A STUDY ON THE USE OF METACOGNITIVE READING STRATEGIES BY LEARNERS WITH PSYCHOSOMATIC CONDITION

Original scientific paper

M. Monika[1], V. Anitha Devi[1]

[1]*Department of English, School of Social Sciences and Languages, VIT University, Vellore, Tamil Nadu, India*

ABSTRACT

The study examines the influence of metacognitive reading strategies in developing the reading comprehension skills among ESL (English as Second Language) learners with the psychosomatic condition. Qualitative and quantitative research was used in the present study and it was an experimental study. Reading comprehension skill is crucial to language learners for effective decoding of the information. Metacognitive reading strategies aid the learners to develop reading strategies for effective comprehension of the text. The metacognitive strategies like pragmatic and analytical strategies were used in this research to improve the intensive and evaluative reading comprehension skills. The participants of the study are a hundred and twelve (Male and Female) tertiary level ESL learners from the undergraduate engineering program. The experiment intends to improve the reading comprehension skills among the samples with psychosomatic conditions. The sampling method used in the study was purposive sampling. Data collection tools like questionnaires, pre-test, post-test, and post-feedback questionnaires were used in the study. An android-based application will be created with the activities and instructional materials and it was circulated to the learners. Metacognitive reading activities were given to the learners through the application and data was collected. Results were quantitatively analyzed using statistical tools from the data collected through the application. The results of the present study were indicative that there is a significant improvement in the learners' reading comprehension skills due to the intervention of metacognitive reading strategies.

Keywords: Metacognition, Reading comprehension, Metacognitive reading strategies, Analytic component, Pragmatic component

INTRODUCTION

Psychosomatic disorder is a psychological disorder that eventually leads to physical illness. Increased anxiety, stress, and depression may trigger the immune system or hormones and will cause physical ailments in the long run. According to Ghiggia et al. (2017), learners with psychosomatic conditions have a high level of psychological distress and emotional stress resulting from physical ailments. Independent of the type of psychological disorder, the ability to be aware of one's cognition and mind is impaired in the presence of a mental disorder (Vives, Morales, Barrantes-Vidal, & Ballespí, 2021). As a result, the reading process, cognition, decoding, and semantic comprehension are difficult for those with disabilities and psychosomatic disorders. Metacognitive strategies will help to direct, monitor, control, and implicate their cognitive processing among learners with psychosomatic conditions. Comprehension skills, cognition, and cognitive processes are improved among the psychosomatic condition through the analytic and pragmatic skills in the metacognitive reading strategies.

Correspondence to:
M. Monika, Ph.D. Research Scholar, Department of English, School of Social Sciences and Languages, VIT University
V. Anitha Devi, Department of English, School of Social Sciences and Languages, VIT University
Vellore, Tamil Nadu, India
E-mail: mail4monikaaaa@gmail.com; vanithadevi@vit.ac.in; anithamonika22@gmail.com

Readers' conscious mental activities were also implicated in metacognitive strategies for effective comprehension (Phakiti, 2003).

Reading comprehension is a crucial skill for comprehending and knowing the information in the written text and it entails several cognitive processes. According to Kintsch and Rawson (2005), reading comprehension involves multiple processes. Lower-level processes focus on the text, and its relation with other words in a sentence, whereas higher-level processes require semantic interpretation of the overall sentence. In low-level processing, the relationship of the text and meaning is decoded for each word in a sentence whereas in higher-level processes the comprehension process involves the prior knowledge to identify the meaning based on the intention of the author and relates the semantic notion of overall sentences. Readers must use their obtained knowledge and perceive the overall semantic information to identify the relative context of the sentence (De Groot, 2013). Kintsch and Rawson (2005) have believed that the process of understanding the meaning of a text does not limit to the acquisition of meanings and interrelationships of the other words but rather to identifying the semantics of overall text relation. The process is known as text base as it aims to comprehend the semantic meaning as stated in the text (Eilers & Pinkley, 2006). In the present study, the researchers aim to develop the reading comprehension skill by using the metacognitive reading strategies to tertiary ESL learners with the psychosomatic condition.

Metacognitive Reading Strategies

Metacognitive strategies are defined as "thinking about the learning process, planning and monitoring the language comprehension or language production, and self-evaluation of the learning process." Cognitive psychology (Hart, 1965) and cognitive developmental psychology (Piaget, 1850) are the foundations of metacognition. The term metacognition has been coined by John Flavell (1979) and he defines metacognition as one's acquaintance and knowing their cognition. Brown (1978) followed by Flavell defines metacognition, as the knowledge and structuring of the learners' thought activities which employ in acquiring the knowledge and problem-solving. According to Wellman (1985), metacognition is "a person's cognition about cognition or thinking about thinking".

Educating learners on employing metacognitive strategies improves their overall educational outcome (Biggs, 1996). Students with significant metacognitive skills will progress, and monitor their own language needs and learning pace. They learn and use new reading and learning strategies to effectively read or comprehend the language content. Learners who effectively employ metacognitive strategies were knowledgeable about their assets and deficits, they seek to develop their language skills more than other learners (Bransford, Brown, & Cocking, 1999).

