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Enhancing metacognition through creative writing activities

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Summary: The present research study reports the results of a 25-week school-based research/interventional creative writing program aimed at enhancing the metacognitive skills of students in the last two grades of primary school. The Experimental Group (implemented the program) was composed of 382 students, while the Control Group (implemented the curriculum) consisted of 191 students. An impromptu questionnaire of 7 statements with a high Cronbach's alpha reliability coefficient ($\alpha = 0.933$) was used, which was filled in by the teachers of both groups, one for each student, before and after the intervention. The results showed that the Experimental Group substantially improved its metacognition ability compared to the Control Group.

Keywords: metacognitive skills, creative writing

Introduction

Flavell was the first to use the term "metacognition", which, according to him, is "one's knowledge of one's own cognitive functions and products or anything related to them" (Flavell, 1976, p. 232). One term for metacognition is "cognition about cognition," which refers to second-level

mental states: Knowing about knowing, thinking about thinking, or even reflections on our actions. So, if cognition includes the functions of perception of understanding and memory, then metacognition includes thinking about perception, understanding and memory (Kasimatis, 2020). The use of metacognition leads to better school performance, improved self-efficacy and motivation to learn (Momeni & Omid, 2017). It occurs early in an individual's life, follows a developmental trajectory and gradually becomes stronger as it operates increasingly under the individual's conscious control (Kuhn, 2000). According to Flavell (1979), metacognition improves through practice, while for Kasimatis (2015) the factors that influence it are an appropriate pedagogical climate, experiences in specific cognitive processes, maturation and age.

On the other hand, creative writing, in particular poetry writing, is a means for personal expression and exploration (Hanauer, 2014), while related to the broader concept of metacognition is the concept of creative metacognition. According to Kaufman and Beghetto (2013), creative metacognition is the result of combining relational knowledge—which identifies the when, where, how, and why of creativity—with creative self-awareness, which is the understanding of one's creative potential and limitations. Several studies have examined how the metacognitive process relates to creative poetry and story writing (Alshreif & Nicholes, 2017; Kaufman et al., 2016), while according to research by Negretti (2012), metacognition seems to be associated with students' capacity to control their learning and produce a unique writing style. In turn, metacognitive processes aid a student's overall growth as a writer, according to a 2016 study by Gorzelsky et al., while Garvin's (2013) research linked poetry writing to metacognition. The importance of writing poems in enhancing metacognition is also shown by Hanauer's (2010, 2012, 2014) research.

Following the above, this paper presents the results of a research/interventional creative writing program in enhancing the metacognitive skills of students in the last two grades of primary school. The title of the project was "Creative Writing and Social Learning Skills" (Tsatsou-Nikolouli, 2020) and was conducted by the University of Macedonia during the academic year 2019-2020. Its duration was 25 weeks and it included creative writing activities having as inspiration literary texts, paintings and poems. One of the hypotheses of the intervention based research was whether the creative writing program would lead to the enhancement of the metacognitive skills of the students who took part in it. The research sample, the questionnaire used to collect the data, the results and their analysis follow below.

The Research

The Questionnaire

Using a structured spontaneous questionnaire, data was collected to determine the level of children's social learning skills, which was named "Social Learning Skills Assessment Scale for Social Learning Skills in Grades 5 and 6 of Primary School". It includes 11 impromptu subscales to assess students' social learning skills as they occur in the school environment. To create the eleven subscales of the questionnaire, the following social skills assessment questionnaires were previously studied: a) "The Walker-McConnell Scale of Social Competence and School Adjustment" by Walker and McConnell (1988); b) "Children's Self-Report Social Skills Scale (CS4)" by Danielson and Phelps (2003); c) "School Social Behavior Scales, (SSBS)" by Merrell (1993); d) "Social Skills Rating System (SSRS)" by Gresham and Elliot (1990). The assessment of students in terms of the frequency with which they display each skill is achieved using a seven-point Likert-type scale (1=never or almost never, 2=very rarely, 3=rarely, 4=sometimes, 5=often, 6=very often, 7=always or almost always). Reliability and validity testing of the scale was carried out on a pilot basis on a population of 30 teachers. The Cronbach's alpha reliability coefficient for the metacognition skill was $\alpha = 0.933$ (Tsatsou-Nikolouli, 2020).

As part of the teacher's assessment of each student, the metacognition skill included the following 7 statements: 1) Making decisions responsibly, 2) Justifying decisions, 3) Following a process to solve a problem, 4) Asking questions before, during, and after working on a topic, 5) Self-correcting, 6) Evaluating results and thinking process, 7) Analyzing and simplifying a problem.

Results

The normality of the indicator values was investigated by applying the Kolmogorov-Smirnov test and the Shapiro-Wilks test. To compare these indicators between the Intervention Group and the Control Group, the t-test was applied for cases where there was a normal distribution and Mann-Whitney for cases where there was no normal distribution. Frequency distribution tables were constructed to describe student demographics and teacher ratings, and responses to Likert-type questions were presented with their respective mean (M.O.), standard deviation (S.D.), median (D.), and range (E.). Statistical tests were performed at 5% level of significance ($\alpha=0.05$).

According to the mean and median values, it can be observed that the students in the Intervention Group scored higher on the final assessment compared to the initial assessment regarding the metacognition skill (Table 1).

Table 1

Comparison between the initial and final assessments of the Intervention Group students on metacognition

Skills	Assessment	M.O.	T.A.	D.	E.	Z	p
Metacognition	Initial	5.04	1.44	5.29	6.00	-11.41	<0.001
	Final	5.62	1.25	5.86	6.00		

The scores of the Intervention Group were significantly higher ($p<0.001$) after the implementation of the program compared to the scores before the implementation of the program in terms of metacognition skills.

The results of the statistical comparisons show that the Intervention and Control Group showed a statistically significant change in metacognition skill ($Z=-3.42$, $p<0.01$). The change (improvement) between the final and initial assessment of students in the Intervention Group, on average, is higher in metacognition skill (Table 2) (Tsatsou-Nikolouli, 2020).

Table 2

Comparison of the change in student ratings between the Intervention Group and the Control Group on the metacognition skill

Skills	GROUP	M.O.	T.A.	D.	E.	Z	p
Metacognition	Control	0.32	0.86	0.29	6.00	-3.42	<0.01
	Intervention	0.58	0.91	0.57	6.71		

Conclusions

The creative writing activities within the research/interventional project improved the development of metacognitive skills to a statistically significant degree. Another program with positive results in terms of improving and activating metacognitive strategies in learning is "DELV" (Klauer, 2002), while Chiu (1998) in a meta-analysis of 31 studies investigated the key criteria that constitute an effective metacognitive intervention program. In 1988, Haller et al. conducted a meta-analysis to investigate the correlation between the efficacy of metacognitive instructions and the length of the metacognitive intervention. In addition, Pedone's (2014) research intervention on enhancing students' metacognitive skills in elementary school focused on three methodological processes: the construction of concept maps, the method of assessing the work by the students themselves and the continuous dialogue between students and teacher.

The findings of the above studies have shown that children's metacognitive skills, as they fall within the broader category of social learning skills, are critical to their academic success and their socio-emotional health in general. For this reason, a lot of attention has been paid to programmes over the last few years that seek to enhance their development. It is therefore important for schools to implement such educational approaches, which have been evaluated and found to be effective. Creative writing activities in the context of an organised intervention program can contribute in this direction.

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