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Metacognitive Reading Strategy Training of Advanced Level EFL Learners in Turkey

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ABSTRACT

This study investigated the effects of the metacognitive reading strategy training programme (METARESTRAP) on metacognitive reading strategy employment and reading comprehension. The quasi-experimental study was conducted with 46 preparatory class students at English Language Teaching and English Language and Literature Departments of Canakkale Onsekiz Mart University. Pre and post tests of reading comprehension and metacognitive reading strategy questionnaire were administered and the METARESTRAP was implemented to the experimental group. The results revealed that the experimental group participants stimulated their metacognitive reading strategy employment after the implementation which resulted in better reading comprehension as they were familiar with strategies in terms of declarative, procedural, and conditional knowledge. It might be concluded that the participants benefited from the implementation specifically for matching and multiple choice questions.

INTRODUCTION

Reading includes not only recognizing and decoding letters and then producing phonics (Krashen, 2004, p. ix), but also comprehension. Reading comprehension strategies are "mental operations or comprehension processes that readers select and apply" (Abbott, 2006, p. 637) to understand the text. Relatively, this study investigates metacognitive reading strategies (MRSs) which seem to be involved in cognitive classroom activities; however, their existence should not be taken for granted.

Reading Strategies

Reading strategies are related with readers' aims, text-type, and context (Wallace, 1992) to deal with more proficient texts (Chastain, 1988) and academic reading requires awareness of goals to administer strategies effectively (Aebersold & Field, 1997). For example, good readers monitor their comprehension (Anderson, 1999); contrarily, poor ones monitor less often (Flavell, 1979) and do not realize comprehension problems or their inadequacy in administering strategies. Apart from monitoring their own reading process, readers should discuss their

comprehension of the text with others. Another characteristic of good readers is predicting the forthcoming information and checking it. In case of rejection, they reread with new predictions (Baudoin, Bober, Clarke, Dobson, & Silberstein, 1993).

Metacognition

Flavell (1985, p. 198) analyzes two domains of metacognition: metacognitive knowledge and metacognitive experiences. The former is knowledge and beliefs about cognitive matters, gained from experience and stored in the long-term memory (LTM). Flavell illustrates that in a classroom, it operates when a task forces learners to think about how they will manage. The latter is either cognitive or affective experience that relates to cognitive activities such as feeling doubtful about the content of a text that occurs when careful, conscious monitoring of one's cognitive efforts is required (Abbott, 2006).

The uncertainty or confidence that readers may feel about a topic is tied to relevant metacognitive knowledge which allows them to monitor their progress by providing ways of estimating the effects of their efforts, and it enables predicting the likelihood of remembering the material afterwards (Flavell, 1985). Metacognitive knowledge implies the existence of ways to organize material to make it easier to learn and remember, that some rehearsal and review strategies are more effective for one kind of material than another, and that some forms of learning require the deliberate application of specific strategies; whereas, others do not. However, it is not possible for every student to recognize the special skills that allow them to extract information, organize, learn, and remember.

To Aebersold and Field (1997), young foreign language (FL) learners may regard referring to their metacognitive knowledge and making comparisons with their mother tongue (L1) and FL as a formidable task; however, adult learners may find making it beneficial due to their proficiency in metacognitive knowledge. Either true or false, such metacognitive knowledge about their learning processes is "quite resistant to change" (Veenman, Van Hout-Wolters, & Afflerbach, 2006, p. 4).

Metacognitive Strategies

"[M]etacognition refers both to the knowledge people have about their own cognitive processes and to their internal use of certain cognitive processes to facilitate learning and memory" (Ellis Ormrod, 2006, p. 46). O'Malley and Chamot (1990) describe the process involved in metacognitive strategies *planning*, *prioritising*, *setting goal*, and *self-management*. Metacognitive strategies assist learners to *orchestrate* (Brown, Campione, & Day, 1981), *arrange* (Oxford & Nyikos, 1989), *regulate* (Oxford, 1990), *organize*, *plan*, *evaluate* (Richards & Lockhart, 1996), *monitor*, *control* (Busato, Prins, Elshout, & Hamaker, 2000), and *co-ordinate* (Johnson, 2001) their own strategies and learning by involving thinking about learning, monitoring one's own production, and evaluating comprehension; thus, monitoring strategies can contribute to learning through metacognitive approaches (National Research Council, 2000).

Metacognitive strategies are extremely valuable in EFL (English as a foreign language) contexts (Oxford, 2001) as they encourage observing environment rather than focusing attention on learning (Williams & Burden, 1999). Therefore, learners should be aware of what they are doing and which strategies they are using. It is also crucial to manage strategies appropriately for different tasks. As learners become aware of their own learning process, they know about their

knowing, a different level called *metacognition*. Williams and Burden conclude that providing metacognitive awareness is crucial for effective learning.

Metacognitive Reading Strategies

Metacognition has a significant impact on improving reading comprehension in L1 and FL (Baker & Brown, 1984; Flavell, 1979; Mokhtari & Reichard, 2002) and metacognition is the core of reading appropriately in the interactive reading model (Macaro & Erler, 2008). Skilled and cognitively matured readers employ reading strategies effectively (Mokhtari & Sheorey, 2002) and the relevant literature scrutinizes the efficacy of strategy instruction (Carrell, Pharis, & Liberto, 1989.) MRSs affect FL reading performance by identifying organizational patterns, monitoring cognitive strategy use actively, and adjusting and orchestrating strategies to achieve definite goals (Anderson, 1999; Grabe, 1991).

