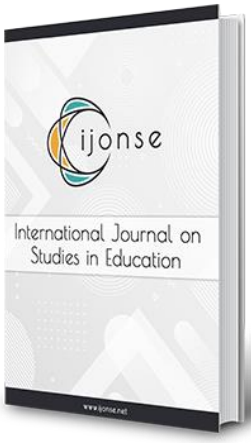

www.ijonse.net

A Study on the Employment of Metacognitive Reading Strategies among University-Level Preparatory Class Students

Ferda Tokçalar
Atılım University, Turkey

Eda Gürlen
Hacettepe University, Turkey

To cite this article:

Tokcalar, F. & Gurlen, E. (2023). A study on the employment of metacognitive reading strategies among university-level preparatory class students. *International Journal on Studies in Education (IJonSE), 5*(4), 461-475. https://doi.org/10.46328/ijonse.157

International Journal on Studies in Education

2023, Vol. 5, No. 4, 461-475 https://doi.org/10.46328/ijonse.157

A Study on the Employment of Metacognitive Reading Strategies among University-Level Preparatory Class Students

Ferda Tokçalar, Prof. Dr. Eda Gürlen

Article Info

Article History

Received:
05 January2023
Accepted:
06 June 2023

Keywords

English preparatory class
Gender
University level
Department in the high school
Metacognitive reading strategies
Usage of metacognitive reading strategies

Abstract

The purpose of this study is to find out how much the students are aware of the metacognitive reading strategies that can be applied while reading and whether there are any differences in the usage of these strategies in terms of gender, level at the university, and department in the high school. In this case, the research was descriptive in nature and used the general survey model. The study group of the research was made up of 474 students from the preparatory classes at a foundation university for the academic year of 2021–2022. This study sought to ascertain the degree to which students, who are students at the Department of Foreign Languages at a foundation university in Ankara, read academic literature using metacognitive reading strategies. To measure the degree of the usage of metacognitive reading strategies and determine if there were any connections between students' reading comprehension and the strategies, Metacognitive Reading Strategies Questionnaire (MRSQ), developed by Taraban, Rynearson, and Kerr (2004), was chosen as a tool to determine which metacognitive reading strategies students employ while they are reading. The MRSQ questionnaire was deemed to be appropriate for usage because it was translated into Turkish by Çöğmen and Saracaloğlu (2010) and after conducting validity and reliability tests it was proved to be appropriate to be used in the research. According to the data obtained from the questionnaire, a statistically significant difference was found in the students' scores in terms of their genders and the high school departments they attended, but there was not a statistically significant difference in terms of their university grade levels. The research's findings may shed light on the reading strategies that students at the Department of Foreign Languages make use of when reading texts in English, academic papers, and school-related resources.

Introduction

Living at an unprecedented paced decade has deeply affected and changed people's lifestyles. The International Bureau of Education Council, formed by UNESCO (2020), suggested that global citizens for lifelong learning must possess the 21st century key competencies and skills to adapt and respond suitably to the changes and challenges of the fast-paced world. Anderson (2003) defines reading as a "process of readers combining information from a text and their own background knowledge to build meaning ". He emphasizes that reading is

a process of fluency that aims at comprehension (Anderson, 2003). The main purposes of reading skill, which is one of the four important skills for language teaching, can be listed as:

- ➢ To acquire the ability to read accurately, continuously and with understanding.
- ➢ To enrich the vocabulary.
- ➢ Gaining knowledge
- ➢ Developing the level of expressions that someone use
- ➢ Enjoying reading (Demirel, 2011, p.110)

The capacity to efficiently comprehend and employ reading materials, predominantly composed in English, is a crucial ability that is basically connected to fundamental competencies and proficiencies. Unfortunately, the measurements of the Program for International Student Assessment (PISA) reveal that among 15-year-old pupils worldwide, Turkey's performance in reading, mathematics, and science is relatively substandard, with only 74% of Turkish students achieving at least Level 2 proficiency in reading, which is lower than the average of 77% among the member countries of the Organization for Economic Cooperation and Development (OECD).These students scored minimum at the questions that aim to measure the level of students' ability to " identify the main idea in a text of moderate length, find information based on explicit, though sometimes complex criteria, and can reflect on the purpose and form of texts when explicitly directed to do so" (OECD, 2019). Studies have proved that to be aware of accurate reading strategy use is an important factor in the process of to be a successful reader. (Guo, 2018; Sariçoban & Behjoo, rEFLections2017). However, the readers who are not aware of these reading strategies or does not have an accurate understanding about reading strategies and strategy use become less successful while reading.

