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Examining the Relationships between the Attitudes towards Reading and Reading Habits, Metacognitive Awarenesses of Reading Strategies, and Critical Thinking Tendencies of Pre-Service Teachers*

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Abstract

The purpose of this study was to explore the relationships between the attitudes towards reading and reading habits, metacognitive awarenesses of reading strategies and critical thinking tendencies of pre-service teachers. Two hundred and six pre-service teachers who continue their education in various departments of Faculty of Education at Afyon Kocatepe University were the participants of the study. In this study, which employed predictive correlational research design, structural equation modeling was used to test the hypotheses about direct or indirect relationships between the attitudes towards reading and reading habits, metacognitive awarenesses of reading strategies and critical thinking tendencies. According to the findings of the study, the attitude towards reading had a positive and significant impact on attitude towards the reading habit and metacognitive awareness of reading strategies, and metacognitive awareness of reading strategies had a positive and significant impact on critical thinking tendency. On the other hand, given the attitude towards reading's influence on critical thinking tendency, it was determined that the mediation role of the metacognitive awareness of reading strategies was meaningful. Given the attitude towards reading habit's influence on critical thinking tendency, it was determined that the mediation role of the metacognitive awareness of reading strategies was meaningful.

Key words: attitude towards reading and reading habit, metacognitive awareness of reading strategies, critical thinking

Introduction

Today, when knowledge is rapidly increasing and spreading, it has become important for individuals to access and evaluate right knowledge through critical thinking and to use it in their future learning. Facione (2000) defines critical thinking as "commenting and analysing; assessment and inferences, a decision mechanism based on the evidence that certain explanations are made in terms of concepts, criterion, methods, or content, with the ability to self-regulation for a purpose" (As cited in Koçak, Kurtlu, Ulaş & Epçeçan, 2015, p.213). Critical thinking is not a concept that can be duplicated, copied, internalized, or memorized, but it is created by an action. This behavior includes attitudes, knowledge, context, relationships, thought, freedom, observations, curiosity, creation, recreation and communication (Freire, 2009, as cited in, Waterkemper, do-Prado, Medina & Reibnitz, 2014). According to Aslan (2007:28), "critical thinking can be defined as a higher level of cognitive competence, such as an individual's believing that there is a problem in the first place, then revealing the causes of this problem and predicting the outcome". From the definitions made, it is understood that critical thinking is a skill that requires constant personal effort.

Critical thinking has many features such as supporting results, determining the specified and unadopted assumptions, taking different perspectives into consideration, developing hypotheses based on existing information and making non-biased decisions in favour of a specific outcome (Commeyras, Pearson, Ennis,

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Garcia & Anderson, 1992). The basis of critical thinking is the existence of healthy, disciplined, systematic and interrogating thinking, distinguishing, identifying contradictions, identifying wrongnesses, purpose, determining the non-relevant ideas, similarities and differences, and questioning (Duran, 2013; Karadüz, 2010). There are many factors to improve critical thinking skills. Some of these factors are support of social environments which are composed of people who think differently and open to criticism to the critical thinking and reading (Çiğçi, 2006), families' raising their children with self-confidence, transfer their learning to their life, the fact that the educators particularly have critical thinking skills and reflect them on their students (Susar-Kırmızı, Fenli & Kasap, 2014), the ability of parents and teachers to improve the listening skills of students (Karadüz, 2010). It is not easy to acquire critical thinking skills. It has been found that pre-service teachers' levels of critical thinking tendencies are low, medium, or above medium level in the researches studies conducted (Beşoluk & Önder, 2010; Bulgurcuoğlu, 2016; Kartal, 2012; Koçak et al., 2015; Semerci & Elaldi, 2014).

Critical Thinking Tendencies and Attitude towards Reading

One of the variables that affect the critical thinking tendencies of pre-service teachers is the attitude towards reading. Reading skill which is one of the important factors of academic success today is one of the skills that should be acquired and developed during the primary school period. When the literature is reviewed, it is seen that different definitions regarding this skill have been made. "Reading is perceiving printed or written words through our sense organs, comprehending by making sense of these words and interpreting them" (Özdemir, 2017, p.11). In another definition, "reading is an individual's understanding and expressing himself in the simplest way. Correspondingly, it is the skill of having the ability to think systematically, and making logical connections between affective and cognitive skills" (Batur, Gülveren & Bek, 2010, p.34). Starting from the definitions made, it is observed that the scholars state the concept of "reading" as coding of the letters automatically and making sense of the information that is read from the cognitive point of view by handling it in two different dimensions. When we look at the concept of "reading" from an affective point of view, we face the concept of "reading attitude." The importance of attitude emerges both during the acquisition period of the reading process and in making it a habit.

