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Metacognitive Awareness Level and Strategy Use in Academic Reading among ESL Undergraduates

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Abstract: *- Reading is an essential skill in tertiary learning hence the ability to comprehend academic materials is crucial among undergraduates. Empirical evidence suggests a positive relationship between success in academic reading and learners' strategy use and metacognition (Li & Chun, 2012; Ahmadi, Ismail & Abdullah, 2013). However, not many English as a Second Language (ESL) learners are able to apply reading strategies effectively and possess metacognitive knowledge. The present study investigates the metacognitive awareness and strategy use of ESL undergraduates in reading academic materials. Metacognitive awareness of reading strategies inventory (MARSI) questionnaire was used to assess learner's metacognitive awareness on the strategies used. A correlation analysis was carried out to determine the relationship between the learners' metacognitive awareness and reading test scores. Findings of the study indicate the types of strategies used and the correlation level between the students' metacognitive awareness and their low and high-order reading skills. Results of the study can shed light on the role of metacognitive knowledge in academic reading and offer suggestions for strategy use enhancement among ESL learners.*

Keywords: *- Metacognitive awareness, learning strategies, ESL reading*

1.0 Introduction

Reading academic texts is a complex process that involves interaction among the reader's prior knowledge, attitude, reading strategies, cognition as well as metacognition. Despite the demanding process, the ability to read academic texts has become an asset to students at tertiary level since it is a requirement to perform the college or university academic tasks such as assignments, projects, tests and examinations (Levine, Ferenz, & Reves, 2000). It is more challenging for English as a Second Language (ESL) undergraduates as they will have to utilize their second language knowledge and reading strategies when reading academic texts.

The importance of strategy use in reading has been acknowledged in numerous studies. Academic reading, however, is different from any kinds of reading as it requires the utilization of higher-order strategies and involves more complicated cognitive processes. To read academic texts effectively, students will need to use their metacognitive knowledge and strategies. By becoming aware of Their own reading, students will be able to identify suitable reading strategies and make decisions on how and where to use them. Past research on metacognition and reading has shown a positive relationship between the two (Ismail & Tawalbeh, 2015; Mijuskovic & Simovic, 2015). Despite numerous studies carried out on metacognitive awareness and reading comprehension, limited studies have been done to examine the awareness and use of metacognitive strategies in academic reading among Malaysian undergraduates.

The present study attempts to answer the following research questions:

1. To what extent are ESL undergraduates aware of metacognitive reading strategies in academic reading?
2. To what extent do ESL undergraduates use metacognitive reading strategies in academic reading?

3. Is there a relationship between the students' metacognitive reading strategy use and their performance in reading academic texts?

Based on the research questions, the study aims to:

1. Determine the undergraduates' metacognitive awareness level of reading strategies in academic reading.
2. Determine the undergraduates' use of metacognitive strategies in reading academic texts.
3. Determine whether there is a relationship between the students' metacognitive reading strategy use and their performance in reading academic texts.

2.0 Theoretical Perspectives

Metacognition was first coined by Flavell in 1976 to describe a person's knowledge about his/her own cognitive processes in learning (Iwai, 2011). According to Flavell, metacognition is fundamental in various learning areas, and improvement in metacognitive skills is the key to success in learning. Subsequent research has revealed the two dimensions of metacognition namely knowledge of cognition and regulation of cognition (Brown, 1985; Baker & Brown, 1984). Knowledge of cognition is made up of three components which are declarative knowledge, procedural knowledge and conditional knowledge. Regulation of cognition, however, includes planning, monitoring, testing, revising, regulating and evaluating.

Metacognition is defined as having both the awareness and active control of cognitive activities during learning (De Backer, Van Keer & Valcke, 2015). In other words, to become metacognitively competent, a student must be able to reflect upon, understand, manipulate and regulate his/her cognitive activities in the learning process. Flavell, Miller, and Miller (2002) described two dimensions of metacognition that are related but differ in the concept, namely knowledge metacognition, and process metacognition. The knowledge of metacognition refers to the deep awareness and understanding of one's own processes and products, while the metacognition experience/process refers to one's ability to monitor or organize a reader's cognitive activities during a problem-solving process.