Metacognition

The term "metacognition" was used by researchers (Dewey, 1910; Heuy, 1968; Thorndike, 1917) who were aware that reading is a skill that requires "planning, reviewing, and evaluating activities that are now considered metacognitive skills" (Baker and Brown, 1984, p. 345). According to Flavell (1979) metacognitive knowledge is "knowledge and beliefs about what factors act and interact in what ways to influence the course and outcome of cognitive undertakings." Flavell (1979) stated that "metacognitive knowledge is critical for selecting, evaluating, revising, and abandoning cognitive tasks, goals, and strategies in the context of personal abilities and interests and to achieve desired learning outcomes" (Flavell, 1979). Educational psychologist Ann Leslie Brown (1987), whose primary concern was making students better learners, made significant contributions to understanding the concept of metacognition. Metacognitive knowledge was defined by Brown as "knowledge about one's own cognitive processes." She viewed metacognitive knowledge in relation to learning as the kind of information learners possess about the learning context and themselves. At a time when the concept of metacognition was newly discovered, there was a diversity of ideas, beliefs, definitions, critics, and theories that Brown attempted to sort out through elementary science. In her article "Metacognition, Executive Control, Self - Regulation, and Other More Mysterious Mechanisms" Brown explained her theory of metacognition as "an explicit attempt to see the forest for the trees regarding metacognition." (Brown, 1987) Brown and Flavell's theories have in common

that metacognitive knowledge involves an understanding and awareness that leads learners to learn effectively. When learners understand the actual meaning of the aforementioned metacognitive knowledge, they can find the answers of their questions about learning by themselves, understand the materials deeply, and efficiently learns the content of the material instead of making rote-memorization.

Reading strategies

In the literature on strategies, it can be seen that many different reading strategies have been identified so far. According to, the studies in this field (Oxford 1990, Anderson 1991, 1999, Sarig 1993; Pressley 2000; Grabe and Stoller 2002), strategies can be divided into three main categories, such as metacognitive strategies, which are divided into 'purpose-oriented', 'comprehension monitoring', and 'repair strategies '; cognitive strategies, which are subdivided as ' interacting with the author and the text ', 'dealing with unfamiliar words', and 'using one's prior knowledge'; and social and affective strategies, which require 'cooperation and respect for each other's thoughts and ideas during pair or group work'. According to Anderson, as cited in Nunan (2003), strategic reading can also be defined as "the reader's ability to use a variety of reading strategies to achieve a specific purpose " (Nunan, 2003). When faced with challenges in reading, good readers know what to do and how to do it. Researchers have claimed that good readers "strategize" when trying to understand a text. Therefore, much of the research has focused on finding out what strategies they use, which are most effective and which are least effective, how successful readers use them, and finally, whether or not these strategies can be taught (Anderson, 2003). On the other hand, in order to make less successful readers more confident in their reading process, researchers are looking for what reading strategies less successful readers know, how they interact with texts, and how they solve the problems they faced while reading. These findings can help teachers determine what the rate of reading strategies awareness of less successful readers is and actually use so that they can design their instruction accordingly (Carrell, 1989; Cohen & Hosenfeld, 1981).

Cognitive and Metacognitive Reading Strategies

There are different types of metacognitive reading strategies that involve both knowledge and control processes. Metacognitive knowledge refers to what learners know about cognition, while metacognitive control processes refer to how learners use that knowledge to regulate their thinking. Brown (1987) explained that knowledge of cognition can be divided into three types:

> *Declarative knowledge:* This is the knowledge "about" things. It includes information about an individual's own knowledge as a learner and about the factors that influence their performance. For example, research on meta-memory, which is knowledge about memory processes, shows that students have knowledge about the cognitive processes involved in memory. Good learners tend to have more knowledge about their own memory and are more likely to use that knowledge effectively (Desoete & Roeyers, 2003).
>
> *Procedural knowledge:* Procedural knowledge is knowing "how" to do things. It refers to knowledge about the execution of procedural skills. Individuals with a high level of procedural knowledge are able to use skills more automatically, effectively sequence strategies, and use different strategies to solve

problems. Studies have shown that enhancing procedural knowledge in younger students improves their problem-solving performance (Veenman, 2005).

Conditional knowledge: Conditional knowledge is knowing when and why to apply different cognitive actions. It can be seen as declarative knowledge about the usefulness of cognitive procedures. For instance, in a study, college students demonstrated an understanding of the information-processing demands in various riding situations and selected appropriate strategies to regulate their learning accordingly. Skilled learners possess declarative, procedural, and conditional knowledge about cognition, which enhances their performance. Metacognitive knowledge is believed to develop from an early age and continues to develop throughout adolescence (Flavell, 1987). Similarly, Baker (1989) noted that proficient readers have more knowledge about their own cognition compared to poor readers and are better able to explain that knowledge.

