HOW TO ENHANCE READING COMPREHENSION THROUGH METACOGNITIVE STRATEGIES

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Abstract

This article aims at presenting a study of the teacher trainees in the English department who have received instruction in metacognitive awareness for reading comprehension. Metacognition or "thinking about thinking" involves the awareness and regulation of thinking processes. Metacognitive strategies are those strategies that require students to think about their own thinking as they engage in academic tasks. Within this study, students have been taught metacognitive strategies for reading in a five-week program they have joined voluntarily. The students have used the reading logs to reflect on their own thinking processes as they have been engaged in reading tasks. The purpose of the study is to determine the effectiveness of systematic direct instruction of multiple metacognitive strategies designed to assist students in comprehending text. Specifically, the reading comprehension and vocabulary achievement of 130 third-year university students has been investigated to determine whether instruction that incorporated metacognitive strategies has led to an increase in the reading comprehension of expository texts. In addition, the investigation is also designed to determine the impact of the metacognitive strategies on vocabulary.

Key Words: reading, vocabulary comprehension, metacognitive strategies, teacher trainees

Metacognition

One of the first definitions of metacognition comes from Flavell (1976), who describes it as 'one's knowledge concerning one's own cognitive processes and products or anything related to them'. He also asserts that metacognition includes 'the active monitoring and consequent regulation and orchestration' of information processing activities (Flavell 1976: 232). Baird (1990:184) uses these ideas to provide the following succinct formulation: 'Metacognition refers to the knowledge, awareness and control of one's own learning'. Metacognitive development can therefore be described as a development in one's metacognitive

abilities, i.e. the move to greater knowledge, awareness and control of one's learning.

Metacognition (Flavell 1979; Kuhn 2000:178; Veenman 1993: 1997; O'Neil and Abedi 1996) refers to two aspects, namely the students' self-awareness of a knowledge base in which information is stored about how, when, and where to use various cognitive strategies and their self-awareness of and access to strategies that direct learning (e.g. monitoring difficulty level, a feeling of knowing). This awareness is developmental and lies on a continuum. Proficient readers use one or more metacognitive strategies to comprehend texts. There are three main aspects of metacognition: metacognitive knowledge, metacognitive monitoring, self regulation and control (Pintrich, Wolters and Baxter 2000). The first group consists of cognitive learning strategies which the learner uses to regulate the process of knowledge acquisition. These include, for example, elaboration strategies such as the building of links to prior knowledge, or memory strategies such as note taking. The second group consists of metacognitive control strategies. Central here are activities like the planning and monitoring of learning activities, the evaluation of learning outcomes and the adaptation to varying task demands and (unexpected) difficulties, for example, an increase in directed efforts. In addition to these two groups, which are dominant in research and crucial for the learning process, a third group of strategies in the model developed by Pintrich and Garcia (1994) is dedicated to resource management. These strategies are concerned with the control of the general conditions associated with learning, for example, time management and management of the learning environment.

The following two key questions students need to ask themselves are crucial in terms of metacognitive awareness and knowledge:

1. What do I want out of this? (What are my motives?)

2. How do I propose going about getting there? (What are my strategies?) (Biggs & Moore 1993)

Another important metacognitive model set forth by Winne and Hadwin (1998) has four basic stages: task definition, goal setting and planning, enactment, and adaptation. Their model suggests that the learner generates a perception of what the task is and the available resources, constructs a plan for addressing the task, enacts study strategies, and makes changes to his or her cognitive structure based on perceptions of performance. Pintrich (2000) synthesized the work of a variety of self-regulation theorists into a general framework which includes:

(a) forethought, planning and activation;

(b) monitoring;

(c) control; and

(d) reaction and reflection.

Pintrich's model suggests that the learner develops perceptions of the task demands, engages in metacognitive monitoring, selects and implements cognitive strategies that are appropriate for the task demands, and evaluates task performance while reflecting on the effectiveness of the cognitive strategies. These models all suggest an interaction between personal factors and situational factors such as task and test demands, the coordination of goal setting and metacognition, the use of cognitive learning strategies, and self reflection.

