

## Relational Assessment of Metacognitive Reading Strategies and Reading Motivation

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### Abstract

Metacognitive reading strategies are used before, during and after reading, and raise awareness of the reading process. These strategies are crucial for the individual to be able to regulate their reading processes, to realize and remedy their deficiencies, and to be effective in the process of reading, comprehending and learning. Reading strategies enable the individual to become more active in their own reading and comprehension processes, which, in turn, encourage them to make more informed, conscious and critical readings and improve their attitudes towards and interest in reading. The aim of this study is to determine the relationship between prospective teachers' metacognitive reading strategies and reading motivation. The study also examined whether metacognitive reading strategies and reading motivation differ in terms of gender, department, academic success and reader type. The study presents a screening model and has a relational nature. 217 students from different classes and departments were included in the study. Data were collected using "Metacognitive Reading Strategies Scale" and "Adult Reading Motivation Scale". Descriptive statistics such as arithmetic mean, standard deviation, and t test, unidirectional variance analysis and correlation analysis were used to analyze the data. As a result of the research, it has been determined that there is a positive significant relationship between pre-service teachers' reading motivations and metacognitive strategy use. In addition, it was found that the use of metacognitive strategies differed significantly depending on the department and reader type and reading motivations depending on gender, academic success and reader type.

**Keywords:** Metacognition, Metacognitive Reading Strategies, Motivation, Reading Motivation

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## INTRODUCTION

In the past, literacy was narrowly defined as comprehending a text and expressing feelings and thoughts in writing and as something that makes life easier. However, it has become a vital skill over time. Today, literacy means adapting to life so much so that we witness the growing popularity of different types of literacy (information literacy, financial literacy, science literacy, mathematics literacy, health literacy, media literacy, statistical literacy, critical literacy, environmental literacy, digital literacy, visual literacy etc.) in different areas of life. Therefore, people today should definitely possess literacy skills. Literacy is based on reading. Reading skills are a prerequisite for people to have literacy skills. People with good reading skills are expected to be perceptive of what is going on around them and make sense of life.

Reading is defined as a dynamic process of sense-making that requires active communication between reader and writer or as an activity of perceiving, comprehending, and interpreting words, sentences or a text as a whole, and making sense of written symbols. All these definitions focus on "making sense" (Akyol, 2014:33; Demirel, 2003:78-79; Snow, 2002:11; Bazerman & Wiener, 2005; Biemiller & Siegel, 1997). In the light of these definitions, it would not be wrong to argue that reading should result in sense-making for it to be successful and accurate. The reader decodes a text both physically and mentally and discloses its core meaning and interacts with it to make sense of it and to reconstruct it. This suggests that reading and comprehending take place in the mind. In other words, reading and comprehending is a cognitive process. What is more, reading is a purposeful action of which the individual should be aware. Metacognitive skills manifest themselves through monitoring and control of cognitive activities. Effective and efficient reading, which is a cognitive process, is only possible with metacognitive reading skills (Kuruyer & Özsoy, 2016).

Metacognition is defined as one's awareness of one's own cognitive activities, thinking about thinking, and controlling, monitoring, and evaluating cognitive activities (Akın & Çeçen, 2014; Bonds et al., 1992; Huitt, 1997; Hall et al., 1999; Hacker & Dunlosky, 2003; Özsoy & Ataman, 2009; Vianty, 2007; Jager, Jensen & Reezigt, 2005). It also involves knowing one's own learning strategies and content-related information. Metacognition is one's ability to be aware of oneself and of how one learns, regulate oneself, and plan, monitor, and evaluate one's learning (Doğanay, 1997). Reading also involves these skills. In other words, reading consists in one's ability to be aware of the reading process, plan before reading, and monitor and organize how one reads, and assess what one reads. Therefore, metacognitive reading strategies are skimming, making predictions, assessing the accuracy of predictions, monitoring, understanding, setting goals, evaluating reading, reviewing, summarizing, using prior knowledge, connecting prior knowledge with new information, assessing text difficulty, identifying the main ideas of the text, developing semantic maps and clusters, and changing the reading rate when necessary (Hartman, 2001: 18; Mokhtari & Reichard, 2002). Students who are aware of metacognitive reading and are able to use metacognitive reading strategies are more likely to monitor, control, and organize their own reading processes. In other words, regulating the reading process by monitoring it, assessing the level of comprehension for reading, eliminating errors, and rereading are a sign of improved metacognitive reading awareness. Therefore, those with metacognitive knowledge, skills, and awareness are likely to be more successful in reading (Gavora, et al., 2019; Öztürk, 2012) because reading is a purposeful and meaning-making activity in that the reader is expected to be aware of why he is reading a text and draw conclusions from it (Akın & Çeçen, 2014).

