

# The Effect Of Meta-Cognitive Strategies On The Reading Comprehension Among Students Of Grade 11 In Pakistan

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## Abstract:

The present study was designed to investigate the effect of six meta-cognitive reading strategies namely making connections, predicting, questioning, monitoring, visualizing, and summarizing on the reading comprehension among the students of grade 11 in Pakistan. The experimental study comprised two experimental and two comparison groups selected from two colleges. Each of the four groups comprised 35 participants thus making a total of 140 participants in the study. Pretest and posttest comprised unseen reading comprehension texts along with 10 short questions, each comprising two marks. Students were required to produce their answers (consisting of 30-40 words) so that the reading comprehension of the learners can be evaluated. Passages and questions of pretest and posttests were different. Students' answers were analyzed and marked. The t-test was applied to identify the difference in pretest, posttest and gain scores of experimental and comparison groups. Treatment comprised 20 weekly sessions of 80 minutes each that were conducted over the period of six months. First session was introductory session about the use of meta-cognitive strategies. In the remaining sessions, 20 lessons of the textbook were taught in such a way that students were given an opportunity to practice meta-cognitive strategies. Comparison groups were taught the same 20 lessons but they were not given any orientation and practice regarding meta-cognitive strategies during this period. Results showed that posttest and gain scores on reading comprehension of treatment group were significantly better as compared to the comparison group.

**Key Words:** Meta-Cognitive Strategies, Making connections, Predicting, Questioning, Monitoring, Visualizing, Summarizing, Reading Comprehension, Students of Grade 11

## Introduction

English language learning is very important in an increasingly interconnected and globalized world. Being Lingua Franca, it has become very essential and important language for communication all over the world. According to Manivannan (2006), English language is one tool to establish our viewpoint. Educational institutions encourage their students to learn English language at various levels. Due to its importance at international level, English is

taught in Pakistan throughout the elementary, secondary grades and first two years of university education as a compulsory subject. Educational institutes pay great attention to English language education. It is therefore important to introduce innovative ways of teaching English to improve the quality of teaching and foster more interest in the classrooms. Reading is among one of the basic "three Rs"-- Reading, w(R)iting and 'Rithmetic—and is the important part of teaching English. English reading plays the irreplaceable role in English language education. Ahmadi and

Hairul (2012) consider reading as an important factor in learning process for students of English as Foreign Language (EFL) and English as Secondary Language (ESL). They emphasize its importance at various levels of education. Reading comprehension is a major area of concern and top preference of ESL and EFL students after completing elementary English courses. Shafie and Nayan (2011) mention that most of the learners even at university level face difficulties in understanding those texts properly which are written in English. English language reading requires students to recognize and practice comprehension. The close relationship between reading and thinking makes reading a valuable part of any language course (Kurland, 2017). Also, it is important for teachers to think beyond teacher-centered classrooms, relying on readily available lesson plans to teach English and too much individual work for students. For years, the teacher-directed classrooms are in practice and have been mostly ineffective in bringing a positive change. Durkin's (1981) explains that most often teachers use the question answer sessions but scarcely provide the instructions to use different comprehension strategies during reading. Also, the research conducted by McKeachie (1988) shows that learning of strategies is hardly ever taught by the teachers in institutions. The need is to part with the usual practice and create an environment which promotes learner autonomy, positive interdependence and meaningful use of language.

O'Malley and Chamot (1990) made a point that learners can only succeed in comprehending a text if they are aware of different learning techniques and strategies. Anderson (2002) believed that learners are aware of their own thinking and they know about the possible solutions of their problems and difficulties. Therefore awareness about the metacognitive strategies should help the students to use the suitable strategies to figure out their

problems and find possible solutions about those problems. Use of strategies to teach comprehension can bring more achievements, higher level thinking, self-esteem, liking for the subject matter and better inter-group relations. It includes situations in which high school students explore their thinking ability in a thinking environment. Students are required to read and attempt comprehension for exam and the English language teachers prepare them for this according to the prescribed curriculum. Usually, traditional teaching methods are used in Pakistan. Teachers provide the students with reading material and ask them to read. They identify the students' mistakes and ask them for corrections and think that the reading skills may be improved in this way. Students also believe that correct pronunciation is the key skill in the reading. However, correct pronunciation is not the true measure of reading comprehension (Shamma, 2011). It is important to teach the students with different strategies at this level.