Reading and Metacognition

The current understanding of reading strategies has been shaped significantly by research on what expert readers do (e.g., Bazerman 1985; Pressley & Afflerbach 1995). These studies demonstrate that successful comprehension does not occur automatically. Rather, it depends on directed cognitive effort, referred to as metacognitive processing, which consists of knowledge about and regulation of cognitive processing. During reading, metacognitive processing is expressed through strategies, which are "procedural, purposeful, effortful, willful, essential, and facilitative in nature" (Alexander & Jetton 2000 : 295). "The reader must purposefully or intentionally or willfully invoke strategies" (Alexander & Jetton 2000: 295), and does so to regulate and enhance learning from text. Through metacognitive strategies, a reader allocates significant attention to controlling, monitoring, and evaluating the reading process (Pressley 2000; Pressley, Brown, El-Dinary, & Afflerbach 1995).

Taraban,R. Kerr, M, and Rynearson, K (2004:69) state that prior research supports the view that college students select and use reading strategies that are oriented toward success in academic tasks. Wade, Trathen, and Schraw (1990) recruited 67 college volunteers who read a 15-page passage at the 11th-grade level followed by a recall test. This type of task, involving extensive reading and subsequent recall, is typical of many college assignments. At eight separate points during reading, participants were asked to provide a retrospective report of their reading strategies. The authors identified 14 strategies from the data, which they called "tactics." These were separated into three types, by consensus. One type was text-noting tactics, and included highlighting, underlining, circling, copying key words, phrases or sentences, paraphrasing in notes, outlining and diagramming. The second type was mental- learning tactics and included rote learning of specific information, mental integration, relating information to background knowledge, imaging, visualizing, self-questioning and self-testing. The third type was reading tactics, which included reading only, skimming, reading slowly, and re-reading selected text. These data reveal that reading strategies are directed toward comprehension, but also toward studying and remembering.

Poor readers are less aware of effective strategies and of the counterproductive effects of poor strategies, and are less effective in their

monitoring activities during reading. Palincsar (1985 :29) suggests that an effective reading instruction program requires the identification of complementary strategies that are modeled by an expert and acquired by the learner in a context reinforcing the usefulness of such strategies. Adult and college readers who show evidence of metacognitive deficiencies may be the most aware and capable of monitoring their mental processes while reading. considers unskilled reading comprehension is one aspect to show the importance and need for training (Cohen 1986:32). Unskilled readers can become skilled readers and learners of whole text if they are given instruction in effective strategies and taught to monitor and check their comprehension while reading. With respect to this point, Al Melhi (2000) has found that some differences do exist between skilled and less skilled readers in terms of their actual and reported reading strategies; their use of global and reading strategies, their metacognitive awareness, their perception of a good reader, and their self-confidence as readers and points out training in metacognitive language learning strategies help learners develop their listening and reading skills and raise their language proficiency levels.

Strategy Training Models

Bottom-Up Self-Regulation : When self regulation is triggered by cues from the environment it is bottom up . Instead of beginning work with goals that are firmly established, it is feedback from the task and classroom reward structures that help to establish work orientations and generate changes in work styles. Boekaerts' model posits that students become concerned with emotional well-being when environmental cues signal that all is not well and that resources have to be redirected. At such a point, students explore the nature of the felt friction. For example, when they feel bored, isolated, coerced, or insecure they may raise the priority of entertainment, belongingness, self-determination, or safety goals, respectively. A search for well-being implies that students are more concerned with maintaining or restoring positive feelings than with the pursuit of growth goals.