Through *strategy schema* (Casaneve, 1988), readers monitor their understanding and select appropriate strategies by being aware of reading process before deciding on them. To Aebersold and Field (1997), identifying the purpose is essential in metacognitive reading which is an indicator of noticing FL proficiency and assigning convenient tasks to maintain reading that depends upon at a minimum of three factors: *content familiarity*, *teacher's aim*, and *students' aim* in reading.

Instructing reading strategies

Exposure to intense target language (TL) may increase metacognitive strategy use (Carson & Longhini, 2002); however, it is possible for less component learners to improve their skills by strategy training (Carrell et al., 1989) that is an "intervention which focuses on the strategies to be regularly adopted and used by language learners to develop their proficiency, to improve particular task performance, or both" (Hassan et al. 2005, p. 1). By documenting 567 strategy studies Hassan et al. provide evidence on the effectiveness of strategy training; yet, they question the endurance of this impact.

Presenting a repertoire of reading strategies is preferable as a single strategy may not fit all readers. Since "early negative reading experiences" have everlasting and detrimental impacts on readers' comprehension, strategy instruction requires enormous practice (Applegate & Applegate, 2004, p. 561). In strategy instruction, *declarative knowledge* involves teaching what the strategy is, *procedural knowledge* indicates how to use it, and *conditional knowledge* defines the most useful time for it and insufficient readers are unable to solve their problems due to lack of these three types of knowledge (Baker & Brown, 1984; Mokhtari & Reichard, 2002).

Anderson (2005) specifies that although strategies can be identified individually, they are not utilized in isolation. He resembles using a single strategy to playing an instrument and explains that an orchestra involves miscellaneous instruments to produce beautiful music. Relatively, Pressley and Woloshyn (1995) examine Palincsar and Brown's (1984) *reciprocal teaching* as the best-known repertoire of reading strategy instruction. Carrell's (1998) overall conclusion on instructing MRSs calls attention to skilled readers' real life performances as they spend much time in reading various texts and repeat their strategies recurrently along with monitoring their comprehension.

The role of metacognition in reading and the merits of teaching students MRSs for promoting reading comprehension have been the subject of much research; yet, only a few studies currently exist which have explored the impact of explicit teaching of MRSs on reading

comprehension skills and abilities. The present study addresses a timely and important topic by offering an interesting examination of this issue and is somewhat unique in that the target population is EFL university students in Turkey. It aims to constitute a good model for designing better reading courses at universities by highlighting how reading comprehension can be improved with reference to conscious employment of MRSs and skills.

METHODOLOGY

This study implements *the Metacognitive Reading Strategy Training Programme*, hereafter will be called *METARESTRAP*.

Research Questions (RQs)

RQ1 Is there a difference between post reading test scores of the experimental group and the control group?
RQ2 Is there a difference between post MRS use of the experimental group and the control group?
RQ3 What are the most common MRSs employed by participants?
RQ4 Which MRSs are accelerated after the implementation?
RQ5 What is the impact of METARESTRAP on different types of questions?

Delimitations

Participants were delimited to advanced level young adult undergraduate EFL learners of Canakkale Onsekiz Mart University (COMU), in the western part of Turkey. METARESTRAP, reading test, and the Metacognitive Reading Strategy Questionnaire (MRSQ) were administered in English which was not L1 of the participants.

Design

A quasi-experimental study was conducted by assigning non-randomly selected participants into the experimental and control groups. Such a design was appropriate as absenteeism might cause troubles in non-natural classes.

Setting

The study was implemented in two day and one evening preparatory classes of COMU English Language Teaching (ELT) and English Language and Literature (ELL) Departments in the spring semester of the 2008-2009 academic year in Reading Comprehension Course.

Participants

There were equally distributed 46 undergraduate students in the two groups who were native Turkish speakers and the participants did not use English as a communicative tool. At primary and high schools, they studied EFL for about nine years. To register at ELT/ELL

department at university, they need to take YDS (Foreign Language Test) which is conducted by Higher Education Council Students Selection and Placement Centre of Turkey at advanced level. YDS constitutes of multiple choice questions which aim to assess reading comprehension along with syntactic and lexical knowledge. Moreover, they take an advanced level exemption examination on their FL skills to study at ELT/ELL department which was conducted on basic language skills in separate sessions. Its reading session constituted of 22 questions in three parts either in multiple choice or matching type which is very similar to the reading test in the present study. With reference to participants' scores on these two tests, they were considered advanced Turkish learners of English. Table 1 illustrates their distribution.

Table 1. Distribution of Participants

Groups	*Intact Classes*	*Female*	*Male*	*ELT*	*ELL*	*Total*	*Total*
Experimental	*Prep A*	21	2	14	9	23	23
Control	*Prep B*	12	1	4	9	13	23
	Prep Evening	9	1	10	0	10	
	Total	42	4	28	18	46	46

Table 1 indicates that 46 preparatory class students participated and most of them were female since ELT and ELL departments are female dominant. Although reading strategies and language learning strategies (LLSs) are different, they are also related endeavours and the relevant literature indicates female superiority in using more LLSs (e.g., Oxford & Nyikos, 1989). Nevertheless, equal distribution of male participants between groups provided gender homogeneity.

There were absentees in each intact class and 30 students who failed to attend Reading Comprehension Course regularly were excluded from the study along with a student repeating this course. Besides, due to the interaction between learner characteristics and culture (Abbott, 2006; Harmer, 2001; Oxford, 2001), eight foreign national students were also excluded.

