

Awareness of Metacognitive Strategy in the First Year Engineering College Students – A Study

R.Gomathy^a, K. Radhakrishnan^b

^aAssistant Professor, Department of English, Science and Humanities, Kongu Engineering College (Autonomous), Perundurai, Erode, Tamilnadu, India

^bPrincipal, KSR College of Arts and Science, Tiruchengode, Tamilnadu, India

Article History: Received: 10 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 4 June 2021

Abstract: Reading is one of the most important skills to be focused on to improve the proficiency level in English. Metacognitive reading strategy awareness is the one which helps the L2 learners to regulate their thinking as it creates awareness about the thinking. This also helps the L2 learners to have a plan, intention, proper mental processing that would help them to accomplish cognitive tasks. Furthermore, metacognitive reading strategy awareness skills help to monitor one's thinking and it also facilitates learning and shows progress in the performance especially for the learners who find it difficult to understand the given text. Among the various strategies, metacognition (Flavell, 1985) (thinking about thinking) and its strategies is one of the processes to make reading a self regulatory learning. But, nowadays, the reading habit among the students has got less priority. This motivates the researchers to identify the awareness level of the L2 learners in reading. And so the L2 learners are tested with the MARSİ questionnaire (Kouider Mokhtari and Carla Reichard, 2002). In this regard, general survey has been made among the first year engineering students to learn about their reading strategies. From the survey made, it is understood that they find difficult to make them comfortable and feel monotonous to do a prolonged reading and it is also understood that they are not aware of the reading strategies as they have not been encouraged to do reading from their childhood. And it is also understood that the learners could not enhance their knowledge level as they are not aware of their thinking process. The researchers also made an analysis to find out their awareness about the strategies of Metacognition with the help of the MARSİ Questionnaire (Kouider Mokhtari and Carla Reichard, 2002) and to help the learners to know the metacognitive strategies which would act as Scaffolding (Vyotsky, 1978) to develop their autonomous learning to enhance their proficiency in English

Keywords: Metacognition, Reading Strategies, MARSİ Questionnaire, Scaffolding

1. Introduction

In recent days the emphasis on the reading comprehension is increasing. So the role of the metacognitive awareness is becoming a motivating factor for the L2 learners. It brings the awareness and monitoring processes among the L2 learners. It also enhances the L2 learner's knowledge in cognition about reading and how to improve the mechanism of self control. Researchers generally refer metacognition as the "Knowledge about the cognitive states and abilities that can be shared among the individuals while at the same time expanding the construct to include affective and motivational characteristics of thinking" (Paris & Winograd, 1990, p.15). in the classic article "Metacognition and cognitive monitoring", Flavell (1979) described the process of cognitive monitoring as occurring through the actions and interactions of four classics or interrelated phenomena: Metacognitive knowledge, Metacognitive experiences, goals (or tasks) and actions (or strategies). A huge number of research have been made on reading strategies as it is considered as an active process to gather new information from any sort of content. Among the various strategies, metacognition (Flavell, 1985) (thinking about thinking) and its strategies is one of the processes to make reading a self regulatory learning. In this regard, general survey has been made among the first year engineering students to learn about their reading strategies. From the survey made, it is understood that they find difficult to make them comfortable and feel monotonous to do a prolonged reading and it is also understood that they are not aware of the reading strategies as they have not been encouraged to do reading from their childhood. So the researchers propose to make an analysis to find out their awareness about the strategies of Metacognition with the help of the MARSİ Questionnaire (Kouider Mokhtari and Carla Reichard, 2002). Such an analysis is made to help the learners to become aware of the metacognitive strategies which would also act as Scaffolding (Jerome Bruner, 1960) in developing their autonomous practice of reading.

