Artikel Pak Aceng

by Aceng Hasani

Relationship Approach to Cognitive and Metacognitive Strategies on EFL Students' Reading Comprehension

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Abstract

A reader in an EFL situation chooses between two major reading strategies: cognitive and metacognitive. This research study discussed both these strategies from a learner centered approach in order to determine the effectiveness of cognitive and metacognitive strategies in comprehending a reading text and building a good vocabulary. A descriptive research design was adopted to study the attitude and perception of readers/ learners towards cognitive and metacognitive strategies. Since the study was non-experimental by nature, no manipulation of variables was carried out, and the data collected was for a single period of time. The sample consisted of 450 students of two urban senior high schools in Serang, Indonesia selected through convenience sampling method. The data was collected through a questionnaire that dealt with two major elements: reading comprehension and vocabulary. The results showed that experimental group improved significantly over the control group in both vocabulary and reading comprehension. This shows that the type of reading strategies do affect students' reading ability and that the strategies applied by students in understanding the text are strongly influenced by the students' ability to understand the words of the text and the context of the reading. The study implies that the reading challenges are different in the Indonesian and English languages, there is also a need to differentiate between reading strategies The study addressed this issue and examined how to maximize teachers' assistance in improving reading comprehension skills of students. The study recommends to introduce exercises for students to internalize the meaning of a given text.

Introduction

In an EFL situation, several reading strategies are used in order to understand texts. The choice of these strategies depends upon the reader who chooses between two major ones: cognitive and the metacognitive reading strategies. Adler (2001) reiterates that cognitive strategies are the beginner's goals, where an individual achieves the first step of acquiring reading skills, while metacognitive strategies are the next step to ensure that the individual achieves the goals to promote higher level goals and values. Veenman, Hout-Wolters, Bernadette, and Afflerbach (2006), exert that there exists a relationship between cognitive and metacognitive strategies. Since metacognition is regarded as higher-order cognition it is necessary for the individual to possess domain-specific knowledge in order to apply metacognitive functions. Such a relationship between metacognition and cognition determines the educational success and attainment of educational

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objectives, as this relationship is required for effective information processing and building basic cognitive and metacognitive skills (Cornford, 2002; Iwai, 2009). Other studies (Bazerman, 1985; Pressley & Afflerbach, 1995) have believed that good and effective reading comprehension requires directed cognitive effort, which is possible only through metacognitive strategies. Metacognitive strategies also help the readers to focus their attention, control and monitor the reading process (Pressley, 2000; Veenman et al., 2006).

Metacognition has become a buzzword in academic circles, though, it is very difficult to define it. The simplest definition of metacognition, however, could be "thinking about one's thinking" or "knowing about knowing." Metacognition is actually the process in which an individual regulates one's own learning. In reading skills, specifically, metacognition would mean to think critically about your own understanding of the text as you read through. The reader needs to be aware of his or her own cognitive experience. A good practice of metacognition is to ask oneself, while reading a text, whether you understand the text or you need to go back to read prior paragraphs or chapters again. Hence, in metacognition, the first art is knowledge of cognition; the second part is regulating cognition to maximize learning.

Metacognition reading strategies need at least three elements: planning, active reading strategies, and fixing up strategies. Planning means making an assessment of knowledge before reading, and choosing a strategy to fill gaps and selecting the right text to read. The reader should look for what he does not know and what he needs from the text. The reader must also show his/ her interest and motivation to improve reading skills. The second element is adopting active reading strategies while reading. It means to make connections with prior knowledge or earlier parts of the text as one reads, through inferences and predictions; thus assessing comprehension while reading. A reader who reads with metacognition would ask whether he understood what he just read. Such a constant attention and a questioning mindset is metacognition. Finally, a reader should fix up his/her strategies. This means that the reader might slow down while reading if he/she encounters a difficulty or circle back to earlier paragraphs to take the help form the context. In this way, when the reader "fixes" up his/her problems, the metacognition reading strategies develop.

The current study aimed to determine the effectiveness of cognitive and metacognitive strategies in comprehending a reading text. Specifically, the study focused on measuring the reading comprehension and vocabulary achievement of students of two urban senior high schools in Serang, Indonesia This study is based on the premise that metacognitive skills can be developed by first developing two foundational skills: the ability to think while reading; and motivation and a positive attitude to learn. The first skill of ability to think while reading will help the reader to decode the meaning of words (vocabulary) while he/she reads. Metacognition requires that a reader's mind should be free of crowded ideas of literal comprehension/ therefore, such an ability to decode and retrieve the real meaning will improve their level of reading. Secondly, a reader must remain motivated throughout the reading process. in order to read effortlessly, the reader needs a positive passion, which they get only through a metacognitive strategy. This will keep their intrinsic motivation high and they will find reading rewarding. It is hoped that this study will be a useful contribution to recognizing the development of cognitive and metacognitive skills among students who are improving their reading comprehension skills.