Oxford (1990) put forth that metacognitive reading strategies are sub-strategies employed by the learners to observe, plan, systematize, and evaluate their learning pace. Taraban, Kerr, and Rynearson (2004) categorizes the metacognitive reading strategies into the pragmatic component (comprising 6 items) and the analytic component (comprising 16 items). Taraban et al. (2004) formulated the "Metacognitive Reading Strategy Questionnaire (MRSQ)" to analyze the use of strategies by language learners. Taraban (2011) affirms that first-year students employ analytic skills in their reading process upon entering the institution. During their senior year, learners displayed significant improvement in the usage of analytical strategies. Taraban, Suar, and Oliver (2013) employ MRSQ to analyze the use of metacognitive reading strategies among Indian students and US students. The study affirms that Indian students face difficulty in using the English language as they were not native speakers of English. The study concludes that Indian students employ analytical strategies over pragmatic strategies. Vianty (2007) uses Taraban's MRSQ to analyze the learners' use of metacognitive reading strategies while reading two languages. Vianty concludes that learners employ pragmatic strategies while reading English. Becirovic, Brdarevic-Celjo, and Sinanovic (2017) employ Taraban's MRSQ among non-natives at Burch University and gender, academic grades, and field of study plays an important role in employing metacognitive reading strategies. Gavora et al (2020) investigates the use of metacognitive strategies in the university students of Czech, Slovakia, Hungary, and Czech. The metacognitive strategies were analyzed based on the students' cross-cultural perspectives. The study concludes that pragmatic strategies were used by university students over the analytical strategies. Murtadho (2021) employs metacognitive skills to develop the learners' argumentative skills in writing. Hamiddin and Saukah (2020) focuses to analyse the role of metacognitive knowledge in improving reading comprehension skills. The present study aims to employ MRSQ Questionnaire among ESL learners with psychosomatic conditions to analyze and improve their use of metacognitive reading strategies.

Background Study

English is considered as a global language. However in India, English is considered as a second language. Therefore, the participants of the study face difficulty to process the language and comprehending the semantic meaning. Tertiary level students owe much importance to education to improve knowledge through effective comprehension and using skills to adapt to individual learning needs. Metacognitive skills play a significant role in developing the learners' intensive and evaluative reading comprehension skills, content comprehension, and overall academic achievement (Ahmadi, Ismail, & Abdullah, 2013). Despite its significance, metacognitive strategy has been an underappreciated skill in English language classrooms in India (L. Gehlot, Al-Khalaf, & H. Gehlot, 2020).

According to Ahmadi and Ismail (2012), reading comprehension plays a significant role in improving the ESL language learning process and he states that metacognitive reading strategies should be employed at school and college levels. Metacognitive reading strategies will also develop ESL learners' cognition and increases their future-oriented and goal-oriented thinking (Salataki & Akyel, 2002; Phakit, 2003). Madhumathi and Arijit (2012) say that Indian students focus on reading the text, but fail in understanding the semantic association of the text. Keeping the above notions, the present study aims to improve reading comprehension through metacognitive reading strategies among ESL Tertiary learners. The study employs 22 components of the metacognitive strategy devised by Roman Taraban et al. (2004).

The participants of the study are Tertiary ESL learners with psychosomatic conditions. Psychosomatic conditions will affect cognitive functions and will cause memory and attention disabilities. The psychosomatic condition has a significant influence on the learners reading and comprehension process. Stenager, Knudsen, and Jensen, (1991) concludes that psychosomatic conditions will eventually lead to cognitive dysfunctions and memory disabilities. Due to existing cognitive frailty, learners' language comprehension skills are relatively poor. Lysaker et al. (2018) affirms that metacognition and metacognitive strategies were significantly meager among learners with mental disorders. Hence the study employs metacognitive reading strategies to overcome their difficulty in comprehending the text or while doing the reading comprehension activity.

Significance of Reading Comprehension

Comprehension is the foundation of learning, and reading is the foundation of comprehension. Reading comprehension necessitates the effective use of cognitive processes, which necessitates perceptive behaviors in the individual, which is the awareness of his cognition processes. Reading comprehension is the perception, understanding, and comprehension of the text, and it is to comprehend the information, feelings, and thoughts that are intended without causing any misapprehensions (Aksan & Kisac, 2009). The cognitive structure is required for effective reading comprehension. Cognitive hypotheses focus on the individual perceptual skills, memory, advanced information, and mental operation techniques (Akyol, Sungur, & Tekkaya, 2010). Yagcioglu and Deger (2002) conclude that students with the metacognition skills are effective skilled readers. Metacognitive strategies raise the awareness of students while reading, students' reading processes, asking questions, and effective comprehension. Weir (1998) affirms that good readers employ different metacognition strategies to effectively comprehend the text. Hence, the present study aims to improve the learners reading comprehension skills through metacognitive reading strategies. Learners with Psychosomatic disorders were selected for the study because they possess low cognition levels.