Metacognitive reading strategies have two components: analytic-cognition and pragmatic-behavioral (Taraban, Rynearson & Kerr, 2004). The analytic-cognition component plays key a role in reading comprehension and involves the skills of identifying the purpose of reading, evaluating the process or the text, and making predictions and inferences. The pragmatic-behavioral component plays a key role in academic performance and recall and involves the skills of regulating the reading environment, underlining and highlighting important sections, taking notes, and visualizing descriptions. The analytic-cognition and pragmatic-behavioral skills help students explore the details

of significance and keep them in mind, relate prior knowledge to new information, derive new information that is not explicitly conveyed in the text, interpret the text, use context clues to find the meaning of unknown words, determine the main idea of the text and the purpose of the author, and make inferences (Mokhtari & Reichard, 2002; Singhal, 2001). Metacognitive reading strategies also have a significant impact on reading motivation, and therefore, enable readers not only to use cognitive skills but also to understand what they read (Başaran, 2013). Metacognitive reading strategies promote reading and comprehension quality and improve academic performance, thereby allowing students to be actively engaged in positive reading experiences, as a result of which they enjoy reading more and become more eager to participate in reading activities. This shows that both cognitive and motivational factors play a significant role in reading and reading comprehension (Wang & Guthrie, 2004; Yıldız & Akyol, 2011).

Reading motivation plays an important role in effective reading (Griffith & Ruan, 2005: 16) and is one of the key concepts that affects cognitive processes, and therefore, plays a role in reading performance as well (Alvarado & Adriatico, 2019). It motivates people to read and turns them into good readers (Baker & Wigfield, 1999; Yıldız, 2013; Yıldız & Akyol, 2011). It refers to all processes of reading activities and personal goals, beliefs, and values that affect reading outcomes and reading topics of choice (Alvarado & Adriatico, 2019). Gambler, Palmer, Codling and Mazzoni (1996) also define it as goals, values, and beliefs about reading and reading processes. It plays an important role not only in reading comprehension, which is the primary goal of reading, but also in all high-level reading goals (Baker & Wigfield, 1999). Schutte and Malouff (2007) argue that reading motivation consists of four dimensions: (1) reading as part of the self, (2) reading efficacy, (3) reading for recognition, and (4) reading to do well in other realms. Reading as part of the self is individual importance attached to reading and willingness to read. Reading efficacy is the state of being a competent reader. Reading for recognition is the pleasure in being recognized, perceived, and appreciated by others (friends, teachers, parents etc.) as a good reader. Reading to do well in other realms is reading to thrive in other areas of life (Yıldız, Yıldırım, Ateş & Çetinkaya, 2013). Metacognitive reading processes have a significant impact on all motivational factors (Başaran, 2013) while metacognitive processes have a significant impact on reading comprehension and motivation (Bulut, 2016; Memiş & Bozkurt, 2013; Öztürk, 2012; Sani, Chik, Nik & Raslee, 2011). Therefore, the aim of this study was to determine the correlation between metacognitive reading strategies and reading motivation in preservice teachers. The study sought answers to the following questions:

- 1) Do preservice teachers use metacognitive reading strategies?
- 2) Does a) department, b) gender, c) academic success, or d) reader type have a significant effect on the way preservice teachers use metacognitive reading strategies?
- 3) What level of reading motivation do preservice teachers have?
- 4) Does a) department, b) gender, c) academic success, or d) reader type have a significant effect on preservice teachers' reading motivation?
- 5) Is there a correlation between metacognitive reading strategies and reading motivation in preservice teachers?

## METHOD

### Research Design

This study employed a correlational research design, which is used to provide tentative indications for a causal relationship between two or more variables and can have predictive or exploratory in cases when the focus is to identify predictive relationship between the predictor and the

outcome variable (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2010; Sönmez & Alacapınar, 2013).

### Research Sample

The study was conducted in the spring semester of the 2017-2018 academic year. The sample consisted of 217 students from the basic education department of the faculty of education of Ondokuz Mayıs University. Participation was voluntary. Participants were recruited using simple random sampling, which is a probability sampling method. Table 1 shows the demographic characteristics of the participants.

