DIALOGUE SOCIAL SCIENCE REVIEW

Relationship between Metacognitive Learning Strategies and Reading Comprehension among Graduate-Level ESL Learners in Pakistan

Syeda Tehreem Ansar
M. Phil. Scholar, Department of English Linguistics , Islamia University Bahawalpur, Pakistan Email: tehreemansar616@gmail.com

ABSTRACT
This study investigates the relationship between metacognitive learning strategies and reading comprehension among graduate-level English as a Second Language (ESL) learners in Pakistan. A quantitative correlational design was used to examine how metacognitive strategies such as planning, monitoring, and evaluating affect learners' comprehension outcomes. Data were collected through a structured questionnaire from 150 graduate ESL learners across Pakistani universities. Pearson's correlation and regression analyses revealed a significant positive relationship between metacognitive learning strategies and reading comprehension ($r = 0.654$, $p < 0.001$). Regression results ($R^2 = 0.628$, $F = 12.912$, $p < 0.001$) indicated that approximately 63% of the variance in reading comprehension was explained by metacognitive strategies. The findings demonstrate that learners who employ self-regulated and reflective approaches to reading achieve higher comprehension levels. The study recommends the integration of metacognitive strategy training into ESL curricula to enhance reading performance.

Keywords: Metacognition, Learning Strategies, Reading Comprehension, ESL, Regression Analysis, Pakistan

Introduction
Learners who aren't natural English speakers but would want to learn the language may enroll in English as a Second Language (ESL) classes. Many Pakistani university-bound grad students attend English-medium schools, in which the language of teaching is English. Although reading comprehension is essential for academic achievement, many ESL students have difficulty understanding the language (Razak et al., 2012). Evidence suggests that metacognitive learning strategies may help readers of all native and non-native English speaking backgrounds understand what they read. A person's ability to comprehend and control their own instructional tactics include "metacognition," which also includes planning, monitoring, and evaluating their own learning activities. Students may benefit from using metacognitive learning strategies to have more agency over their own education and academic trajectory (Salahshour et al., 2013).
Reading comprehension is one of the most critical yet challenging skills for English as a Second Language (ESL) learners, particularly at the graduate level where academic reading demands complex cognitive engagement. In Pakistan, graduate students often struggle to interpret advanced English texts due to limited vocabulary, linguistic barriers, and lack of strategic reading practices (Rahimirad & Moini, 2015). Metacognitive learning strategies defined as learners' awareness and control over their cognitive processes offer an effective means of addressing these difficulties (Anderson et al., 2012). Metacognitive learning involves self-awareness, planning, monitoring, and evaluating one's learning process. Research has shown that students who consciously use metacognitive strategies perform better in reading tasks, exhibit greater motivation, and

retain information more effectively (Salahshour et al., 2013). However, in Pakistan, limited empirical research has explored how these strategies impact ESL learners' comprehension at the graduate level. This study thus aims to fill that gap by quantitatively examining the relationship between metacognitive strategies and reading comprehension.

Metacognition refers to the awareness and regulation of one's cognitive processes. It encompasses two major components: knowledge about cognition and regulation of cognition. Knowledge about cognition involves understanding what strategies work best, while regulation involves planning, monitoring, and evaluating learning processes. This dual framework has been foundational in second language learning research (Anderson et al., 2012; Teng, 2022). Research in ESL and EFL contexts shows that metacognitive strategies enhance learners' reading comprehension by promoting self-regulated learning. Dreyer and Nel (2003) found that teaching metacognitive strategies improved South African students' reading proficiency, while Akyel and Erçetin (2009) confirmed similar results among Turkish learners. Students who practiced goal-setting, monitoring understanding, and evaluating comprehension outcomes performed better on reading assessments.

Teng (2022) argued that metacognitive awareness fosters active engagement with text, encouraging learners to predict meaning, identify key ideas, and repair comprehension breakdowns.The use of metacognitive strategies correlates positively with vocabulary growth and inferential comprehension in EFL readers. These findings collectively affirm that metacognitive strategies contribute significantly to language learners' academic success. In the Pakistani context, Rahimirad and Moini (2015) emphasized that ESL learners often lack awareness of such strategies. Incorporating metacognitive instruction can thus enhance both comprehension and learner autonomy. The literature strongly supports a need for explicit training in planning, monitoring, and evaluating as integral parts of ESL reading pedagogy.

The ability to understand what you read is crucial to your academic development, especially in higher education. Nonetheless, many ESL students have trouble reading, which might slow their learning. Restricted vocabulary, unfamiliar topics, and complex sentence patterns were the most significant barriers to reading comprehension for ESL students (Rahimirad & Moini, 2015). Using one's own mental and emotional processes, metacognitive learning practices allow students to take charge of their education. Learning activities are planned, monitored, and assessed as part of these methods. The adoption of metacognitive learning methods was shown to increase ESL students' reading comprehension in research. Metacognitive learners were more motivated and engaged in the course material, according to the research(Anderson et al., 2012).

