Exploring the metacognitive reading strategy awareness in promoting students' reading comprehension skills

Benmansour Souheylaa [1], Oran 2 University, Faculty of Foreign Languages, Department of English, Oran, Algeria

Bouali Amina, Oran 2 University, Faculty of Foreign Languages, Department of English, Oran, Algeria

Abstract

The fundamental role of reading comprehension is to promote a successful learning process and to enhance some Meta-cognitive reading strategies that are likely to raise learners' awareness in mainstream education. In this vein, the present paper endeavors to explore the effect of implementing a Metacognitive Reading Strategy on EFL students' reading comprehension skills. To fulfill this study, the researchers opted for a group of 43 EFL students enrolled in the University of Oran2 as a sampling of this research to answer a structured questionnaire employed to measure students' Metacognitive reading strategies. The results have shown that EFL students chiefly use problem-solving skills, global reading strategies, and support reading strategies to prop up their reading comprehension. Significant skill, cognitive and Metacognitive strategies form an ideal complement that helps to stimulate reading skills at higher-level complexity and L2 proficiency in general.

Keywords: EFL; Meta-cognitive; problem-solving skills; reading comprehension; reading strategies.

---

* ADDRESS FOR CORRESPONDENCE: Bouali Amina, Oran 2 University, Faculty of Foreign Languages, Department of English, Oran, Algeria
E-mail address: amy.bouali@gmail.com

1. Introduction

With the growing number of international communication and scholarship to study abroad, it is indispensable for learners to learn four skills of listening, speaking, reading, and writing for their learning achievement (Gong, Ma, Hsiang & Wang, 2020). But reading comprehension remains one of the significant factors for their English language learning. Reading comprehension is an intricate procedure, and students often encounter difficulties in extracting meaning from written texts. Besides, English language learners encounter some challenges when constructing meaning and comprehending texts. This matter often engenders many difficulties in some domains per se getting a job or a better vocation. Some students can read a text though, they often find difficulties to identify or comprehend the message or meaning behind the text. The reading comprehension process is an essential aspect of the EFL/ESL learning process. It should be underlined in different education stages because reading comprehension is one of the top priorities of ESL/EFL students after affecting elementary English courses. Despite this, teaching reading comprehension strategies keeps being primarily ineffective in English language teaching.

Metacognitive reading strategy awareness turns out to be an efficient means to support students' reading comprehension in second/foreign language studies (Ogurlu & Sarıcam, 2021). Studies on Metacognitive reading strategy awareness are likely to make strategies and other aspects essential for students' language learning achievements. The significance of the present research work lies in the fact that it explores what language learners do to facilitate their understanding when reading English text. In this new-fangled approach, Metacognitive reading strategy awareness is described as any decision, conduct, concept, proposal, and technique used by the readers (learners) to reinforce their learning process. Researchers endeavored to make taxonomies of a Metacognitive reading strategy amongst readers to assist their reading comprehension.

Teachers concur that a Metacognitive reading strategy can help students' reading comprehension and endorse the monitoring of their cognitive activities. The significance of Metacognitive strategy integration, such as self-awareness and self-evaluating, lies in assisting independent readers to learn how to regulate their learning and find out when and how to employ those strategies in reading. The present study is meant to underline EFL learners' difficulties in reading, and highlight teaching intercessions to instruct some Metacognitive reading strategies. It also attempts to solve the EFL learners' reading comprehension problems, mostly in reading academic English texts.

1.1. Literature Review

Learning English as a Second Language (ESL) is pivotal for EFL students. It requires essential skills to fulfill a diversity of assignments based on the reading (Levine, et al. 2000). The skill of reading is not limited to recognizing symbols and producing sounds. The critical stage in the proficiency of reading is the understanding of the text. Comparatively, Goodman puts forward two views on reading. With the first one, he implies it as 'matching sounds to letters'. With the second one, he shows that it is a mystery, that 'nobody knows how reading works' (Goodman, 1988). Most likely, Goodman was influenced by MacLeish, who asserted that 'readers of all written languages are getting sounds from the printed page' (MacLeish, 1969). Moreover, excellent reading proficiency will significantly assist those who attempt to carry on their studies to a higher level or find a job. Furthermore, technology evolves more professions and higher demands an advanced level of education, or particular practice (Harris et al, 1979).