Literature Review

There are numerous studies that see reading as a cognitive activity (Alfassi, 2004; Baker, 2008; Brown, 2007; Fahim & Hoominian, 2014; Pani, 2004; Phakiti, 2006; Zare & Nooreen, 2011; Zhang & Goh, 2006; Zhang, 2008) wherein the reader participates in a kind of conversation with the author in the text. As the reader reads the text, he/she is involved in choosing the right reading strategies, which is one of the features of cognitive psychology, and required most for the successful comprehension of text (Baker & Boonkit, 2004; Zare & Nooreen, 2011). Pani (2004) goes a step forward and considers reading strategies as "mental operations" that involve readers and the text in a kind of behavioral task, enabling the readers to make sense of what they read. Phakiti (2006) argues that improving reading skills in a second language (Anderson, 2002) requires a cognitive process as it is essential to remove difficulties while reading as readers develop their metacognitive abilities, their thinking process automatically leads them to knowledge and meaning of the text, and achievement of comprehension goals. Likewise, Zhang and Goh (2006) and Alfassi (2004) argue that in order for readers to develop cognitive strategies to develop reading skills, the language teacher needs to strive and help students develop their metacognition. This will help readers develop readings comprehensions ability, remember the content, understand the meaning of text, and critically evaluate the message.

Oxford (1990) suggests a few cognitive skills such as predicting based on analyzing a text, organizing questioning or self-questioning, taking notes of specific points, translating, inferring and transferring. Weinstein, Acee, and Jung (2011) classify cognitive skills into three groups: rehearsal, elaboration, and organizational strategies, each of which helps in testing and confirming the accuracy of learner's understanding of the text. Zhang (2008) and Fahim and Hoominian (2014) regard acquiring such reading strategies for non-native readers through cognitive methods as it helps them to effectively overcome language deficiency and acquire better reading comprehension. Chamot and Kupper (1989) and Brown (2007), too, consider cognitive strategies as confined to specific learning tasks involving a direct manipulation of the learning material.

Likewise, metacognitive strategies have also been discussed in several studies. Wenden (1987) links metacognitive strategy with the thinking and learning process, that helps readers to monitor the learning tasks, plan their learning, and evaluate the progress. Oxford (1994) proposed three sets of metacognitive strategies: centering, arranging and planning, and evaluating the learning. Pintrich (1999) recommended a similar classification of metacognitive strategies, which included three types: planning activities and setting goals; generating questions before reading a text; and skimming a text before reading. This model of metacognition also helps in self-regulated learning, and self-testing through asking questions about the text to check understanding. This model is also particularly useful in monitoring students' comprehension, whereby they can slow down the pace of reading if the text is difficult, review the content and formulate questions (Pintrich, 1999). Studies have also revealed that such metacognitive strategies help in improving foreign language reading (Chamot & Kupper, 1989; Chamot, Robbins, & El-Dinary, 1993) by students correcting their studying behavior and repairing deficits in their understanding of the reading text (Pintrich & De Groot, 1990).

In the era of online learning and the use of ICT methods, studies have indicated that learners are more likely to use meta cognitive strategies when reading online texts (Azmuddin, Nor, & Hamat, 2017). A recent study measured readers' metacognitive habits and found that cognitive reading and study habits improved during online reading (Khan & Rasheed, 2019). This shows that metacognitive reading strategies, when assisted by online learning, can help readers become more active critical interpreters of information. Their reading amplifies from cognitive to metacognitive strategies, which help them to regulate and monitor their reading habits and develop themselves as digital readers too (Ackerman & Goldsmith, 2011; Ackerman & Lauterman, 2012; Lauterman & Ackerman, 2014).

This suggests that readers who can combine cognitive and metacognitive reading strategies become more skillful readers (Javadi, Keyvanara, Yaghoobbi, Hassanzade, & Ebadi, 2010; Khan & Rasheed, 2019). A drawback in this combination found was that readers often may not develop the skills independently. They also face some issues in decoding and processing new information. This does not happen with more experienced readers who first set their goals, refer to them during the reading (cognitive) stage and gradually manage and regulate their reading behaviors. This suggests that a lot of training is required to develop metacognitive reading strategies in order to independently raise their reading proficiency (Brown & Palincsar, 1986; Carrell, 1989; Carrell, Gajdusek, & Wise, 1998; Carrell, Pharis, & Liberto, 1989; Green & Oxford, 1995; Iwai, 2009; Wernke, Wagener, Anschuetz, & Moschner, 2011).