An individual may have a negative attitude towards reading skill even though he acquired this skill in the period between primary school and higher education. For example, in a study conducted by Şahin-Taşkın and Esen-Aygün (2017), it was detected that the attitudes of primary school students towards recreational reading were somewhat upset. It was also detected in a study conducted by Dedeoğlu and Ulusoy (2013) that reading attitudes of the study group were less than 75 points which was the criterion score. On the other hand, there are studies which found out that students or pre-service teachers had positive attitudes towards reading skill (Koçak et al., 2015; Oğurlu, 2014; Şahin-Taşkın & Esen-Aygün, 2017). Reading can have many reasons and purposes. "Whatever the cause and purpose is, reading is the most effective way to think critically, to develop versatile perspectives, to understand oneself and the world, and to interpret" (Adalı, 2010, p.9). According to Aşılıoğlu (2008), someone who reads texts on the superficially will only memorize the information and suffer problems on comprehending what they have learned, using in new situations, analyzing, and synthesising. The reader must gain critical reading skills in order to create new meaning in the text by adding something from their own experience and beliefs. Therefore, it is very important that individuals have positive attitudes towards reading to gain critical thinking skills. Researches has shown that attitudes towards reading affect critical thinking (Koçak et al., 2015; Smith, 2015).

Critical Thinking Tendencies and Attitude towards Reading Habits

One of the variables affecting the critical thinking tendencies of pre-service teachers is the attitude towards reading habits. "Reading habit is an important skill that individuals should acquire in order to enable them to perform this activity with pleasure after they learn how to read. It is defined as an individual's performing reading activity which is occurred as a result of perceiving it as a necessity constantly and regularly throughout the life" (Tanju, 2010, p.31). There are many factors that are effective in gaining the habit of reading. Attention-grabbing productions on televisions destroy people's little habits of reading (Batur et al., 2010; Yılmaz-Aydın, 2006). Other factors are a child's family, society that child lives in, his school and teacher that are a model (Tanju, 2010; Yılmaz-Aydın, 2006), lack of directing and lack of reading awareness (Gömleksiz & Telo, 2003), and a child's learning experiences and economic causes (Yılmaz-Aydın, 2006). That the individuals' attitudes towards reading habit are positive or negative has been detected by the research studies conducted. It has been found that while some of the pre-service teachers, have positive attitudes towards reading habit (Batur et al., 2010), reading habits of some of them have not been developed adequately (Bulgurcuoğlu, 2016; Görücü, 2014; Saracaloğlu, Bozkurt & Serin, 2003; Yılmaz-Aydın, 2006), and students do not use university libraries regularly (Gömleksiz & Telo, 2003).

Some research studies on the attitude towards reading habit investigated the relationship between the attitude towards reading habit and critical thinking (Bulgurcuoğlu, 2016; Gökkuş & Delican, 2016; Görücü, 2014; Gündüz, 2015; Ogurlu, 2014; Susar-Kırmızı et al., 2014). On the other hand, one of the results of the research was that the reading habits had no effect on critical thinking skills. In a study conducted by Şen (2009) with pre-service teachers, it was concluded that the frequency of reading books and newspapers did not affect pre-service teachers' critical thinking attitudes. On the other hand, positive attitudes were found between the attitudes towards reading habits and the attitude towards reading which are one of the variables that affect critical thinking. On the other hand, a positive correlation was found between attitudes towards reading habits and attitudes towards reading. There was a positive relationship between reading achievement and reading habit in the research performed by Baki (2017) and Demir's (2015) studies, and; Balcı, Uyar and Büyükkiz (2012) found that reading attitudes of pre-service teachers differed in favour of those who read more books.

Critical Thinking Tendencies and Metacognitive Awareness of Reading Strategies

One of the variables affect the critical thinking tendencies of pre-service teachers is the metacognitive awareness of reading strategies. Development of metacognitive awareness of reading strategies is quite important throughout the reading. An individual who uses reading strategies will apply to different strategies by analysing what he reads in depth and determining the parts of the text that he understands or does not understand. According to Demir and Kaya (2015:36), cognition "includes the processes of an individual's own knowledge, cognitive and effective situations, the ability to inspect consciously and deliberately, and an individual's regulating his knowledge." According to Özbay and Özdemir (2012), acting out of cognitive strategies is making connections between previous knowledge and what is newly read throughout the reading process. Individuals should use metacognitive reading strategies in order to make sense of texts and to see whether their critical thinking and reading levels are adequate or not. On this subject, Karadüz (2010) stated that critical reader should evade from identifying himself with the author and try to understand the text. According to Karabay (2012) critical reading is not only a reader's evaluation on what he has learned from the text, but it is also related with an individual's evaluating himself on existing reading strategies and on using gained knowledge as a reader. A critical reader should also evaluate the strategies to be used to reach to understanding level and intellectual styles to be performed. According to Dar, Rahimi and Shams (2010), teaching the ways of critical thinking to the individuals can make them independent students. Students learn to rely on their mental capacities by performing practical applications, and they become more assertive and more confident on their thoughts.