Metacognitive Reading Strategies

Metacognition is an essential aspect that influences reading comprehension as it plays a crucial role in cognitive processes involved in learning, particularly in understanding written information. Metacognitive strategies are the practical application of metacognition in reading. Mokhtari and Reichard (2002) defined "metacognitive reading strategies" as the reader's thoughts about how to plan, monitor, and evaluate the reading process and how to use the given information. (p. 249) Oxford and Crookall (1989) pointed out that "learners use metacognitive strategies to centre, order, plan and evaluate their own learning process. These beyond the cognitive strategies are used to provide executive control over the learning process" (p. 404).

Metacognitive strategies include monitoring, planning, and regulating activities that occur before, during, and after the reading process (Deane & Pereira-Laird, 1997). Wenden (1985) pointed out that "learners use metacognitive strategies to monitor, regulate, or self- direct their own learning. Metacognitive strategies have three functions: Planning, monitoring, and controlling outcomes" (p. 5).

Numerous studies have been conducted in different contexts and with various subjects to explore the awareness and utilization of metacognitive reading strategies (Alami, 2016; Charoenchai & Carmeesak, 2017; Abu-Snoubar, 2017; Aktar & Ahmed, 2018; Wudeneh, 2018; Dardjito, 2019; Sheikh et al., 2019; Teng, 2020). Additionally, research has examined the predictive role of metacognitive reading strategies in both literal and higher-order reading comprehension among students (Ghaith & El-Sanyoura, 2018). Furthermore, studies have investigated the teaching of reading strategies, including cognitive and metacognitive strategies, specifically for ESL/EFL students (Ali & Razali, 2019). The impact of metacognition and proficiency on EFL reading performance, as well as the relationship between metacognition and EFL reading performance, have also been explored (Öztürk & Senaydin, 2019).

The Measurement of Metacognitive Reading Strategies

The measurement of how readers use strategies during reading is usually deduced from their verbalized thoughts

about their reading process. (Paris & Flukes, 2006) This is because the use of reading strategies involves mental processes that occur internally while reading. Researchers in both first-language and second-language reading have created questionnaires to evaluate readers' use of reading strategies, and these have been given to readers from different ages, cultures, and language backgrounds. (Schmitt, 1990). To measure the metacognitive reading strategies that the learners use, researchers have developed scales or inventories.

Mokhtari and Reichard (2002) designed a questionnaire, the Metacognitive Awareness of Reading Strategies Inventory (MARSI), which aims at measuring the adolescents' reading strategies usage during reading and their level of reading strategies awareness. The scale includes 30 questions categorized as 'global reading strategies', 'problem-solving strategies', and 'supportive reading strategies'.

The SORS (Survey of Reading Strategies) was developed by Mokhtari and Reichard (2002) and adapted by Mokhtari and Sheorey (2002). Since there were some inadequacies and limitations in MARSI, target group was changed, and some items were added and deleted. However, no factor analysis was conducted in the study, which can be considered as the major limitation of the inventory. The 25-item multiple-choice questionnaire was developed by Schmitt (1990) for identifying to what extend the learners are aware of reading strategies and how they can use them The instrument was carried out with first-grade elementary school students. Validity and reliability analyzes were not conducted in the study. The instrument mainly focused on metacognition and other reading strategies that might be useful for readers' better comprehension were not included (Mokhtari & Reichard, 2002).

Taraban, Kerr, and Rynearson (Taraban et al., 2004), developed Metacognitive Reading Strategy Questionnaire (MRSQ) to measure students' use of metacognitive reading strategies. The MRQS is divided into two sections: analytic strategies (the analytic cognitive component), which focus on cognition aimed at reading comprehension, and pragmatic strategies (pragmatic-behavioural component), which refer to behaviours aimed at determining students' learning and academic performance (p. 74). MRSQ, which includes 22 meta-cognitive reading strategies in total, consists of two parts. The first part measures teachers' ability to use Analytical Strategies (16 items), and the second part measures their ability to use Pragmatic Strategies (6 items). Analytical Strategies are more about measurement such as thinking about how the information read can be used later, being able to understand what is going to be read from the title of the subject, benefiting from prior knowledge, reviewing, distinguishing, making inferences, reviewing goals, making sense, guessing, checking the accuracy of the predicted information, such as revealing the strengthening aspects of the text, visualizing and determining the difficulty level of the text. They are strategies that help him/her understand what he/she is reading from the text. Pragmatic reading strategies are; note taking, such as drawing by highlighting the important points, taking notes on the side of the text, underlining the key words, and re-reading. Therefore, they are the strategies that help readers remember what they have read. In this study, students' ability to use metacognitive reading strategies skills were studied and described as they exist, without manipulating their current situation.