2. Literature Review

Metacognition is thinking about thinking. It is described as a conscious cognitive or affective experience that accompanies and pertains to any intellectual enterprise (Flavell, 1979). Apart from learning the repertoire of strategies that are available to them, readers must also be aware of their own comprehension processes in order to read strategically (Carrell, Gajdusek and Wise, 1998). This metacognitive awareness is regarded as one of the most important components in the reading process (Anderson, 1999; Carrell 1998). Afflerbach et al. (2008) mentioned that a beginning learner who asks him or herself questions to clarify his or her comprehension of course material performs a deliberate metacognitive act of self-questioning that serves the learner's goal of

monitoring and building better comprehension. The relationship between metacognitive awareness, the use of strategies and reading comprehension has been analyzed by several specialists (Dhieb-Henia 2003; Kusiak 2001; Malcolm 2009; Salatachi and Akyel 2002; Zenotz 2012; Zhang 2001).

2.1 Awareness of metacognition

Metacognition is one of the reading strategies which would help the learners to monitor their notion of thinking about thinking, and are defined as planned, intentional, goal directed and future-oriented mental processing that can be used to accomplish comprehensive skill (Salataki & Akyel, 2002). When a learner uses the metacognitive strategy, he/she will become aware of the problem he/she faces during reading. It would also help the learners to recognize the meaning or the information provided in the text. In other words, metacognitive reading strategies are higher order performance methods that refer to the planning, monitoring and evaluating the success of a learning activity (Pressley & Afflerbach, 1995).

2.2 Metacognitive awareness reading strategy inventory (MARSİ)

The Metacognitive Awareness Reading Strategy Inventory (MARSİ; Mokhtari & Reichard, 2002) was developed to assess the type and frequency of reading strategies that students perceive that they use while reading academic materials in English. The MARSİ contains 30 items that measure three factors: Global Reading Strategies (13 items), Problem Solving Strategies (8 items), and Support Reading Strategies (9 items). The global factor reflects strategies related to the global analysis of text. The problem solving factor includes repair strategies that are used when text becomes difficult to read. The support factor reflects practical strategies like taking notes and consulting a dictionary. The MARSİ was designed for use with individuals or groups with reading ability ranging from 5th grade to college level. The primary uses of the MARSİ include the following: (a) enhancing student awareness, (b) planning instruction and (c) clinical or classroom research. (Kouider Mokhtari and Carla Reichard © 2002).

3. Uses of MARSİ:

MARSİ helps the learners to increase their own awareness during the reading. Becoming aware of their own reading is that allowing them to evaluate and to have the change in their opinion about reading and learning from the text. According to Paris and Winograd (1990), such “Conscious raising”, has twin benefits:”a) it transfers responsibility for monitoring learning from teachers to students themselves, and (b) it promotes positive self-perceptions affect and motivation among students. In this manner, metacognition provides personal insights into one’s own thinking and fosters independent learning,” (p.15). The next important use of MARSİ is that it will provide the information about the learners about their reading and that would help them to assess, monitor and document the various strategies of the students used during their reading. It will again help the teachers to derive new methods in teaching the reading comprehension.

4. Purpose of the Study

The purpose of the study is to help the learners to become aware of the reading strategies in order to help them to develop their autonomy of the reading skills.

4.1 Method

The Metacognitive Awareness Reading Strategy Inventory (MARSİ) questionnaire is distributed for 300 learners who belong to first year engineering students from various branches like Electronics and Communication Engineering, Chemical Engineering, Mechatronics Engineering Students and Information Technology to understand the awareness about the reading among the L2 learners.

The L2 learners are asked to provide information at the grade level in the given columns. The given directions are read aloud to make the students to better understand with the example given there. The response options are discussed to make sure the L2 learners understand the rating scale. The learners are also asked to read the statements carefully and to circle the appropriate responses. They are also encouraged to take their own time to complete the task. Then among the 300 students 100 students from two different classes have been chosen and categorized into two groups as control and uncontrolled group. Each group consists of 50 students. Control group students are given training to be aware of their reading and their thinking process. They are involved in the metacognitive strategies like talking to text, jotting down, paraphrasing, making sketch, flow chart.

In talking to the text method, students are guided and motivated to identify the key point of the given passage. They are also helped to identify the topic sentence of the paragraph. In the jotting down method the learners are guided to jot down the keywords from each sentence to identify the idea of each sentence. And they are also helped to deconstruct the sentence to better understand the grammar and syntax of the sentences. In the paraphrasing method the learners are guided to head the paragraph twice or thrice to adept the jot down and

talking to the text methods then to share the ideas in the given text in their own words. This would help the learners to be aware of their thinking and to focus until they understand the given text thoroughly. The learners are also guided to frame the sketch of the text and to draw the flowchart as far as the technical passages are concerned. These methods are used for the controlled group. Then they are again tested with the MARSİ questionnaire to test their awareness. The uncontrolled group is not given such metacognition strategies but still they are tested again with the MARSİ questionnaire.