In other researches on this subject, researchers tried to determine the relationship between metacognitive awareness of reading strategies and critical thinking (Demir & Kaya, 2015; Hosseini, Bakhshipour-Khodaei, Sarfallah & Dolatabadi, 2012; Karabay, 2012; Karasakaloğlu, Saracaloğlu & Yılmaz-Özelçi, 2012; Mohammadi, Heidari & Nirry, 2012; Parson, 1985; Smith, 2015). A study by Hosseini et al. (2012) found that there was a significant positive correlation between the use of critical thinking ability and reading strategy, and the use of metacognitive reading strategies of postgraduate students in the field of foreign language education. On the other hand, there have been some experimental researches that determine the relationships between 'metacognitive awareness of reading strategies' and 'critical thinking' concepts. A research conducted by Karabay (2015) found that the critical reading education program developed metacognitive reading strategies. Parson (1985) investigated the impact of metacognitive strategy education on critical reading skills. The author found that there was a difference between the test group that received the metacognitive strategy education, and the control group that did not receive the metacognitive strategy education. However, this difference was not statistically significant. In the researches conducted by Karasakaloğlu et al. (2012), and Mohammed, Heidari and Nirry (2012) there was a significant and positive relationship between the metacognitive awareness of reading strategies and the critical thinking tendencies of pre-service teachers. As a result of the findings obtained from the research, it can be said that metacognitive awareness of reading strategies has a positive effect on critical thinking ability. In order to become active in a complex and rapidly changing world, students must have basic critical thinking skills and have intellectual skills to produce new solutions to the problems effectively (Marasigan & Espinosa, 2014). On the other hand, have also been found to be correlated between metacognitive awareness of reading strategies and attitudes towards reading (Aslan, 2007). Additionally, reading strategies were found to have positive correlations between metacognitive awareness and reading habits (Çetinkaya & Edizer, 2015; Kana, 2014; Kuş & Türkyılmaz, 2010). Aslan (2007) states that a good reader uses reading strategies more as compared to weak readers, a strategic reader can make a decision on which strategy he will use in a learning environment, and he can evaluate these strategies. Therefore, a positive attitude gained towards reading habit will enable the individuals to evaluate the information that they read critically by enabling them to be good readers and to use reading strategies.

In researches conducted, there was a positive correlation between between critical thinking and emotional intelligence (Dutoglu & Tuncel, 2008), critical thinking and research anxiety (Çokluk-Bökeoğlu & Yılmaz, 2005), critical thinking and media literacy (Kurt & Kürüm, 2010). In addition to these, there have been some studies that examined the students' critical thinking dispositions such as gender, class level, department, geographical region, size of settlement, and the amount of monthly expenditure (Beşoluk & Önder, 2010; Görücü, 2014; Koçak et al., 2015). On the other hand, studies that explore the relationships between attitude towards reading and critical thinking (Koçak et al., 2015; Ogurlu, 2014), attitude towards reading habit and critical thinking (Bulgurcuoğlu, 2016; Gökkuş & Delican, 2016; Gündüz, 2015; Susar-Kırmızı et al., 2014), metacognitive awareness of reading strategies and critical thinking (Beşoluk & Önder, 2010; Demir & Kaya, 2015; Hosseini et al., 2012), and attitude towards reading habit and metacognitive awareness of reading strategies (Çetinkaya & Edizer, 2015; Kana, 2014; Kuş & Türkyılmaz, 2010) have been limited. On the other hand, there are not any studies that investigate the relationship between the attitude towards reading and reading strategies. In this regard, this study has been expected to make a contribution to the studies that will be conducted to determine the relationships among the variables regarding the reading skill and critical thinking skill. In this respect, it has been expected that the research will contribute to research to determine the relationships between the variables related to reading skill and critical thinking disposition. In researches conducted that explore the relationships between reading habits and reading motivation, reading comprehension skills (Yıldız & Akyol, 2011), reading habits and problem solving skills (Saracaloğlu, Yenice & Karasakaloğlu, 2009), reading habits and computer and internet usage (Demirer, Çintaş-Yıldız & Sünbül, 2011). In addition to this, there have been some studies investigating the relationships between metacognitive awareness of reading strategies and academic self-efficacy perception (Koç & Arslan, 2017), metacognitive awareness of reading strategies and reading comprehension skills (Başaran, 2013), and metacognitive awareness of reading strategies and multiple intelligence areas (Dilci & Babacan, 2011). Teachers assume the most responsibility for individuals to gain critical thinking skills. Therefore, it is very important that pre-service teachers who gain critical thinking skills should use positive metacognitive awareness of reading strategies in order to be able to evaluate the information during reading. The effects of reading attitudes and metacognitive awareness of reading strategies on critical thinking skill needs should be investigated in order to evaluate the knowledge acquired in traditional materials and digital media. However, it was found that the students' reading skills improved during higher education but this development was not sufficient (Aydın-Yılmaz, 2006; Kuş & Türkyılmaz, 2010; Odabaş, Odabaş & Polat, 2008; Semerci, 2002). On the other hand, it was found that students' metacognitive awareness of reading strategies were low (Baydık, 2011). The development of attitude towards reading habits and metacognitive awareness of reading strategies for the acquisition of critical thinking skills has become a prerequisite for the development. In this respect, it is thought that the research will contribute significantly to the literature on the role of metacognitive awareness of reading strategies and reading attitudes towards reading habits which are considered as critical variables in the development of critical thinking skills. On the other hand, this research has been expected to fill the gap in the literature in terms of being the research that examines the relationships between attitude towards reading and reading habits, metacognitive awareness of reading strategies and critical thinking tendency