In this respect, the answers were sought for the following questions:

1. What is the level of reading strategies usage frequency of the students?
2. Does reading strategies usage level of students show significant difference in terms of their gender?

3. Does reading strategies usage level of students show significant difference in terms of their class levels at the Department of Foreign Languages?

4. Does reading strategies usage level of students show significant difference in terms of their departments at the high school?

Method

The aim of this study is to identify the university-level students' level the metacognitive reading strategies usage and to determine whether their class level, their departments at the high school, and gender differentiate their skill levels. Therefore, the research was conducted in the survey model. Surveying is a research approach that describes the situation as it exists and aims to define the current situation (Karasar, 2008). In the survey models, observing science, detecting relationships between events, reaching generalizations on the invariable relations are examined, that is, the descriptive function of science is in the foreground (Yıldırım and Simsek, 2000). It has been thought important within the scope of the research that the selected participants are from different departments, in terms of collecting different data. In this context, maximum diversity sampling has been preferred in the sample selection of the research in order to obtain more comprehensive information about individuals.

Participants

This study investigates whether ESL students are aware of some metacognitive strategies in reading and whether there is a difference in the level of the usage of these strategies in terms of gender, class, and department. Participants were prep class students at the Department of Foreign Languages at a foundation university in Ankara. The questionnaire was answered by 474 students. The students were at different levels such as, A, B and Prefac Levels. The distribution of the students is presented in Table 1.

Table 1. Descriptive Statistics of the Students

		N (474)	%
Gender			
	Female	205	43.2
	Male	269	56.8
Level			
	A	202	42.6
	B	253	53.4
	Prefac	19	4.0
Department			
	Math and Science	363	76.6
	Turkish Language and Math	92	19.4
	Foreign Languages	19	4.0

43.2% of the study group were female (n=205) and %56.8 were male (n=269). More than half of the participants

are in B Level (%53.4; n=253). Students in A Level constitute %42.6 of the total study group (n=202) and % 4% of the students were in the Prefac Level (n=19). As it can be seen above table in terms of the departmental distribution, the number of the students who were at the Math and Science Department in the high school ranked first as of 363 of 474 students and then the students from Department of Turkish Language and Math and of Foreign Languages came second and third, respectively.

Data Collection

This study investigates whether ESL students are aware of their metacognitive reading strategies, what strategies were used the most, and whether these strategies were effective or not. The data was collected by sending a MRQS questionnaire to the students through Google Forms. The objective of the survey was both to ascertain the extent of students' familiarity with reading strategies, and to assess their awareness of metacognition during the reading process, along with the strategies they employ to overcome any obstacles encountered while reading.

In the analysis of the data, the SPSS 20.0 package program was used in order to identify the level of the teachers' metacognitive reading strategy usage arithmetic mean (X), standard deviation (ss), minimum and maximum scores were calculated. The comparison of whether there is a difference between the levels of metacognitive reading strategy usage according to students' level at the Department of Foreign languages, their departments at the high school and gender was tested and the significance of the difference between the means was interpreted.

Data Collection Instrument

Developed by Taraban, Kerr and Rynearson (2004) *Metacognitive Reading Strategies Questionnaire* (MRSQ), adapted into Turkish by Çöğmen and Saracaloğlu (2010), was used as a data collection tool in the research. In the validity-reliability study of the original scale it was found that the Cronbach Alpha reliability of the first sub-factor of the scale was 0.85, the second sub-factor was 0.75 and the general one was 0.84. (Çöğmen and Saracaloğlu 2010).

The validity and reliability of the MRSQ questionnaire, designed to assess the use of analytic and pragmatic strategies in language learning, were also examined by Çöğmen and Saracaloğlu (2010). The instrument was administered in both Turkish and English forms to 60 students enrolled in English Language Teaching and English Language and Literature departments. The results indicated high correlation coefficients of .82 for the analytic strategies dimension, .77 for the pragmatic strategies dimension, and .85 for the entire instrument.

Subsequently, factor analysis was conducted, revealing two dimensions consistent with the original form, with all items displaying factor loadings of .30 or higher. The internal consistency coefficients of the instrument were .81 for the total, .78 for the analytic strategies dimension, and .82 for the pragmatic strategies dimension. The total item correlation coefficients ranged from .20 to .47. Overall, these findings support the validity and reliability of the instrument for use in the research.

