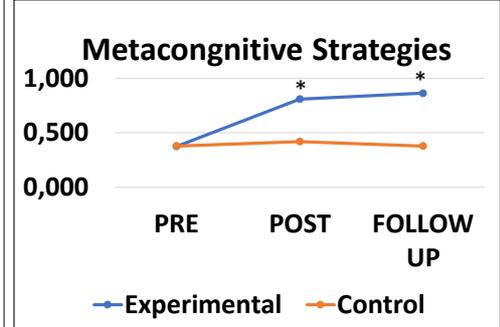


Figure 2. Performance of the EG and CG at PRE-POST-FU on Metacongitive Strategies

DISCUSSION

The implementation of the SRSD intervention was proven to be beneficial to children with LD. These results are broadly consistent with those obtained from past research regarding the efficiency of similar interventions (Harris, 2021; Koster, et al. 2015). It was defined that SRSD instruction in the steps of the writing process, goal setting as well as guided feedback during the writing process were effective practices for students with LD (Gestern & Baker, 2001).

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