IDENTIFYING METACOGNITIVE STRATEGIES THROUGH LEARNERS' READING COMPREHENSION: A REVIEW OF RELATED STUDIES

Mansoor Ahmed Channa[1], Zaimuariffudin Shukri Nordin[2]

[1]English Language Center, Quaid-e-Awam University of Engineering, Science, and

Technology, Nawabshah, Pakistan

[1]PhD Researcher, Facuty of Cognitive Sciences and Human Development, University Malaysia

Sarawak (UNIMAS), Malaysia. Email: mansoor.english@yahoo.com

[2]Deputy Dean, Facuty of Cognitive Sciences and Human Development, University Malaysia

Sarawak (UNIMAS), Malaysia.

ABSTRACT: *This review study contributes in identifying metacognitive strategies through students' reading comprehension. Different studies presented teachers to become reflective in terms of applying teaching methodology for developing reading skills, metacognitive strategies in reading, and comprehending the text properly. The contributions of this review study will identify metacognitive skills as an input to design materials based on reading comprehension. This review study is a fundamental research in the domain of cognition, metacognition, and reading comprehension. The researchers reviewed journal papers, and theses in the relevant field. The studies indicate that the contributions of metacognitive strategies of students' reading comprehension is significant. Findings also reveal that teachers play pivitol role to develop reading comprehension abilities among students at all levels. The results will be a guideline to design syllabus that include metacognitive strategies in learners' reading comprehension.*

Keywords: Metacognitive, Cognitive, Strategies, Reading skills, Reading comprehension.

1. INTRODUCTION

In 21st century, many people demanded that teachers may involve in the instructions of students by employing the most effective and innovative research based practices to the students in classrooms. Duke and Pearson[1] indicated that the research in reading is related to the concerns based on poor reading skills that need to provide students with more experience based on the text. One of the problems is that readers are mostly immersed in narrative text from the time they are very young. They often are not taught explanatory text structure and hence lack the strategies to handle expository text as they progress through the student life. Gender differences also play an important role in the use of text and the importance of text exposure. Below Fearrington Skinner and Sorrell [2] discovered that although boys prefer reading nonfiction and informational material that provides facts over fictional materials. Similarly, Coles and Hall [3] and Brozo [4] asserted that fictional reading is typically used during undergraduate level; so classroom instruction should consider gender differences and inequalities that lead to underachievement in reading for both boys and girls. According to the National Reading Panel [5] reading instruction should emphasize five areas: (1) phonemic awareness, (2) phonics, (3) fluency, (4) vocabulary, and (5) comprehension. Further, The National Reading Panel [5] called for more research on which reading comprehension strategies are most effective for particular age groups and sex to bridge the gap between decoding skills and comprehension.

RAND [6] explained reading as, "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language". Further, three elements for reading comprehension that include: the

reader, the text, and the activity as suggested by RAND [6] and asserted futur investigation on reading comprehension strategy instruction, the conditions in which strategy instruction leads to improve reading text with inquiry based content areas discussed by Randi Grigorenko and Sternberg [7]. The current study will address the concerns to examine the gains in reading comprehension, and metacognitive functioning of students using text.

1.1 Concept of metacognition
The term metacognition was founded and defined by Flavell [8] as " knowledge and cognition about cognitive phenomena". However, Piaget's [9] approach of cognitive development and Vygotsky's [10] cognitive and learning development exercised greater influence upon Flavell, and both paved a way for him to continue work in the field. Terrace and Son [11] found a metacognition problem as, "devided path of research; one for cognitive researchers and other for educators" .

1.2 What Metacognition is?
Some famous and quoted definitions are given in order to define metacognition:

1.2.1 Flavell [12] defined: "Metacognition refers to one's knowledge concerns one's own cognitive processes and products" .

1.2.2 Flavell [13] further defined: "knowledge or cognitive activity that takes as its object, or regulates, any aspect of cognitive enterprise".