For EFL students, reading texts in the English language is different from reading in their first language. The reading activity requires a particular process by which students strive to comprehend what is jotted down. The process occurs when students find written symbols, and decipher them cognitively. Hence, the process can be named a cognitive process (Harris, 1978). Students should develop their reading speed and skim in all reading lectures. A study reveals that learning strategies entail some training, processes, and stages employed by the learner to facilitate the comprehension of information on hand (Wenden et al. 1987). It was claimed that learning strategies are deliberately

conducted with relating ideas that students use during learning to build up reading comprehension amongst students to learn and memorize the new information (Richards et al., 1992).

1.1.1. *Cognitive and Metacognitive Reading Strategies*

In their enterprise to investigate the learning of Metacognitive reading strategy skills, different studies try to solve poor reading comprehension, focusing mainly on the importance of metacognitive reading strategy in language learning and teaching. Metacognitive reading strategy awareness represents thoughts and techniques that assist students in adjusting or examining their cognitive strategies. According to Ahmadi (2013), "They are the notions of thinking about thinking", and are described as, arranged, intended, goal-directed, and future-oriented mental processing that can be employed to complete cognitive undertakings". Also, metacognitive strategies are different from cognitive ones in that they cover multiple matter areas, whereas cognitive processes tend to be condensed within a subject area.

Metacognitive strategies involve the notion of thinking. It is meant to support the process of learning by rousing functioning and helping students who have difficulties, assimilating the meaning of the text. Metacognitive reading strategy awareness proficiencies should be thought about and instructed to effectively use teaching strategies by second/foreign language teachers. When students dwell on their learning strategies, they become well-trained to make studied decisions about what could endorse their learning. Hence, metacognitive reading strategy proficiencies are underscored in second/foreign language learning classrooms. Likewise, Wang et al. (2021) claimed that metacognitive reading strategies have many advantages on students' reading comprehension in promoting their learning tasks. He also asserted that metacognitive systems are positively related to students' learning achievement results. In addition, students who are self-confident about their learning process, and employ metacognitive reading strategies are more successful than those students who do not employ this plan in their learning and reading schedule (Wang et al. 2021).

Learning strategies are considered an atypical approach to generating information that develops an understanding of the information. Earlier definitions of learning strategies emphasize the learning materials, and learners' performances, underlining the inflexibility of the cognitive process throughout language learning (MacLeish, 1969). Thus, it is mentioned by Cohen that learning strategies are made by learners' choice to iron out their difficulties, and improve their learning. They can also draw on a second or foreign language by retrieving or recalling information about the language.

Learning strategies are the complete attempt students require to process, comprehend, and implement the information provided through learning-teaching processes or practical training (Diener, 2003). This means that it is essential for cognitive and affective approaches to have transparent information (Kafadar and Tay, 2004). As implied within definitions, learning strategies comprise more than one activity.

Cognitive strategies involve five components as attention strategies, storage strategies in short time memory, coping strategies, restoration strategies, and monitoring strategies. Particular language comprehension is essential for reading. It seems that some semantic processing information and the aptitude for assimilating the meaning of the visual symbols supply the shape of language to be understood. Reading, for itself, should entail not only a particular form of language performance but also a distinctive style of non-verbal thinking (i.e.,, metacognition) (Waterhouse and Woodward, 1980).

The critical matter of the role of meta-cognitive awareness in reading will be maintained by identifying and realizing two dimensions of metacognitive ability, which have been tackled above. So, it is supposed to make students conscious of their reading strategies. It is also stated that students will be proficient in conceptualizing the reading process by reflecting on what to do in reading. Forrest-Pressley and Waller (1984) proposed that, in terms of metacognition, reading is not only a process that deciphers print to sound and comprehend the written material, but it also entails mature reading strategies, and knowledge about those proficiencies and how to monitor them.

When practiced readers choose to read, they generally have a definite intention in mind. Consequently, they do more than decipher a word. Practiced readers are aware of different techniques to understand and process their decoding activities, per se, studying, evaluating, and expecting their competence. Two primary reasons motivate researchers to investigate metacognitive reading strategies. Initially, metacognition and metacognitive knowledge enable learners to be practical and positively influential individuals who could be responsible for their learning process (Eggen & Kauchak, 1988). Secondly, preceding studies have claimed that metacognitive strategies have a more critical role than other learning strategies because when a learner is aware of their learning strategies, language acquisition could be easily developed (Anderson, 2002).