Participants' age and their exposure to FL were also taken into consideration. Firstly, the average age in the two groups was 19; therefore, the contribution of age factor in reading (e.g., Aebersold & Field, 1997; Chamot & El-Dinary, 1999; Grabe, 1991; Nara, 2003; Singhal, 2001) was eliminated. Secondly, their exposure to English was approximately 9 years for both groups and proficiency in the TL had similar impacts on the use of reading strategies (Cziko, 1980) and metacognitive strategies (Carrell, 1989; Cohen, 1998).

None of the participants reported that they were trained on strategies previously. They all provided permission to use their test results for research purposes. They were reminded that the collected data would only be used for research purposes, kept confidential, and would have no bearing on course assessment.

Materials and instrumentation

The process of establishing validity and reliability for the instruments will be explained below with information on teaching materials.

Course materials

The strategies were practised by 'Upstream Proficiency' (Evans & Dooley, 2002) and 'Reading Practice Tests' (Razı & Razı, 2008) in the experimental group. The participants of the control group also pursued the same books.

METARESTRAP

The researcher of the present study searched about MRSs in the relevant literature and developed METARESTRAP (see Appendix A for the strategies in METARESTRAP and Appendix B for its principles). The first version of METARESTRAP was piloted (Razı & Çubukçu, in press) and the present version is slightly different from the piloted one. Participants of the experimental group followed METARESTRAP in addition to their course materials.

In the first week, metacognition and MRSs were presented with the reasons of their employment. Besides, the principles of METARESTRAP and planning strategies were introduced. In the second week, background knowledge strategies were practised such as activating relevant schemata before reading. By the third week, they learned about question generation and inference strategies to monitor their comprehension. Then, in the fourth week, they were instructed on annotating strategies such as paraphrasing, summarizing, writing questions and taking notes. The fifth week introduced visualizing strategies through which they were able to refer to their senses for anticipation. Finally, in the sixth week, context-based evaluative strategies were practised in relation with the flow of ideas.

The reading test

The researcher of the present study developed a four-section, 30-item reading comprehension test consisting of four-option multiple choice questions in the first, third, and fourth sections which were a combination of Pearson and Johnson's (1978) textually explicit, textually implicit, and scriptally implicit questions. The second section involved paragraph matching questions with more options in the matching section than the task demanded (Alderson, 2000). The texts were authentic and comprehension questions were prepared by the researcher. The test was similar to University of Cambridge Local Examinations Syndicate Examinations in English as a Foreign Language Certificate of Proficiency in English Reading Paper, apart from the replacement of a section.

MRSQ

The MRSQ consisted of 22 statements in two groups as *cognitively-based analytic strategies* and *action-based pragmatic strategies*. The MRSQ is appropriate to reveal strategy employment as previous inventories of Weinstein, Schulte, and Palmer (1987); Schmitt (1990); Pintrich, Smith, Garcia, and McKeachie (1991, 1993); Miholic (1994); Pereira-Laird and Deane (1997); Mokhtari and Reichard (2002); Mokhtari and Sheorey (2002) do not assess MRSs in university settings. Since the MRSQ mainly addresses university students, this establishes validity for the instrument.

Piloting instruments

Before the implementation of the METARESTRAP, three pilot studies were administered. Two of them were carried out to establish validity and reliability of the instruments while the third one piloted the smooth running of the METARESTRAP.

To develop reliability, the reading test was delivered to 100 students at ELT department of COMU over the fall semester of the 2008-2009 academic year. Item difficulty and item discrimination analyses were administered and the results indicated a Cronbach's alpha score of $\alpha = .81$ over 30 questions. Besides, the reading test was evaluated in terms of their *content*, *face*, and *criterion-related* validities. The scores indicated it as an appropriate material to be used with advanced EFL readers; therefore, it was regarded to be valid (see Razı, 2012 for more on the reading test).

The MRSQ (Taraban et al., 2004) was piloted with 205 students at Foreign Language Teaching Department of COMU in the fall semester of the 2007-2008 academic year (see Razı, 2008 for details of the study). Reliability analysis revealed a Cronbach's alpha score of $\alpha = .83$ over 22 items.

METARESTRAP was piloted in a quasi-experimental study which was conducted at ELT Department of COMU with 93 freshmen in the fall semester of the 2008-2009 academic year. The experimental group followed METARESTRAP throughout their Advanced Reading and Writing Skills 1 Course as weekly 60-minute sessions for six weeks (see Razı & Çubukçu, in press for details of the study). Despite smooth run, the researcher revised METARESTRAP and made slight changes for the present study. Firstly, as the third instructional week aimed to generate questions and infer meaning, 'answering students' own questions and clarifying their predictions' would be better studied in the third week rather than the sixth one. Secondly, the participants were instructed in a 60-minute session in the pilot study; however, with the hope of increasing its impact, the duration of the implementation was doubled in the present study.

Experiment

The experimental group followed METARESTRAP throughout their Reading Comprehension Course in 60-minute sessions twice a week for six weeks. 'Upstream Proficiency' (Evans & Dooley, 2002) and 'Reading Practice Tests' (Razı & Razı, 2008) were pursed in all groups. The experimental group was taught by the researcher while the control group was taught by another instructor. Feedback was provided both to the experimental and the control groups on the texts they studied. It was simply on correct reading comprehension in the control group but included effective MRS employment in the experimental group. In the control group, the instructor administered the activities which were recommended in the teacher's book. By following the same books, all participants practised the format of the questions that appear in the reading test.