1.2.3 Brown [14] stated: "Metacognition refers loosely to one's knowledge and control of one's own cognitive system".

1.2.4 Pressley and Hilden [15] elaborated: "It is a knowledge of thinking processes".

1.2.5 Zimmerman and Moylan [16] exclaimed: Metacognition refers to knowledge, awareness and regulation

of one's thinking.

2.   METHOD OF STUDY

The method of this study is based on literature review that relates to metacognitive strategies contribution to reading outputs in reading comprehension. The 60 percent of articles published before 2005 and other 40 percent publication was made from 2005 to 2014 were reviewed. Thirty Six articles include from journals and books are reviewed. The researcher narrowed down the search to the articles, published in peer reviewed journals. In addition, no delineation is imposed on the outlets' field in order to enable potential research findings from different areas. The search processing was based on Google Scholar and library was used to provide a comprehensive and systematic methodology. The investigation option adopted was limited only to articles' titles and related keywords.

3.   DESCRIPTION OF METACOGNITION

Most studies not only unveil the differences related to the strategies use between good readers and poor readers but readers' awareness of using these strategies also are known metacognitive awareness. This term is widely used in the field of reading comprehension and reading research. Flavell [13] defined metacognition "regulates any aspect of cognitive processes" that refer to the ability to reflect on their own thinking and use of strategies to overcome learning difficulties. Metacognitive knowledge is the knowledge related to the learners and their use of strategies and tasks as mentioned by Baker and Brown [17]. The control component is related to self-regulation of cognitive efforts, and it comprises on Baker's [18]   "planning", "efforts", "evaluating", "remedying", and "testing". Students know very well regarding their thinking, including awareness, conscious thought and reasoning. Metacognition is important in reading because it helps readers keep comprehension processing and realise what they can do. In this study, metacognition refers to being able to apply the strategies effectively and being aware of the task demands consistently.

3.1 Metacognition in reading comprehension

Comprehending text is a complex mental process. Readers need to use their prior knowledge to interpret the information in the text and construct a meaningful representation of what the text is. It is important that the readers have to understand and remember what the text is, and also they need to monitor whether comprehended text makes sense or not and whether the information learned from the text can be used to achieve their goals as elaborated in the study of McNamara Ozuru Best and O'Reilly [19]. The process of being aware of using readers' own cognitive resources is called metacognition. The current studies of reading comprehension do emphasise the strategies used by good and poor readers, and also the metacognitive awareness readers have.

3.2 Reading research on metacognitive awareness

The development of metacognition has generated the interest of countless researchers as they try to explain why some readers have a better metacognitive awareness of what strategies to use and how to use them, so these readers can show greater reading ability and proficiency. In the early studies, researchers mainly have focused upon the relationship between readers and metacognitive awareness. Barnett [20] investigated the relationship among reading strategies and perceived strategy use on reading comprehension. In other words, she tried to examine the relationship between readers' metacognitive awareness and comprehension. Her results indicate that students who thought they used the most productive strategies (i.e. perceived strategy use) actually read through context better and understood more than those who did not think they used such strategies. That means those students who are able to develop stronger metacognitive awareness can perform better in reading comprehension. Carrell [21] also conducted a study to examine the metacognitive awareness of readers about reading strategies, and their relationship between metacognitive awareness and their comprehension in two languages. The high proficient group used more "global" strategies which were the use of prior knowledge, text gist and textual organisation, but the English L1 group with the lower proficiency levels of Spanish depended more on the bottom-up decoding skills. Carrell [21] concludes that students of more advanced proficiency levels tend to have greater metacognitive awareness of their use of strategies and what they know and this characteristic helped them achieve greater reading ability. Several studies have found significant relationship between metacognition and reading comprehension during elementary and secondary school.