Flavell (1979) claimed that metacognition indicates the knowledge, awareness, and monitoring of one's thinking and learning process. He considered metacognition as the knowledge of how the learning process occurs; knowledge of when one does or does not process information; understanding of how to use accessible information for better performance; aptitude to evaluate the cognitive needs of a specific task; knowledge of what strategies to employ for what reasons; and evaluation of the whole learning process.

Brown and Baker (1984) stated that metacognition has a central role in reading. By utilizing metacognitive reading strategies, readers can train before the reading, monitor and spell out understanding throughout the assignment, and assess after the lesson. Consequently, these strategies can assure better comprehension and interpretation of the reading material. In an advanced stage of metacognition, successful second-language readers are expected to monitor their performance throughout the process of reading. They conclude predictions, test hypotheses, and control their understanding while getting meaning from the text, for example. Less skilled second-language readers are likely to explain difficult words and choose word-for-word translations (Auerbach & Paxton, 1997; Rusciolelli, 1995). Therefore, their opportunities to succeed in social science, education, and some thinking processes are not optimal because they are likely to be less metacognitively conscious while reading (Rusciolelli, 1995; Grabe and 1991).

1.1.2. Reading Comprehension

Reading comprehension denotes readers' aptitude to comprehend the surface, and the concealed meanings of the text employing metacognitive reading strategies. Reading comprehension is an intricate procedure entailing a relationship between texts and readers. There exist three essential types of reading: accuracy (refers to phonological and orthographic processing), fluency (involves time), and comprehension (Ahmadi, Hairul, & Pourhossein, 2012). Readers tend to use diverse techniques when reading a text (Paris, Wasik, & Turner, 1991). In reading comprehension, readers employ varied conscious and unconscious plans to resolve their problems and comprehend the texts they read (Johnston, 1983).

Reading comprehension involves three main models: the bottom-up model, the top-down model, and the interactive model. The three main reading models endorse first and second-language learning cognitive processes. In the bottom-up model, for instance, it is shown that the reading process is reinforced by the link between words in a given text and that learners decode each word to get adequate meaning. Conversely, the top-down model shows that the reading process is endorsed chiefly by a learner's background knowledge and former experience. The third model of reading comprehension (interactive model) stands for the reading process, which is promoted by an interaction between the information in the text; the learner's background knowledge, and the connexion between diverse types of Metacognitive reading strategies (Grabe, 2004; Eskey, 2005).

1.1.3. Correlation between Metacognitive Reading Strategy Awareness and Reading Comprehension

The theoretical framework that upholds this study is the metacognitive reading strategy awareness theory, and its relation with reading comprehension. It considers that self-monitoring and regulation is the primary factor in reading comprehension. Metacognitive reading strategy awareness in reading

comprehension processes connects with the knowledge that we identify ourselves as readers, the reading task we meet, and the reading strategies that we use to accomplish the assignment (Shanghai, 2001). Overall, metacognitive reading strategy awareness in reading is delineated as the reader performed actions like planning, testing, or assessing a particular learning task (O'Malley & Chamot, 1990).

Metacognitive reading strategy awareness incorporates the awareness of whether or not comprehension is taking place, and the intentional need for one or more strategies to supervise reading comprehension. Koda (2005) explained that metacognitive reading strategy awareness has a tight relationship with reading comprehension. In effect, skillful readers employ varied metacognitive reading strategies when reading. Quite the opposite, less competent or poor readers do not use these strategies when reading. Thus, they cannot develop their reading comprehension. Accordingly, Devine (1993) and Shinghal (2001) explored second-language students' conceptions of their second-language reading processes during interviews. The results revealed that expert readers focused on reading as a meaning-making process more willingly than a decoding process, while the less skillful readers appeared to do the opposite. Besides, Barnett (1988) researched second language reading with students learning the French language. The result uncovered those proficient readers were more conscious about metacognitive reading strategies in reading comprehension than less experienced readers. It is claimed that the correlation between learners' reading comprehension competence and metacognitive reading strategy is fundamental and essential for the reading procedure (Sheorey & Mokhtari, 2001).