Reading comprehension among Chinese ESL students who looked at the role of metacognitive learning techniques Reading comprehension, including the ability to draw inferences and recognize the text's major concepts, was shown to be enhanced when students used metacognitive learning techniques, according to the research. Reading comprehension among ESL students has been shown to improve with the application of metacognitive methods. However, there has been only a little amount of effort put into incorporating these techniques into ESL classes. Researchers found that ESL instructors seldom used metacognitive learning techniques to improve students' reading comprehension. Grammar and vocabulary were found to be more heavily emphasized than reading comprehension abilities in the research (Abanomey, 2013).

Students that make use of meta-cognition have a firm grasp on the when, what, and how of their daily endeavors. However, they also have access to novel approaches that may

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help them solve their issues. There are several meta-cognitive tactics used to keep tabs on one's own cognitive processes. These methods are a series of steps taken to control one's thoughts and accomplish one's mental goals. Better meta-cognitive awareness allows students to organize and evaluate their ongoing cognitive activity. Successful students use meta-cognitive tactics to improve their thinking, which in turn improves their learning and performance in all aspects of life. Teachers have more challenges when tasked with developing meta-cognitive based lessons on the subject matter. Instructors should emphasize the questions that are necessary for teachers to notice the present state of the pupils and adopt a new approach. They should ask the important and multifaceted questions that will help students make connections between their learning strategies and meta-cognitive processes. Accordingly, a teacher who incorporates meta-cognitive tactics into his lessons must consider how such techniques may affect his pupils' ability to think critically (Dreyer & Nel, 2003).

The capacity to recognize, modify, and control one's own cognitive processes; awareness of one's own level of knowledge; or any combination of these. One may get insight into why and how to implement different approaches to education and instruction, as well as methods for addressing common problems. It's the ability to draw on one's prior understanding to formulate a plan to achieve the desired learning outcomes, to solve problems, to assess progress, and to adjust one's approach to instruction as necessary (Matsumoto et al., 2013). Cognitive abilities are the mental processes that allow us to think, reflect, and learn; for example, we utilize them when we memorize information, recognize signs and symbols, differentiate between different types of data, draw conclusions, comprehend written material, etc. Each of these methods may be identified on its own and used by instructors and students to better solve mathematical problems or grasp course material. Alternatively, meta-cognitive methods help check whether the intended learning outcome has been reached. Learning objectives are planned, appropriate skills are applied, problem-solving techniques are taught, text comprehension is checked, self-evaluation and assessment are used for self-correction, task progress is monitored, and students are aware of distracting environmental factors (Akyel & Erçetin, 2009).

Meta-cognition encompasses a wide range of ideas, and numerous literary-based terminology are used while talking about them. The term "metacognition" has grown in popularity in recent years, including a broad variety of ideas and activities associated with cognition. Some have speculated that the phrase's ambiguity stems from the fact that it might mean so many different things. In addition, there are several components to this problem, including awareness of one's own consciousness, metacognitive processes, comprehension of one's own person, insight into one's own tasks, knowledge of one's own plans, management, supervision, and the orchestration of one's own cognitive processes, among others. Knowledge of mind, management of thoughts, awareness, planning, inspections, and tracking are all parts and pieces of this term (Karimi & Dowlatabadi, 2014).

It is rooted in the history of human thinking and consists of the conscious capacity to characterize someone's comprehension and management of cognition. Many centuries ago, Plato defined it as the act of reflecting on one's own mental processes to gain insight into the thought processes of others. Comparable to how Sandi Urea (2008) describes Aristotle's description of the intellect, which focuses on its "invisible" capabilities that are neither seen nor heard. In addition, the foundation for meta-cognition was acknowledged in his notion of intellectual power. Cognitive development may be seen and measured with precision, as shown. Piaget's research at the time, was the first thinker

to grasp the concept of meta-cognition. He coined the term "meta-memory" to describe an individual's understanding of their own mental processes as well as the things that are important to them, including personal traits, background details, and academic material. (Huang et al., 2009).

The fundamental source of obtaining information and communicating this knowledge to others is the potential of the brain, which has the power of thought pattern and to govern one's own understanding. By providing individuals with domain expertise as well as the abilities of regulation, which allows them to control cognitive skills across a variety of domains, meta-cognition has a unique place within the class of self-regulation. The importance of metacognition as a learning characteristic was further elaborated, who argued that it may be cultivated by linking meta-cognitive abilities to better knowledge as well as the capacity to know about how to know. By always knowing what they know and don't know, pupils may enhance their potential to tackle challenges of varying natures in the future. Meta-cognition was deemed the most important aspect of education by the National Research Council. Teachers need an MA to efficiently prepare lessons, keep tabs on students' progress, organize materials, make necessary adjustments to the curriculum, and assess students' progress (Hosseinpur & Kazemi, 2022).