Theoretical Framework

Based on the afore-mentioned studies, this research aimed at deconstructing a theoretical framework wherein reading is seen as an interactive process that combines top-down and bottom-up processing (Barnett, 1989). As a result, it is very important for students to use the right reading approach which requires the integration and application of various cognitive and metacognitive strategies. The cognitive and metacognitive approaches involve memory, retention, knowledge, motivation and ability to decode the meaning by learners. Winstead (2004), therefore, defines such strategies and approaches as 'learner-centered' that consider the environment or situational context in which learning is achieved. It also considers learner's knowledge base, intrinsic motivation, in addition to elements that enhance the learner's abilities to process information through cognitive and metacognitive approaches.

Examples of cognitive approaches include predicting skills based on prior knowledge, analyzing text notes by writing down main ideas or specific points, translating, inferring, and transferring. These strategies are identified as important cognitive approaches related to academic performance in the classroom because they can be applied to simple memory tasks (e.g., remembering information, words, or lists) or to more complex tasks requiring comprehension. information (e.g., understanding a piece of text). As the next step these tasks transform into metacognitive activities, such as monitoring and evaluating reading, in which students check their understanding against some self-set goals. Monitoring activities include tracking attention while reading text, comprehension. This strategy is well known as the tips and tricks to get the meaning from text and content of the reading itself. Pintrich (1999, 2002) however argued that too much monitoring might also make it difficult to get the meaning or comprehension of the text. The metacognitive strategy bears good results only when students try to find information in the text quickly by observing and regulating their reading.

In an EFL situation, the Indonesian students find it difficult to read texts in both Indonesian and English languages. This happens mainly due to the lack of vocabulary as students cannot grasp the meaning of words in the wider context. Unless they have a good vocabulary, they cannot understand the text. Besides, the choice of reading strategy also determines their reading comprehension. Some of the reading strategies adopted by learners include scanning, inferential, paraphrase and metaphase techniques. The scanning technique help learners to read quickly and find specific information from the text. This is a useful technique for collecting data, reviewing, using reference books, and assessing whether a text contains material worthy of further study. The inferential technique in reading is used by making assumptions about the general context of the meaning in the text. This strategy requires students to also understand the text and context and not just the

general meaning of the words contained. The paraphrase technique is useful when readers come across some difficult words and they need to find its meaning. The reading process suddenly stops in order to find the meaning of words, which delays understanding of the text. This technique is particularly useful to master words (vocabulary) from the text or context. Finally, the metaphase technique is used when the students are asked to get a deeper meaning from the word text and context.

Method

— *Research design*

The current study adopted a descriptive research design as it aimed to study the attitude and perception of readers/ learners towards cognitive and metacognitive strategies. The study was non-experimental by nature since no manipulation of variables was carried out, and the data collected was for a single period of time (Hernández, Fernández, & Baptista, 2003).

— *Sampling*

The sample consisted of 450 students of two urban senior high schools in Serang, Indonesia selected through convenience sampling method. Table 1 depicts that mostly participants were females, 67 percent. Likewise, with respect to age, a higher percentage (60 percent) of them were in the range of 13 to 15 years. Most participants (50%) found Improving Grammar/ vocabulary as the purpose of reading, followed by good grades, general / global awareness and entertainment, 20, 15 and 10 percent respectively.

Table 1. *Characteristics of the study population. (N=546)*

Gender	Frequency	Percentage
Male	150	33
Female	300	67
Total	450	100
Age		
13-15 years	270	60
16 years and older	180	40
Total	546	100
Purpose of Reading		
Improving Grammar/ vocabulary	225	50
Entertainment	45	10
Good grades	90	20
General / global awareness	68	15
Other	22	5
Total	450	100

— *Instrument*

The main instrument of data collection was a questionnaire filled by all the participants through a Google Survey form. The items of the questionnaire dealt with two main elements: reading comprehension and vocabulary. The items were formulated keeping in view the need for cognitive and metacognitive strategies reading comprehension of a text. The questionnaire was adapted from different sources (Blanco & Alvarado, 2005; Denofrio, Russell, Lopatto, & Lu, 2007; Rojas Betancur, 2010) and was adapted to the contexts under study. The items were statistically validated. The items were found to have a high reliability with a Cronbach's Alpha of 0.88, a value that showed the reliability of the instrument applied.

— *Data Analysis*

The data derived from questionnaire was analyzed using the Statistical Package for Social Sciences (SPSS V. 25.0) and Microsoft Excel. In addition, Cronbach's Alpha reliability analysis was used for reliability.

Results

With respect to understanding the attitude of participants towards cognitive and metacognitive strategies, irrespective of their vocabulary and reading comprehension skills, the responses of the questionnaire were measured through Attitude Towards Research (ATR) scale developed by Papanastasiou (2005). The ATR scale measured the participants at 3 levels, low, medium and high. Table 2 shows that a large number of participants showed an unfavorable attitude towards research (80.0 percent), which is a strong indication of research gap in this domain.