1.2. Purpose of study

This action research study intends to increase the effectiveness of reading activities by implementing meta-cognitive strategies. It addresses the following questions: 1) How can the Meta-cognitive reading strategy enhance EFL university students' reading comprehension 2) Among different meta-cognitive reading strategies, which is the most used strategy for university EFL students? The object of this research is to underscore the importance of the Metacognitive reading strategy. It also explores the effect of a Metacognitive reading strategy on students' reading comprehension skills. The present study seeks to underscore the main strategies to enhance EFL students' reading comprehension skills and the significant factors that assure adequate understanding of reading comprehension for EFL students.

2. Materials and Methods

A random sampling method was adopted for the questionnaire. The leading research launched in February 2020. A semi-structured questionnaire about the use of metacognitive strategies for enhancing EFL students' reading comprehension was administered to participants who revealed a willingness to participate in the study. The research was conducted with 43 EFL students enrolled in Algerian higher institutions. Their age ranged from 19 to 23. Thus, 21 is their average age. In an attempt to triangulate the data, researchers can collect data through different processes to increase the reliability and constancy of data and their analysis. That is why; the researcher opted for classroom observation as the second research instrument employed, in this study, to identify the main difficulties that EFL students encounter in reading comprehension courses. This research is classified as action research. It tries to give treatment to the experimental group and keeps control over all factors that may affect the result of the experiment.

2.1. Participants

This study was administered with a group of first-year university EFL students of English language enrolled in the English language department at the University of Mohammed Benahmed - Oran 2 in Algeria. The sample consists of 43 students, with ten male and thirty-three female students. In the main, "experiments are carried out to explore the strength of relationships between variables" (Nunan & David, 1992).

2.2. Data Collection Instruments

The present study attempts to gather information through two different sources: classroom observation and students' questionnaires to ensure a qualitative and quantitative analysis of data. Collecting data through one method can be problematic, biased, and ineffective. Although, obtaining data from a variety of sources and with a mixture of methods can corroborate findings. Therefore, if we find similar results, we can be sure of the validity of the data. Definitely, throughout triangulation, we can gather qualitative and quantitative information that confirms the findings.

Classroom Observation investigates the pivotal role of lesson examination in the training, evaluation, and instruction of teachers. Observation can be structured, semi-structured, and unstructured. In this research, observations will be semi-structured to assure flexibility in collecting a range of data about participants' behaviors, and learning practices. On the other hand, questionnaires are almost definitely one of the significant sources of gathering information in any research attempt. The essential point is that when designing a questionnaire, the researcher needs to test out its validity, reliability, and clarity" (Richards & Schmidt, 2002). The students' meta-cognitive awareness of reading strategies was conceived to measure their use of reading strategies in reading comprehension courses.

2.3. Procedures

To test the effect of utilizing Metacognitive strategies on their reading comprehension and overall learning achievements, participant students were asked to answer semi-structured questionnaires that highlight their use of three categories of the metacognitive process while reading. The researcher employed five points Likert scale questionnaire. The research was conducted during a reading comprehension class designed for the sample group of first-year EFL university students twice a week. The present study aims to boost the effectiveness of reading activities by incorporating Metacognitive strategies in the before-reading stage of the lesson, investigating their results, and getting feedback from students.

3. Results

With the use of a classroom observation instrument, data were analyzed qualitatively. It revealed that the causes of poor reading comprehension of students are attributed to the lack of language acknowledgment, lack of fluency, the need for expertise with reading texts, and inadequate use of active reading strategies. Through the semi-structured questionnaires, data were analyzed quantitatively. The results of the three main factors are exposed in table 1 below.