Procedures for Data Collection

All the participants answered the reading comprehension pretest in 90 minutes at the same time a week prior to the onset of the implementation. After the implementation, they answered the same instrument as a posttest, again in a 90-minute session. They did not use

dictionaries in the tests. They also responded the MRSQ in a 15-minute session related with both their way of answering the questions in the reading test and their general reading habits. After the implementation, again, they answered the MRSQ in a 15-minute session as a posttest.

METARESTRAP was administered to the experimental group intact class of Preparatory A by the researcher of the present study. The two classes in the control group were taught by another instructor. To avoid extraneous variables, the qualifications of the two instructors were taken into consideration. Both of them were PhD candidate males at the same age, received BA and MA degrees from the same university, and experienced in teaching reading. The same instruments as pretests and posttests were delivered to avoid the risk of biasing findings that depend on unequal tests (Carrell et al., 1989).

Variables of the study

METARESTRAP operates as an independent variable and post reading test and the MRSQ scores function as dependent variables. Participants' test-taking abilities and attitude towards reading might be considered as intervening variables. Being in day or evening class is regarded as a moderator variable. The study aims to control the impact of participants' gender, age, period of English study, proficiency in English, native language, absenteeism, and condition of the course, either a regular or a repeating student.

Working with equal number of students in each group and providing equal distribution of male participants between groups removed any possible extraneous variables. The study was conducted with three intact classes to equate the experimental and the control groups to each other. Since ELT day and evening, and ELL students register at the university with various YDS scores, this combination provided a balance between the two groups in terms of their proficiency in English. It can be concluded that experimental intact class of 'Preparatory A' was controlled by two intact classes of 'Preparatory B' and 'Preparatory Evening' to provide construct validity.

Participants' YDS and reading exemption examination scores were taken into consideration to designate their proficiency in English. Independent samples t-test results of YDS did not indicate significant differences between the mean scores of the experimental group (M = 346.91) and the control group (M = 345.96) [t = .66; p = .52]. Independent samples t-test results of reading exemption examination also did not indicate significant differences between the means of the experimental group (M = 40.13) and the control group (M = 40.04) [t = .04; p = .97]. Therefore, the experimental group and the control group were regarded to be equal to each other in terms of their proficiency and reading skills in English.

Procedures for Data Analysis

Pretest and posttest scores were analysed by independent samples t-tests and descriptive and frequency statistics through SPSS (15.0).

FINDINGS AND DISCUSSION

RQ1

Table 2 shows post reading test scores.

Table 2. Post Reading Test Scores

Groups	*N*	*M*	*SD*	*df*	*t*	*p*
Experimental	23	62.50	5.41	44	3.51	.001
Control	23	55.87	7.27			

Independent samples t-test results did not reveal significant pre reading test score differences between groups [t = -,53; p = .60]. However, independent sample t-test results in Table 2 indicate significant differences between experimental (M = 62.50) and control (M = 55.87) groups post reading test scores [t = 3.51; p < .01] with large effect size (d = 1.04; r = .46). Table 3 compares pre and post reading test scores of the experimental group.

Table 3. Experimental Group Pre and Post Reading Test Scores

Tests	*N*	*M*	*SD*	*df*	*t*	*p*
Pre	23	50.04	6.87	22	-9.98	.000
Post	23	62.50	5.41			

Paired samples t-test analysis in Table 3 revealed significant differences between the experimental group's pre and post reading test scores [t = -4.91; p < .01] with a large effect size (d = 1.11; r = .49) indicating a higher posttest mean score (M = 62.50) than the pretest mean score (M = 50.04). Table 4 compares pre and post reading test scores of the control group.

Table 4. Control Group Pre and Post Reading Test Scores

Tests	*N*	*M*	*SD*	*df*	*t*	*p*
Pre	23	51.1087	6.76	22	-4.91	.000
Post	23	55.8696	7.27			

Paired samples t-test analysis in Table 4 revealed significant differences between the control group's pre and post reading test scores [t = -4,91; p < .01] with large effect size (d = 1.11; r = .49) indicating higher scores for posttest (M = 55.87) in comparison to pretest (M = 51.11). Although the control group made a significant progress, the mean difference between the pretest and posttest scores was 4.76; however, it was 12.46 for the experimental group.

Since the differences between the experimental and control groups may simply reflect the emphasis in training but not their actual employment, it is difficult to interpret these results; however, the findings of RQ1 support the findings of the piloted METARESTRAP. As the experimental group pursued METARESTRAP, their superiority was not bewildering. However, control group's escalate can be explained in relation with *learning effect* as their Reading Comprehension course contributed to their comprehension. Yet, the experimental group's success indicates the impact of METARESTRAP on the employment of MRSs which results in better reading comprehension. This is in parallel with relevant literature on metacognition and reading comprehension (Baker & Brown, 1984; Flavell, 1979; Mokhtari & Reichard, 2002) and reading strategy instruction (Andre & Anderson, 1978-1979; Carrell et al. 1989; Chang, 2007;

Çubukçu, 2008; Handyside, 2007; Kern, 1989; McMurray, 2006; Muñiz-Swicegood, 1994; Talbot, 1997; Teplin; 2009).