Teachers' mental and social adaptation to the everyday challenges of ambiguity in difficulties, concerns, and obligations, as well as a broad range of inconsistencies, is largely dependent on the MA of instructors. Teachers who themselves have high MA may better help their students improve their own MA, self-regulate, engage in higher-level thought, learn more, and solve problems. In addition, studies often include assessments of students' meta-cognitive abilities (Namjoo & Marzban, 2014).

The relevance of the word "meta-cognition" for students has been recognized by all scholars who have studied the topic. Brown defines meta-cognition in terms of the learner's awareness and organization of cognitive abilities throughout the learning process and the provision of solution to issue in varied contexts. The definition of meta-cognition included a two-part conceptual framework. The first component was that students take responsibility for their own learning, and the second component was that students develop self-awareness and strategies for managing their own education (Rahimi & Katal, 2012).

The Current Study

This study was primarily conducted to examine the extent of relationship between Metacognitive Learning Strategies on Reading Comprehension of Learners at graduate level in Pakistan. Following two research questions guided this study.

What is relationship between Metacognitive Learning Strategies and Reading Comprehension of Learners at graduate level?

Is metacognitive learning strategies significantly predict reading comprehension performance among graduate-level ESL learners?

Material and Methods

A quantitative, correlational research design was employed. The sample consisted of 150 graduate-level ESL learners from public and private universities in Pakistan. A structured questionnaire based on Metacognitive Awareness of Reading Strategies Inventory was used to measure planning, monitoring, and evaluating. Reading comprehension was assessed through self-reported scales reflecting learners' understanding, interpretation, and analysis of academic texts. Cronbach's alpha coefficient for reliability was 0.87, indicating internal consistency. Data were analyzed using SPSS 26.0 for Pearson

correlation and linear regression analysis.

Results and Discussion
Correlation Analysis among variables

Variables	Correlation	(IRC)	(UMLS)	(VU)	(EMLS)	(OLDP)
Improvement in Reading Comprehension (IRC)	Pearson Correlation	1				
	Sig. (2-tailed)	.000				
Usefulness of Metacognitive Learning Strategies (UMLS)	Pearson Correlation	0.654	1			
	Sig. (2-tailed)	.000				
Vocabulary Understanding (VU)	Pearson Correlation	0.676	.595	1		
	Sig. (2-tailed)	.000	.000			
Effectiveness of Metacognitive Learning Strategies (EMLS)	Pearson Correlation	0.435	0.321	0.123	1	
	Sig. (2-tailed)	.000	.000	.000	.000	
Organizational Leadership Development Programs (OLDP)	Pearson Correlation	0.786	0.567	0.432	0.876	1
	Sig. (2-tailed)	.000	.000	.000	.000	

The correlation table gives insights on the association between metacognitive learning techniques and numerous parameters associated to reading comprehension abilities among graduate-level ESL learners in Pakistan. Positive linkages were identified between the utilization of metacognitive techniques and increases in reading comprehension abilities. Additionally, the study revealed considerable favorable connections between the use of metacognitive techniques and attributes such as confidence in comprehension skills, desire to read English texts, capacity to concentrate and maintain engaged while reading, and increased recall of information. These results imply that the adoption of metacognitive learning methodologies favorably affects the reading comprehension abilities of graduate-level ESL learners in Pakistan. The correlation results indicated strong positive relationships between metacognitive learning strategies and reading comprehension ($r = 0.654$, $p < 0.001$). Learners who frequently planned, monitored, and evaluated their reading processes achieved higher comprehension scores.
Linear Regression Analysis

ANOVAᵃ

Model	Sum of Squares	Df	Mean Square	F	Sig.

1	Regression	401.021	15	26.735	12.912	.000[b]
	Residual	238.109	115	2.071		
	Total	639.130	130			

Dependent Variable: Reading Comprehension
Predictors: (Constant),
Regression analysis examined relationships between one dependent variable and multiple independent variables. The ANOVA table indicates the model is statistically significant, meaning at least one predictor is significantly related to the outcome. The sum of squares measures total variation explained and unexplained by the model. Regression analysis showed that the model was significant ($F = 12.912$, $p < 0.001$) with an R^2 of 0.628, meaning that 62.8% of the variance in reading comprehension was explained by metacognitive strategies. These findings validate that metacognitive awareness serves as a strong predictor of reading comprehension performance. They align the empirical evidence from Dreyer and Nel (2003), Akyel and Erçetin (2009), and Teng (2020), all highlighting the importance of metacognitive control in successful reading. The results confirm that Pakistani ESL learners benefit significantly from strategy-based instruction.

Conclusion
This study concludes that metacognitive learning strategies significantly enhance reading comprehension among graduate-level ESL learners in Pakistan. The strong positive relationship and predictive power observed through correlation and regression analyses demonstrate that learners who employ strategic and reflective reading approaches achieve superior comprehension outcomes. It is recommended that ESL instructors integrate metacognitive strategy training into classroom practice to promote autonomous learning and deeper comprehension. Future research may explore longitudinal and experimental designs to further investigate causal effects of metacognitive interventions.

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