4.2 Analysis

As mentioned earlier the purpose of the study is to create awareness about the reading strategies among the L2 learners MARSİ questionnaire is given to the learners. The analysis has been made using the tool SPSS-20 in various aspects like Global Reading Strategies, Problem Solving Strategies and Overall reading Strategies.

In the MARSİ questionnaire the metacognitive awareness is analyzed in three parameters global reading, problem solving and support reading strategies. In the analysis made which includes the both male and female L2 learners. The first category, Global Reading Strategies contains 13 items which represent the reading strategies orient to global analysis of the text. The Table - 1 clearly indicates the Mean value of the Global Reading Strategies of MARSİ Analysis. The second category is the Problem Solving Strategies which contain 8 items which orient to problem solving strategies, and the Table – 2 indicates the mean value of the Problem Solving Strategies. The third category is that the Support Reading Strategies contain 9 items which primarily involves the materials used for the references, taking note and the supporting materials. So the Table – 3 gives the mean value for the support reading strategy. Hence, table – 4 gives the overall reading strategy of the MARSİ Questionnaire given for 300 L2 learners. When all the three strategies are compared, it shows that the mean value of the analysis has not reached the high score.

Table 1. Global reading strategy

S.No.	Statement No.	Mean (n=300)
1	1	3.32
2	3	3.47
3	4	3.23
4	7	3.27
5	10	3.01
6	14	3.63
7	17	3.41
8	19	3.41
9	22	2.83
10	23	2.98
11	25	3.31
12	26	3.63
13	29	3.59

Table 2. Problem solving strategies

S.No.	Statement No.	Mean(n=300)
1	8	2.74
2	11	2.77
3	13	3.61
4	16	3.64
5	18	3.10
6	21	3.87
7	27	3.06
8	30	3.20

Table 3. Support reading strategy

S.No.	Statement No.	Mean(n=300)
1	2	3.03
2	5	2.93
3	6	3.35
4	9	3.37
5	12	3.53

6	15	2.88
7	20	3.74
8	24	3.29
9	28	3.24

Table 4. Overall reading strategy

S.No.	Strategy	Mean(n=300)
1	Global Reading Strategy	3.31
2	Problem Solving Strategy	3.25
3	Support Reading Strategy	3.26
4	Overall	3.27

4.3 Relationship between pre and post test

For examining the students’ understanding capacity of global reading strategy, problem solving strategy and support reading strategy, the researchers have selected 100 students who belong to two different classes. Among the 100 students, 50 students are considered as uncontrolled group and remaining 50 students are considered as controlled group. Among such selected control group students are trained in such a way to enhance their awareness in reading skills after the pre-test, whereas the uncontrolled group is not given any training in such a way.

4.4 Relationship between pre and post global reading test for uncontrolled group

In order to find the relationship between the pre and post Global Reading test among the selected sample respondents, a hypothesis has been framed and tested by using paired ‘t’ test and the results are discussed in the following table.

H₀ : There is no significant difference between pre and post Global Reading test.

Table 5. Relationship between pre and post global reading test for uncontrolled group

	Mean	SD	‘t’ Value	‘p’ Value
Pre Test	3.267	0.396	1.447	0.154NS
Post Test	3.402	0.528		

Note: NS–Not Significant

From the above table, it is clearly understood about the pre and post global reading strategy of the selected sample respondents. It is identified from the above table that the students have slightly improved the uncontrolled group in the post test. The result of paired ‘t’ test reveals that the null hypothesis is accepted due to the greater ‘p’ value as 0.154 and so there is no significant difference between pre and post global reading strategy. The mean value also confirmed that the highest mean value has registered at post test.