Pranowo (2018) further divided metacognitive strategies into three aspects: planning, monitoring, evaluation. Mokhtari and Reichard (2002), on the other hand, identified metacognitive reading strategies as global strategies, problem-solving strategies and support strategies.

Based on a recent study, Ismail and Tawalbeh (2015) reported that their experimental group of students had significantly improved their reading skills after being taught using metacognitive reading strategies instructions (MSRI). Younus and Khan (2017) revealed similar findings as the experimental group in their study performed significantly better on the post-test of reading comprehension, proving that strategy-based reading comprehension is more effective for teaching reading skills to university students in Pakistani context. It is also found that, whereas cognitive strategy training yields small, short-term development in reading performance, training on metacognitive strategy results in more stable, long-term comprehension improvements (Ahmadi, Ismail & Abdullah, 2013). Apart from that, a study was carried out to investigate the use of strategies in vocabulary learning (Mustapha & Mohd Hatta, 2018) among Malaysian pre-diploma students. Findings show that metacognitive strategies were rated as the highest use among students compared to determination, memory, social and cognitive strategies.

2.1 Metacognitive Awareness Reading Strategies Inventory (MARSI) (Mokhtari & Reichard, 2002)

The study used Metacognitive Awareness Reading Strategies Inventory (MARSI) which was developed by Mokhtari and Reichard (2002). The tool helped to assess students' metacognitive reading strategies in their academic reading.

There is a total of 30 statements describing metacognitive reading strategies a skilled reader employs when reading texts. The items addressed

three types of reading strategies namely Global Reading Strategies (oriented towards a global analysis of the text), Problem-solving Strategies (oriented towards solving problems when reading becomes difficult) and Support Reading Strategies (oriented towards behavior that supports reading). A Likert scale ranging from 1 ('I never or almost never use this strategy') to 5 ('I always or almost always use this strategy'). Respondents need to indicate the frequency level of the statements which apply to them. There is no right or wrong answer to the statement. The reliability index of the instrument was .89.

The use of MARSI in research on reading performance has revealed positive results. Yuksel and Yuksel (2012) reported problem-solving strategies as the most frequently used strategies by their respondents. Dawaideh (2013) found similar results indicating that problem-solving strategies rated as the highest metacognitive strategies used by his respondents, followed by global strategies and support strategies. Karbalaei (2010) who investigated the difference in reading strategy use between ESL and EFL college students demonstrated similar results as both groups rated problem-solving strategies as the most-frequently used reading strategies.

3.0 Methodology

The present research is a descriptive study employing a mixed method approach which involved the collection of both quantitative and qualitative data. 40 ESL undergraduates, who were taking English for Critical Academic Reading course from a local university, were selected in the study.

They were asked to complete a reading task consisting of a reading passage (of approximately between 1000-1200 words) and comprehension questions. The readability score of the passage was determined at grade level 13 (difficult to read level) using Flesch-Kincaid readability test. There were 12 questions which assessed students on their use of low-order and high-order thinking skills such as determining meaning of word, identifying main ideas and supporting details, drawing conclusions and making inferences, and identifying types of reasoning.

After completing the tasks, the students were asked to fill in the Metacognitive Awareness of Reading Strategies Inventory (MARSI) version 1.0 (Mokhtari & Reichard, 2002). They needed to indicate the behavior that applied to them when reading and completing the given reading task. The students were then interviewed to find out the metacognitive strategies that they commonly do before, during and after reading. The interview was audio-recorded. The interview data helped to clarify and strengthen the students' answers in the questionnaire.

Data obtained from MARSI were calculated to determine the mean frequency of each strategy type (Global, Problem Solving and Support Strategies). This was done by adding up the scores obtained for the respective strategies and divided by the number of items in each to determine the averages. The average for each strategy type in the questionnaire represented the mean frequency of the strategies which the students used when reading academic texts. Data from the interview were analysed using thematic analysis in which patterns associated to the three strategies were identified and categorised according to established codes. Both data were used to answer the second research question.