Results

In order to find out the most and the least frequently used strategies the mean and standart deviation values of the items in the questionnaire were examined in detail. According to the results shown in Table 2, it can be seen that the 22nd item in the survey, "If I have difficulty understanding, I re-read the text" *(M 4.18, SD .857)* was reported as the most commonly used strategy by participants. The 3rd item, "I try to recall my prior knowledge of the topic to help me understand what I read" *(M 4.08, SD .855)*, was the second most commonly used strategy, while the 16th item in the survey, "I am aware of how difficult or easy a text is" *(M 4.06, SD .852)*, was the third most frequently used strategy.

The items determined as the least used by the participants were, in order, Item 18 'I underline or highlight important information while reading for easy reference later' *(M 3.85, SD .1006)*, Item 13 'I check if I can predict the content of the text before reading it' *(M 3.82, SD .969)* and Item 20 'I try to underline the information while reading to remember it' *(M 3.78, SD.1,096).*

Table 2. Mean ve SD Values of the Questions in the Questionnaire

Items	*Mean*	*SD*
Item1 - As I am reading, I evaluate the text to determine whether it contributes to my knowledge /understanding of the subject	4.02	.835
Item2 - After I have read a text, I anticipate how I will use the knowledge that I have gained from reading the text.	3.96	.915
Item3 - I try to draw on my knowledge of the topic to help me understand what I am reading	4.08	.855
Item4 - While I am reading, I reconsider and revise my background knowledge about the topic, based on the text's content.	4.04	.868
Item5 - While I am reading, I reconsider and revise my prior questions about the topic, based on the text's content..	3.94	.924
Item6 - After I read a text, I consider other possible interpretations to determine whether I understood the text.	3.87	.964
Item7 - As I am reading, I distinguish between information that I already know and new information..	4.01	.883
Item8 - When information critical to my understanding of the text is not directly stated, I try to infer that information from the text.	3.99	.909
Item9 - I search out information relevant to my reading goals.	3.93	.909
Item10 - I evaluate whether what I am reading is relevant to my reading goals.	3.92	.922
Item11 - I anticipate information that will be presented later in the text..	3.88	.961
Item12 - While I am reading, I try to determine the meaning of unknown words that seem critical to the meaning of the text.	4.02	.882
Item13 - As I read along, I check whether I had anticipated the current information	3.82	.969

Items	*Mean*	*SD*
Item14 - While reading, I exploit my personal strengths in order to better understand the text. If I am a good reader, I focus on the text; if I am good with figures and diagrams, I focus on that information	3.92	.985
Item15 - While reading, I visualize descriptions in order to better understand the text.	4.01	.913
Item16 - I note how hard or easy a text is to read.	4.06	.852
Item17 - I make notes when reading in order to remember the information	3.76	1.071
Item18 - While reading, I underline and highlight important information in order to find it more easily later on.	3.85	1.006
Item19 - While reading, I write questions and notes in the margin in order to better understand the text	3.64	1.159
Item20 - I try to underline when reading in order to remember the information	3.78	1.096
Item21 - I read material more than once in order to remember the information	3.92	.945
Item22 - When I am having difficulty comprehending a text, I re-read the text.	4.18	.857

The normality of the data has been examined at a 95% confidence interval to determine whether they show a normal distribution. The demographic information of the participants (gender, class at the university, and department at the high school) and the average score of the questionnaire do not show a normal distribution (see Table 3). Therefore, it was thought appropriate to conduct non-parametric tests. In this study, Kruskal Wallis test and Mann Whitney U test were used for the analysis of variables (see Table 4).

Table 3. Results of Shapiro-Wilk Normality Test according to the Gender, Class, Department

Variables	*N*	*p*
Gender	474	.000*
Class at the University	474	.000*
Department at the High School	474	.000*
Total Scores	474	.000*

* $p < .05$

The Mann Whitney U test was conducted, a nonparametric test used when the variables' data do not show a normal distribution, to determine if there was a difference in total survey score averages based on participants' gender. The test showed a statistically significant difference between the scores of female and male participants *($U = 24600.500$, $z = -2.015$, $p = .044 < .05$)*. Therefore, there is a significant difference in motivation scores between female and male participants.

Table 4. Comparison of Participants' Survey Scores According to Gender Variable Using Mann Whitney U Test

Gender	*N*	*U*	*z*	*p*
Female	205	24600.500	-2.015	.044*
Male	269			

* $p < .05$

The Kruskal-Wallis analysis method was applied to determine if there was a difference in the survey score averages among participants based on their class at the university variable (see Table 5). The test result showed that there was no statistically significant difference in the survey scores of participants in three different classes ($\chi 2 = .240$, df = 2, p = .887 > .05).