Table 2. *Levels of the index of attitude towards research.*

Levels	Frequency	Percentage
Low	360	80
Medium	75	16.7
High	15	3.3

Pre- and posttest were conducted to test students' reading compression and vocabulary with a small sample of 60 students (30 students in each group, control and experimental). The pretest was conducted at the start of the academic year. For the purpose of finding the significance of metacognitive strategies applied on students' learning, the experimental group was provided practice lessons for 4 weeks in strategies like memorization, analyzing the text, setting the reading goals and setting pace, and like. For this purpose, a criterion-referenced vocabulary test and a standardized reading comprehension test were utilized. A statistically significant difference was found between the two groups. Means and standard deviations for pre- and posttest scores can be found in Table 3.

Table 3. *Means and (Standard Deviations) for Vocabulary and Reading Comprehension*

		Control group			Experimental group	
		Mean	SD		Mean	SD
Vocabulary	Pretest	24.56	4.56	Pretest	24.30	4.25
	Posttest	25.10	4.56	Posttest	32.25	3.25
Reading	Pretest	76.21	11.21	Pretest	74.24	14.21
Comprehension	Posttest	81.0	12.20	Posttest	101.15	12.25

Table 3 reveals that the experimental group improved significantly over the control group in both vocabulary and reading comprehension. While the scores are statistically significant, to better understand the benefit to the experimental group, a Binomial Effect Size Display (BESD) (Rosnow, Rosenthal, & Rubin, 2000) was computed. This index reports the effect size of the change resulted from the treatment given to the experimental group whereas the control group followed only the conventional method. The BESD index showed that the experimental group achieved gains of more than 25% difference in the post test in both vocabulary and reading comprehension tests. This gain is very significantly given because the duration of the study was merely for weeks

Discussion

Based on the research conducted and findings of the study, it is evident that the type of reading strategies do affect students' reading ability. The strategies applied by students in understanding the text are strongly influenced by the students' ability to understand the words of the text and the context of the reading so that the understanding of the text can be improved. The sampled students were taught how to read using a metacognitive approach and manage their learning and overcome deficiencies in reading comprehension and vocabulary building. The study findings revealed a relationship between reading strategies and their effectiveness, as witnessed the scores of pre-test and post-test. This suggests that students can improve reading abilities if they practice and apply metacognitive strategies in understanding the text and acquiring a strong vocabulary through the contextual words. However, it would take extra time for students to practice these reading skills by using strategies to understand text words and reading contexts. This is in line with the findings of Shang (2010), who also confirmed that reading strategies could be effective only if they are carried out and trained on students with various exercises and varied types of texts. This finding is also in line with Pressley, Brown, El-Dinary, and Allferbach (1995) who found that students' comprehension was not enhanced by merely reading more text. If the students used even one of the strategies, for example summarizing, comprehension was improved. If students were given a host of strategies that they could apply at their discretion, comprehension was greatly improved.

This research is also evident of the fact that metacognitive strategies are considered to be of value for text comprehension as well as for vocabulary building, though classroom teachers often fail to achieve this goal and the role of the improvement of reading comprehension or vocabulary building is very minimal. This finding is in line with Pressley et al. (1995), who conducted a qualitative research study on fourth- and fifth-grade classrooms and investigated instructional practices given for reading and writing skills. The interviews with teachers and classroom observations showed that direct teaching of comprehension strategies was very less. The main reason was that fewer teachers taught reading comprehension strategies, and those who taught, also used passive methods. Irwin and Baker (1989) and Alfassi (2004) also found it relevant to train teachers in metacognitive processes or strategies in order to coach student effectively in reading strategies and vocabulary building.

Conclusion

In the recent times of online learning, students are required to improve their reading skills, as reading eventually proves to be an important tool to acquire knowledge. Since the reading challenges are different in the Indonesian and English languages, there is also a need to differentiate between reading strategies. It was observed that learners of English were able to guess the meaning from the context words but in the case of the Indonesian language, the learner could not find any direct meaning. For the learners of English there is an assumption that they can get the meaning from guessing in the context words but for Indonesian language they couldn't found direct meaning.

The benefit of metacognitive strategies is reflected when students find it easy to understand the meaning of the text. The study addressed this issue and examined how to maximize teachers' assistance in improving reading comprehension skills of students. The study recommends to introduce exercises for students to internalize the meaning of a given text. It is also recommended that for students should be able to understand the text optimally, they should carry out elaboration strategies. facts or details of the content of the text through connecting between the facts in the text or integrating the main ideas and supporting details of the text that they have arranged with their previous knowledge. This is the gist of metacognitive strategies. Future studies can examine the use of the meta cognitive approaches in other universities and geographical regions.

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