Due to their less cognitive processing, their comprehension level and reading level were relatively poor. The research aims to employ metacognitive strategies to develop cognition and comprehension skills.

Objectives

The objective of the study is to improve the reading comprehension skill through the intervention of metacognitive reading strategies among ESL tertiary learners with the psychosomatic condition. Following null hypothesis were formulated for the study,

H01: There is no significant difference between the pre-test and post-test mean scores of the control group.

H02: There is no significant difference in the pre-test and post-test mean scores of the experimental group due to the intervention of metacognitive reading strategies.

METHOD

Samples and Sampling Method

The samples of the study are Tertiary ESL learners from the Vellore region. The samples were in their adolescent period, where their age group is a difficult changeover of psychosocial improvement and memory improvement (Khatoon & Dutta Roy, 2017). The sampling procedure employed in the present study was the purposive sampling method. The questionnaire (PSQ) consisting of 39 items was circulated to 200 urban tertiary ESL learners of the Vellore region in India. According to the Union Educational Ministry (2021), the Vellore district is considered educationally backward. Vellore is listed sixth as educationally backward in the state of Tamil Nadu. Kallakuri, Devarapalli, Tripathi, Patel, and Maulik (2018), put forth that mental and physical disorders are thrice higher in urban areas than in the Indian rural areas. Psychosomatic Symptom Questionnaire (PSQ-39) which was adapted from Lacourt, Houtveen, and van Doornen (2013) was used to categorize the tertiary ESL learners with the psychosomatic condition. World Health Organisation (WHO, 2021) has affirmed that one in seven suffers from psychosomatic disorders during the late adolescent period. World Health Organisation (WHO) upholds that the individuals will have memory and attention deficit disorders and they experience difficulty coping with learning strategies and education.

Research design

Qualitative and quantitative research was employed in the study. The survey method and experimental study method were employed in the present study. The psychosomatic Symptom Questionnaire (Lacourt et al., 2013) was used to find the tertiary ESL samples for the study. The questionnaire was circulated to the 250 participants.

112 samples (Control group and Experimental group) were selected from 250 participants for the study was selected based on the psychosomatic condition. The decision was attained based on the respondent's response to the Psychosomatic Symptom Questionnaire. 56 participants were selected as the control group and 56 participants were selected as the experimental group. No intervention was applied to the control group. Following interventions are applied to the experimental group.

The android application was created by the researcher and the pre-questionnaire, post-questionnaire, pre-test, post-test, and progressive test and language learning materials were uploaded to the application. Pre-questionnaire survey and post-questionnaire survey were employed to analyze the metacognitive reading strategies. It was circulated to the selected 56 participants. The instructional method was carried out through a synchronous and asynchronous learning environment. "Metacognitive Reading Strategies Questionnaire" (Taraban et al., 2004) was employed to analyze the learners' reading techniques that they employ during their reading process. The questionnaire was used by the researcher after obtaining prior permission from the author (Taraban et al., 2004). Reading comprehension activities were taken from the British council reading activity. Intensive and evaluative reading comprehension was selected as an activity for the study, as it increases cognitive abilities. Intensive and evaluative reading comprehension activities make the learners apply effective reading strategies to decode the semantic relationship of the text. Two reading comprehension activities (level B2-Intermediate level) were given to the learners as pre-test and post-test. Five reading comprehension activities (level B2-Intermediate level) were selected for progressive tests.

A pre-test for 20 marks (Reading comprehension) was conducted for both groups to examine their reading comprehension skill. Metacognitive Reading Strategies Questionnaire was used to analyze the learner's level of reading and the metacognitive strategies they employ while answering reading comprehension questions. Metacognitive reading strategies were taught to the learners through PowerPoint presentations, and learners were asked to imply the metacognitive reading strategies while doing the activity.

A continuous progressive test (50 marks) was conducted on the sample and they were asked to employ metacognitive reading strategies while doing the reading comprehension exercises for the experimental group. Five evaluative and intensive reading comprehension exercises were uploaded to the application, and progressive tests were conducted on the participants to analyze their improvement levels. During the activity, all the metacognitive reading strategies and their meaning, and place of usage are informed to the students before doing the exercises. After completing the progressive test learners' marks were recorded. The mean value of the marks was represented in the chart.

Post-test for 20 marks (reading comprehension) was given for the learners (both the control and experimental group) after the instruction and progressive test. The data was interpreted by employing SPSS software. Pre-questionnaire and post-questionnaire data were analyzed in SPSS using descriptive statistics and frequency analysis. Cronbach Alpha Coefficient was used to analyze the reliability of the questionnaires (PSQ and MRSQ). Paired t-test was conducted to analyze the post-test and pre-test values. The mean was analyzed in paired t-test. An independent t-test was conducted to analyze the post-test scores of the control group and experimental group.