Table 1

Significant Items Related to Three Main Factors

Factor/Item	Mean
Global reading strategies	M
Having a purpose in mind when reading	4.19
Previewing text to see what it is about before reading	2.59
Checking to see if the content of the text fits my purpose for reading	2.29
Using typographical aids like boldface and italics to pick out critical information	3.37
Critically analyzing and evaluating the information read	3.23
Problem-solving strategies	M
Getting back on track when getting sidetracked or distracted	4.53
Adjusting my reading pace or speed based on what I'm reading	4.51
Re-reading to help ensures I understand what I am reading	3.50
Support reading strategies	M
Taking notes while reading	2.12
Reading aloud helps me understand what I am reading	3.62
Discussing what I read with others to check my understanding	2.19

Using reference materials such as dictionaries to support my reading	3.38

Source: made by the authors of the paper

The aspect of overall strategies used by participants revealed that they had an elevated and consistent use of 11 out of 12 provided methods whereby the mean score was 3.7. Data analysis revealed that university EFL students participating in this study become self-regulated readers as they identify when and how to use strategy when reading; they appear to use global systems to enhance reading comprehension.

When it comes to overall strategies, EFL students seem to employ the top-down model, learners begin with certain expectations about the reading context taken from their preliminary information and then, employ words from the knowledge they acquire in analyzing vocabulary to reinforce and adapt their background knowledge.

According to the problem-solving strategies category, four out of five strategies were said to be of great importance. Results demonstrate that when they meet difficulty while reading, participant students think about 'adjusting my reading pace or speed based on what I am reading (M = 4.51), and 'getting back on track when getting sidetracked or distracted' (M=4.53). When they come across ambiguous words or phrases, they prefer 'guessing the meaning of unknown words or phrases (M=4.15). Results put on the view that students were conscious of their comprehension process and capable of taking appropriate actions when they come across a comprehension difficulty.

Besides, respondents pointed out the importance of problem-solving strategies. Their use of the interactive model appears obvious. This model combines bottom-up and top-down models and brings to light the correlation between the reader and the text. In the category of support reading strategies, the five systems were structured to be highly utilized. Results showed that students' reinforcement strategies vary between moderate and high, notably, 'using reference materials such as dictionaries to support my reading' (M=3.38) and 're-reading aloud to make sure I understand what I am reading' (M=3.62). Data revealed that students were, on the whole, aware of their comprehension process. They were also adept at taking suitable actions when they encountered difficulty in comprehending the reading texts. The reinforcement strategies were used to improve students' comprehension and memory. It has also been observed that there is a significant positive correlation between cognitive and Metacognitive strategies.

Data analysis showed that in support of reading strategies, the entire reading process is based on words, and students grasp meaning from context by identifying every word. When analyzing support reading strategies mentioned in the questionnaire, it is observed that the sample population of students participating in this study utilized support reading strategies. It is worth mentioning that the majority of students show importance to skimming and scanning strategies, which are noticed in the comprehension sub-skills of cognitive processes, but competent readers think more deeply to identify and understand the texts effectively (using meta-cognitive techniques).

4. Discussion

The findings of this study corresponded to the conclusions from Wen and Johnson who affirmed that, on the whole, the majority of the participants used guessing as the strategy employed in reading comprehension activities (Wen & Johnson, 1997). In this study, university EFL students exploit metacognitive reading strategies to plan, arrange, and assess the effectiveness of their learning. They were aware of their cognitive function when reading. They were also skillful to make use of a wide range of metacognitive reading strategies to pull off comprehension. These findings tend to support several other studies (Sheorey & Mokhtari, 2001), pointed out that, like their native counterparts, proficient or ESL readers were conscious about a variety of reading strategies provided for utilization.

The strategy teaching procedures and suggestions raised in this paper can be relevant to instruct other metacognitive strategies, for example, Semantic Mapping, T-List, or Split Page Note

Taking. They are also adjustable, as they can be adapted to outfit different themes according to learner's needs, and instructor's preferences. Besides, in the experimental phase, the teacher can work with the less skillful students exploring their points of weakness, while other learners work in groups or individually. This strategy is favorable for differentiation, particularly for multi-level classes. It has been concluded that meta-cognitive strategy awareness has a fundamental role in enhancing learners' reading comprehension (Gilakjani & Ahmadi, 2011; Ahmadi et al., 2013).

5. Conclusion

The present study 1 explored university EFL students' utilization of global, support and problem-solving reading strategies for better comprehension of their reading text. Research shows that meta-cognitive reading strategy awareness endorses both performance and understanding of students' reading comprehension. The study further maintains the fact that metacognitive strategies assist students' reading comprehension.

