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Greek teachers' metacognitive awareness on reading strategies

Maria Koulianou^{a*}, Post-Doc Researcher of State Scholarship Foundation, 48 Platonos ave, Galatsi, Athens 111.47, Greece

Stavroula Samartzi^b, Professor of Psychology, Cognitive Development, 136 Syggrou Ave., Athens 176.71, Greece

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Abstract

The purpose of the present study was to enlighten teachers' metacognitive awareness of reading strategies. Several inventories concerning students' metacognitive reading strategies have been developed but none of them refers to teachers' metacognitive awareness. Teachers' metacognition is the least explored area in education. The scope was to investigate teachers' metacognitive awareness of their reading strategies via Metacognitive Awareness Inventory and Metacognitive Awareness Inventory for Teachers tools. During the study, 290 high school teachers from different regions of Greece participated in questionnaire procedure. The analysis of the results showed that teachers more often use problem-solving and global than support-type strategies. The analysis of both inventories revealed a higher significant correlation between regulation of cognition and metacognitive reading strategies. The findings of this study showed that teachers' metacognitive reading strategies remain implicit. Furthermore, investigation is recommended.

Keywords: Metacognitive awareness, metacognitive reading strategies, MARS, MAIT, teachers.

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* ADDRESS FOR CORRESPONDENCE: **Maria Koulianou**, Post-Doc Researcher of State Scholarship Foundation (IKY), Platonos 48 Galatsi, Athens 111.47, Greece.

E-mail address: mkoulianou@panteion.gr / Tel.: +30-697-6039871

1. Introduction

The students' metacognitive reading strategies have been extensively studied over the past two decades. However, teachers' metacognitive strategies on academic reading and their benefits have remained unexplored. The present study, as part of a series of surveys aims to outline the use of metacognitive strategies in educational environments in Greece, is an attempt to record teachers' metacognitive strategies in reading. The study on students with and without special learning difficulties (SLDs) was the primary purpose of our research work. It remains theoretically ambiguous why metacognition and learning are considered to be linked only to students' practices and cognitive profile, and not to teachers', as well.

According to Flavell (1979), 'Metacognition' is a memorably stored declarative knowledge, which refers to what the individual knows about or thinks about himself/herself and others as cognitive beings, about their relationships with various cognitive works, goals, strategies and their experiences. According to the literature, metacognition is divided into knowledge of cognition (declarative, procedural and conditional knowledge) and regulation of cognition (planning, monitoring, testing, revising and evaluating strategies, Baker & Brown, 1984; Brown, 1987; Flavell, 1979). A most recent definition of metacognition is more complex: metacognition is a multidimensional mental process, including metacognitive knowledge, experiences and skills, as well as the theory of mind and epistemological beliefs. It is referred to a person's personal knowledge based on his own cognitive and emotional processes and situations, and also to the ability to monitor and regulate themselves (Efklides, 2008; Flavell, 1979).

Baker and Brown (1984) recognised the important role of metacognition in understanding the content of a text by storing information in memory. Cross and Paris (1988) have highlighted the important role of metacognitive monitoring and control in achieving reading comprehension. Finally, Kolic-Vehovec (2010) has shown that metacognitive awareness and the skills of reading strategies, when developed in parallel to reading ability, can enhance reading comprehension, and via that it could be considered that metacognition can predict levels of reading comprehension.

The use of metacognitive reading strategies on reading comprehension by English as foreign language (EFL) and English as second language (ESL) readers is of high interest in the literature (Dundar, 2016; Meniado, 2016; Temur & Bahar, 2011; Yuksel & Yuksel, 2012). On the other hand, teachers' metacognitive strategies are on a primary research phase with limited findings, although pedagogical implications underline the necessity of the explicit use of teachers' strategies during instruction procedure (Iwai, 2011). As the qualitative study of Anmarkrud and Braten (2012) showed that language teachers believed that their professional education programmes had not given them sufficient knowledge about reading processes and reading instruction and that their knowledge was a result of their own personal experience of reading. Dundar (2016, p. 58): 'Syllabus designers may include teaching how to use certain reading strategies in language learning process so as to boost students' awareness about using different strategies. Furthermore, language teachers can be trained in order to attach importance to make their learners use reading strategies in language classrooms'.