In Peverly Brobst and Morris' [23] study, the ability to comprehend and metacognitive control of strategies were related to the recall of information among average and above-average seventh and eleventh-grade students. Metacognitive control is important to older students because it helps them cope with the growing demands of their school work with their limited cognitive resources and identify important information for understanding text. In addition to the association between reading comprehension and metacognition, there is also a growing trend for investigating the link between metacognition and self-regulated comprehension. Garner [24] states that proficient readers know when and where to apply strategies flexibly and appropriately. They try to monitor their comprehension and regulate their learning strategically. Less-proficient readers, on the contrary, fail to regulate their strategies or determine main ideas from text. In other words, good readers have developed greater metacognitive awareness and are able to self-regulate the strategies use. Through raising learners' metacognitive awareness, learners can be self-regulated to examine their cognitive processes and abilities as seen in the research of Joseph [25].

In Hilden and Pressley's [26] case study, the results show that there was a growth in students' reading comprehension behaviours and some students were able to reach the self-control level of self-regulated use of comprehension strategies throughout the academic year; although this study tried to explore the obstacles and changes teachers encountered when implementing reading comprehension instruction. Most of the participating students became better at thinking critically and applied the strategies effectively as they read. In conclusion, proficient readers actively apply different metacognitive strategies to monitor and evaluate their comprehension while reading. Joseph [25] suggests students to be self-reflective and self-regulated learners. To improve student readers' comprehension and metacognitive

awareness, reading comprehension instruction has been shown to be effective in the research of Salataci and Akyel [27] and Scharlach [28] in which it narrows the gap between good and poor readers' strategy use as discussed by Gill [29] and Slavin Cheung Groff and Lake [30] that motivates students to take a positive attitude towards strategic reading instruction as found by Zhang [31]. According to the favourable outcomes of comprehension instruction, the possibility of improving students' metacognitive awareness and use of strategies through the instruction cannot be ruled out.

4. REVIEW OF RELATED STUDIES

Recent research has focused on scaffolding and metacognition awareness or strategy use among readers. These studies revealed that successful readers percieve the use of appropriate strategies that can enhance text comprehension.

Kolic-Vehovec and Bajsanski [22] examined the use of metacognition strategies based on comprehension monitoring, reading strategies and reading comprehension of bilingual learners in Italy. Their comprehension monitoring was measured through meta-comprehension test by using cloze task. In this study, a strategic reading questionnaire was employed to measure strategic reading. The results indicated comprehension monitoring as the most important predictor of reading comprehension of the learners.

Zhang and Wu [32] investigated metacognition awareness and strategies in reading carried out in Chinese high school. The researchers used survey on reading strategies, containing 28 items. The findings of the research indicated that the students used three categories of reading strategies at a high level profeciency. The participants of high group proficiency perofrmed intermediate and low reading proficiency in two categories of reading strategies that include global and problem solving.

Shah et al [33] investigated the use of strategies through survey by comparing strategies in Malaysia. The participants were second language readers, having different reading abilities of secondary school students assessing strategies on supporting, supervising and paraphrasing of the students in reading. The resuts of the study indicated that differences among average and good readers were prevailed and good readers preferred using strategies in reading comprehension in text with touch of scaffolding and metacognition.

Channa Yossatorn and Yossiri [34] investigated investigated the students' attitudes towards activities used in classroom in Thailand and found learners' perceptions and satisfactions on their teachers using class activities that include teaching strategies, class activities and social environment These strategies helped foreign learners studying in medical and engineering facilties reduced or changed negative attitudes. This study found promising outcomes of students' attitudes towards teacher using activities.

Franco-Castillo [35] investigated reading comprehension, science achievement, and metacognitive strategies of second grade students interacting with instructors using dialogue journals and textbooks. Data was collected by using different measures. Findings revealed that experimental participants performed significantly better on the linear combination of reading comprehension based on the achievement of science text, and functions of metacognition through scaffolding which develop students' reading awareness.

5. DISCUSSION AND CONCLUSION

According to the research findings, two conclusions come to the surface. First, teachers should teach metacognitive strategies, and the students should use actively for developing their reading comprehensions. Second, an increase in metacognitive knowledge leads to improvement of reading comprehension. Most of the above mentioned works are very specific and the following gaps are identified:

1. There has been a lack of empirical research on text evaluation related to metacognition and reading strategies.

2. Moreover, these studies have not tried to analyse and optimize the inputs-outputs with regards to reading output and metacognitive strategies.