The Purpose of the Research

Although there are studies on the relationship between the attitude towards reading and reading habit, metacognitive awareness of reading strategies, and critical thinking, there is no study that examines the relationship between these variables together at the same time. Given the impact of each of these variables on critical thinking, the aim of this study was to examine the relationships between the attitude towards reading and reading habit, metacognitive awareness of reading strategies, and critical thinking. In this context, the structural model proposed for direct and indirect relations between variables has been tested as shown in Figure 1.

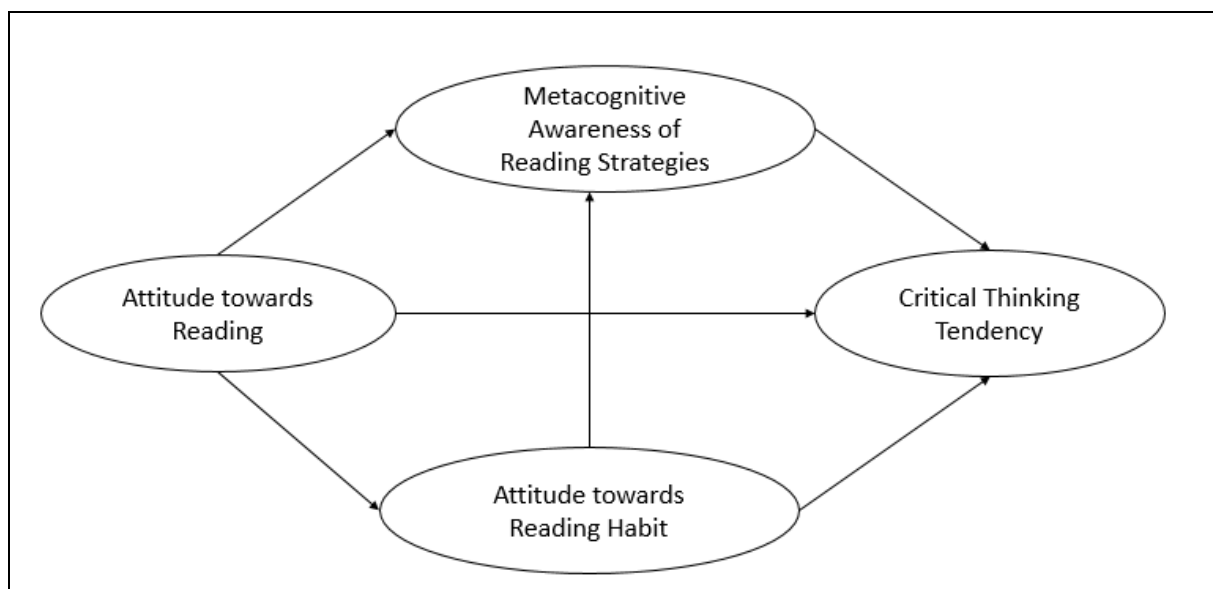


Figure 1. The proposed model for the relationship between the attitude towards reading and reading habit, metacognitive awareness of reading strategies, and critical thinking tendencies

Hypothesis 1: The attitude towards reading directly influences the attitude towards reading habit in a positive and significant way.

Hypothesis 2: The attitude towards reading directly influences the metacognitive awareness of reading strategies in a positive and significant way.

Hypothesis 3: The attitude towards reading directly influences the critical thinking tendency in a positive and significant way.

Hypothesis 4: The attitude towards reading habit directly influences the metacognitive awareness of reading strategies in a positive and significant way.

Hypothesis 5: The attitude towards reading habit directly influences the critical thinking tendency in a positive and significant way.

Hypothesis 6: The metacognitive awareness of reading strategies directly influences the critical thinking tendency in a positive and significant way.

Hypothesis 7: The attitude towards reading influences the critical thinking tendency in a positive and significant way over the attitude towards reading habit.

Hypothesis 8: The attitude towards reading influences the critical thinking tendency in a positive and significant way over the metacognitive awareness of reading strategies.

Hypothesis 9: The attitude towards reading habit influences the metacognitive awareness of reading strategies in a positive and significant way over the attitudes towards reading habit.

Hypothesis 10: The attitude towards reading habit influences the critical thinking tendency in a positive and significant way over the metacognitive awareness of reading strategies.

Research Question

What is the pattern of direct and indirect relationship between the attitudes towards reading and reading habit, the metacognitive awareness of reading strategies, and the critical thinking tendency?