Reading comprehension is a vital factor in English language learning. It is a complex process and students have to put effort for comprehending the reading material (Grabe & Stoller, 2002). Researchers focus their attention on difficulties in comprehension and found that one of the ways to improve reading comprehension is to use meta-cognitive reading strategies (Salataki & Akyel, 2002). These strategies involve the mental process and behaviors for putting effort for constructing the meaning and understanding the material (Afflerbach et al. 2008). These strategies are effective in the process of comprehension and show readers the way of interaction with the text. According to Mokharti and Reichard (2002), knowing meta-cognitive reading strategies help in the comprehension of the text.

### **Meta cognition**

Flavell (1976) was the first person to use the term metacognition. According to him, metacognition is the knowledge of a person regarding his own cognitive processes and outcomes or things related to them. It is the dynamic monitoring and resulting regulation and orchestration of the processes regarding cognitive objects or data for the attainment of some concrete goal or objective. Flavell (1977) and Miller (2002) assert that meta cognitive skills pave way for the successful attainment of the formal operational stage of the Cognitive Development, and this meta cognition becomes a basis in different fields, such as verbal skills, skills of reading and writing, language acquirement, concentration, recollection, and societal connections. Chick (2013) defines metacognition as thinking about one's thinking. More accurately, it denotes to procedures used in planning, monitoring, and assessing one's own thoughts and performance.

### **Meta-Cognitive Strategies**

Meta-cognitive strategies are the mental processes that involve thinking about and checking the progress while completing a task. Meta-cognition is particularly relevant to comprehension. A person can assess and monitor his or her ongoing reading performance by using metacognitive strategies. While reading the text, if a part is not understood, the reader may re-read it. Hence, these strategies are helpful for comprehension. The good readers are aware of these strategies. Though, some of the strategies may be learnt by the students, we can also effectively teach these. Some of the strategies include:

**Making connections:** It involves making connections from the text with another text, with something occurring in the world, or in their own lives.

**Predicting:** This includes comprehension through anticipating what will be heard, viewed,

or read using the information from the previous knowledge, graphics, and text.

**Questioning:** It involves posing and asking questions by the learners, a peer or a teacher to clarify the meaning and promoting better comprehension of the material.

**Monitoring:** It involves stopping when text is not comprehended and thinking and knowing what to do. Ramesh (2009) revealed that recognizing and monitoring is one of the most important strategies which teachers and instructors can help EFL and ESL students learn. It is an invaluable tool for the learners to know whatever resources they have are sufficient or not and whether they have suitable abilities and if they are on the right track while reading a text or not (Slife & Weaver, 1992).

**Visualizing:** Learners create a cerebral picture while reading, viewing or hearing some material. Visualizing makes a reading material lively and it involves fantasy and uses all of the senses.

**Summarizing:** It involves identifying and accumulating the key ideas and describing them in their own words.

### **Cognitive Monitoring Model by Flavell**

Meta Cognition Model by Flavell (1979) became the basis for study. Flavell divided metacognition into four subgroups: (1) meta-cognitive information (2) meta-cognitive experience (3) targets/aims (4) activities/ techniques. According to Flavell, the mental development is examined through the mechanisms specified in Flavell's groupings. Meta cognitive information is the first group and it includes an individual's acquaintance or approach regarding the aspects that crash cognitive initiative. Getting information about one's mental development and the cognitive goals, tasks, experiences and actions, comprises three factors: individual, job, and techniques. Individual factor is an

individual's consciousness about his skills and the ability to assess strong and weak aspects in reading skills. It is related to the information or understanding of the way a person acquires and proceeds with his or her cognitive behaviour. As an instance, adult students become familiar with the retention ability and restrictions more quickly than the young ones (Flavell et al., 1970). Job or responsibility factor, is the information of the natural history of the job and the hassles of the job. A person is aware of the height of complexity of the job and knows to achieve the targets in a productive manner. It includes the student's knowledge about the time he takes in accepting an explanatory manuscript. The technique, the next factor, includes techniques required for attaining the aims. The student is aware that making notes is a useful plan in order to make précis for any text. All the three factors are mutually dependent when students are busy in metacognitive actions.