The scores obtained from the reading test and MARSI were later analysed using Pearson correlation analysis to determine the relationship between metacognitive strategy use and reading test performance. The results of the analysis were used to answer the third research question.

4.0 Results and Discussion

Research question one tried to determine the students' awareness level of metacognitive reading strategies in academic reading. MARSI Scoring Rubric (Mokhtari & Reichard, 2002) indicates that respondents' metacognitive awareness level of reading strategies can be identified according to three levels: high (with average between 3.5 and higher), medium (with average between 2.5-3.4) and low (with average between 2.4 and lower).

Table 1. Level of students' awareness of metacognitive strategies in academic reading

Level of awareness	Mean	No of students
High	3.5 – higher	29
Medium	2.5 – 3.4	10
Low	2.4 – lower	-

Data from MARSI indicated that out of 39 students, 29 students scored an average between 3.5 and higher which categorised them as having high level of awareness, while 10 of them scored an average between 2.5 and 3.4 which categorised them as having medium level of awareness. No students fell into the low awareness level category. The findings show that 74.4% of the students reported high level of metacognitive awareness while 25.6% of them reported medium level of metacognitive awareness of reading strategies (see Table 1).

The second research question examined the students' use of metacognitive reading strategies in academic reading.

Table 2. Level of students' use of metacognitive strategies in academic reading

Level of awareness	Mean	Global strategies	Problem-solving strategies	Support strategies
High	3.5 – higher	26 students (M=3.92)	37 students (M=4.11)	25 students (M=3.89)
Medium	2.5 – 3.4	14 students	3 students	11 students
Low	2.4 - lower	-	-	4 students

The scores obtained for each strategy type was divided by the total number of sub-strategies in the category to determine the students' average use of the strategy. The scores show that 64% of the students were high users while 36% were medium users of Global Strategies. For Problem-solving Strategies, 92% of the students reported as high users and 8% as medium users. No students, however, were recorded as low users for both Global and Problem-solving Strategies. The scores also show that 62% of the students reported high usage, 28% medium use and 10% low use of Support Strategies (see Table 2).

The data demonstrated the highest use of Problem-solving Strategies among the three strategies investigated (M=4.11). The findings suggest that majority of the students were able identify strategies that can assist them whenever they face problems in reading and they often use the strategies when the situation requires. This was verified through the interview carried out.

4.1 Evidence of Problem-solving Strategy Use

I read slowly but carefully to be sure I understand what I'm reading.

Student A: *If it's hard for me to understand the words, I will read it slow. But if it's something easy for me to understand, I will read faster.*

Student E: *Average speed. I cannot read too fast, if I read too fast, I tend to skip. If I just read, then that is when I lose focus. I know I lost my concentration when I read too fast.*

I try to get back on track when I lose concentration.

Student B: *Just have to start again. Sometimes I'll take a break and walk around a bit.*

Student F: *When she asked me question, I was like. oohh where did I read..? And then I will start reading the first sentence again.*

I adjust my reading speed according to what I'm reading.

Student B: *Depending on the material. The harder the material, the slower I read.*

I stop from time to time and think about what I'm reading.

Student A: *There will be times when I read, I feel like, ok what am I reading? Like that. So I just have to re-read again.*

When text becomes difficult, I re-read to increase my understanding.

Student B: *I will re-read it again to understand it better.*

Student F: *I read it over and over again to understand.*

Student D: *For academic reading, I can finish it in like one hour and then I do something else like watching a movie or anything and then I read it again, see if I can understand it better.*

I try to guess the meaning of unknown words or phrases.

Student B: *Usually, I can always estimate, guess what the word means based on the context around it.*

Student D: *Understanding is important, but if you don't, maybe you can just guess.*

Data from the interview indicate that most of the students were able to control their own reading pace to monitor comprehension and concentration. They were also equipped with a repertoire of strategies which they can choose from when facing difficulties while reading. Re-reading, backtracking, taking a break and guessing meaning were some of the strategies they resort to in achieving comprehension. There was also evidence of self-reflection when students took time to stop and think about what they had read.