The aim of the present study was to enlighten the use of the metacognitive awareness of teachers' reading strategies. The main research questions were about: a) whether teachers are aware of metacognitive strategies used in the reading instruction. b) Whether teachers' metacognitive profile in reading strategies is in cohesion with the knowledge of cognition or regulation of cognition.

2. Method

2.1. Participants

At the present study, 216 teachers, 73 (33.6%) males and 143 (66.2%) females, participated in the study. The participants' schools were from various municipalities of Greece. Teachers had different

specialization, 69 (32.9%) were teachers in primary education, 7 (3.2%) were theologians, 22 (10.2%) philologists, 6 (2.8%) mathematicians, 10 (4.6%) physicians, 5 (2.3%) engineers, 41 (16.81%) computer science, 20 (9.3%) graphic designers, 20 (9.3%) theatre education, 3 (1.4%) historians of science, 9 (4.2%) economists, 8 (3.7%) musicians and 10 (4.6%) logistics. The average teaching experience was 14.4 ± 9.85 years. The participation was voluntary.

2.2. Instruments

2.2.1. Metacognitive Awareness of Reading Strategies Inventory

Translated and validated to Greek student population (Koulianou, Roussos & Samartzi, in press) Metacognitive Awareness of Reading Strategies Inventory (MARSİ) inventory Version 1.0 (Mokhtari & Reichard, 2002) was used to investigate teachers' metacognitive reading strategies. MARSİ developed to evaluate the type and frequency of reading strategies that students use when reading academic material. The tool was used in a large sample of student population ($N = 825$) and specifically for students with different reading levels, from high school to college classes, while internal consistency indicators for the three Global Search, Solving and Support) ranged from 0.89 to 0.93, and credibility in the overall questionnaire was 0.93, indicating a fairly reliable measure of metacognitive awareness of reading strategies. It recommends a Likert self-reference scale. It refers to a selection from a scale in statements related to the relative reading strategy, which took place during the reading process and consists of 30 questions. The self-report tool consists of three types of strategies: a) problem-solving strategies; b) global and c) support. Each of the strategies is associated with one of the three subcategories. Problem-Solving Strategies (eight questions), Global Reading Strategies (13 questions), Support Reading Strategies (nine questions).

2.2.2. Metacognitive Awareness Inventory for Teachers

Metacognitive Awareness Inventory for Teachers (MAIT) inventory modified and validated by Balcikanli (2011) based on Metacognitive Awareness Inventory which was developed for metacognitive awareness of adults (Schraw & Dennison, 1994). MAIT measures metacognitive awareness of language teachers in the educational field. It was based on the literature dichotomy of metacognitive awareness on metacognitive knowledge and regulation. It is a self-scale instrument composed by six factors. Four questions of declarative knowledge (Cronbach's Alpha 0.85), four questions of procedural knowledge (Cronbach's Alpha 0.82) and four questions of conditional knowledge (Cronbach's Alpha 0.84). Regulation scale, four questions of planning (Cronbach's Alpha 0.81), four questions of monitoring (Cronbach's Alpha 0.80) and four questions of Evaluating (Cronbach's Alpha 0.79). The MAIT is translated and validated in Greek teacher population by the permission of Balcikanli (2011).

2.3. Data collection process

The study was separated into two phases. During the first phase, the two inventories were distributed online to school computers. All teachers were informed about the purpose of the survey, the content of the questionnaire and the answering procedure. During phase 2, they were requested to carefully read each of the questions and to answer each one by selecting the number they considered most representative, based on the frequency of the strategies they use while reading texts. Each question was rated based on a 5-level Likert scale ranging from 1 (I do not do it or almost never) to 5 (I do it all the time or almost always). It was also pointed out that there was no 'correct' and 'wrong' answer and that everyone had to answer on what s/he is considered to be 'as most practiced' one.

3. Results

A single sample *t*-test on SPSS 26.0 was conducted to determine if a statistically significant difference existed between Greek teachers in using problem-reading strategy, global-reading strategy and support reading strategy.