**Table 1.** Demographic Profiles of the Participants

Variable(s)	Group	f	%
Gender	Woman	174	80.2
	Man	43	19.8
Department	Classroom Education	125	57.6
	Preschool Education	92	42.4
Academic Success	Below 3.00	102	47.0
	Above 3.00	115	53.0
Reader Type	Seldom readers	72	33.2
	Moderate readers	76	35.0
	Constant readers	69	31.8

Most participants were women (80.2%;  $n = 174$ ), just over half (57.6%) were classroom education students ( $n=125$ ) and the rest ( $n = 92$ ) were preschool education students, and more than half (53%) had a GPA above 3.00. Based on the number of books read in a year, 33,2 percent of the participants were seldom readers, 35 percent moderate readers, and 31.8 percent constant readers.

### Research Instruments and Procedures

Data were collected using the Metacognitive Reading Strategies Questionnaire and the Adult Reading Motivation Scale.

**Metacognitive Reading Strategies Questionnaire (MRSQ):** MRSQ was developed by Taraban, Rynearson, and Kerr (2004) and adapted to Turkish by Çöğmen and Saracaloğlu (2010). The MRSQ is a 22-item self-report method for determining metacognitive strategies used by students while reading and studying school-related materials. It consists of two subscales; analytic cognitions subscale (ACS) and pragmatic behaviors subscale (PBS). The ACS consists of 16 items on metacognitive strategies used by students when reading course texts while the PBS consists of six items on strategies used by students when reading course texts to keep in mind more information and to distinguish important information from irrelevant details. The items are scored on a 5-point Likert-type scale (1= Never to 5= Always). The total scale score ranges from 22 to 110. The ACS and PBS total scores range from 16 to 80 and from 6 to 30, respectively. The MRSQ-TR had a Cronbach's alpha of .81 while the ACS and PBS had a Cronbach's alpha of .78 and .82, respectively (Çöğmen & Saracaloğlu, 2010).

**Adult Reading Motivation Scale (ARMS):** ARMS was developed by Schutte and Malouff (2007) based on reading engagement theory and reading motivation to measure reading motivation in adults. It was adapted to Turkish by Yıldız, Yıldırım, Ateş, and Çetinkaya (2013). It consists of 21 items rated on a 5-point Likert scale (1= Strongly Disagree, 5= Strongly Agree) and four subscales; (1) reading as part of the self, (2) reading efficacy, (3) reading for recognition, and (4) reading to do well in other realms. Subscale 1 consists of items on enjoyment of reading; Subscale 2 consists of items on being an efficient reader; Subscale 3 consists of items on one's desire to be acknowledged and perceived by others as a good reader; and Subscale 4 consists of items on reading as a way of thriving

in other areas of life. Yıldız, Yıldırım, Ateş, and Çetinkaya (2013) established the validity and reliability of the ARMS-TR and reported RMSEA=0.77, RMR=.055, GFI=.87, AGFI=.83, and CFI=.86, and significant Chi-square. The ARMS-TR had a Cronbach's alpha of .88, while the Subscale 1, 2, 3, and 4 had a Cronbach's alpha of .82, .60, .78, and .72, respectively.

### Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS, version 20), at a significance level of 0.05. Arithmetic mean and standard deviation were used for descriptive analysis. Data were analyzed using independent groups t test, one-way analysis of variance (ANOVA) and correlation analysis. Skewness-kurtosis coefficients, Shapiro-Wilk values, and box plots were used for normality testing. Table 2 shows arithmetic mean, standart deviation, skewness- kurtosis coefficients and the Shapiro-Wilk results.

**Table 2.** The Values of Shapiro-Wilk

Variable(s)	Metacognitive Reading Strategies					Reading Motivation							
	x	sd	Skewness	Kurtosis	Shapiro-Wilk		x	sd	Skewness	Kurtosis	Shapiro-Wilk		
					Statistics	p					Statistics	p	
Department	Classroom Education	3.59	0.51	.005	-.108	.991	.573	66.02	9.03	.007	-.347	.992	.677
	Preschool Education	3.73	0.47	-.324	-.150	.986	.455	65.52	8.03	-.033	-.144	.989	.639
Gender	Woman	3.67	0.50	-.241	-.044	.987	.100	66.49	8.21	.071	-.194	.992	.432
	Man	3.55	0.47	.245	-.579	.971	.352	63.08	9.68	.087	-.616	.980	.632
Academic Success	Below 3.00	3.59	0.48	-.128	-.514	.988	.496	64.42	8.74	.100	-.222	.991	.743
	Above 3.00	3.70	0.51	-.200	.068	.989	.476	67.04	8.32	-.050	-.208	.992	.761
Type of Reader	Seldom readers	3.53	0.49	-.071	-.154	.985	.547	62.23	8.82	.348	.323	.979	.259
	Moderate readers	3.67	0.48	-.344	.140	.974	.121	66.08	8.17	-.014	-.173	.993	.939
	Constant readers	3.75	0.50	-.068	-.432	.984	.535	69.26	7.39	.072	-.875	.974	.155