Reading incorporates various conscious or automatic processes and skilled readers employ automatic processes (Nara, 2003); hence, readers should develop their reading skills to an automatic degree through instruction and practice. To enable this, the components of *strategies*, *metacognition*, *general world knowledge*, *motivational beliefs*, and *overall cognitive style* need to be working in interaction (Pressley & Woloshyn, 1995). Then, METARESTRAP enabled the experimental group to develop automatic processes which freed up invaluable space in their short-term memories (STMs). This assisted them to focus their attention on text features other than the employed strategies; therefore, they easily transferred information from their STMs to LTMs. Such transfer enables information to become *knowledge* (Nara, 2003).

RQ2

The results compare participants' post MRS employment in Table 5.

Table 5. Post MRS Use

Groups	*N*	*M*	*SD*	*df*	*t*	*p*
Experimental	23	4.22	.37	44	8.45	.000
Control	23	3.42	.27			

Independent samples t-test did not reveal significant pre MRS use differences between groups [t = -,28; p = .78] with large effect size (d = 1.19; r = .51). However, independent sample t-test in Table 5 reveals significant difference between the experimental (M = 4.22) and the control (M = 3.42) groups post MRS use scores [t = 8.45; p < .01] with large effect size (d = 2.49; r = .78).

Table 6 compares the experimental group's pre and post use of MRSs.

Table 6. Experimental Group Pre and Post MRS Use

Tests	*N*	$\overline{X}$	*SD*	*df*	*t*	*p*
Pretest	23	3.37	.49	22	-19.63	.000
Posttest	23	4.22	.37			

Paired samples t-test analysis of the experimental group's pre and post MRS use scores in Table 6 yielded significant differences [t = -19.63; p < .01] with a large effect size (d = .96; r = .43) indicating higher mean score for post MRS use (M = 4.22) than the mean score of pre MRS use (M = 3.37). The experimental group participants enhanced their MRS use with METARESTRAP whereas the control group participants' MRS use indicated almost similar mean values for both the pre MRS use (M = 3.40) and post MRS use (M = 3.42) [t = -.67; p = .8511]. Then, the experimental group can be regarded as *high* strategy users whereas the control group remains as *medium* in accordance with Mokhtari and Reichard's (2002) rubric. The control

group's stable scores on MRS use highlight that following Reading Comprehension course conventionally does not foster MRS use. Nevertheless, the experimental group's reports on their more MRS use indicate METARESTRAP's impact on teaching MRSs.

The findings of RQ2 support the findings of the piloted METARESTRAP. Then, exposure to MRSs through METARESTRAP resulted in more use of MRSs. Although, Kellerman (1991) claims strategy instructions as redundant since learners develop their strategic competence in L1 and transfer it into TL, strong evidences appear on the effectiveness of using strategies in a more appropriate manner (e.g., O'Malley & Chamot, 1990).

Strategy training is defined as an "intervention which focuses on the strategies to be regularly adopted and used by language learners to develop their proficiency, to improve particular task performance, or both" by Hassan et al. (2005, p. 1). However, Rees-Miller (1993) questions the effectiveness of such learning strategy instruction since she regards teaching the TL rather than strategies as the basis of FL classrooms. Although Donato and McCormick (1994) claim that informed strategy training studies cover inconsistent findings which might be the result of participants' gender, nationality, language style, or academic expectancies; there are strong evidences on the effectiveness of using strategies (e.g., Chamot, 1993; Chamot & Küpper, 1989; Cohen & Aphek, 1981; O'Malley & Chamot, 1990). Therefore, the findings of the present study provide evidence on the ongoing debate about the necessity of implanting strategy training programmes. Since RQ2 indicates higher MRS employment following METARESTRAP which in turn results in better comprehension, teaching MRSs cannot be regarded as redundant.

When metacognition is related with reading it is described "as the knowledge learners have about reading strategies and the ability to capitalize upon such knowledge to monitor their own reading" (Vacca & Vacca, 1989, p. 220). However, to make use of transfer skills, learners should be aware of their learning process and learning strategies can be transferred to new tasks once they are learned (Chamot & O'Malley, 1987). Thus, monitoring strategies can contribute to learning through metacognitive approaches (National Research Council, 2000). Block (1986) indicates that the use of strategy is a stable phenomenon; therefore, it is not tied to any specific language.

In real-life, readers employ a variety of strategies related with their purposes similar to the ones in classrooms. Once strategies are learned, they can be transferred across situations; therefore, teaching MRSs in classroom settings does not restrict their employment in particular circumstances; instead, learners employ strategies on different occasions. Cross (1999) differentiates real-life reading strategies from the ones used in classroom. Therefore, diversity in reading aims results in the use of various strategies for different tasks. For example, Nunan (1999) illustrates this by comparing reading a label on a bottle of wine with reading an academic text, both of which require different strategies. Although there might be differences in the reasons for real-life reading, classroom reading should reflect some principles such as familiarizing readers with problem-solving and accelerating reading speed (Chastain, 1988). In case of a comprehension problem, readers relate this with their previous problems to employ an appropriate strategy. In case of familiarity with the problem and the strategy, their STMs enjoy some invaluable free capacity. As suggested in the piloted METARESTRAP, extending the duration of METARESTRAP resulted in better comprehension due to more practice opportunities.

Wallace (1992) and Salatacı and Akyel's (2002) results imply that reading strategies are transferable across languages in an interactive manner. Therefore, the participants, either in the experimental or in the control group, reported their MRS employment to a medium extent before

METARESTRAP as byproducts of their reading skills in L1 and their challenging experiences in FL.