Table 1. Reading strategies by teachers

Reading strategies	Greek teachers		<i>p</i>
	Mean	SD	
Problem	4.22	0.59	0.000*
Global	3.94	0.61	0.000*
Support	3.93	0.60	0.000*

SD = standard deviation. * $p < 0.01$.

Greek teachers (Table 1) who use problem-reading strategy ($M = 4.22$, $SD = 0.59$) received statistically higher scores, $t(215) = 105.05$, $p = 0.000$, than those who use Global reading strategy ($M = 3.94$, $SD 0.61$), $t(215) = 94.06$, $p = 0.000$. Also, Greek teachers who use global-reading strategy ($M = 3.94$, $SD 0.61$) received higher scores $t(215) = 94.06$, $p = 0.000$ than those who use support-reading strategy ($M = 3.93$, $SD = 0.60$), $t(215) = 96.08$, $p = 0.000$. Specialization and teaching experience did not reveal any significant difference.

Table 2. Sex differences in reading strategies

Reading strategies	Men teachers		Women teachers		<i>p</i>
	Mean	SD	Mean	SD	
Problem	4.12	0.63	4.26	0.56	0.091
Global	3.82	0.63	3.99	0.60	0.054
Support	3.73	0.63	4.03	0.56	0.000*

SD = standard deviation. * $p < 0.01$.

There was a significant difference in the scores (Table 2) for men teachers ($M = 3.73$, $SD = 0.63$) and women teachers ($M = 4.03$, $SD = 0.56$) in the support-reading strategy conditions $t(214) = -3.558$, $p = 0.000$.

Table 3. The five most used and the five less used strategies

Name	Reading strategies reported being used most	Mean	SD
PROB 16.	When text becomes difficult, I pay closer attention to what I'm reading	4.54	0.68
SUP 12.	I underline or circle information in the text to help me remember it	4.49	0.84
PROB 27.	When text becomes difficult, I re-read to increase my understanding	4.44	0.76
SUP 6.	I summarize what I read to reflect on important information in the text	4.29	0.83
GLOB 25.	I check my understanding when I come across conflicting information	4.26	0.77
Name	Reading strategies reported being used less	Mean	SD
GLOB 10.	I skim the text first by noting characteristics like length and organisation	3.68	1.16
SUP 15.	I use reference materials such as dictionaries to help me understand what I read	3.66	1.14
GLOB 29.	I check to see if my guesses about the text are right or wrong	3.61	1.11
SUP 28.	I ask myself questions I like to have answered in the text	3.58	1.04
SUP 9.	I discuss what I read with others to check my understanding	3.30	1.12

SD = standard deviation.

In Table 3, teachers' preferable strategies were categorised according to their usage (Table 3). The level of most and less reported metacognitive reading strategies was in the high usage category (3.5 or higher mean). Only question 7 *I think about whether the content of the text fits my reading purpose* was in the medium level (mean between 2.5 and 3.49). Key averages of the MARS Inventory were indicated by Mokhtari and Reichard (2002).

Table 4. Correlations between MAIT (Knowledge of Cognition) & MARSİ subscales

MAIT (Knowledge of Cognition)	MARSİ		
	Global	Problem	Support
Declarative knowledge	0.224**	0.196**	0.188**
Procedural knowledge	0.278**	0.239**	0.188**
Conditional knowledge	0.319**	0.301**	0.286**

* $p < 0.01$.

Based on the result of the study (Table 4), Declarative knowledge is strongly related with global-reading strategy $r = 0.224$, $p = 0.001$, with problem-reading strategy $r = 0.196$, $p = 0.005$ and support-reading strategy $r = 0.188$, $p = 0.008$. In addition, procedural knowledge is strongly related with global-reading strategy $r = 0.278$, $p = 0.000$, with problem-reading strategy $r = 0.239$, $p = 0.001$ and support-reading strategy $r = 0.286$, $p = 0.008$. Furthermore, conditional knowledge is strongly related with global-reading strategy $r = 0.319$, $p = 0.000$, with problem-reading strategy $r = 0.239$, $p = 0.000$ and support-reading strategy $r = 0.286$, $p = 0.000$.

Table 5. Correlations between MAIT (regulation of cognition) & MARSİ subscales

MAIT (regulation of cognition)	MARSİ		
	Global	Problem	Support
Planning	0.383**	0.474**	0.440**
Monitoring	0.376**	0.413**	0.365**
Evaluating	0.369**	0.494**	0.469**

* $p < 0.01$.