Table 5. Comparison of Total Survey Scores by Class Variable with Kruskal Wallis Test among Participants

Class at the University	*N*	*Mean Rank*	χ^2	*p*
A	202	236.58	.240	.887*
B	253	239.26		
Prefac	19	223.87		

* $p > .05$

The Kruskal Wallis analysis method was applied to determine whether there was a difference in survey score averages according to department type in high school (see Table 6). As a result of this test, a statistically significant difference was found in the survey scores of participants in the three different section groups ($\chi 2 = 9.974$, df = 2, p = .007 < .05).

Table 6. Comparison of Total Survey Scores by Department Type in High School Using Kruskal Wallis Test by Participants

Department Type in High School	*N*	*Mean Rank*	χ^2	*p*
Science and Maths	363	228.88	9.974	.007*
Turkish and Maths	92	254.16		
Foreign Language	19	321.50		

* $p < .05$

The normality test shows us whether the variables are nonparametric or parametric. As the data does not show a normal distribution, Spearman Correlation analysis was conducted to examine the relationship between sub-dimensions (see Table 7).

Table 7. Results of the Shapiro-Wilk Normality Test

Variables	*N*	*p*
Analytic Strategies	474	.000
Pragmatic Strategies	474	.000

* $p > .05$

Spearman Rank Differences Correlation Analysis was conducted to examine the relationships between variables. The correlation coefficient values obtained are presented in Table 8. The relationship between the Analytic Strategies subscale score and the Pragmatic Strategies subscale score was analysed. It was found that the Analytic Strategies subscale score had a positive and highly significant relationship with the Pragmatic Strategies subscale score (r: .671; p<.05).

Table 8. Correlation between Sub-Dimension Variables of the Survey

Variables	**1**	**2**
Analytic Strategies	1	.671*
Pragmatic Strategies		1

* $p < .05$

The average scores on the MRSQ scale by gender of the students participating in the study are given in Table 9. According to this, the scale score averages were found to be 4.02 ± 0.73 in female students and 3.89 ± 0.70 in male students. In the Mann Whitney U analysis based on the scale scores by gender, a statistically significant difference was found between the averages (U = 24600.500, Z = -2.015, p = .044).

Table 9. Mann Whitney U Analysis by Participants' Gender

	Female (n=205)	Male (n=269)	U	Z	p
Analytic Strategies	4.07 ± 0.79	3.96 ± 0.78	25298.000	-1.633	.102
Pragmatic Strategies	3.97 ± 0.92	3.80 ± 0.90	24316.000	-2.274	.023*
Total Score	4.02 ± 0.73	3.89 ± 0.70	24600.500	-2.015	.044*

*$p < .05$

When the average scores on the subscales of the scale were examined, it was determined that the average scores of female students were 4.07 ± 0.79 in Subscale 1 and 3.97 ± 0.92 in Subscale 2; and the average scores of male students were 3.96 ± 0.78 in Subscale 1 and 3.80 ± 0.90 in Subscale 2. A significant difference was found in the second subscale between the average subscale scores obtained by students according to their gender (Pragmatic Strategies Subscale U = 24316.000, Z = -2.274, p = .023).

Kruskal Wallis analysis method was applied to determine whether there was a difference between the sub-dimension mean scores of the participant students according to the class variable (see Table 10). As a result of the survey, it was found that there was no statistically significant difference between the scores of the participants belonging to three different class categories in terms of both sub-dimensions (Analytical Strategies Sub-Dimension $\chi2 = 0.175$, p = .916 > 0.05; Pragmatic Strategies Sub-Dimension $\chi2 = 0.215$, p = .898 > 0.05).

Table 10. Kruskal Wallis Analysis by Participant's Classes at the University

	A (n=202)	B (n=253)	Prefac (n=19)	χ^2	p
Analytic Strategies	4.01 ± 0.80	4.02 ± 0.76	3.92 ± 0.95	0.175	.916
Pragmatic Strategies	3.89 ± 0.94	3.86 ± 0.90	3.92 ± 0.84	0.215	.898
Total	3.94 ± 0.74	3.96 ± 0.68	3.89 ± 0.77	0.240	.887

*$p < .05$

Krukal Wallis analysis method was used to determine whether there was a difference between the sub-dimension

mean scores of the participant students according to the departments in high school variable (see Table 11). As a result of this test, it was determined that there was a statistically significant difference between the scores of the participants belonging to three different department categories in terms of both sub-dimensions (Analytic Strategies Sub-Dimension $\chi 2 = 15.049$, $p = .001 < 0.05$; Pragmatic Strategies Sub-Dimension $\chi 2 = 8.232$, $p = .016 < 0.05$).