4.5 Relationship between pre and post global reading test for controlled group

In order to find the relationship between the pre and post Global Reading test among the selected sample controlled group students, a hypothesis has been framed and tested by using paired ‘t’ test and the results are discussed in the following table.

H₀ : There is no significant difference between pre and post Global Reading test for controlled group.

Table 6. Relationship between pre and post global reading test for controlled group

	Mean	SD	‘t’ Value	‘p’ Value
Pre Test	3.267	0.464	9.596	0.000*
Post Test	4.005	0.367		

Note:* –Sig. at 1% level

The above table clearly shows the relationship between the pre and post global reading strategy for controlled group. It is observed that from the above table that the students have registered their high improvement after the post test the controlled group. The result of paired ‘t’ test reveals that the null hypothesis is rejected due to the lesser ‘p’ value as 0.000 and so there is a significant difference between pre and post global reading strategy in controlled group. Also, the mean value shows the highest mean value has registered at post test.

4.6 Relationship between pre and post problem solving strategy for uncontrolled group

In order to find the relationship between the pre and post Problem Solving strategy for uncontrolled group of respondents, a hypothesis has been framed and tested by using paired ‘t’ test and the results are discussed in the following table.

H₀ : There is no significant difference between pre and post Problem Solving Strategy.

Table 7. Relationship between pre and post problem solving strategy for uncontrolled group

	Mean	SD	‘t’ Value	‘p’ Value
Pre Test	3.462	0.540	1.819	0.075NS
Post Test	3.660	0.597		

Note: NS – Not Significant

From the above table, it is clearly understood about the pre and post global reading strategy of the selected sample respondents. It is identified from the above table that the students have slightly improved the uncontrolled group in the post test. The result of paired‘t’ test reveals that the null hypothesis is accepted due to the greater ‘p’ value as 0.075 and so there is no significant difference between pre and post problem solving strategy. The mean value also confirmed that the highest mean value has registered at post test.

4.7 Relationship between pre and post problem solving reading test for controlled group

In order to find the relationship between the pre and post Problem Solving strategy among the selected sample controlled group students, a hypothesis has been framed and tested by using paired ‘t’ test and the results are discussed in the following table.

H₀ : There is no significant difference between pre and post Problem Solving Strategy for controlled group.

Table 8. Relationship between pre and post problem solving strategy for controlled group

	Mean	SD	‘t’ Value	‘p’ Value
Pre Test	3.180	0.503	9.696	0.000*
Post Test	4.172	0.521		

Note: * – Sig. at 1% level

The above table clearly shows the relationship between the pre and post problem solving strategy for controlled group. It is observed that from the above table that the students have registered their high improvement after the post test the controlled group. The result of paired‘t’ test reveals that the null hypothesis is rejected due to the lesser ‘p’ value as 0.000 and so there is a significant difference between pre and post problem solving strategy in controlled group. Also, the mean value shows the highest mean value has registered at post test.

4.8 Relationship between pre and post support reading strategy for uncontrolled group

In order to find the relationship between the pre and post Support Reading strategy for uncontrolled group of respondents, a hypothesis has been framed and tested by using paired‘t’ test and the results are discussed in the following table.

H₀ : There is no significant difference between pre and post Support Reading Strategy for uncontrolled group.

Table 9. Relationship between pre and post support reading strategy for uncontrolled group

	Mean	SD	‘t’ Value	‘p’ Value
Pre Test	3.404	0.510	1.917	0.061NS
Post Test	3.597	0.703		

Note: NS – Not Significant

From the above table, it is clearly understood about the pre and post support reading strategy of the selected sample respondents. It is identified from the above table that the students have slightly improved the uncontrolled group in the post test. The result of paired‘t’ test reveals that the null hypothesis is accepted due to the greater ‘p’ value as 0.061 and so there is no significant difference between pre and post support reading strategy. The mean value also confirmed that the highest mean value has registered at post test.

4.9 Relationship between pre and post support reading strategy for controlled group

In order to find the relationship between the pre and post Support Reading strategy among the selected sample controlled group students, a hypothesis has been framed and tested by using paired 't' test and the results are discussed in the following table.

H_0 : There is no significant difference between pre and post Support Reading Strategy for controlled group.