Another class of metacognition, the meta-cognitive experiences, includes conscious sentimental or cognitive experiences that guide or are relevant to any academic venture (Flavell, 1979). As an instance, if an individual is conversing with the other person, that person might abruptly sense uncertainty concerning whatever the second individual exclaimed to him. A person's attentiveness to breakdown, achievement, doubt, or approval of stuff has to be done in this class.

Targets are the aims of a cognitive enterprise. As an instance, during reading, an assessment amid amphibians and reptiles from a text can symbolize an objective. Final grouping, proceedings (or techniques) are used by the students for attaining their mental and meta-cognitive aims. These techniques are used to manage thought behavior, and for making a decision if the mental objectives are fulfilled or not. Each of the four classes of meta-cognition; cognitive information, meta-cognitive

experience, targets or aims, and activities or techniques of the model of mental observation by Flavell can be incorporated in meta-cognitive intervention.

### **Objectives of the study:**

The purpose of this research study was to identify the effect of meta-cognitive strategies on English reading comprehension among grade 11 students of Lahore city.

### **Methodology**

The present study was experimental study that was designed to examine the effect of meta-cognitive strategies in developing reading comprehension of grade 11 students.

### **Participants**

The participants of this research were students of Grade 11 in Garrison College for Girls and Army Public School & College (Azam Garrison). Most of the students were of 17-19 years. They had a background of different public and private institutions but had been studying English as a compulsory subject since the beginning of their schooling.

For this particular study, a total of 140 students were selected from two different private colleges. Sections were formed by the college administration in such a way that the students selected were of mixed ability and both the groups had the students of same abilities in approximately same number. To ensure equality of groups, college administration examined the students' scores of the last exams and then randomly assigned to both groups. One section was randomly selected by the researcher from each college for treatment. The researcher also tried to control all the extraneous variables. There were one experimental and one comparison group in both colleges. Each of the four groups comprised 35 participants thus making a total of

70 participants in experimental and 70 in comparison group.

### **Instruments**

The treatment and comparison groups were given a pretest and a posttest to assess the level of English reading comprehension among students before and after the treatment. Pretest and posttest comprised unseen reading comprehension texts along with 10 short questions, each comprising two marks. Students were required to produce their answers (consisting of 30-40 words) so that the reading comprehension of the students can be evaluated. Passages and questions of pretest and posttests were different. Students' answers were analyzed and marked. The pretests and posttests were validated by the experts and pilot tested. Language ambiguities were removed in the light of feedback and reflections.

### **Treatment**

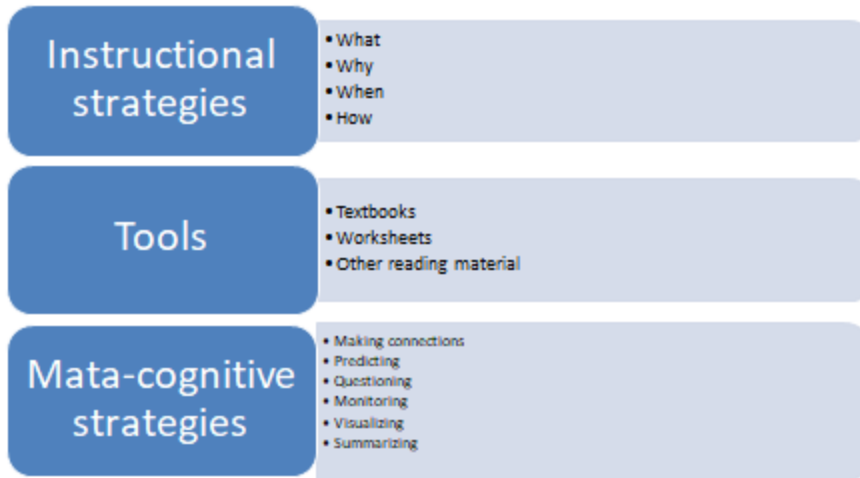
Treatment comprised 20 weekly sessions of 80 minutes each that were conducted over the period of six months. First session was devoted to introduction about the use of meta-cognitive strategies and also why, when and how to use those. In the remaining sessions, 20 lessons of the English textbook of grade 11 were taught in such a way that students were given an opportunity to practice meta-cognitive strategies. Among the 21 practice sessions, the first six sessions were allocated to introduce each of the six metacognitive strategies individually during one complete session: Predicting, making

connections, monitoring, questioning, summarizing, and visualizing. Rests of the 15 sessions were devoted for practicing all the six metacognitive strategies while reading their lessons. Treatment includes the application of metacognitive strategies through textbook and worksheets.