The results showed that the data were normally distributed, and therefore, parametric tests were used for analysis. Reading habits were based on the standards of the American Library Association (ALA) (Gündüz & Şimşek, 2011). According to ALA, those who read fewer than five books per year are seldom readers, those who read between six and twenty books in total per year are moderate readers, and those who read more than twenty books in total per year are constant readers.

## RESULTS

### Findings Related to the First Sub-Problem

The first sub-problem of the research is the pre-service teachers' use of metacognitive reading strategies, and the findings shown in Table 3.

**Table 3.** Metacognitive Reading Strategies Use of the Pre-Service Teachers Participating in the Research

	N	x	sd	
Analytic Strategies	217	3.72	0.51	Often
Pragmatic Strategies	217	3.47	0.79	Often
Total	217	3.65	0.50	Often

As seen in Table 3, the arithmetic means of the points that teacher candidates got from the scale of analytical strategies  $\bar{x} = 3.72$ , and the standard deviation  $sd = 0.51$ . The arithmetic means of the scores they get from the pragmatic strategies dimensions  $\bar{x} = 3.47$ , and the standard deviation  $sd = 0.79$ . Based on these values, pre-service teachers use both analytical and pragmatic strategies frequently. There is a similar situation when looking at the overall scale. The arithmetic mean of the points received by the teacher candidates from the entire range  $\bar{x} = 3.65$ , while the standard deviation is  $sd = 0.50$ . These values show that pre-service teachers frequently use metacognitive reading strategies.

### Findings Related to the Second Sub-Problem

The second sub-problem of the research is that whether the pre-service teachers' use of metacognitive reading strategies differs significantly depending on the department, gender, academic achievement, and reader type. The findings are shown below.

#### a) Findings Related to the Department

While comparing pre-service teachers' use their metacognitive reading strategies according to the department they are studying, the t-test used for unrelated samples, and the findings given in Table 4.

**Table 4.** Comparison of Participant Pre-Service Teachers' Use of Metacognitive Reading Strategies According to Department

Department	N	x	sd	t	df	p
Classroom Education	125	3.59	0.51	-2.071	215	0.040
Pre-school Education	92	3.73	0.47			

In Table 4, the results of the analysis revealed that the pre-service teachers' use of metacognitive reading strategies differs significantly according to the department they are studying ( $t = -2.071$ ,  $p < .05$ ). The arithmetic means and standard deviation values of the pre-service teachers' scores from the scale are examined. Pre-service teachers who study in pre-primary education use their metacognitive reading strategies more frequently than the pre-service teachers in classroom education.

#### b) Findings Related to Gender

While comparing pre-service teachers' use metacognitive reading strategies by gender, the t-test was used for unrelated samples, and the findings placed in Table 5.

**Table 5.** Comparison of Participant Pre-Service Teachers' Use of Metacognitive Reading Strategies According to Gender

Gender	N	x	sd	t	df	p
Female	174	3.67	0.50	1.473	215	0.142
Male	43	3.55	0.47			

In Table 5, the analysis reveals that the pre-service teachers' use of metacognitive reading strategies did not differ significantly by gender ( $t = 1.473, p > .05$ ). Based on this, gender is not a useful variable on the pre-service teachers' use of metacognitive reading strategies.

### c) Findings About Academic Success

When comparing pre-service teachers' use metacognitive reading strategies according to academic success, the t-test was used for unrelated samples, and the findings have shown in Table 6.

**Table 6.** Comparison of Pre-Service Teachers' Use of Metacognitive Reading Strategies According to Academic Success

Academic Success	N	x	sd	t	df	p
Below 3.00	102	3.59	0.48	-1.733	215	0.085
Above 3.00	115	3.70	0.51			

In Table 6, the analysis results revealed that the pre-service teachers' use of metacognitive reading strategies did not differ significantly according to the grade point average ( $t = -1.733, p > .05$ ). Based on this finding, academic success did not affect the pre-service teachers' use of metacognitive reading strategies.