RESULTS AND DISCUSSION

In the present study, the Psychosomatic Symptom Questionnaire (PSQ) and "The metacognitive Reading Strategies Questionnaire (MRSQ)" were employed to identify the psychosomatic disorder and employ reading strategies. A psychosomatic symptom questionnaire was devised by Lacourt et al. (2013), which has 39 items and it has questions related to "gastrointestinal symptoms, cardiac symptoms, respiratory symptoms, physical fatigue symptoms, and cognitive symptoms". In the present study, learners were selected as the sample if they often or frequently experience the symptoms mentioned above. The questionnaire was circulated to 270 participants and from the respondents, 112 respondents displayed to have a psychosomatic condition. 33% of the selected samples displayed gastrointestinal symptoms, 27% displayed cardiac symptoms, 22% displayed respiratory symptoms and 16% displayed physical fatigue symptoms. Over 70% affirm that they have cognitive symptoms. Metacognitive reading strategies were used as the intervention among the experimental group. Metacognitive reading strategies were employed as an intervention in the experimental group. The "Metacognitive Reading Strategies Questionnaire (MRSQ) was devised by Roman Taraban et al. (2004) and categorizes the metacognitive reading strategies into 22 items. The strategies were divided into two major strategies, the analytical strategies, and the pragmatic strategies. The analytical strategies have 16 strategies like evaluation, revising back, drawing inferences, setting reading goals, presenting the information later, Anticipation, using the information in the current text, noting hard words in the text, using reading strengths, revision, considering the information, distinguish between facts, inferring, searching for the information, identifying the meaning, visualization of the information. Pragmatic reading strategies consist of 6 strategies taking notes, highlighting the important information, margining the ideas, underlining, reading again, and more, re-reading the text. A reliability test was conducted in SPSS for the two questionnaires and the Cronbach alpha coefficient value is displayed in Table 1 below.

Table 1. Cronbach alpha coefficient of the questionnaire

Questionnaire	Items	Cronbach Alpha Coefficient
Psychosomatic Symptom Questionnaire (PSQ)	39 items	.840
Metacognitive Reading Strategies Questionnaire (MRSQ)	Analytical Component (16 Items)	.875
	Pragmatic Component (6 Items)	.783

The Metacognitive Reading Strategies Questionnaire (MRSQ) was used as a pre-questionnaire and post-questionnaire to analyze the analytical strategies and pragmatic strategies during pre-intervention and post-intervention among the experimental group. Table 2 presents the interpretation of the pre-questionnaire for the experimental group.

N represents the samples selected in the target group. The data represents that, students employ both analytic reading strategies and pragmatic reading strategies while doing the reading activities. From Table 2, it is indicative that, the least used analytic reading strategies are evaluation (2.60), reading goals (3.12), and visualization (3.12). The least used pragmatic skills are margining the ideas (2.87). The frequently used analytical strategy before the intervention were distinguishing (3.48) and searching the information (3.35). The frequently used pragmatic strategies are read more (3.28). The revision strategy was used very frequently by 27 learners (Table 2).

Before beginning the intervention in the study, the pre-test was conducted for the experimental group for 20 marks. The mean value of the experimental group was 6.0536. Questionnaire (Pre-questionnaire and Post-questionnaire) data were analyzed in SPSS, where a descriptive test and frequency test were conducted and data were tabulated in Table 2 below.

Table 2. Pre-questionnaire-MRSQ (22 items), N=56

MRSQ Component	Mean	Std. Deviation	Std. error mean	Frequency 1	2	3	4	5
Analytic Reading Strategies								
Strategy 1 (Evaluate)	2.60	1.28	.17	14	14	13	10	5
Strategy 2 (Visualisation)	3.12	.66	.08	1	8	31	16	0
Strategy 3 (Meaning)	3.14	.96	.12	3	11	19	21	2
Strategy 4 (Search)	3.35	.81	.10	8	24	19	3	2
Strategy 5 (Infer)	3.19	.86	.11	1	10	25	17	3
Strategy 6 (Distinguish)	3.48	.95	.12	1	8	17	23	7
Strategy 7 (Consider)	3.33	.90	.12	1	10	17	25	3
Strategy 8 (Revise)	3.32	.74	.09	0	9	20	27	0
Strategy 9 (Strengths)	3.14	1.03	.13	3	13	17	19	4
Strategy 10 (Note hard text)	3.21	.75	.10	0	11	22	23	0
Strategy 11 (Current Information)	3.14	1.03	.13	1	12	20	17	6
Strategy 12 (Anticipate)	3.17	.76	.10	0	8	34	10	4
Strategy 13 (Present later)	3.14	.81	.10	2	9	24	21	0
Strategy 14 (Reading goals)	3.12	.85	.11	3	8	24	19	2
Strategy 15 (Draw)	3.25	.89	.12	1	10	23	18	4
Strategy 16 (Back)	3.25	.91	.12	1	10	24	16	5
Pragmatic Reading Strategies								
Strategy 1 (Note)	3.21	.75	.10	0	8	32	15	1
Strategy 2 (Highlight)	3.16	.80	.10	2	8	25	21	0
Strategy 3 (Margin)	2.87	.93	.12	6	10	25	13	2
Strategy 4 (Underline)	3.23	.76	.10	1	8	24	20	3
Strategy 5 (Read more)	3.28	.80	.10	1	9	17	25	2
Strategy 6 (Re-read)	3.08	.80	.10	2	10	20	21	3

During the intervention, five progressive tests were conducted to analyze the improvement level of the learners. Before conducting the tasks, the students were instructed about all of the metacognitive reading strategies, their meaning, and where they can be used through PowerPoint presentations. The learners' scores were recorded when they completed the progressive test. The graph represented the mean value of the marks. From Figure 1 it is evident that, in progressive test 1, the score of the learners is 8.32. After the intervention, the students begin to show interest in using the metacognitive reading strategies while doing the reading comprehension activity.