Table 11. Kruskal Wallis Analysis by Participant's Departments in High School

	Maths and Science (n=363)	Turkish and Math (n=92)	Foreign Languages (n=19)	χ^2	p
Analytic Strategies	3.95 ± 0.79	4.12 ± 0.76	4.58 ± 0.53	15.049	.001*
Pragmatic Strategies	3.82 ± 0.91	4.02 ± 0.92	4.24 ± 0.90	8.232	.016*
Total	3.90 ± 0.71	4.04 ± 0.71	4.42 ± 0.55	9.974	.007*

*$p < .05$

Conclusions

The present study explored the use of metacognitive reading strategies among university students in Turkey. The results revealed that the majority of the students used metacognitive reading strategies while reading academic texts. This is consistent with previous researches that have shown that successful readers tend to use metacognitive reading strategies to enhance their reading comprehension. In this study, the affects the variables of gender, field of study in high school, and class level in university on their reading strategies preferences were analysed by means of Mann Whitney U and Kruskal Wallis tests.

The results of the survey showed a statistically significant difference in the use of metacognitive reading strategies among participants based on their gender and field of study in high school, but no statistically significant difference was found based on the class level in university. This finding is consistent with some studies carried out in this issue. Various national and international studies have shown a significant difference between girls and boys, with girls generally performing better. For example, in a study by Alqahtani (2020) on university students' use of metacognitive strategies and reading proficiency, girls had higher mean scores in strategy use than boys. Similarly, Alami (2016) compared the levels of strategy use among college-level students in Oman and found that girls reported higher levels than boys. Altındağ (2008) investigated the level of metacognitive skills among undergraduate students at Hacettepe University and found a statistically significant difference in favour of girls. Sarıçoban (2015) also explored the relationship between metacognitive awareness and gender, and found a statistically significant difference between girls and boys in the "Declarative Information" dimension of the scale used.

After analysing the average scores of a scale, it was discovered that there was a significant difference in the Pragmatic Strategies subscale scores among students based on their gender. However, there was no significant difference found in Analytical and Pragmatic Strategies sub-dimensions' scores among participants from different

university classes. On the other hand, there was a significant difference in scores among participants from different high school departments in both sub-dimensions.

The study also found that the participants were actively engaged in the reading process and were employing multiple strategies to comprehend the text. The use of metacognitive reading strategies is particularly important for university students, who are often required to read complex academic texts in various disciplines. By using these strategies, students can improve their reading comprehension and retention of information. Furthermore, the use of metacognitive reading strategies can help students become more self-directed learners, as they learn to monitor their own understanding and adjust their reading strategies accordingly.

According to the results of the research, some recommendations can be done for the curriculum designers, program developers and teachers such as,

1. including applications that will increase students' metacognitive reading strategy use levels into the lessons and EFL curriculums
2. increasing the frequency of students' use of strategies in the courses, which reading skills should be used, by providing training on the use of reading strategies.
3. increasing the level of awareness about reading by giving feedback to students about their individual reading processes.
4. increasing the use of reading strategies in the courses during the high school education process of the students so that the students come to the university ready in this sense. As Griffith & Ruan, (2005) stated many high school graduates and university prepatory class students are not mature enough with respect to metacognitive reading.

References

Abu-Snoubar, J. (2017). The effect of metacognitive reading strategies on developing reading comprehension skills of Saudi EFL learners. *English Language Teaching, 10*(11), 91-105.

Aktar, A., & Ahmed, M. A. (2018). Metacognitive reading strategies and reading comprehension performance of Turkish EFL learners. *Journal of Language and Linguistic Studies, 14*(3), 200-214.

Alami, M. (2016). Cross-gender comparison of metacognitive strategies utilized by Omani students in reading comprehension classes. *International Journal of Applied Linguistics and English Literature, 5*(4).

Alami, M. (2016). Metacognitive strategies in reading comprehension: A comparative study. *International Journal of English Linguistics, 6*(6), 18-29.

Ali, M. A., & Razali, N. M. (2019). The teaching of reading strategies (cognitive and metacognitive reading strategies) for ESL/EFL students: A review. *International Journal of Academic Research in Business and Social Sciences, 9*(2), 519-534.

Altındağ, M. (2008). *Hacettepe Üniversitesi Eğitim Fakültesi Öğrecilerinin Yürütücü Biliş Becerileri*. Unpublished PhD Dissertation. Hacettepe University, Graduate School of Social Sciences. Ankara.

Anderson, N. J. (2002). The role of metacognition in second language teaching and learning. *ERIC Digest*. Retieved on April 2002, p. 3–4

Auerbach, E. R., & Paxton, D. (1997). "It's not the English thing": Bringing reading research into the ESL classroom. *TESOL Quarterly, 31*, 237-261.

Baker, L. (1989). Metacognition, comprehension monitoring, and the adult reader. *Educational Psychology Review, 1*(1), 3-38.