While instructing the students, the teacher gave a demonstration of using the metacognitive strategies in connection with the reading text in order to guide the learners about making use of these strategies. They were taught how to put together an answer or make a practical objective or aim in their reading. Making use of headings, subheadings, italics and images, they showed awareness of the association and the main topics that were important in that reading text. They were guided about recollecting and relating their previous knowledge to the new reading text when they previewed the lesson.

Students were also given opportunity to model the metacognitive strategies like previewing, questioning, monitoring and summarizing as both entire class and little groups using articles or textbook selections. As an instance, in little groups of three or four, students were supposed to take turns modeling loudly the strategies they were using to understand the given reading texts. As one student gave demonstration, the others were supposed to provide feedback in suitable breaks.

**Figure 1** Treatment to the experimental group



Comparison groups were taught the same 20 lessons but they were not given any orientation and practice regarding meta-cognitive strategies during this period. Students in the comparison group were taught the same reading text through direct instructions. The comparison group was given more teacher-oriented sessions whereas the

treatment group went through a student-centered experience.

### Results

The comparison of treatment and comparison group is given in Table 1.

**Table 1 Comparison of Experimental and Comparison Groups in Pretest**

Variable	Group	N	M	SD	Mean	df	t	P
					Difference			
Q1	Treatment	70	1.53	0.55	-0.06	138.00	-0.59	0.56
	Comparison	70	1.47	0.60				
Q2	Treatment	70	1.47	0.56	-0.01	138.00	-0.15	0.88
	Comparison	70	1.46	0.58				
Q3	Treatment	70	1.61	0.54	-0.24	138.00	-2.46	<b>0.02</b>
	Comparison	70	1.37	0.59				
Q4	Treatment	70	1.60	0.62	-0.14	138.00	-1.39	0.17
	Comparison	70	1.46	0.59				
Q5	Treatment	70	1.54	0.53	-0.10	138.00	-1.03	0.31
	Comparison	70	1.44	0.62				
Q6	Treatment	70	1.45	0.53	-0.03	138.00	-0.31	0.76
	Comparison	70	1.42	0.57				
Q7	Treatment	70	1.56	0.53	-0.17	131.68	-1.70	0.09

Q8	Comparison	70	1.39	0.66	-0.04	138.00	-0.42	0.67
	Treatment	70	1.40	0.60				
Q9	Comparison	70	1.36	0.60	-0.07	138.00	-0.71	0.48
	Treatment	70	1.46	0.58				
Q10	Comparison	70	1.39	0.61	-0.05	138.00	-0.48	0.63
	Treatment	70	1.38	0.59				
Pretest	Treatment	70	15.06	3.26	-.97143	138	-1.593	.113
	Comparison	70	14.09	3.92				

Table 1 shows that treatment group (M = 1.61, SD = 0.54) was significantly better (p = 0.02) only in one question as compared to comparison group (M=1.57, SD=0.59). There was no significant difference between the two groups in any other question. Scores of treatment (M = 15.06, SD = 3.26) and comparison group (M =

14.09, SD = 3.92) were not significantly different with each (p = .113) before the intervention of metacognitive strategies.

Comparison of experimental and comparison group of posttest is presented in Table 2.

**Table 2 Comparison of Treatment and comparison group of posttest**

Variable	Group	N	M	SD	Mean Difference	df	t	p
Q1	Treatment	70	1.87	0.33	-0.35	106.75	-4.23	0.00
	Comparison	70	1.52	0.60				
Q2	Treatment	70	1.72	0.44	-0.34	134.75	-4.24	0.00
	Comparison	70	1.38	0.51				
Q3	Treatment	70	1.75	0.43	-0.33	133.31	-4.06	0.00
	Comparison	70	1.42	0.52				
Q4	Treatment	70	1.74	0.44	-0.38	130.14	-4.42	0.00
	Comparison	70	1.36	0.57				
Q5	Treatment	70	1.78	0.41	-0.35	133.17	-4.60	0.00
	Comparison	70	1.43	0.49				
Q6	Treatment	70	1.71	0.48	-0.33	114.19	-3.00	0.00
	Comparison	70	1.38	0.78				
Q7	Treatment	70	1.81	0.41	-0.45	132.58	-5.80	0.00
	Comparison	70	1.36	0.50				
Q8	Treatment	70	1.73	0.44	-0.45	137.00	-5.40	0.00
	Comparison	70	1.28	0.54				
Q9	Treatment	70	1.74	0.44	-0.58	137.00	-6.70	0.00
	Comparison	70	1.16	0.58				
Q10	Treatment	70	1.63	0.50	-0.40	138.00	-4.18	0.00
	Comparison	70	1.23	0.62				
Posttest	Treatment	70	17.50	2.32	-3.95714	127.646	-8.532	.000
	Comparison	70	13.54	3.11				