This study confirms the outlook that teaching metacognitive reading strategies is a practicable device to promote students' reading comprehension. It is worth mentioning that after a comparatively short time of teaching reading comprehension, students appear self-regulated readers. Besides, they recognize when and how to use strategy when reading. The main points recapitulated in this research are as follows:

1) Participant students reveal particular interest in using 'support reading strategies' 'problem-solving strategies' and 'general strategies', respectively.
2) Proficient readers tend to make use of metacognitive reading strategies when reading texts.
3) Students who utilize the metacognitive reading strategy in their reading comprehension have better learning achievements than other readers who do not use this strategy in the reading comprehension process.
4) There is a significant positive correlation between the utilization of cognitive, and metacognitive strategies.
5) Most students show importance to skimming and scanning strategies, which entail the comprehension sub-skills of cognitive processes. Still, competent readers think more deeply to identify and understand the texts effectively (using a metacognitive strategy).

References

Ahmadi, M. R &, Ismail ,H.N & Kabilan Kamarul,A.M.(2013).The Importance of Metacognitive Reading Strategy Awareness in Reading Comprehension School of Educational Studies, Universiti Sains Malaysia, Malaysia English Language Teaching; Vol. 6, No. 10; ISSN 1916-4742 E-ISSN 1916-4750 Published by Canadian Center of Science and Education Received: June 15, 2013, Accepted: July 6, 2013, Online Published: September 4, 2013, http://dx.doi.org/10.5539/elt.v6n10p235

Ahmadi, M. R., & Hairul, N. I. (2012). Reciprocal teaching as an important factor of improving reading comprehension. *Journal of studies in education, 2*(4), 153-173. https://www.academia.edu/download/45915721/2882-11104-1-PB.pdf

Anderson, N.J. (2002). The role of metacognition in second/foreign language teaching and learning. ERIC Digest. Washington, DC: ERIC Clearinghouse on Languages and Linguistics. https://eric.ed.gov/?id=ED463659

Auerbach, E.R. & Paxton, D. (1997). "It's not the English thing": Bringing reading research into the ESL classroom. Tesol Quarterly, vol. 31, no. 2, pp. 237-261. https://onlinelibrary.wiley.com/doi/abs/10.2307/3588046

Baker, L. & Brown, A.L. (1984). "Metacognitive skills and reading," Handbook of reading research, vol. 1, no. 353, V394.

Barnett, M. A. (1988). Reading through context: How real and perceived strategies use affects L2 comprehension. *Modern Language Journal, 72,* 150-162. https://www.jstor.org/stable/328238

Brown, A.L. (1980). Metacognitive development and reading. Theor issues Read Compr Perspect from Cogn Psychol Linguist Artif Intell Educ., pp. 453–81. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315107493-25/metacognitive-development-reading-ann-brown

Devine, J. (1993). The role of metacognition in second language reading and writing. In G. Joan, & L. I. Carson

Diener, E & Inglehart, R. & Tay, L. (2003). "Theory and validity of life satisfaction scales," Soc Indic Res., vol. 112, no. 3, pp. 497–527. https://link.springer.com/article/10.1007/s11205-012-0076-y

Eggen, P.D& Kauchak, D.P(1988). Strategies for teachers: Teaching content and thinking skills. Prentice hall.

Eskey, D. E. (2005). Reading in a second language. In E. Hinkel (Ed.), *Book on Second Language Learning and* English Language Teaching Vol. 6, No. 10; 2013

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

Forrest-Pressley, D.L. & Waller, T.G. (1984). "Knowledge and monitoring abilities of poor readers," Top Learn T.G. https://psycnet.apa.org/record/1984-12552-001

Gilakjani, A.P& Ahmadi, S.M. (2011). "Paper title: The Effect of Visual, Auditory, and Kinaesthetic Learning Styles on Language Teaching," Int Conf Soc Sci Humanity. Vol. 5, pp. 469–472. https://www.researchgate.net/profile/Abbas-Pourhosein-Gilakjani/publication/267987244_Paper_title_The_Effect_of_Visual_Auditory_and_Kinaesthetic_Learning_Styles_on_Language_Teaching/links/5943cd5b0f7e9b6910ee20f3/Paper-title-The-Effect-of-Visual-Auditory-and-Kinaesthetic-Learning-Styles-on-Language-Teaching.pdf

Gong, Y., Ma, M., Hsiang, T. P., & Wang, C. (2020). Sustaining international students' learning of Chinese in China: Shifting motivations among New Zealand students during study abroad. *Sustainability*, *12*(15), 6289. https://www.mdpi.com/789052

Goodman, K. (1991). The reading processes. Interact approaches to Second Lang Read, 1988, pp. 6.