Baker, L. (1991). Metacognition, reading, and science education. In J. Brophy (Ed.), *Advances in research on teaching: Vol. 2. Teachers' personal goals and consequential classrooms* (pp. 45-83). JAI Press.

Baker, L. & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson (ed.), *Handbook of Reading Research* (pp. 353-394). Mahwah, NJ: Longman

Belet, S. D. & Yasar, S. (2007). Effectiveness of learning strategies over reading comprehension writing skills and learners' attitudes towards Turkish course. *Journal of Theory and Practice in Education, 3*(1), 69-86.

Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-116). Lawrence Erlbaum Associates.

Charoenchai, P., & Carmeesak, P. (2017). The use of metacognitive reading strategies in reading comprehension by EFL university students in Thailand. *Kasetsart Journal of Social Sciences, 38*(1), 12-19.

Cogmen, S. & Saracaloğlu, A. (2010). Üst Bilişsel Okuma Stratejileri Ölçeği'nin Türkçeye Uyarlama Çalışmaları. *Pamukkale University Journal of Faculty of Education, 28,* 91-99.

Dardjito. (2019). The use of metacognitive strategies in reading comprehension by Indonesian EFL learners. *Indonesian Journal of EFL and Linguistics*, *4*(2), 157-169.

Desoete, A., & Roeyers, H. (2003). Metacognitive knowledge in learning-disabled children with or without comorbid ADHD. *Journal of Learning Disabilities, 36*(6), 528-536.

Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 21-29). Lawrence Erlbaum Associates.

Ghaith, G. M., & El-Sanyoura, M. M. (2018). The role of metacognitive reading strategies in predicting literal and higher order reading comprehension of Arabic EFL learners. *International Journal of Instruction, 11*(1), 67-82.

Karasar, N. (2003). *Bilimsel araştırma yöntemi*. (12. Baskı). Ankara: Nobel Yayıncılık.

Mokhtari, K. & Reichard, C. A. (2002). Assessing students' metacognitive awareness of reading strategies, *Journal of Educational Psychology*, *94*(2), 249-259.

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

Oxford, R. L.; Crookall, D. (1989). Research on language learning strategies: Methods, findings, and instructional issues. *Modern Language Journal, 73* (4), 404-419.

Öztürk, H., & Senaydin, F. (2019). The effects of metacognition and proficiency on EFL reading performance: A structural equation modeling approach. *SAGE Open*, *9*(2), 1-12

Pereira-Laird, J. A. & Deane, F. P. (1997). Development and validation of a self-report measure of reading strategy use. *Reading Psychology: An International Journal, 18,* 185–235.

Razı, S. (2008). The impact of learning multiple foreign languages on using metacognitive reading strategies. *The Reading Matrix, 8*(1), 117-138

Sarıcoban, A. (2015). Metacognitive awareness of pre-service English language teachers in terms of various variables. *Procedia-Social and Behavioral Sciences*, *186*, 664-669.

Schmitt, M. C. (1990). A questionnaire to measure children's awareness of strategic reading processes. *The Reading Teacher, 43,* 454–461.

Sheikh, N. A., Khurshid, S., Sial, A., & Tariq, R. (2019). Role of metacognitive reading strategies in reading comprehension among ESL learners: A review of literature. *Research Journal of Social Sciences*, *12*(4), 28-34.

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

Taraban, R., Rynearson, K., & Kerr, M. (2000). College students' academic performance and self-reports of comprehension strategy use. *Reading Psychology*, *21*, 283–308.

Teng, F. (2020). A study on the influence of metacognitive reading strategies on reading comprehension. *English Language Teaching*, *13*(10), 135-142.

Veenman, M. V. J. (2005). The assessment and instruction of metacognitive skills in science education. *Metacognition and Learning*, *1*(2), 137-156.

Wenden, A. L. (1991). *Learner strategies for learner autonomy.* Englewood Cliffs: Prentice Hall.

Wudeneh, T. T. (2018). The use of metacognitive strategies in reading among grade 12 students: The case of Woreta Preparatory School, Ethiopia. Journal of English Language and Literature, 6(4), 333-344.

Yıldırım, A. & Şimşek, H. (2021). *Sosyal bilimlerde nitel araştırma yöntemleri* Ankara: Seçkin Yayıncılık.

Author Information

Ferda Tokçalar
https://orcid.org/0000-0003-2654-1051
Atılım University
Kızılcaşar, 06830 İncek
Gölbaşı/Gölbaşı/Gölbaşı/Ankara
Turkey
Contact e-mail: *ferda.tokcalar@atilim.edu.tr*

Prof. Dr. Eda Gürlen
https://orcid.org/0000-0002-1719-9840
Hacettepe University
Beytepe Kampüsü
06800 Çankaya/Ankara
Turkey