Cromley and Azevedo (2006) indicate that reading strategy researchers should provide challenging texts which prevent readers from administering automated skills. Consequently, this study delivered the reading test at C2 level in accordance with Common European Framework. Ergo, the texts urged them to refer to their reading strategy repertoire to overcome reading problems. Expectedly, as the experimental group participants received training on MRSs, they were advantageous.

RQ3

Table 7 lists MRSs used by all participants before the implementation.

Table 7. Experimental and Control Groups' Pre MRS Use ($N = 46$)

MRSs	*Minimum*	*Maximum*	*M*	*SD*
underline to remember	1	5	4.00	1.14
visualize	1	5	3.96	1.05
reread to comprehend	2	5	3.93	.88
determine critical words	1	5	3.91	1.15
reread to remember	1	5	3.91	1.07
infer meaning	2	5	3.74	.80
underline/highlight important info	1	5	3.72	1.03
reconsider prior questions	2	5	3.70	.79
draw on knowledge	1	5	3.57	1.09
anticipate how to use knowledge	1	5	3.52	.98
anticipate	1	5	3.46	.94
consider interpretations	1	5	3.30	.94
reconsider background info	1	5	3.22	1.09
evaluate goals	1	5	3.17	.95
evaluate understanding	1	5	3.13	.83
check understanding	1	5	3.02	.86
exploit strengths	1	5	3.00	.97
search out relevant info	1	5	2.96	.84
note readability	1	5	2.94	1.39
distinguish new/existing info	1	5	2.87	1.10
make notes to remember	1	5	2.85	1.23
use margins	1	5	2.54	1.187

Before the implantation, participants reported their employment of *underlining to remember*, *visualizing descriptions*, and *rereading for better comprehension* more frequently;

distinguishing new and existing info, *making notes to remember*, and *using margins for notes* less frequently as presented in Table 7. Interestingly, pragmatic MRSs condensed either at the top or bottom with higher reports on MRS employment of 11 items and their medium use on the rest as they are expected to refer to at least one MRS to comprehend any text (Çubukçu, 2008).

In the piloted METARESTRAP, before the implantation, the participants reported that they employed MRSs of *rereading for better comprehension*, *underlining and highlighting important info*, and *determining meaning of critical words* more frequently; *using margins for notes*, *reconsidering and revising prior questions*, and *noting readability of text* less frequently.

When readers experience comprehension difficulties, they refer to fix-up strategies such as rereading the text, asking for help, referring to reference materials such as dictionaries, referring to background knowledge to make inferences, and drawing diagrams (Pressley & Afflerbach, 1995). *Underlining, visualizing,* and *rereading* are regarded as characteristics of strategic readers (Bishop, Boke, Pflaum, & Kirsch, 2005). Visualizing and rereading are also problem solving strategies whereas underlining is a support reading strategy (Mokhtari & Reichard, 2002). Besides, rereading is appreciated by Barnett (1988), Baudoin, Bober, Clarke, Dobson, and Silberstein (1993), Grant (1993), Pressley and Woloshyn (1995), and Marropodi (2007).

Metacognition is "knowledge and cognition about cognitive phenomena" (Flavell, 1979, p. 906), yet Flavell, who coined the term metacognition, embraces that it may not always be possible to differentiate metacognitive and cognitive knowledge due to some overlaps. For example, self-questioning is both a cognitive and a metacognitive strategy. However, examining the way of using information may assist to discriminate them. An investigation either into cognitive or metacognitive strategies unavoidably involves the integration of the other one since they are closely woven together. Moreover, cognitive strategies become more effective when they are supplemented with metacognitive strategy training (Brown & Palincsar, 1982). Strategies should be practised under the guidance of a teacher in classroom settings since modelling strategies is essential. As in the piloted METARESTRAP, the participants of the present study also reported their employment of MRSs although they had not received strategy training previously. This provides evidence for the development of metacognitive skills by the proficiency in the TL. However, assuming that learners instinctively are capable of using these strategies may misdirect teachers. Hence, teachers should provide practice opportunities for strategies specifically by urging learners to transfer them across situations.

RQ4

Table 8 presents the experimental group's mean differences in pre and post MRSQ tests in descending order.

Table 8. Experimental Group's Comparative MRS Use (n = 23)

	Pre		Post		
MRSs	*M*	SD	*M*	SD	*M* Dif.
make notes to remember	2.83	1.50	4.48	.59	1.65
exploit strengths	2.96	1.15	4.17	.83	1.21
use margins	2.30	1.29	3.52	.79	1.22
search out relevant info	3.00	.80	4.13	.69	1.13

anticipate next info	3.35	1.03	4.43	.66	1.08
check understanding	3.22	.80	4.30	.76	1.08
reconsider background info	3.13	1.22	4.17	.72	1.04
evaluate goals	3.17	1.15	4.21	.85	1.04
underline/highlight important info	3.48	.99	4.52	.95	1.04
consider interpretations	3.22	.99	4.17	.65	0.95
evaluate understanding	3.13	.97	4.04	.70	0.91
infer meaning	3.78	.67	4.65	.57	0.87
note readability	2.78	1.45	3.65	.88	0.87
distinguish new/existing info	2.87	1.29	3.73	.81	0.86
reread to remember	3.87	1.18	4.60	.50	0.73
reconsider prior questions	3.74	.75	4.35	.65	0.61
draw on knowledge	3.74	1.32	4.30	.82	0.56
reread to comprehend	3.96	.88	4.48	.79	0.52
determine critical words	3.83	1.30	4.30	.88	0.47
Visualize	4.04	1.11	4.48	.73	0.44
underline to remember	4.17	1.23	4.43	.84	0.26
anticipate how to use knowledge	3.48	1.08	3.70	.93	0.22