Method

Research Model

This research was designed in the predictive correlational research design, which explored the relationship between the attitudes towards reading and reading habit, the metacognitive awareness of reading strategies, and the critical thinking tendency of pre-service teachers. Predictive correlational studies are conducted to explain the changes in dependent variable based on one or more independent variables (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel, 2012).

The Study Group

The study group consists of 206 pre-service teachers, who studying in various departments of Faculty of Education at Afyon Kocatepe University [2nd grade elementary school teacher (65), 3rd grade preschool teacher (90), 3rd grade social studies teacher (51)]. In the research, convenience sampling was used as the sampling method. Convenience sampling allows researchers to select a segment from the population. This type of sampling provides researcher both time and cost-effectiveness (Aypay et al., 2012). When evaluated in terms of gender, 165 of the pre-service teachers were females and 41 were males.

Data Collection Tools

Attitude Scale for Reading

'The Attitude towards Reading Scale' developed by Sarar-Kuzu and Doğan (2015) was used in order to determine the attitudes of pre-service teachers towards reading. The items on the scale subjected to factor analysis have taken their final form with 38 items collected in three sub-dimensions (contribution to personal and social development, interest and love, and importance/finding valuable). Cronbach's Alpha reliability coefficient of the scale was .94. As a result of the DFA on the data, it was understood that the model of the three-dimension structure of the scale was well adapted to the data (X^2 /sd=1.82, RMSEA=.07, IFI=.82, TLI=.87). For this research the reliability of the scale was found as .62.

Attitude Scale for Reading Habit

In this study, in order to determine the attitudes of pre-service teachers towards the habit of reading books, 'Attitude Scale for the Habit of Reading Books' developed by Gömleksiz (2004) was used. Cronbach's Alpha reliability coefficient of the scale that consists of 30 items 21 of which are positive and 9 of which are negative was .88. The scale consists of 6 sub-dimension: love, habit, necessity, desire, effect and benefit. As a result of confirmatory factor analysis on the data, it was found that the fit indices were good (IFI=.82, CFI=.81, SRMR=.08). The Cronbach Alpha internal consistency coefficient of the study was calculated as .78. For this research, the reliability of the scale was found as .80.

The Metacognitive Awareness of Reading Strategies Inventory

In order to measure metacognitive awareness of reading strategies of students, 'The Metacognitive Awareness of Reading Strategies Inventory (MARSİ)' developed by Mokhtarari and Reichard (2002) and adapted to Turkish by Öztürk (2012) was used. The original form of MARSİ consists of three sub-dimensions. The first dimension is 'General Reading Strategy (GRS)' which represents general reading strategies and consists of 13 items. The second dimension is the 'Problem-Solving Strategy (PSS)' consisting of 8 items that point to strategies to solve the problem when the text is difficult to read. The third dimension is 'Supporting Reading Strategies (SRS)' consisting of 9 items that point to supporting strategies, or other necessary strategies that can be defined as functional. Cronbach alpha value for the entire inventory was found as .93. Additionally, the confirmatory factor analysis for the validity of the scale confirms the three-dimensional structure (χ^2 =582.57, sd=39, p<.05), N=.98, χ^2 /SD=1.44, RMSEA=.04, RMR=.05, GFI=.86, AGFI=.85, CFI=.98 and NFI=.94. For this research the reliability of the scale was found as .87.

UF/EMI Critical Thinking Disposition Instrument

'UF/EMI Critical Thinking Disposition Scale' adapted by Ertaş-Kılıç and Şen (2014) was used to determine pre-service teachers' critical thinking disposition levels. The results show that the 25-point scale was consistent with the original three-dimension structure and was consistent with the data (RMSEA=.08, GFI=.84, AGFI=.81, NFI=.91, NNFI=.94, CFI=.94). The obtained Cronbach Alpha internal consistency coefficient is .91 for all scales, .88 for participation sub-size, .70 for cognitive maturation sub-size, and .73 for the sub-dimension of innovation. For this research, the reliability of the scale was found as .90.

Data Collection Process

The data were collected during the spring semester of 2017-2018 academic year. Data collection process consisted of a 2-week period in April 2018. The pre-service teachers were informed about the content of the research. The participants of the study were selected on a voluntary basis. All data of the study were collected by the researcher. Before the data were collected, the data collection process was planned by the researchers and

the data were collected in this direction. In order to increase the reliability of the data collection process, each measurement tool was applied in different course hours.