Top-Down Self-Regulation: The mastery/growth process explains the pursuit of self-chosen learning goals or goals that increase academic resources. Mastery strivings are energised from the top down by motivation such as personal interest, values, expected satisfaction, and rewards. The self regulation is top down also because students' adopted learning goals steer the process. Winne (1995) describes the cognitions, feelings, and actions of top-down self regulation as characteristic of self-regulated learners: When they begin to study, self-regulated learners set goals for extending knowledge and sustaining motivation. They are aware of what they know, what they believe, and what the differences between these kinds of information imply for approaching tasks. In this study the top down self regulation is chosen and Chamot & O'Malley's (1994) Cognitive Academic Language Learning Approach (CALLA) is chosen to apply in the strategy training . The sequence of instruction in CALLA approach is a five-phase recursive cycle for

introducing, teaching, practicing, evaluating, and applying learning strategies. In this approach, highly explicit instruction in applying strategies to learning tasks is gradually faded so that students can begin to assume greater responsibility in selecting and applying appropriate learning strategies. The cycle repeats as new strategies or new applications are added to students' strategic repertoires. This approach is employed to test two research questions:

--- has the instruction that incorporated metacognitive strategies led to an increase in the reading comprehension of expository texts?

---has the investigation had shown the impact of the metacognitive strategies on vocabulary?

METHODOLOGY

Participants

Participants are the third year teacher trainees in the English language department in Dokuz Eylul University. 130 students (15 males and 115 females) joined the study voluntarily and 65 students took metacognitive instruction for five weeks. The other 65 students did not take any training at all.

Design

This study had an intact group, pretest-posttest, experimental design. The subjects were already assigned in groups by the institution. Two classes were selected for this study and one was randomly assigned as experimental and the other as the control group. The homogeneity of the two groups in terms of vocabulary knowledge and reading comprehension was checked using a vocabulary achievement test and the comprehesniosn test respectively.

Instrumentation

Two instruments were used in this study. The first one was a 20 item multiple-choice test of vocabulary, which was developed by the researcher. The vocabulary items in the test were mainly selected from the new lexical items taught and exposed to during the course. The test was used as the assessment tool in the pre-test and the post-test phase of the study. Two internal consistency estimates of reliability which included coefficient alpha and a split-half coefficient expressed as Spearman-Brown corrected correlation were computed for the vocabulary test. For the split-half coefficient, the test items were split into two halves based on odd and even numbers to nullify the effects of unwanted factors such as tiredness of the test takers. The value for coefficient alpha was .85 and the value of the split-half coefficient was .90, each indicating satisfactory reliability.

The second test was the reading comprehension test developed by TOEFL (http://www.newtoefl.net/reading.html). It was used in the pre-test and post-test stage of the study. The value for coefficient alpha was .78.

Metacognitive Strategy Instruction

The students received 45 minutes of reading comprehension instruction a week for 5 weeks. The passages were taken from the reading comprehension book" Expanding Reading Skills".In each class hour they were taught two metacognitive strategies and they applied them to the passages. The strategies which were taught were :

--- *Using strengths*: While reading, I exploit my personal strengths in order to better understand the text. If I am a good reader, I focus on the text; if I am good at figures and diagrams, I focus on that information.

--- *Inferring meaning* (through word analysis or other strategies): While I am reading, I try to determine the meaning of unknown words that seem critical to the meaning of the text.

--- *Using background information*: While I am reading, I reconsider and revise my background knowledge about the topic, based on the text's content.

--- *Evaluating*: As I am reading, I evaluate the text to determine whether it contributes to my knowledge/understanding of the subject.

--- *Searching according to the goals*: I search out information relevant to my reading goals.

--- *Reading goals*: I evaluate whether what I am reading is relevant to my reading goals.

--- *Distinguishing*: As I am reading, I distinguish between information that I already know and new information.

--- *Deciding on the difficulty*: I note how hard or easy a text is to read.

--- *Revising*: While I am reading, I reconsider and revise my prior questions about the topic, based on the text's content.

--- *Guessing the later topics*: I anticipate information that will be presented later in the text.