RQ3 revealed either high or medium MRS employment reports and the experimental group's report on the use of each MRS was accelerated after the implementation. Yet, the greatest changes occurred in *making notes to remember*, *exploiting personal strengths*, and *using margins for notes*. However, *anticipating how to use knowledge*, *underlining to remember*, and *visualising descriptions* received the smallest changes. The control group reported that their MRS use increased slightly in 11 items, remained stable in 2, and decreased slightly in 9. The control group's very slight changes emphasize their inadequacy in managing strategies. Also in the piloted METARESTRAP, the experimental group's reports on the use of each MRS was accelerated after the implementation with the greatest changes in *reconsidering background information*, *evaluating goals*, and *evaluating understanding* and smallest changes in *reading to remember* and *rereading for better comprehension*.

Although effective learners employ appropriate LLSs (Oxford, 1990), Ehrman and Oxford (1995) highlight the importance of harmonizing strategies as unsuccessful learners use a large group of strategies in a cyclical way. Then, readers should employ reading strategies similar to LLSs. Thus, METARESTRAP might operate as a learning assistant to orchestrate strategies. As considered to be production-deficient by Flavell (1970), Pressley and Woloshyn (1995) maintain that learners produce strategies only if they are instructed. Therefore, expecting appropriate acquisition of strategies automatically is naïve. Very slight changes on the reports of the control group's pre and post MRSQ scores emphasize their inadequacy in managing strategies such as using similar strategies whether they were beneficial or not.

RQ5

Examining the participants' number of correct answers in pre and post reading tests reveals that the experimental group made a progress in 20 questions, were stable in 9, and deteriorated very slightly only in 1 question following METARESTRAP. However, the control group increased in 16 questions, lowered in 9, and stayed stable in 5. The total progress was 82

for the experimental group and 35 for the control group. The experimental group answered matching type cohesion, coherence, text structure, and global meaning questions in Part 2 better along with MC type implication, detail, and reference questions in the rest of the test. Yet, MC type attitude and opinion questions received little improvement, with no changes in main idea and comparison questions. Table 9 compares pre and post reading test results.

Table 9. Pre and Post Reading Test

Groups			Parts of Test			
			1	2	3	4
Experimental	Pre	*M*	18.00	3.48	14.43	14.13
		SD	4.05	3.26	4.30	2.78
	Post	*M*	19.57	10.26	16.70	15.98
		SD	3.37	3.15	4.92	2.47
	M Difference		1.57	6.78	2.26	1.85
Control	Pre	*M*	18.26	4.00	14.60	14.24
		SD	3.49	3.41	5.20	3.15
	Post	*M*	19.70	5.21	15.30	15.65
		SD	3.48	3.70	5.35	2.94
	M Difference		1.43	1.21	0.70	1.41

As Table 9 reveals, the experimental groups' gain scores were greater than the control groups'. The experimental group made the greatest improvement in the second part with matching questions. The control group slightly increased their scores in this section. The second highest improvement occurred in Part 3 for the experimental group; interestingly, the control group made the smallest increase for this section. For the first and fourth parts of the test, both the experimental and the control groups made similar progress. Also in the piloted METARESTRAP, the experimental group participants made the greatest improvement again in the second part of the reading test.

Meaning does not reside either on printed pages, or in readers' heads (Anderson, 1999). Readers' interaction with the text is based on their prior experiences; therefore, their comprehension of the same text may differ (Aebersold & Field, 1997). To enable such an interaction, readers need assistance and METARESTRAP seems to assist them in achieving their reading aims by harmonizing previously acquired strategies with newly learned ones.

CONCLUSIONS

The findings accomplish an exhilarating result to instructional training of MRSs through METARESTRAP as the experimental group notably benefited. Then, the following conclusions can be drawn in relation with RQs.

METARESTRAP provoked Turkish young adult university EFL learners' reading comprehension. Gaining awareness on metacognition along with declarative, procedural, and conditional knowledge about MRSs, turned out to be more efficient than conventional reading instruction.

Unless being instructed, Turkish young adults of university EFL learners employ *underlining to remember*, *visualizing descriptions*, and *rereading for better comprehension*

more; however, they employ *distinguishing new and existing info*, *making notes to remember*, and *using margins for notes* less than the other MRSs.

METARESTRAP accelerates the use of *making notes to remember*, *exploiting personal strengths*, and *using margins for notes* more than the others. As they were employed at lower levels previously, METARESTRAP encourages the use of narrowly used strategies. It can also be concluded that highly employed strategies are slightly increased by METARESTRAP.

Moreover, METARESTRAP is beneficial for matching type cohesion, coherence, text structure, and global meaning questions along with MC type implication, detail, and reference questions. However, participants benefit little from MC type attitude and opinion questions. Yet, it has no impact on MC type main idea and comparison questions.

IMPLICATIONS

Exposing many strategies at the same time may increase anxiety; herewith, the pilot version of the METARESTRAP implemented each MRS per week. Moving one step further, the present version of the METARESTRAP doubled the duration. Administering METARESTRAP in a shorter period will probably diminish its impact. Despite individual instruction of each strategy, there were relations among them as strategies are not utilized in isolation; instead, in relation to each other (Anderson, 2005).