Table 10. Relationship between pre and post support reading strategy for controlled group

	Mean	SD	't' Value	'p' Value
Pre Test	3.293	0.495	9.965	0.000*
Post Test	4.184	0.448		

Note: * – Sig. at 1% level

The above table clearly shows the relationship between the pre and post support reading strategy for controlled group. It is observed that from the above table that the students have registered their high improvement after the post test the controlled group. The result of paired 't' test reveals that the null hypothesis is rejected due to the lesser 'p' value as 0.000 and so there is a significant difference between pre and post Support Reading strategy in controlled group. Also, the mean value shows the highest mean value has registered at post test.

5. Conclusion

Hence, the current study reports that the MARSII analysis has helped the L2 learners to enhance the awareness during the reading. The findings also show that the learners have the tendency towards all the three strategies: global reading strategies, Support reading strategies, Problem solving strategies. This means that the L2 learners prefer to do the reading with the metacognitive awareness and also there is a significant difference between the pre and post test of the controlled group when it is compared with the uncontrolled group. But still further research may be needed to derive new strategies and to find the reason for not using the other strategies in developing the metacognitive awareness.

References

1. Afflerbach, P., Pearson, P.D., & Paris, S.G. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher*, 61, 364-373.
2. Anderson, N.J. 1999. *Exploring Second Language Reading: Issues and Strategies*. Toronto: Heinle & Heinle.
3. BAKER, L. (2002) 'Metacognitive comprehension instruction', in I. C. C. Blocka, M. Pressley (Eds.) *Comprehension Instruction: Research- Based Best Practices* New York: The Guilford Press, pp. 77–95.
4. Carrell, P.L., L. Gajalusek and T. Wise, 1998. Metacognition and EFL/ESL reading. *Instructional Science*. 26: 97-112.
5. Carrell, P.L. 1998. Introduction. In *Interactive Approaches to Second Language Reading*, ed. P.L. Carrell, J. Derine and D.E. Heskey, 1-5 Cambridge: Cambridge University Press.
6. Chamot, A., Barnhardt, S, El-Dinary, P. & Robbins, J. (1999). *The Learning Strategies Handbook*. New York: Pearson Education. Longman.
7. COYLE, D., HOOD, P., & MARSH, D. (2010). *CLIL – Content and Language Integrated Learning*. Cambridge: Cambridge University Press.
8. Flavell, J.H. (1979) Metacognition and cognitive monitoring: a new area of cognitive developmental inquiry. *American Psychologist*, 34, 906-911.
9. FLAVELL, J. H. (1976) 'Metacognitive aspects of problem solving', in L. B. Resnick (Ed.) *The Nature of Intelligence* Hillsdale, NJ: Lawrence Erlbaum Associates.
10. Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, 34, 906–911.
11. Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluve (Eds.) *Metacognition, Motivation and Understanding*. Hillsdale: NJ, Erlbaum.
12. Hajduzita Wiwczaroski & Ildiko (2010) CLIL: Preparing for Central Asian Students to Study Animal Husbandry In English., *English for Specific Purposes World*, Volume 9, Issue 29. Available at http://www.esp-orld.info/Articles_29/WiwczaroskiCLIL2010.pdf

13. MEYER, O. (2010). Towards quality CLIL: successful planning and teaching strategies. *Pulso*, 33, 11-29.
14. Paris, S. G., & Winograd, P. (1990). How metacognition can promote academic learning and instruction. In B. F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (pp. 15-51). Hillsdale, NJ: Erlbaum.
15. Schreiber, F. J. (2005). Metacognition and Self-Regulation in Literacy. In Israek, S. E., Block, C. C., Bauserman, K. L. & Kinnucan-Welsch, K. (Eds.), *Metacognition in Literacy Learning. Theory, Assessment, Instruction and Professional Development*. (215–240). Mahwah, New Jersey: Lawrence Erlbaum Associates.
16. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
17. <https://www.nwfsc.edu/wp-content/uploads/2017/10/Marsi-test.pdf>
18. https://www.researchgate.net/publication/326152721_Revising_the_Metacognitive_Awareness_of_Reading_Strategies_Inventory_MARSI_and_testing_for_factorial_invariance.