Both groups received the usual training based on the procedures suggested in the Expanding Reading Skills. It is believed that metacognitive strategies are responsible for controlling other strategies and as a result they have their best effects if students are aware of other strategies that are available to them at the beginning of the course (O'Malley & Chamot 1990 :230). The experimental group received explicit instruction on metacognitive strategies beginning from the first

day of the course. The training was based on CALLA model of teaching learning strategy which includes five steps:

1. Preparation: The purpose of this phase was to help students identify the strategies they are already using and to develop their metacognitive awareness of the relationship between their own mental processes and effective learning. In this step the teacher explained the importance of metacognitive learning strategies. In relation to reading comprehension , which was the subject of this study, students with the help and guidance of the teacher set specific goals for mastering from certain chapters in the textbook within a certain time frame, and they planned their time in order to accomplish the task

2. Presentation: This phase was related to modeling the learning strategy. The teacher talked about the characteristics, usefulness, and applications of the strategy explicitly and through examples and illustrated his own strategy use through a reading task in relation to unknown vocabularies. Learners were explicitly taught about the variety of strategies to use (two at a time). They received explicit instruction on how to use these strategies. They were told that no single vocabulary learning strategy would work in every case. For example, word analysis strategy (dividing the word into its component morphemes) may work with some words but not with others. Using contextual cues for guessing the meaning of unknown words may be effective in some rich-context cases but not in context-reduced texts. The preparation and planning, the selection of vocabulary learning strategies, monitoring of strategy selection and use, orchestrated use of several strategies, and evaluation of effectiveness of metacognitive strategies for vocabulary learning were illustrated through several examples.

3. Practice: In this phase, students had the opportunity of practicing the learning strategies with an authentic learning task. They were asked to make conscious effort using the metacognitive strategies in combination with vocabulary and reading. The students, by the teacher's assistance practiced monitoring while using multiple strategies available to them. The students became aware of multiple strategies available to them by teaching them, for example, how to use both word analysis and contextual clues to determine the meaning of an unfamiliar word. Students were shown how to recognize when one strategy isn't working and how to move on to another. The students need to be able to turn to other strategies like using contextual clues to help them understand the meaning of the word.

4. Evaluation: The main purpose of this phase was to provide students with opportunities to evaluate their own success in using learning strategies, thus developing their metacognitive awareness of their own learning processes. Activities used to develop students self-evaluation insights included self-questioning, debriefing discussions after strategies practice, learning logs in which students recorded the results of their learning strategies applications, checklists of strategies used, and open-ended questionnaires in which students expressed their opinions about the usefulness of particular strategies.

5. Expansion: In this final phase students were encouraged to: a) use the strategies that they found most effective, b) apply these strategies to new contexts, and c) devise their own individual combinations and interpretations of metacognitive learning strategies.

At the end of the course both the control group and the experimental group were given the vocabulary and reading comprehension tests and the results of the tests were compared to find the effects of the training.

Results and Discussions

In order to show efficacy of the intervention, students' pre- and posttest scores on a criterion-referenced vocabulary test and a standardized reading comprehension test were analyzed to see if there was a statistically significant difference between the two groups. Means and standard deviations for pre- and posttest academic scores can be found in Table 1.

Table I Means and Standard Deviations for Vocabulary and Reading

Control group			Experimental group	
	Mean	Std. Deviation	Mean	Std. Deviation
Vocabulary pretest 34.47		4.69	pretest 34.17	4.57
Posttest 37.07		4.67	posttest 41.22	4.25
Reading comprehension pretest 116.32		11.43	pretest 117.41	14.21
posttest 118. 86		13.11	posttest 121.71	13.16

The findings of the present study have implications for learners, teachers, and teacher educators in the realm of TEFL in particular and education in general. It helps teachers in accomplishing their challenging task of teaching English in EFL contexts where learners have less exposure to language compared to ESL contexts. Teachers can help learners use different metacognitive strategies to facilitate their vocabulary learning. This study provides further evidence for the benefits of metacognitive strategy training. All the students, especially those who have comprehension problems, now have tools that can help them understand what they read. The experimental group achieved significantly better results than the control group. The results of the present study have confirmed that reading comprehension could be developed through systematic instruction in metacognitive language learning strategies. Systematic explicit instruction about the concept of

metacognition and learning strategies helped students of the experimental group to better comprehend this new approach and how to apply it to different learning tasks on reading. The model of instruction provided for teaching and applying each one of the ten metacognitive language learning strategies included in the suggested training program helped the students to know why, when, and how to use the strategies. Gradually, they started to think metacognitively about the strategies they could use to improve their reading comprehension to become not only better listeners and readers, but also autonomous and strategic learners.

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