3. Most of the reading performance models do not have predictive power for future performance of readers in the classrooms without teachers support with respect to metacognition and strategies.

In that regards, gaps are observed between existing reading performance of learners and metacognitive strategies practices.

To conclude, the researcher has opined that introducing metacognition in the classroom in general and reading comprehension settings in particular is pertaining to critics to students' success. The main objective of this research is to judge whether teaching metacognitive strategies to students would benefit in developing metacognitive knowledge of students at all levels means from primary level to undergraduate and graduate levels, and would work in improving the comprehension levels of students in all fields as well.

REFERENCES

[1] Duke N. K., and Pearson D., "Effective practices for developing reading comprehension", In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 205–242). New York, DE: International Reading Association. (2002).

[2] Below J., Fearrington J.Y., Skinner C.H., and Sorrell C.A., "Gender differences in early literacy: Analysis of kindergarten through fifth-grade dynamic indicators of basic early literacy skills probes", *School Psychology Review*, Vol. **39**, 240-258, (2010).

[3] Coles M., and Hall C., "Gendered readings: learning from children's reading choices", *Journal of Research in Reading*, Vol. **25**, 96-108, (2002).

[4] Brozo, W. "To be a boy, to be a reader", In S. Jay Samules and Alan E. Farstrup (Eds.), *What Research Has To Say About Reading Instruction*, New York, DE: International Reading Association, (2002).

[5] National Reading Panel, "Report of the National Reading Panel: Teaching people to read", Washington: National Institute of Child Health and Human Development, (2000).

[6] RAND Reading Study Group, "Reading for understanding: Toward an R and D program in reading comprehension", Santa Monica, CA: Washington, DC: RAND Education, (2002).

[7] Randi J., Grigorenko E. L., and Sternberg R. J.,

"Revisiting definitions of reading comprehension. Just what is reading comprehension anyway?" In S. Isreal C. Block K. Bauserman and K. Kinnucan-Welsch, *Pedagogical understandings* (Eds.), Metacognition in literacy learning: theory, assessment, instruction, and professional development (pp. 19-39). Mahwah: Lawrence Erlbaum Associates, (2005).

[8] Flavell J. H., "Metacognition and cognitive monitoring", *American Psychologist*, Vol. **34**, 906-911, (1979).

[9] Piaget J., "The development of thought: Equilibration of cognitive structures", New York: Viking Press, (1977).

[10] Vygotsky L., "Mind in society", Cambridge, MA: Harvard University Press, (1978).

[11] Terrace H. S., and Son L. K., "Comparative metacognition", *Current Opinion in Neurobiology*, Vol. **19**, No. 1, 67-74, (2009).

[12] Flavel J. H., "Metacognitive aspects of problem solving", In L .B. Resnick (Ed.), *The nature of intelligence* (pp. 231-236). Hillsdale, NJ: Erlbaum, (1976).

[13] Flavell J. H., "Theory-of-mind development: Retrospect and prospect", *Merrill-Palmer Quarterly*, Vol. **50**, 274-290, (2004).

[14] Brown A. L., and Palincsar A. S., "Reciprocal teaching of comprehension skills: A natural history of one program for enhancing learning", In J. D. Day and J. G. Borkowski (Eds.), *Intelligence and exceptionality: New directions for theory, assessment, and instructional practices*, (pp. 81-131), Norwood, NJ: Ablex, (1987).

[15] Pressley M., and Hilden K., "Commentary on three important directions in comprehension research", In S. G. Paris and S. Stahl (Eds.), *Children's reading comprehension and assessment,* (pp. 13-69), Mahwah, NJ: Erlbaum, (2005).

[16] Zimmerman B. J., and Moylan A. R., "Self-regulation: Where metacognition and motivation intersect", In D. J. Hacker, J. Dunlosky & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 299-316), New York: Routledge, (2009).

[17] Baker L., and Brown, A. L., "Metacognitive skills and reading", In P. D. Pearson (Ed.), *Handbook of reading research,* (pp. 353-394), (1984).