### d) Findings Related to Reader Type

One-way analysis of variance (ANOVA) was used when comparing pre-service teachers' use of metacognitive reading strategies by reader type, and the findings shown in Table 7.

**Table 7.** Comparison of Participant Pre-Service Teachers' Use of Metacognitive Reading Strategies According to Reader Type

Reader Type	N	x	sd	Source of Variance	Sum of Squares	df	Mean Square	F	p
Seldom readers	72	3.53	0.49	Between Groups	1.647	2	.824	3.419	0.035
Moderate readers	76	3.67	0.48	Within Groups	51.547	214	.241		
Constant readers	69	3.75	0.50	Total	53.194	216			

In Table 7, the results revealed that the pre-service teachers' use of metacognitive reading strategies differs significantly according to the reader type,  $F(2-214) = 3.419, p < .05$ . The arithmetic means and standard deviation values of the pre-service teachers' scores from the scale indicate that the pre-service teachers in the group read well-received higher scores than the other group. Accordingly, it is a variable that affects the pre-service teachers' use of metacognitive reading strategies.

### Findings Related to the Third Sub-Problem

The third sub-problem of the research is what is the level of reading motivation of teacher candidates, and the findings placed in Table 8.

**Table 8.** Reading Motivations of Pre-service Teachers Participating in the Research

Reading Motivation	N	x	sd	Minimum	Maximum
Self	217	29.36	4.68	16.00	39.00
Sufficiency	217	13.36	2.83	6.00	20.00
Recognition	217	9.09	2.53	3.00	15.00
Other	217	14.00	2.71	5.00	20.00
Total	217	65.81	8.60	44.00	86.00

As it can be seen in Table 8, the average of the scores obtained from the “self” sub-dimensions on of the reading motivation scale of the teacher candidates are  $x = 29.36$ ,  $sd = 4.68$ ; the scores they get from the “sufficiency” sub-dimensions are  $x = 13.36$ ,  $sd = 2.83$ ; the scores they get from the “recognition” sub-dimensions are  $x = 9.09$ ,  $sd = 2.53$  and the scores they get from the “other” sub-dimensions are  $x = 14.00$ ,  $sd = 2.71$ . Considering the lowest and highest values that can be obtained from the sub-dimensions of the scale, it can be said that the scores obtained are at the “good” level.

### Findings Related to the Fourth Sub-Problem

The fourth sub-problem of the research is that whether the pre-service teachers' reading motivations differ significantly depending on the department, gender, academic success, and reader type. The findings are shown below.

#### e) Findings Related to the Department

While comparing pre-service teachers' reading motivations according to the department they are studying, the t-test used for unrelated samples, and the findings given in Table 9.

**Table 9.** Comparison of Participant Pre-Service Teachers' Reading Motivation According to Department of Study

Department	N	x	sd	t	df	p
Classroom Education	125	66.02	9.03	0.413	215	0.680
Pre-school Education	92	65.52	8.03			

As shown in Table 9, the analysis results reveal that pre-service teachers' reading motivations do not differ significantly according to the department they are studying ( $t = 0.413$ ,  $p > .05$ ). When the arithmetic means and standard deviation values of the pre-service teachers' scores from the scale are examined, it is seen that the average scores of the students studying in the department of classroom education are higher than those in the other group. Still, this difference does not make any sense, statistically.

#### f) Findings Related to Gender

When comparing the reading motivations of pre-service teachers by gender, the t-test was used for unrelated samples, and the findings shown in Table 10.

**Table 10.** Comparison of Participant Pre-Service Teachers' Reading Motivation According to Gender

Gender	N	x	sd	t	df	p
Female	174	66.49	8.21	2.345	215	0.020
Male	43	63.08	9.68			

As shown in Table 10, the results of the analysis reveal that pre-service teachers' reading motivation differs significantly according to gender,  $t = 2.345$ ,  $p < .05$ . While the arithmetic means of the scores obtained by female teacher candidates from the scale is  $x = 66.49$ , the standard deviation is  $sd = 8.21$ ; the average score of male teacher candidates is  $x = 63.08$  and the standard deviation is  $sd = 9.68$ . Based on these results, female teacher candidates have higher reading motivation than male teacher candidates.



### g) Findings About Academic Success

When comparing pre-service teachers' use reading motivation according to academic success, the t-test was used for unrelated samples, and the findings have shown in Table 11.