Grabe, W. (1990). "Current developments in second language reading research," TESOL Q. vol. 25, no. 3, pp. 375–406. https://onlinelibrary.wiley.com/doi/abs/10.2307/3586977

Grabe, W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics, 24,* 44-69. https://www.cambridge.org/core/journals/annual-review-of-applied-linguistics/article/3-research-on-teaching-reading/6B9BEBF2442C3850641F70F0F12B3C19

Harris, A.J & Sipay, E.R. (1979). How to teach reading: A competency-based program. Addison-Wesley Longman Limited.

Johnston, P. H. (1983). *Reading comprehension assessment: A cognitive basis.* New Jersey: I. R. A.

Kafadar, T & Tay, B. (2004). "Learning Strategies and Learning Styles Used by Students in Social Studies," Int J Acad Res., vol. 6, no. 2. https://www.academia.edu/download/33841546/Learning_strategies_and_learning_styles_used_by_students_in_social_studies..pdf

Koda, K. (2005). *Insights into second language reading: A cross-linguistic approach.* Cambridge: Cambridge University Press.

Levine, A& Ferenz, O& Reves, T. (2000). "EFL academic reading and modern technology: How can we turn our students into independent critical readers" TESL-E, vol. 4, no. 4, pp. 1–9. http://www.tesl-ej.org/wordpress/issues/volume4/ej16/ej16a1/?wscr=

MacLeish, A. (1969). "Riders on the Earth Together," Psychiatry Serv. Vol. 20, no. 3, pp. 69.

Nunan, D & David, N. (1992). Research methods in language learning. Cambridge University Press.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition.* Cambridge: Cambridge University Press.

Ogurlu, Ü. & Sarıcam, H. (2021). Metacognitive awareness and math anxiety in gifted students. *Cypriot Journal of Educational Sciences*, *10*(4), 338–348. https://doi.org/10.18844/cjes.v10i4.228

Paris, S., Wasik, B. A., & Turner, J. C. (1991). The development of strategic readers. Cambridge: Cambridge University Press.

Richards, J.C & Platt, J. & Platt, H. (1992). Language teaching and applied linguistics. L Longman Gr UK Ltd.

Richards, J. C. & Schmidt, R. (2002). Longman dictionary of language teaching and applied linguistics. Third ed. London: Longman.

Rusciolelli, J. (1995). "Student responses to reading strategies instruction," Foreign Lang Ann. Vol. 28, no. 2, pp. 262–73. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1944-9720.1995.tb00791.x

Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System, 29,* 431-449. https://www.sciencedirect.com/science/article/pii/S0346251X01000392

Singhal, M. (2001). Reading proficiency, reading strategies, metacognitive awareness, and L2 readers. *Reading Matrix*, 1-9.

Wang, M. T., Binning, K. R., Del Toro, J., Qin, X., & Zepeda, C. D. (2021). Skill, thrill, and will: the role of metacognition, interest, and self-control in predicting student engagement in mathematics learning over time. *Child Development*, *92*(4), 1369-1387. https://srcd.onlinelibrary.wiley.com/doi/abs/10.1111/cdev.13531

Waterhouse, B.D &Woodward, D.J. (1980). "Interaction of norepinephrine with cerebrocortical activity evoked by stimulation of somatosensory afferent pathways in the rat," Exp Neurol., vol. 67, no. 1, pp. 11–34. https://www.sciencedirect.com/science/article/pii/0014488680901594

Wen, Q.& Johnson, R.K. (1997). "L2 learner variables and English achievement: A study of tertiary-level English majors in China," Appl Linguist. vol. 18, no. 1, pp. 27–48. https://academic.oup.com/applij/article-abstract/18/1/27/233474

Wenden, A. & Rubin, J. (1987). Learning strategies in language learning. Prentice-Hall International.