[18] Baker L., "Metacognitve comprehension instruction", In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: research-based best practices*, (pp. 77-95), New York: Guilford, (2002).

[19] McNamara D., Ozuru Y., Best R., and O'Reilly T. "The 4-pronged comprehension strategy framework" In D. S. McNamara (Ed.), Reading compre hension strategies: Theories, interventions, and technologies (pp. 465–496), Mahwah, NJ: Erlbaum, (2007).

[20] Barnett M. A., "Reading Through Context: How Real and Perceived Strategy Use Affects L2 Comprehension", *Modern Language Journal*, Vol. **72**, 150-162, (1988).

[21] Carrell P. L., "Metacognitive Awareness and Second Language Reading", *Modern Language Journal*, Vol. **73**, 121-134, (1989).

[22] Kolic-Vehovec S., and Bajsanski I., "Metacognitive strategies and reading comprehension in elementary school students", *European Journal of Psychology of Education*, Vol. **21**, 439-451, (2006).

[23] Peverly S. T., Brobst K. E., and Morris K. S., "The contribution of reading comprehension ability and meta-cognitive control to the development of studying in adolescence", *Journal of Research in Reading*, Vol. **25**, No. 2, 203-216, (2002).

[24] Garner R., "Metacognition and self-monitoring strategies", In S. Jay Samules and Alan E. Farstrup (Eds.), *What Research Has To Say About Reading Instruction* (pp. 236-252), New York: International Reading Association, (1992).

[25] Joseph N., "Metacognition Needed: Teaching Middle and High School Students to Develop Strategic Learning Skills", *Preventing School Failure*, Vol. **54**, No. 2, 99-103, (2010).

[26] Hilden K. R., and Pressley M., "Self-regulation through transactional strategies instruction", *Reading and Writing Quarterly*, Vol. **23**, 51-75, (2007).

[27] Salataci R., and Akyel A., "Possible effects of strategy instruction on L1 and L2 reading", *Reading in a Foreign Language*, Vol. **14**, No. 1, (2002).

[28] Scharlach T. D., "These kids just aren't motivated to read: The influence of pre-service teachers' beliefs on their expectations, instruction, and evaluation of struggling readers", *Literacy Research and Instruction*, Vol. **47**, No. 3, 158-173, (2008).

[29] Gill S., "The Comprehension Matrix: A Tool for Designing Comprehension Instruction", *In The Reading Teacher*, Vol. **62**, No. 2, pp. 106-113, (2008).

[30] Slavin R.E., Cheung A., Groff C., and Lake C., "Effective reading programs for middle and high schools: A best evidence synthesis". *Reading Research Quarterly*, Vol. **43**, No. 3, 290-322, (2008).

[31] Zhang L. J., "A dynamic metacognitive systems account of Chinese university students' knowledge about EFL reading", *TESOL Quarterly*, Vol. **44**, No. 2, 320-353, (2010).

[32] Zhang L. J., and Wu A., "Chinese senior high school EFL students' metacognitive awareness and reading-strategy use", *Reading in a Foreign Language*, Vol. **21**, No. 1, 37-59, (2009).

[33] Shah, P.M., A. Yusof, S.M. Lip, N. Mahmood and Hamid Y.E.A., and Hashim, S. M.,"Comparing reading processing strategies of second language readers", *Am. J. Applied Sci.*, **7**: 140-144, (2010).

[34] Mansoor A. Channa, Yossiri Y., and Varavejbhisis Y., "Students' Attitudes towards Teachers' using Activities in EFL class", *International Journal of Academic Research in Business and Social Sciences* (ISSN: 2222-6990), Vol. **2**, Issue 5, pp. 158-164, May (2012).

[35] Franco-Castillo I., "The Relationship between Scaffolding Metacognitive Strategies identified through Dialogue Journals and Second Graders' Reading Comprehension, Science Achievement, and Metacognition using Expository Text", *FIU Electronic Theses and Dissertations*, Paper 1014, (2013).