Data Analysis

Statistical analysis was performed using SPSS, IBM Statistic, and Amos 22. Structural Equation Modeling (SEM) was used to examine the direct and indirect predictor relationships between attitudes towards reading and reading habit, the metacognitive awareness of reading strategies, and the critical thinking tendency. Before the analysis, it was determined that the data showed normal distribution by checking the uniform and multivariate normality of the distribution. Thirty-seven of the data collection tools were left out of the analysis because of some tools marking the same degree throughout the scale. Chi-Square/degrees of freedom (χ^2/SD), Root Mean Square Error of Approximation (RMSEA), incremental fit Index (IFI), Tucker-Lewis Index (TLI), and Comparative fit index (CFI) were analysed for the compatibility of the model obtained from analysis results

Findings

Descriptive and Correlation Statistics

This article investigated the effects of the pre-service teachers' attitude towards reading and reading habit on the critical thinking tendencies, and the metacognitive awareness of reading strategies on the critical thinking tendencies. The mean and standard deviation values of the studied variables were calculated, and they are presented in Table 1.

Table 1. Reading and reading habits and the metacognitive awareness of reading strategies and critical thinking tendency descriptive statistics

Variables	M	SS	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Attitude towards Reading																
1. Contribution PSD	82.30	11.94														
2. Interest and L	47.85	12.56	.314**													
3. Importance/FV	18.65	4.07	.426**	.036												
Attitude towards Reading Habit																
4. Love	29.80	4.82	.305**	.058	.152*											
5. Habit	51.53	11.25	.343**	.365**	.271**	.078										
6. Necessity	14.68	2.38	.332**	.332**	.065	.259**	.204**									
7. Desire	12.60	2.30	.628**	.183**	.442**	.332**	.329**	.302**								
8. Effect	16.70	3.04	.679**	.149*	.320**	.347**	.226**	.306**	.732**							
9. Benefit	34.56	6.29	.686**	.199**	.251**	.430**	.198**	.340**	.720**	.867**						
Metacognitive Awareness of Reading Strategies																
10. General RS	32.34	5.36	.415**	-.089	.354**	.121	.167*	.010	.320**	.272**	.246**					
11. Problem SS	31.16	4.10	.523**	-.038	.314**	.182**	.244**	.038	.436**	.385**	.378**	.686**				
12. Supporting RS	49.25	6.74	.446**	-.109	.380**	.182**	.251**	.034	.372**	.321**	.291**	.772**	.765**			
Critical Thinking Tendencies																
13. Participation	39.94	5.71	.447**	.094	.404**	.165*	.170*	.137*	.366**	.356**	.360**	.329**	.366**	.361**		
14. Cognitive M	27.58	4.40	.341**	.143*	.319**	.100	.082	.122	.208*	.229**	.241**	.285**	.266**	.247**	.751**	
15. Innovation	27.50	4.30	.354*	.163*	.336*	.135	.106	.114	.305**	.296**	.340*	.289**	.277**	.250**	.824**	.744**

* $p < .05$ ** $p < .01$

Büyüköztürk (2006) indicates that the level between 0-0.29 is low, 0.30-0.69 is moderate, and 0.70-1.00 is high regarding the relationship between the two variables. When Table 1 is examined, low-level and negative directional relationships; in the attitude towards reading with love and interest dimensions, and between the dimensions the metacognitive awareness of reading strategies and the attitude towards reading habit were revealed. Moreover, low, medium, and high level and positive directional relationships were detected among other variables. The average score obtained from the scale was found 82.30 for contribution to personal and social development, 47.85 for interest and love, 18.65 for important/finding valuable, 29.80 for love, 51.53 for habit, 14.68 for necessity, 12.60 for demand, 16.70 for impact, 34.56 for benefit, 32.34 for general reading strategy, 31.16 for problem-solving strategy, 49.25 for support of reading strategies, 39.94 for participation, 27.58 for cognitive maturity, and 27.50 for innovation.

Findings on the Hypothesis of the Study

Fit index types, good and, acceptable, fit values obtained from the model and resources are shown in Table 2.

Table 2. Fit index types, good, acceptable, modeling fit values and resources

Fit Index Types	Good Fit Values	Acceptable Fit Values	Modeling Fit Values
χ^2/sd	$0 \leq \chi^2/sd \leq 2$	$2 \leq \chi^2/sd \leq 3$	$0 \leq 2.441 \leq 3$
p	$.05 < p \leq 1.00$	$.01 \leq p \leq .05$.000
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$.08
CFI	$.97 \leq CFI < 1.00$	$.95 \leq CFI < .97$.92
IFI	$.95 \leq IFI < 1.00$	$.90 \leq IFI < .95$.92
TLI	$.95 \leq TLI < 1.00$	$.90 \leq TLI < .95$.90
PGFI	$.95 \leq PGFI \leq 1.00$	$50 \leq PGFI \leq .95$.61

Structural equality modeling was used to determine the relationships between their attitudes towards reading and reading habit, the metacognitive awareness of reading strategies, and the critical thinking tendency. When we examined the harmony indices for the model, Chi-square value ($\chi^2 = 205.026$, $SD = 84$, $p = 0.00$) was found to be meaningful. The Chi-square value and the degree of freedom were also found to be appropriate ($\chi^2/SD = 2.441$). The $\chi^2/SD \leq 3$ means acceptable fit values (Schermelleh-Engel et al, 2003). The CFI value is .92, the IFI value is .92, the TLI value is .90, the PGFI value is .61 and the RMSEA value is .08. These values indicate that the model's fit indexes are acceptable. CFI, IFI, TLI, RMSEA and PGFI (Baumgartner & Homburg, 1996; Meyers et al, 2006; Schermelleh-Engel et al, 2003) indicate that the model's fit indexes are acceptable. For structural equality modeling, Path Coefficients are shown in Figure 2.