4.2 Evidence of Global Strategy Use

I have a purpose in mind when I read.

Student G: *If I am reading for the purpose of knowing it, so I set it that I have to understand it.*

I use typographical aids like bold face and italics to identify key information.

Student B: *Yes, because they give you an idea of what it is about. It gives you direction.*

Apart from Problem-solving Strategy, the students also use Global Strategies which involved overall text analysis. Before reading, the students identified the purpose and set in their mind the reading outcome accordingly. They also made use of textual features to help them identify the gist, main idea and scope of the text.

4.3 Evidence of Support Strategy Use

I take notes while reading to help me understand what I read.

Student E: *I have to hold a pen, because if I don't have anything in my hand, I would, my brain will go elsewhere. I cannot focus on what I'm reading. I have to have a pen and write somewhere on the books or the article.*

Student D: *and then read and be in a comfortable position, and take note if it's important. I usually use my phone to take down notes.*

I discuss what I read with others to check my understanding.

Student C: *For educational purposes, I would ask people like, do you understand this? I would share my view and they will share theirs.*

I use reference materials such as dictionaries to help me understand what I read.

Student A: *Usually, I just guess the words, but if the sentence is too hard for me to guess the word, then I would look it up.*

Student B: *I usually go online to help me find other materials to help me understand better.*

Most strategies used in Support Strategy helped the students in their comprehension.

Research question three sought to identify the relationship between:

A. The strategies used and the students' reading test scores

B. The strategies used and the students' scores on lower-order thinking skill (LOTS) questions

C. The strategies used and the students' scores on higher-order thinking skill (HOTS) questions.

Table 3. Correlation between metacognitive strategy use and reading test scores, LOTS scores and HOTS scores (n=40)

Variable	Metacognitive strategy use
Reading test scores	r=0.382 , p=0.013*
Lower-order thinking skill scores	r=0.389 , p=0.013*
Higher-order thinking skill scores	r=0.247 , p=0.125**

* Correlation is significant at p<0.05

** Correlation is not significant at p<0.05

Pearson correlation analysis was first run to examine whether the students' metacognitive reading strategy use was correlated with their English reading test scores. Results of the analysis show a significant but weak positive relationship between metacognitive strategy use and reading performance, r=0.382, p=0.013, p<0.05. This means that the students who used more metacognitive strategies tended to score higher in their reading test (see Table 3).

Next, Pearson correlation analysis was run to determine whether there is a relationship between metacognitive strategy use and lower-order thinking skill scores. Results of the analysis also demonstrate a significant but weak positive relationship between metacognitive strategies use and lower-order thinking skill scores, r=0.389, p=0.013, p<0.05. This indicates that the students who used more metacognitive strategies tended to score higher on lower-order thinking skill questions (see Table 3).

Finally, Pearson correlation analysis was run to examine the relationship between strategy use and higher-order thinking skill scores. The analysis also indicate a non-significant positive relationship between metacognitive strategies and higher-order thinking skill scores of r=0.247, p=n.s. This means that metacognitive strategy use was not significantly related to higher-order thinking scores (see Table 3).

5.0 Conclusions

Several conclusions can be made from the study. Firstly, the study reveals that ESL students are aware of the various metacognitive reading strategies and they apply the strategies in academic reading. The presence of metacognitive awareness among students was also demonstrated in previous studies done (Yuksel and Yuksel, 2012; Magogwe, 2013).

Secondly, Problem-solving Strategies are the most frequently used strategies by majority of the students (M=4.11), followed by Global Strategies and Support Strategies. The students consciously used multiple strategies to help them overcome reading problems. The findings are supported by Yuksel and Yuksel (2012) who found Problem-solving strategies as the most frequently employed strategies (M=3.91), followed by Global Strategies (M=3.74) and Support Strategies being the least frequently used (M=3.45) among their respondents. Similar findings were also reported by Dawaideh (2013), Magogwe (2013) and Karbalaei (2010).