In the successive progressive test, the students showed improvement in their scores while doing the reading comprehension activity. In Figure 1, the mean value of the second progressive test was 10.69 whereas the progressive test 5 value is 13.12. The mean difference is calculated to analyze the improvement score. The following Formula was used to analyze the Mean Difference (MD). MD= ($\sum$ x1 / n) - ($\sum$ x2 / n) x1 means the mean value of the control group, x2 means the mean value of the experimental group and n means the total number of participants. The mean difference between progressive test 1 and progressive test 5 was 4.8.
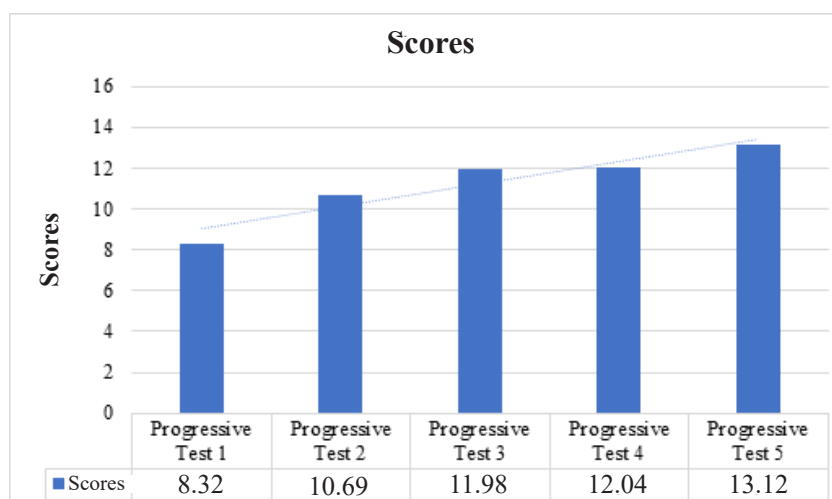

Figure 1. Progressive Test

	Progressive Test 1	Progressive Test 2	Progressive Test 3	Progressive Test 4	Progressive Test 5
Scores	8.32	10.69	11.98	12.04	13.12

After the Intervention, a post-test was conducted for the learners in the experimental group. Post-questionnaire data were collected from the experimental group of learners using the Likert scale. Description statistics and frequency were analyzed for the post-questionnaire. After the intervention, learners showed interest in employing both analytical components and pragmatic components of metacognitive reading strategies while doing the reading activities. Learners seem to apply the metacognitive reading strategies more frequently while doing the reading activity in post-test (Table 3) when compared to the mean scores of metacognitive reading strategies on the pre-questionnaire.

Frequently employed analytic reading strategies were anticipation strategies (4.01) and going back to read text (4.01). In Table 3, it is evident that frequently-used pragmatic strategies were re-reading strategies (4.00) while doing the reading activity. The least used analytic strategies were reading strengths (3.87) and drawing the information (3.87) least frequently used pragmatic strategy was reading more (3.76). After collecting the data from the post-questionnaire, 20 marks post-test was conducted for the learners of the control and experimental group. The post-test data were tabulated using paired t-test and independent t-test.

Table 3. Post-questionnaire-MRSQ (22 items), N=56

MRSQ Component	Mean	Std. Deviation	Std. error mean	Frequency 1	2	3	4	5
<u>Analytic Reading Strategies</u>								
Strategy 1 (Evaluate)	3.98	.75	.10	0	16	25	15	0
Strategy 2 (Visualisation)	3.98	.88	.11	0	3	13	22	18
Strategy 3 (Meaning)	3.98	.75	.10	0	0	16	25	15
Strategy 4 (Search)	3.89	.82	.11	0	2	16	24	14
Strategy 5 (Infer)	3.89	.91	.12	1	1	17	21	16
Strategy 6 (Distinguish)	3.94	.86	.12	1	0	16	23	16
Strategy 7 (Consider)	3.98	.77	.10	0	1	14	26	15
Strategy 8 (Revise)	3.91	.84	.11	0	3	13	26	14
Strategy 9 (Strengths)	3.87	.83	.11	0	2	17	23	14
Strategy 10 (Note hard text)	3.84	.91	.12	1	2	16	23	14
Strategy 11 (Current Information)	3.80	.90	.12	1	2	17	23	13
Strategy 12 (Anticipate)	4.01	.77	.10	0	1	13	26	16
Strategy 13(Present later)	3.98	.75	.10	0	0	16	25	15
Strategy 14 (Reading goals)	3.98	.79	.11	0	1	17	24	14
Strategy 15 (Draw)	3.87	.93	.13	1	3	13	24	15
Strategy 16 (Back)	4.01	.82	.11	0	2	12	25	17
<u>Pragmatic Reading Strategies</u>								
Strategy 1 (Note)	3.91	.95	.12	1	2	16	19	18
Strategy 2 (Highlight)	3.98	.77	.10	0	1	14	26	15
Strategy 3 (Margin)	3.96	.808	.10	0	1	16	23	16
Strategy 4 (Underline)	3.87	.97	.13	1	4	12	23	16
Strategy 5 (Read more)	3.76	1.07	.14	2	4	16	17	17
Strategy 6 (Re-read)	4.00	.89	.11	1	1	13	23	18