Table 2 demonstrates that treatment group was significantly better than the comparison group in all of the 10 questions ( $p < 0.001$ ). Scores of the experimental group ( $M = 17.50$ ,  $SD = 2.32$ ) were significantly better than that of the comparison group ( $M = 13.54$ ,  $SD = 3.11$ ) in the posttest ( $p < .001$ ). Thus, the intervention of metacognitive strategies significantly improved the reading comprehension of students of treatment group compared to comparison group.

### Discussion

The main objective of the current research was to investigate the effectiveness of introduction and practice of metacognitive strategies on the reading comprehension of grade 11 students. As the study has exposed that the treatment group outdid the comparison group on the reading comprehension performance after the intervention regarding meta-cognitive strategies. Therefore, the metacognitive strategy intervention appears to have contributed to the development of reading comprehension of students. In other words, introduction and practice of meta-cognitive strategies helped the students in treatment group to perform better in reading comprehension. The findings of the research demonstrate that the teaching and training of use of meta-cognitive strategies enabled the learners to read independently and efficiently.

The results of the study about the use of meta cognitive strategies to improve reading comprehension skills of grade 11 students in Pakistan accord with the previously conducted research (Rupley et al. 2009; Taraban et al. 2004) which emphasized the importance of training of reading strategy as it seemed to have fruitful impact on the sense of reasoning and higher order thinking skills of students. Lovett (2008) also claimed that introducing new skills and teaching reading through meta-cognitive strategies can

improve the ability of students if they apply and practice these efficiently.

Authors like Procedia (2015), Abdellah (2015), Tregaskes and Daines (1989) are in complete agreement that using meta cognitive strategies to attain comprehension is absolutely effectual. Moreno et al. (2022) observed the part of metacognitive confidence in comprehending to what extent people's valenced opinions direct their performance in educational environment. The study established that understanding the process of thought validation can benefit in identifying why and when metacognitive confidence probably may work or fail in creating the wanted performance impact.

Eshuis et al. (2022) found in their study that the students at secondary level can be encouraged to think over their knowledge and make use of different strategies with the help of concept mapping to improve their learning. Fan et al. (2022) presented a novel validation approach used both evidence from read aloud data and rational from theoretical framework of self-regulated learning improved the validity of trace-based self-regulated learning.

### Conclusion

The current study was an experimental study to identify the effect of metacognitive strategies on the reading comprehension among students. There were two treatment and two comparison groups selected from two colleges. The study revealed that the introduction of the metacognitive strategies and opportunity to practice these strategies during the reading of lessons of English textbook through the academic session of six month significantly improved the level of reading comprehension among students of grade 11. Comparison group learnt the same English textbooks through direct instruction and without the orientation and practicing of metacognitive strategies.



In the beginning, the students of treatment group were taught these strategies by giving straight explanation. Later, they became able to set goals and demonstrate skills of monitoring their reading while previewing and self-questioning continuously. Monitoring was shown through the summaries of the reading texts were written by the students and also through the preview questions and other questions which appeared from time to time. Close thinking was shown through the writings about the author's objective, the worth of the text and if it was relevant to other material read by the students.

Meta-cognitive strategies helped the students learn the concepts and increased their reading comprehension skills. As students used meta-cognitive strategies, their performance improved in reading comprehension tests. Students of treatment group leaned to apply meta-cognitive strategies and scored better than the learners of comparison group in the posttest. It proved that the reading comprehension can be improved through metacognitive strategies. This study provides a basis for the teachers to encourage their students to adopt metacognitive strategies for developing reading comprehension skills as they move further towards higher education.

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