Thirdly, the study reveals a significant but weak positive relationship between metacognitive strategy use and students' reading test scores and lower-order thinking skill scores. Thus, it can be concluded that the more frequent students use metacognitive strategies, the better they can perform in reading tests and the higher they can score on lower-order thinking skill questions. Similar findings were found by Fitrisia, Tan & Yusuf (2015) in their study which indicates a significant but weak positive correlation between students' metacognitive strategy use and reading comprehension performance.

The study shows that metacognitive strategy use plays a big role in assisting the undergraduates in their academic reading. Thus, strategy-based instructions can be used to teach reading skills more effectively. Lecturers need to develop students' metacognitive awareness on the importance of reading strategies by providing explicit training sessions in class. This will surely benefit the

students in their academic reading performance throughout their study years at the university.

References

1. Ahmadi, M. R., Ismail, H. N. & Abdullah, M. K. K. (2013). The importance of metacognitive reading strategy awareness in reading comprehension. *English Language Teaching*, 6(10): 235-244.
2. Al-Dawaideh, A. M. & Al-Saadi, I. A. (2013). Assessing metacognitive awareness of reading strategy use for students from the faculty of education at the University of King Abdulaziz. *Mevlana International Journal of Education (MIJE)*, 3(4): 223-235.
3. Baker, L. & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson (Ed.), *Handbook of Reading Research* (pp.353-394). New York: Longman.
4. Brown, A. L. (1985). Metacognition: The development of selective attention strategies for learning from texts. In H. Singer & R. B. Ruddell (Eds.), *Theoretical Models and Processes of Reading* (3rd ed., pp.501-526). Newark, DE: International Reading Association.
5. Fitrisia, D., Tan, K. & Yusuf, Y. Q. (2015). Investigating metacognitive awareness of reading strategies to strengthen students' performance in reading comprehension. *Asia Pacific Journal of Educators and Education*, 30: 15–30.
6. Ismail, N. M. & Tawalbeh, T. I. (2015). Effectiveness of a metacognitive reading strategies program for improving low achieving EFL readers. *International Education Studies*, 8(1): 71-87.
7. Iwai, Y. (2011). The effects of metacognitive reading strategies: Pedagogical implications for EFL/ESL teachers. *The Reading Matrix*, 11(2): 150-159.
8. Karbalaei, A. (2010). A comparison of the metacognitive reading strategies used by EFL and ESL readers. *The Reading Matrix*, 10(2): 165-180.
9. Levine, A., Ferenz, O., & Reves, T. (2000). EFL academic reading and modern technology: How can we turn our students into independent critical readers? *Teaching English as a Second or Foreign Language Journal*, 4(4). Retrieved from http://www-writing.berkeley.edu/TESL-EJ/ej16/al.html
10. Li, J. & Chun, C. K. (2012). Effects of learning strategies on student reading literacy performance. *The Reading Matrix*, 12(1): 30-38.
11. Magogwe, J. M. (2013). Metacognitive awareness of reading strategies of University of Botswana English as a second language students of different academic reading proficiencies. *Reading & Writing*, 4(1), Art #29, 8 pages. http://dx.doi.org/10.4102/rw.v4i1.29.
12. Mijušković, M. & Simović, S. (2015). Metacognitive strategies that enhance reading comprehension in the foreign language university classroom. *Andragoške Studije*, (1): 145–174.
13. Mustapha, A. A. & Mohd Hatta, S. A. (2018). The use of vocabulary learning strategies by pre-diploma students in UITM. *Malaysian Journal of Social Sciences and Humanities*, 3(2): 65 – 76.
14. Pranowo. (2018). Developing students' reading culture for academic reading level through metacognitive strategies. *Lingua Cultura*, 12(1): 67-75
15. Younus, M & Khan, I. (2017). The effects of strategy-based reading instruction on reading comprehension and reading strategy use. *Journal of Education & Social* Sciences, 5(2): 106-120.
16. Yuksel, I, & Yuksel, I. (2012). Metacognitive awareness of academic reading strategies. *Procedia - Social and Behavioral Sciences*, 31: 894 – 898.