Analysis of Control Group and Experimental Group: Mean scores of the Pre-test and post-test of both the groups (EG and CG) were interpreted through the paired t-tests. In Table 4, the pre-test mean of the control group was 6.4464 and the pre-test mean of the experimental group is 6.0536 where the N means the total number of participants which is 56. From the mean score, it is evident that there is a significant improvement in the mean scores of the experimental group in the post-test when compared to their pre-test. Whereas there is no significant difference in the mean scores of the control group in pre-test and post-test.

Table 4. Paired sample statistics

Paired t-test		Mean	N	Std. Deviation	Std.Error Mean
Control Group	Pre-test	6.4464	56	2.27971	.30464
	Post-test	6.6607	56	2.16817	.28973
Experimental Group	Pre-test	6.0536	56	2.46000	.32873
	Post-test	15.8393	56	1.60428	.21438

In the paired sample test, the p-value of the control group is .265 (Table 5) which is p > .05, hence null hypothesis is accepted and it is concluded that there is no significant difference in the mean scores of the control group in their pre-test and post-test. The p-value of the experimental group is .000 (Table 5) which is p < .05, hence the null hypothesis is rejected, and it is concluded that there is a significant difference in the mean scores of the experimental group in their pre-test and post-test as an alternate hypothesis. Paired samples test of the control group and experimental group were tabulated below.

An independent t-test (Table 5) was performed to analyze the post-test scores of the experimental group and control group. The post-test mean value of the control group was 6.6607, whereas the post-test mean of the experimental group was 15.8393. In the independent t-test, the p-value of the post-test scores of the experimental group and control group was .000 (p < .05), hence it is concluded that there was a significant the difference in the scores of post-tests among the experimental group and control group. The experimental group showed significant improvement due to the intervention of metacognitive reading strategies.

Table 5. Paired samples test

	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence interval of the difference**				
				Lower	**Upper**			
Control Group (Pre-test – Post-test)	-.21429	1.42337	.19021	-.59547	.16689	-1.127	55	.265
Experimental Group (Pre-test – Post-test)	-9.7857	2.94627	.39371	-10.57473	-8.99670	-24.855	55	.000

CONCLUSION

The findings of the study imply that metacognitive reading strategies have a positive outcome on the learner's reading comprehension skills as suggested by many studies (Vianty, 2007; Becirovic et al., 2017; Gavora et al., 2020; Pradita, 2020) which also employs metacognitive reading strategies in improving the reading skill. The study does not find the influence of the gender gap in reading as suggested in Pradita (2020). However, in the present study, both males and females showed a positive response in using the metacognitive reading strategies in the comprehension activities. As mentioned in the study of Vives et al. (2021) cognition and cognitive processing were poor among individuals with the psychosomatic condition. As mentioned by Taraban et al. (2013), learners had difficulty comprehending the text as it is not their native language. Since the participants were from the Vellore region, India, the learners displayed less comprehension in their initial tests. After the intervention, the learners showed significant improvement in their progressive tests.

The findings of the study show that metacognitive reading strategies have increased the learners' cognitive capabilities and cognitive processing by improving their reading skills among learners with psychosomatic condition. Metacognitive reading strategies have aided them to overcome cognitive disabilities and the learners have developed the reading strategies. Considering the mean values learners showed greater interest in using analytic strategies over pragmatic strategies while doing their activity. However, after the intervention learners frequently employed both analytic and pragmatic strategies in their reading comprehension exercises. The study is limited to tertiary learners, and the study was carried out in the Vellore region. Based on the implication drawn from the study, further research can be carried out on other intensive strategies, with a larger number of samples and a greater number of reading comprehension exercises that could be created for each strategy. The research could also be carried out in other countries or rural areas. Reading levels of learners might differ between rural and urban areas.