**Table 11.** Comparison of Pre-Service Teachers' Use of Reading Motivation According to Academic Success

Academic Success	N	x	sd	t	df	p
Below 3.00	102	64.42	8.74	-2.257	215	0.025
Above 3.00	115	67.04	8.32			

As can be seen in Table 11, the analysis results reveal that pre-service teachers' reading motivations differ significantly according to their academic success,  $t = -2.257$ ,  $p < .05$ . The mean score of the pre-service teachers whose grade point averages are over three is  $x = 67.04$ ; the standard deviation is  $sd = 8.32$ . In contrast, the average score of teacher candidates below three is  $x = 64.42$ , and the standard deviation is  $sd = 8.74$ . Based on this result, more reading motivation means more academic success.

### h) Findings Related to Reader Type

One-way analysis of variance (ANOVA) was used when comparing the reading motivations of pre-service teachers according to the reader type, and the findings shown in Table 12.

**Table 12.** Comparison of Participant Pre-Service Teachers' Use of Reading Motivation According to Reader Type

Reader Type	N	x	sd	Source of Variance	Sum of Squares	df	Mean Square	F	p
Seldom readers	72	62.23	8.82	Between Groups	1746.074	2	873.037	13.117	.000
Moderate readers	76	66.08	8.17	Within Groups	14243.468	214	66.558		
Constant readers	69	69.26	7.39	Total	15989.542	216			

In Table 12, analysis results reveal that teacher candidates' reading motivations differ significantly according to the reader type,  $F(2-214) = 13.117$ ,  $p < .05$ . When the arithmetic means and standard deviation values of the pre-service teachers' scores from the scale were examined, the pre-service teachers in the group who read well-received higher scores than the other group. Accordingly, the type of reader determined by the number of books read during the year is a variable that affects reading motivation.

### Findings Related to the Fifth Sub-Problem

While examining the relationship between pre-service teachers' metacognitive reading strategies and reading motivations, Pearson correlation analysis was used, and the findings placed in Table 13.

**Table 13.** The Relationship Between Participant Pre-service Teachers' Metacognitive Reading Strategies and Reading Motivations

	N	Analytic Strategies		Pragmatic Strategies		Metacognitive Reading Strategies	
		r	p	r	p	r	p
Reading Motivation	217	0.368	0.000	0.293	0.000	0.403	.000

As shown in Table 13, the results of the analysis reveal a positive and moderately significant relationship between pre-service teachers' reading motivations and their use of metacognitive reading strategies. Accordingly, it can be said that reading motivation increases as the use of metacognitive reading strategies increases. A similar situation can be mentioned in the analyzes made in terms of sub-dimensions. It is determined that there is a positive relationship between pre-service teachers' use analytical-pragmatic strategies and reading motivations. From this point of view, the use of analytical and pragmatic strategy has a positive effect on reading motivations.

## DISCUSSION, CONCLUSION, RECOMMENDATIONS

This study investigated the correlation between metacognitive reading strategies and reading motivation in university students and determined whether it was affected by various demographic and academic characteristics. The results are as follows:

Participants use metacognitive reading strategies often, which has been reported by previous studies as well (Aybek & Aslan, 2016; Babacan, 2012; Cecen & Alver, 2011; Celikoz, 2018; Cimen, 2008; Ozdemir, 2018; Yaliz Solmaz, 2015). Gavora et al. (2019) argue that higher education is based on text learning. Students who use reading strategies are likely to perform better in school. A successful university student knows not only what to study but also how to study it. Planning, monitoring, and evaluating reading can only be achieved through effective metacognitive regulation. Metacognitive reading strategies are defined as planned, purposeful, and future-oriented mental activities and processes which help readers monitor how they have progressed to complete cognitive tasks (New South Wales Department of Education and Training, 2010). Metacognitive reading strategies help students find the main ideas, explicit and implicit information, references, and the meaning of unknown words in texts (Wardah, 2014). They also help them actively participate in their own learning and organize and manage it, and review new knowledge. Therefore, the fact that our participants use metacognitive reading strategies often during thinking and learning processes is very important and pleasing.

Participants use analytic-cognition strategies more than pragmatic-behavioral-behavioral strategies. Analytic-cognition strategies focus mostly on academic performance-oriented processes, such as text analysis and interpretation and making inferences, while pragmatic-behavioral strategies focus mostly on rudimentary processes in terms of academic performance, such as highlighting, note-taking, etc. (Gavora et al., 2019; Taraban et al., 2004). Babacan (2012) reported that preservice classroom teachers mostly used pragmatic-behavioral strategies, attributing it to the fact that the education system in Turkey encourages students to develop recall-oriented behaviors rather than engaging them in deep and meaningful learning. On the other hand, Aybek and Aslan (2016) and Vianty (2007) reported that students used analytic-cognition strategies more than pragmatic-behavioral strategies. We can, therefore, state that our results are consistent with the literature and are important for meaningful learning.