In Table 5, planning subscale is strongly related with global-reading strategy $r = 0.440$, $p = 0.000$, with problem-reading strategy $r = 0.474$, $p = 0.000$ and Support-reading strategy $r = 0.188$, $p = 0.008$. In addition, monitoring subscale is strongly related with global-reading strategy $r = 0.376$, $p = 0.000$, with problem-reading strategy $r = 0.413$, $p = 0.000$ and support-reading strategy $r = 0.365$, $p = 0.000$. Furthermore, evaluating subscale is strongly related with global-reading strategy subscale $r = 0.369$, $p = 0.000$, with problem-reading strategy $r = 0.494$, $p = 0.000$ and support-reading strategy $r = 0.469$, $p = 0.000$.

4. Discussion

Metacognitive awareness of teachers' reading strategies have not been studied sufficiently in the area of education. The present study examined the metacognitive strategies on reading of primary and high school teachers. The current study is part of a larger research concerning metacognitive awareness of reading strategies in students with and without SLDs and their teachers.

The results of the study show that by using the adapted and validated version of MARSİ Inventory (Mokhtari & Reichard, 2002), Greek teachers reported problem-solving strategies as the most practiced strategies between global and support strategies. Problem-solving strategies are directly connected with the reading comprehension so they become implicitly active when the difficulty of the text arises. Iwai (2016) found that teacher candidates in literacy area preferred the use of problem-solving strategies before and after instructive intervention. The research in ESL students reports similar results on different linguistic contexts. Problem-solving strategies were used at a high level by ESL students in USA (Hong-Nam & Page, 2014) and in Indonesia (Pammu, Amir & Maasum, 2014). The most preferred strategies of EFL students were also the problem-solving strategies in Saudi Arabia (Meniado, 2016), in Poland (Dundar, 2016) and in Turkey (Temur & Bahar, 2011; Yuksel & Yuksel, 2012) with EFL students using problem-solving strategies at a high level. The above results show that problem-solving strategies are widely and actively used by different levels of learners in different contexts.

The higher use of reading strategies in female teachers is in accordance with higher frequencies of strategies use reported by female native English speakers (Sheorey & Mokhtari, 2001).

The correlation between the sub-categories of the two inventories MARSİ and MAİT shows good correlation of reading strategies with regulation of cognition. Problem-solving strategies are significantly linked with planning, monitoring and evaluation factors of regulation. Problem-solving and support strategies had the highest mean scores in correlation with evaluation factor. The question which arises here is why problem-solving strategies which are linked with Evaluation are preferable than support strategies which are also connected to the same factor. Is there any possibility the evaluation procedure has to be divided into an implicit and explicit procedure? If the answer to this question is positive then the support strategies which are highly correlated with evaluating factor of regulation of cognition (Table 5) need to be taught.

Teachers' metacognitive knowledge and its role in the development of students' metacognition and reading comprehension are the areas that need to be further explored (Soodla, Jogi & Kikas, 2016). According to the explicit instruction of the metacognitive reading strategies, Meniado (2016) supported the lack of awareness on teachers' metacognitive strategies and also the absence of practicing them in their reading instruction. Iwai (2011) described the steps for a successful classroom instruction emphasising the necessity of teaching metacognitive strategies explicitly.

Iwai (2016) examined the impact of explicit instruction on metacognitive reading strategies among literacy course teacher candidates. Her findings showed that the teacher candidates increased their awareness of metacognitive reading strategies (MARSİ) after the intervention. Koulianou et al. (2016) found that students' metacognitive reading strategies improved after explicit teaching by teachers who had received first instruction on how to implement metacognitive reading strategies.

5. Conclusion

Results showed that teachers use more often problem-solving and global than support strategies. This pattern of use is similar to student's population and reflects the teacher's preference. Absence of differentiation in the type of metacognitive strategies between and among teachers with different specialization enhances the hypothesis that teachers' metacognitive awareness is implicit. In order to be explicit, teachers' education programmes should provide them with sufficient knowledge on how to implement metacognitive strategies in their classrooms.

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