ACKNOWLEDGEMENT

REFERENCES

Ahmadi, M. R., & Ismail H. N. (2012). Reciprocal teaching as an important factor in improving reading comprehension. Journal of studies in education, 2(4), 153-173. doi: 10.5296/jse.v2i4.2584

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. doi: 10.5539/elt.v6n10p235

Aksan, N., & Kisac, B. (2009). A descriptive study: Reading comprehension and cognitive awareness skills. *Procedia-Social and Behavioral Sciences*, *1*(1), 834-837. doi: 10.1016/j.sbspro.2009.01.149

Akyol, G., Sungur, S., & Tekkaya, C. (2010). The contribution of cognitive and metacognitive strategy use to students' science achievement. *Educational Research and Evaluation, 16*(1), 1-21. doi: 10.1080/13803611003672348

Becirovic, S., Brdarevic-Celjo, A., & Sinanovic, J. (2017). The use of metacognitive reading strategies among students at international Burch university: A case study. *European Journal of Contemporary Education*, *6*(4), 645-655. doi: 10.13187/ejced.2017.4.645

Biggs, J. (1996). Enhancing teaching through constructive alignment. Higher education, 32(3), 347-364. doi 10.1007/BF00138871

Bransford, J. D., Brown, A. L., & Cocking, R. R. (1999). *How people learn* (Vol. 11). Washington, DC: National academy press.

Brown, A. L. (1978). "Knowing When, Where and How to Remember: A Problem of metacognition", In R. Glaser (Ed.). Advances in Instructional Psychology (p.77-165). Hillsdale, NJ: Lawrence Erlbaum.

De Groot, A. M. (2013). Bilingual memory. *The psycholinguistics of bilingualism*, 171-191.

Eilers, L. H., & Pinkley, C. (2006). Metacognitive strategies help students to comprehend all text. *Reading improvement*, *43*(1), 13-30. Retrieved from https://link.gale.com/apps/doc/A144717432/AONE?u=googlescholar&sid=bookmark-AONE&xid=84030d93

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American psychologist*, *34*(10), 906-911. doi: 10.1037/0003-066X.34.10.906

Gavora, P., Vaculíková, J., Kalenda, J., Kálmán, O., Gombos, P., Świgost, M., & Bontová, A. (2020). Comparing metacognitive reading strategies among university students from Poland, Hungary, Slovakia, and the Czech Republic. *Journal of Further and Higher Education*, *44*(7), 896-910. doi: 10.1080/0309877X.2019.1614545

Gehlot, L., Al-Khalaf, H. A., & Gehlot, H. (2020). Evaluation of the Reading Habits of Indian Students (Reading Aloud and Reading Silently) from Low, Middle, and High-Class Schools. *Educational Research and Reviews*, *15*(2), 41-51. doi: 10.5897/ERR2019.3760

Ghiggia, A., Torta, R., Tesio, V., Di Tella, M., Romeo, A., Colonna, F., ... & Castelli, L. (2017). Psychosomatic syndromes in fibromyalgia. *Clinical and Experimental Rheumatology*, *35*(3), 106-111.

Hamiddin, H., & Saukah, A. (2020). Investigating metacognitive knowledge in reading comprehension: The case of Indonesian undergraduate students. Indonesian Journal of Applied Linguistics, 9(3), 608-615. doi: 0.17509/ijal.v9i3.2321

Hart, J. T. (1965). Memory and the feeling-of-knowing experience. Journal of educational psychology, 56(4), 208-216. 10.1037/h0022263

Kallakuri, S., Devarapalli, S., Tripathi, A. P., Patel, A., & Maulik, P. K. (2018). Common mental disorders and risk factors in rural India: baseline data from the SMART mental health project. *BJPsych Open*, *4*(4), 192-198. doi: 10.1192/bjo.2018.28

Khatoon, M., & Dutta Roy, D. (2017). Metamemory among Late late adolescents: A Review. *The International Journal of Indian Psychology, 5*(1), 50-62. doi: 10.25215/0501.008.

Kintsch, W., & Rawson, K. A. (2005). Comprehension. In M. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 209–226). Blackwell.

Lacourt, T., Houtveen, J., van Doornen. L. (2013). "Functional somatic syndromes, one or many?" An answer by cluster analysis. *J Psychosom Res. 74*(1), 6-11. doi: 10.1016/j.jpsychores.2012.09.013

Lysaker, P. H., Irarrázaval, L., Gagen, E. C., Armijo, I., Ballerini, M., Mancini, M., & Stanghellini, G. (2018). Metacognition in schizophrenia disorders: Comparisons with community controls and bipolar disorder: Replication with a Spanish language Chilean sample. *Psychiatry Research, 267*, 528-534. doi: 10.1016/j.psychres.2018.06.049

Madhumathi, P., & Arijit, G. (2012). Awareness of reading strategy use of Indian ESL students and the relationship with reading comprehension achievement. *English Language Teaching, 5*(12), 131-143. doi: 10.5539/elt.v5n12p131

Murtadho, F. (2021). Metacognitive and critical thinking practices in developing EFL students' argumentative writing skills. *Indonesian Journal of Applied Linguistics*, *10*(3), 656-666. doi: 10.17509/ijal.v10i3.31752

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know.* New York: Newbury House Publishers.