Department has an effect on participants' metacognitive reading strategies in that preschool education students use them more than classroom education students. Conflicting results have been reported regarding the impact of major on metacognitive reading strategies. Aybek and Aslan (2016) and Köse (2016) conducted a study with preservice teachers from different departments and reported that major had no effect on metacognitive strategies. On the other hand, Becirovic, Brdarevic, Celjo and Sinanovic (2017), Yaliz Solmaz (2015), and Özdemir (2018) reported that major had an effect on metacognitive strategies. Our result may be due to student characteristics rather than the content of undergraduate education.

Gender has no effect on participants' metacognitive reading strategies, which has been reported by previous studies as well (Akkus, 2019; Celikoz, 2018; Emre, 2019; Erdağı Toksun, 2015; Erdem, 2012; Hong, 2008; Kasimi, 2012; Kummin & Rahman, 2010; Lule Mert, 2015; Oluk & Basoncul, 2009; Ozdemir, 2018 ; Sonleitner, 2005; Yaliz Solmaz, 2015). However, there is some

research pointing that women use metacognitive reading strategies more often than men (Ateş, 2013; Aybek & Aslan, 2016; Becirovic et al., 2017; Çetinkaya Edizer, 2014; Gavora et al., 2019; Köse, 2016; Tunca & Alkın-Şahin, 2014). Gavora et al. (2019) argue that that might be due to gender-based characteristics, such as emotional processes, organization of working conditions, and time management. Coleman (1997) also believes that higher integrative motivation and more positive attitudes towards strategy use make women more likely to use metacognitive reading strategies than men. The lack of significant gender difference in our study may be due to the fact that i) women were overrepresented in the sample and ii) women and men have similar knowledge and awareness of metacognitive strategies.

Academic success has no effect on participants' metacognitive reading strategies. Kana (2015) conducted research with students of Turkish teaching and reported that GPA had no effect on the way they used metacognitive strategies. Çöğmen (2008) conducted a study with 230 students from different departments of the faculty of education and reported a positive correlation between academic performance and the use of metacognitive strategies. Taraban, Kerr, and Rynearson (2000), known for their work on metacognitive strategies, suggested that GPA is an important predictor for strategy use as they found that university students with higher GPA used more strategies. The lack of significant effect of academic performance on the use of metacognitive reading strategies in our study may be due to some other factors. Keskin (2013) used structural equation modeling (SEM) to analyze the effect of metacognitive strategies on academic performance and concluded that metacognitive strategies did not have a direct effect on academic performance but that reading attitudes played a mediating role.

Reader type has an effect on participants' metacognitive reading strategies in that constant readers use more metacognitive reading strategies than seldom and moderate readers, which is consistent with the literature. Aybek and Aslan (2016) reported that the more books the students read, the more metacognitive reading strategies they used. In his master's thesis, Çöğmen (2008) argues that frequency of reading books is a good predictor of how often one uses metacognitive strategies. Karasakaloğlu, Saracaloğlu and Özelçi-Yılmaz (2012) and Özdemir (2018) also assert that the frequency of reading books is an important variable that accounts for the use of metacognitive strategies.

Participants have high reading motivation, which has also been reported by Akbabaoğlu (2019), Savaşkan and Özdemir (2017) and Ürün Karahan (2018). Using the metaphor of the "car-fuel relationship" to highlight the significance of motivation for people, Yıldız (2010) states that motivation provides energy and encourages people to read. Reading motivation makes people more willing to read based on their interests and needs (Ürün Karahan, 2015). Reading motivation plays a key role in reading and has a direct effect on reading success (Şahin, 2019b). Research shows that people with high reading motivation have better reading performance and comprehension (Ahmadi, Ismail & Abdullah, 2013; Koca, 2020; Pecjak & Peklaj, 2006; Yıldız, 2010). Reading motivation affects many factors such as, success and attitude, and is affected by many others, such as age and gender. Longitudinal and cross-sectional studies show that age affects reading motivation negatively (Unrau & Schlackman, 2006). Therefore, the fact that our participants have high reading motivation is promising in the sense that they will set good examples to their students and turn them into constant readers.