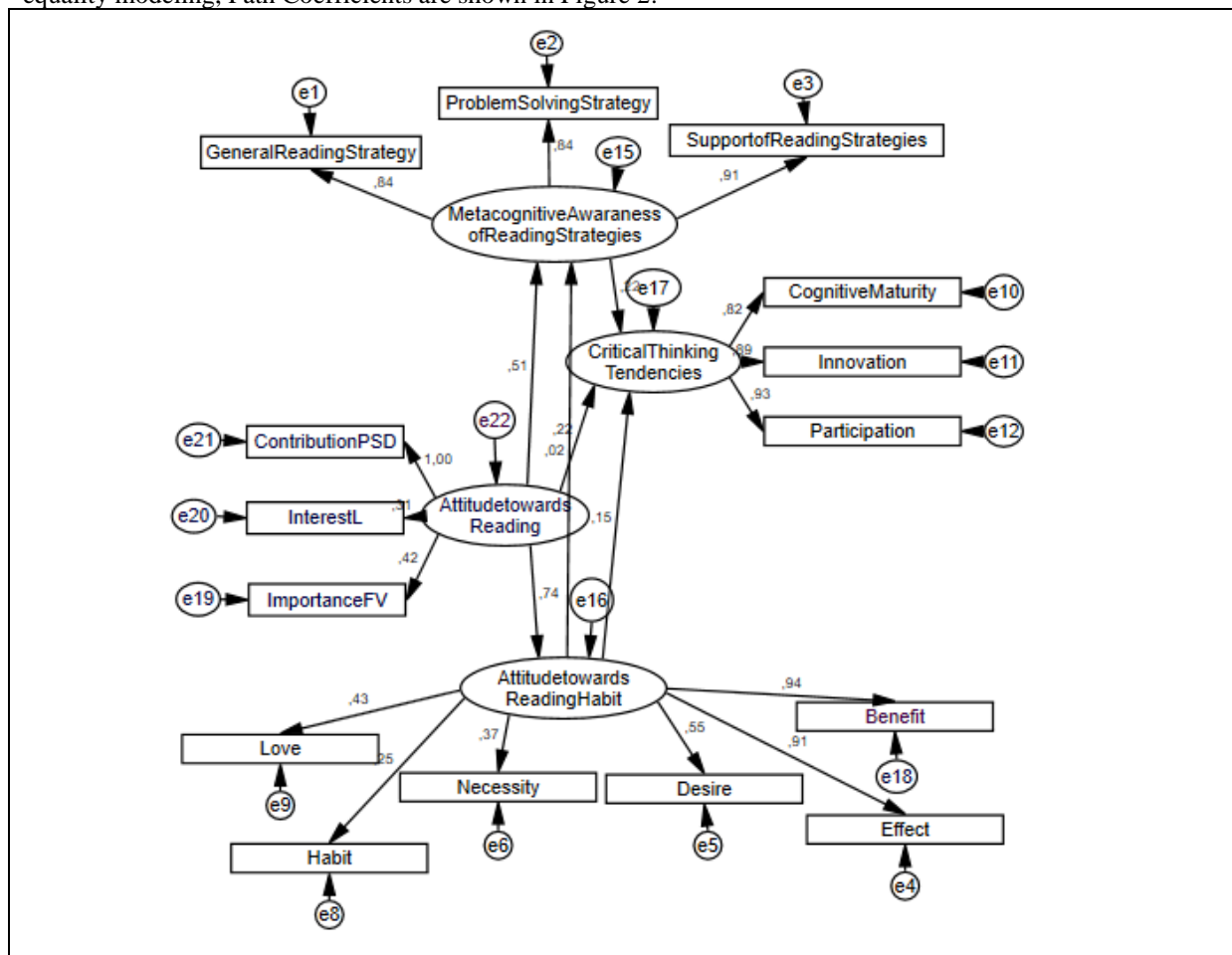


Figure 2. Path coefficients for structural equality modeling

Figure 2 shows that the attitude towards reading is a meaningful and positive directional predictor of the attitude towards reading habit ($\beta = .74$, t value = 6.02, $p < .01$) and metacognitive awareness of reading strategies ($\beta = .61$, $t = 3.63$, $p < .01$). The attitude towards reading is a positive predictor of critical thinking tendency ($\beta = .22$, $t = 1.83$, $p > .05$). The attitude towards reading habit is a positive directional predictor of metacognitive awareness of reading strategies ($\beta = .02$, $t = 2.12$, $p > .05$) and critical thinking tendency ($\beta = .15$, $t = 1.98$, $p > .05$). It has been