The inadequacy of instructing MRSs without modelling and providing practice opportunity is another implication. Hence, teachers should integrate declarative, procedural, and conditional knowledge (Baker & Brown, 1984; Mokhtari & Reichard, 2002; Nara, 2003; Pressley & Woloshyn, 1995) by modelling strategies. Moreover, readers should be encouraged to practise newly learned reading strategies both on academic and non-academic occasions.

Although strategy use can be accumulated (Bialystok, 1979; Kern, 1989), the mastery of the strategy takes time in positive correlation with its constant practice. Readers should dispend much time in reading various texts and repeat their strategies recurrently along with monitoring their comprehension. As developing such competence demands long time in real life, such a long period is also essential in teaching MRSs.

Suggestions for further research

L1 readers are able to bring an organized system of phonological, syntactic and semantic knowledge to reading which enables monitoring both word recognition and text comprehension. However, FL readers bring implicit and explicit knowledge of the relationships between oral and written language from their L1. Although, native speakers acquire strategies unconsciously in their natural environment (Noda, 2003), such differences cause employing various monitoring and fix-up strategies in L1 and FL which deserves researching. Moreover, implementing METARESTRAP in FL may result in progress in L1 reading skills; then, further research should take learners' L1 reading comprehension into consideration along with their FL reading comprehension. Additionally, further research should also investigate progress in L1 and FL reading skills by implementing METARESTRAP in L1 reading skills.

Administering METARESTRAP to bilingual and multilingual readers may reveal important results. However, such a study requires the development of an appropriate MRS

inventory since the MRSQ does not incorporate bilingual and multilingual readers' strategies. Then, native English speakers' strategies may need to be adapted for such a study.

Learners' strategy choice is under the impact of their learning styles; hence, implementing METARESTRAP to different intelligence types may reveal how each intelligence type response to metacognitive awareness.

As no study exists on the endurance of strategy training programmes, investigating MRS use along with reading comprehension following METARESTRAP with multiple post tests will indicate its long-term impact.

The term *reading* covers both seeing and blind people; then, investigating blind people's reading process related with metacognition seems to be a very interesting research area which may have immense impact on the understanding of reading process.

Additionally, investigating patients who have had surgery on their throats might be another study interesting area since Noda (2003) reports that they are unable to read books because of the requirement of stress on throat. Therefore, such a study will have great contribution to reading research.

Female participants largely outnumbered male ones; hence, the results mainly reflect female learners' MRS employment. Administering a study with participants in which genders are equally distributed may assist to investigate the impact of gender on the interaction between MRS use and reading comprehension better.

As the duration of METARESTRAP in this present study is different from the piloted version, varying the exposure to MRSs and their practice under the guidance of a teacher might result in different findings.

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Appendix A. Strategies in METARESTRAP

Pre Test ❖ Reading test (90 minutes) ❖ The MRSQ (15 minutes)
Week 1 *Introduction to MRSs* ❖ Introduction to metacognition and MRSs. ❖ Why do we need to learn MRSs? ❖ Principles of METARESTRAP. *Planning strategies* ❖ Plan your time, identify your goals, and motivate yourself to read. ❖ Preview the text to find out information relevant to your reading goals (skimming, scanning, skipping)
Week 2 *Background knowledge strategies* ❖ Identify the genre of the text ❖ Activate your relevant schema (e.g.: refer to the title or pictures) ❖ Distinguish between already known and the new information. ❖ Check the text against your schemata.
Week 3 *Question generation and inference strategies* ❖ Form questions from headings and sub-headings. ❖ Anticipate/Self-question the forthcoming information. ❖ Answer your questions/Clarify your predictions while reading. ❖ When information critical to your understanding of the text is not directly stated, try to infer that information. ❖ Infer pronoun referents.
Week 4 *Annotating strategies* ❖ Underline/highlight important information. ❖ Paraphrase the author's words in the margins. ❖ Summarize. ❖ Write questions/notes in the margins to better understand.
Week 5 *Visualizing strategies* ❖ Draw graphic logs. ❖ Refer to graphic organizers (semantic mapping/clustering).
Week 6 *Context-based evaluative strategies* ❖ Re-read the text in case of difficulty. ❖ Read the text in short parts and check your understanding. ❖ Determine the meaning of critical unknown words. ❖ Distinguish main ideas from minor ones.
Post Test ❖ Reading test (90 minutes) ❖ The MRSQ (15 minutes)

Appendix B. Principles of METARESTRAP

1. When you learn a new strategy, tell what the strategy is, demonstrate how to use it, explain why you need it, when and where you can use it, and how you can evaluate your use of the strategy.
2. Prepare yourself for reading the text by activating your relevant schemata previously, engage in reading interactively while reading, and reduce information in accordance with its importance while retaining important information after reading it.
3. Read as much as possible after school on a wide range of topics which are appropriate to your level by practising newly learned strategies to transfer them to new situations.
4. Read individually and silently. Subvocalize as little as possible.
5. Read different texts by using various strategies and also adjust strategies in accordance with your aims and/or problems you encounter in reading.
6. Guess unknown words by getting help from the content and also by paying attention to prefixes, suffixes, familiar roots, grammar which may indicate information, and semantic clues related with the topic. Use dictionary only as a last resort in case of prevention of overall meaning.
7. Pay attention to discourse markers while reading since they indicate relations and discriminations of ideas.
8. Tolerate ambiguity in a text and try to maintain reading for a while even if you are unsuccessful.