Participants who are classroom education students have higher ARMS scores than those who are preschool education students, however, the difference is statistically insignificant. Therefore, department has no effect on participants' reading motivation. Some studies have reported results similar to ours (Tekşan, 2019) while some others have reported different results (Sani et al., 2011). For example, Savaşkan and Özdemir (2017) conducted a study with first-year students from different departments of the faculty of education (science, computer, classroom, social studies teaching, etc.) and reported that department had no significant effect on reading motivation. On the other hand, Ürün Karahan (2015) conducted a study with fourth-year students from the faculty of education and also analyzed their ARMS subscale scores and reported that department had a significant effect on reading

motivation. These results give clues about the effect of undergraduate education on reading motivation. However, the lack of significant effect of department on reading motivation in our study may be due to the fact that the education offered by the departments has similar content.

Gender has an effect on participants' reading motivation in that female participants have significantly higher reading motivation than males. We can, therefore, state that gender affects reading motivation, which has also been reported by previous studies (Akbabaoğlu, 2019; Marinak & Gambrell, 2010; McGeown, Duncan, Griffiths & Stothard, 2015; Sani et al., 2011; Savaşkan & Özdemir, 2017; Tekşan, 2019; Ürün Karahan, 2015). Shafi and Lohan (2010) argue women have higher reading motivation than men because they enjoy reading, while Fatiloro, Adesola, Hameed and Adewumi (2017) maintain that it is because women spend more time on reading than men. There is, however, some controversy with regard to the effect of gender on reading motivation. McGeown, Goodwin, Henderson, and Wright (2012) focus on the effect of sexual traits and biological differences on reading motivation and argue that reading is perceived as a more feminine activity, the motivation for which is affected by gender self-identification, and therefore, they assert that it is not gender that we should look into but it is gender self-identification.

Academic success has an effect on participants' reading motivation in that the higher the GPA, the higher the reading motivation. Katrancı (2015) conducted a study with fourth-grade primary school students and found that reading motivation was a predictor of academic performance in the Turkish course. Kurnaz and Yıldız (2015) also conducted a study on secondary school students and reported that reading motivation had an effect on academic performance in the Turkish course.

Reader type has an effect on participants' reading motivation in that constant readers have higher reading motivation than seldom and moderate readers. Baker and Wigfield (1999), Kızgın (2019), Kurnaz and Yıldız (2015), and Şahin (2019) investigated the effect of reading habit on reading motivation in students of different grades and found that reading motivation was affected by the number of books read. Yıldız (2013) focused on reading motivation, comprehension, and reading fluency and concluded that those factors accounted for 61 percent of academic success.

The results show a positive correlation between metacognitive reading strategies and reading motivation, which has also been found in preservice classroom teachers (Akbabaoğlu, 2019), preservice Turkish teachers (Baki, 2019), and university students from different departments (Meniado, 2016; Riany, 2010). Research in general shows a positive correlation between metacognitive reading strategies and reading motivation in students of all grades (Jamshidi & Maghaddam, 2013; Landine & Stewart, 1998; Pinto, 2009; Roesch-Heils, Schneider & Van Kraayenoord, 2003; Van Kraayenoord & Schneider, 1999). Motivation is defined as beliefs and attitudes that affect the development and use of cognitive and metacognitive skills (Schraw, Crippen, & Hartley, 2006). Sahli (2018) defines motivation as a product of metacognition, while Ling and Dejun (2003) define it as a means of kick-starting and promoting metacognition. Students with high motivation, especially those with high intrinsic motivation, are likely to make more profound connections with texts, that is, they immerse themselves in stories, empathize with characters, and have creative experiences (Schiefele, Schaffner, Möller & Wigfield, 2012), which helps them to use reading strategies more effectively and successfully (Miyamoto, Pfof & Artelt, 2019). Therefore, higher reading motivation makes people more focused on reading texts, providing them with the opportunity to use metacognitive reading strategies more often and effectively.

The following are recommendations to educators and researchers based on the results:

- 1) Metacognitive reading strategies enable people to think and learn better. Therefore, preservice teachers should be trained on them.
- 2) There should be more research with larger sample sizes or metaanalysis to better understand the effect of gender on metacognitive reading strategies.

- 3) Longitudinal studies are warranted to gain more insight into the effect of gender and age on reading motivation.
- 4) Further qualitative studies should be conducted to determine the sources of reading motivation and possible factors affecting it.
- 5) Preservice teachers will have a significant impact on the development of new generations for years to come, and therefore, should be provided with activities to make them more motivated to read.

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