Phakiti, A. (2003). A closer look at the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance. *Language Testing, 20*(1), 26-56. doi: 10.1191/0265532203lt243oa

Piaget, J. (1950). An experiment in the psychology of chance in the child: drawing pairs. *Acta Psychologica, 7,* 323-336. doi: 10.1016/0001-6918(50)90022-9

.Pradita, I. (2020). Gender Gap on the Selection of Metacognitive Online Reading Strategies by EFL College Students. *Journal of Asia TEFL, 17*(4), 1507-1514. doi: 10.18823/asiatefl.2020.17.4.27.1507

Salataki, R., & Akyel, A. (2002). Possible effects of strategy instruction on L1 and L2 reading. *Reading in a Foreign Language, 14*(1), 1-17.

Stenager, E., Knudsen, L., & Jensen, K. (1991). Multiple sclerosis: the impact of physical impairment and cognitive dysfunction on social and sparetime activities. *Psychotherapy and psychosomatics, 56*(3), 123-128. doi: 10.1159/000288544.

Taraban, R. (2011). Information Fluency Growth Through Engineering Curricula: Analysis of Students' Text-Processing Skills and Beliefs. *Journal of Engineering Education*, *100*(2), 397-416. doi: 10.1002/j.2168-9830.2011.tb00019.x

Taraban, R., Kerr, M., & Rynearson, K. (2004). Analytic and pragmatic factors in college students' metacognitive reading strategies. *Reading Psychology, 25*(2), 67-81. doi: 10.1080/02702710490435547

Taraban, R., Suar, D., & Oliver, K. (2013). Information literacy of US and Indian engineering undergraduates. *SpringerPlus*, *2*(1), 1-12. doi: 10.1186/2193-1801-2-244

Vianty, M. (2007). The Comparison of Students' Use of Metacognitive Reading Strategies between Reading in Bahasa Indonesia and in English. *International Education Journal*, *8*(2), 449-460.

Vives, J., Morales, C., Barrantes-Vidal, N., & Ballespí, S. (2021). Emotional comprehension is not related to duration of distress from daily life events. *International journal of environmental research and public health*, *18*(2), 459, 1-10. doi: 10.3390/ijerph18020459

Weir, C. (1998). Using embedded questions to jump-start metacognition in middle school remedial readers. *Journal of Adolescent & Adult Literacy*, *41*(6), 458-467.

Wellman, H. (1985). *The Child's Theory of Mind: The Development of Conscious Cognition.* San Diego: Acedemic Pres.

World Health Organisation (2021) *Adolescent mental health.* Retrieved from: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health.

Yagcıoglu, S., & Deger, A. C. (2002). A workshop study on the acquisition of metacognitive reading skills. In *Proceedings Presented in the Second Turkish and Turkish Language and Literature Symposium*.

374 districts in India 'educationally backward': Education Ministry (2021) Retrieved from: https://www.indiatvnews.com/education/news-list-of-educationally-backward-districts-in-india-education-ministry-up-bihar-mp-rajasthan-725987

Appendix - Pre-questionnaire and Post-questionnaire

Metacognitive Reading Strategies Questionnaire						
Analytical Component		1	2	3	4	5
1	*Evaluation*., I evaluate the information to comprehend the text.					
2	*Anticipation*. I anticipate the knowledge which I have acquired by reading the text.					
3	*Drawing information.* I draw the information from the text and employ my knowledge to comprehend the text.					
4	*Reading back again*. I read the text again to comprehend the textual content.					
5	*Revision strategy*. I use revision to answer my doubts about the given text.					
6	**Considering again**. I consider examining my comprehension of the text and reading it again.					
7	*Distinguishing*. I distinguish the knowledge which priorly acquired from the text information.					
8	*Inferring*. When information critical to my understanding of the text is not directly stated, I try to infer that information from the text.					
9	*Reading goals*. I fulfill my goals when I read the text					
10	*Searching*. I search for new knowledge from the given text.					
11	*Prediction.* I predict the information which will be presented in the latter part of the text through formerly available information.					
12	*Meaning/Synonyms*. I analyze the meaning of the words or sentences in the text.					
13	*Immediate Comprehension*. I analyze whether I comprehend the text as I read through it.					
14	*Reading Strengths*. I use my reading strengths to analyze and comprehend the text.					
15	*Visualizing descriptions*. I visualize the descriptions to comprehend the text.					
16	*Noting Hard words*. I always note the level of the text					
Pragmatic Strategies						
17	**Taking Notes.** I take notes while reading the text.					
18	*Highlighting* I highlight the specific points to comprehend the text.					
19	*Margin.* I always note the information in the margin to understand the text effectively.					
20	*Underline* I underline the text to comprehend it effectively.					
21	*Reading again or more*. I read the text, again and again, to comprehend the knowledge accurately.					
22	*Re-reading*. I re-read the text when I have difficulty reading the text.					

Adapted from Taraban, R., Kerr, M., & Rynearson, K. (2004). Analytic and pragmatic factors in college students' metacognitive reading strategies. *Reading Psychology, 25*(2), 67-81. doi: 10.1080/02702710490435547