determined that the metacognitive awareness of reading strategies is meaningful and positive predictors of the critical thinking tendency ($\beta=.22$, $t=2.68$, $p<.05$). Sobel Test was carried out to determine the mediation effects. Given the attitude towards reading's influence on critical thinking tendency, it was determined that the mediation role of the attitude towards reading habit was not meaningful (sobel $z= 1.27$, $p>.05$), and the mediation role of the metacognitive awareness of reading strategies was meaningful (sobel $z= 3.35$, $p<.05$). Given the attitude towards reading habit's influence on critical thinking tendency, it was determined that the mediation role of the metacognitive awareness of reading strategies was meaningful (sobel $z= 3.06$, $p<.05$).

The results of the structural equation model are presented in Table 3.

Table 3. Standardized regression weight results of the effects of independent variables on the dependent variable

Independent Variables	Intermediary Role	Dependent Variables	Road Coef-ficient β	Stan-dard Error (S.E.)	Critical Rate (C.R.)	Signifi-cance (p)	Result
Attitude towards reading		Attitude towards reading habit	.74	.19	6.02	***	Acceptance
Attitude towards reading		Metacognitive awareness of reading strategies	.51	.36	3.63	***	Acceptane
Attitude towards reading		Critical thinking tendency	.22	.24	1.83	.066	Rejection
Attitude towards reading habit		Metacognitive awareness of reading strategies	.02	.21	.12	.901	Rejection
Attitude towards reading habit		Critical thinking tendency	.15	.14	1.35	.175	Rejection
Metacognitive awareness of reading strategies		Critical thinking tendency	.22	.06	2.68	.007	Acceptance
Attitude towards reading	Metacognitive awareness of reading strategies	Critical thinking tendency	.22			.000	Acceptance
Attitude towards reading habit	Metacognitive awareness of reading strategies	Critical thinking tendency	.004			.000	Acceptance
Attitude towards reading	attitudes towards reading habit	Metacognitive awareness of reading strategies	.01			.000	Acceptance

Table 3 shows that the hypotheses are accepted the attitude towards reading is a positive and significance directional predictor of the attitude towards reading habit and metacognitive awareness of reading strategies. The hypothesis is accepted that the metacognitive awareness of reading strategies is positive, and significance predictors of the critical thinking tendency. The hypothesis is accepted that the attitude towards reading influences the critical thinking tendency in a positive and significance way over the metacognitive awareness of reading strategies. The hypothesis is accepted that the attitude towards reading habit influences the critical thinking tendency in a positive and significance way over the metacognitive awareness of reading strategies. The hypothesis is accepted the attitude towards reading influences the metacognitive awareness of reading strategies in a positive way over attitudes towards reading habit.

Discussion and Conclusion

According to these findings, the attitude towards reading was a positive and significant effect on the attitude towards reading habit. This finding is consistent with the outcomes of some studies in the literature. In the study conducted by Baki (2017), it was seen that reading habits were positively and significantly predicted by the attitude towards reading and these results were statistically significant. In the study conducted by Balcı et al. (2012), it was determined that the attitudes of the students towards reading differed significantly in favour of the students who said "yes" according to the variable of time to read the book. In the study conducted by Demir (2015), a positive-directional relationship was found between attitude towards reading and reading habits. The other hypothesis accepted in the study is that the attitude towards reading tends to have a positive and significant effect on metacognitive awareness of reading strategies. Research findings are consistent with the outcomes of some studies in the literature. In the study conducted by Aslan (2007), a significant relationship was found between attitude towards reading and strategies for monitoring comprehension at reading skills courses.

One of the other findings of the study was that attitudes towards reading positively predicted critical thinking but this effect was not significant. The research findings are consistent with the research conducted in order to positively predict the critical thinking. In a research conducted by Koçak et al. (2015), it was observed that there was a low-level, positive and significant correlation between pre-service teachers' critical thinking levels and their attitudes towards reading. As a result of the fact that digital media has reached to the ends of the earth, it has become necessary to develop critical reading skill in order to keep up with the conditions of contemporary

world (Arslan, Çelik & Çelik, 2009; Çifçi, 2006). “Positive reading habits to be gained at basic education levels will play an indispensable role in upskilling critical thinking skill, bringing up individuals who can augment and transform into production what he gets through reading” (Çifçi, 2006, p.78). Freire, Macedo and Donaldo (1987) stated on this subject that writing, speaking, and reading skills are the primary and indisputable focus of critical thinking. On the other hand, readers who use reading strategies are qualified as good readers, and they are the individuals who show a positive attitude towards reading, and whose reading comprehension levels are high. It was also found in the present study that the intermediary role/effect of metacognitive awareness on reading strategies was significant for the effects of attitude towards reading on critical thinking tendency.

Other established hypotheses in the research was that attitudes toward reading habits had a significant positive effect on metacognitive awareness of reading strategies and tendency to think critically. According to the findings, attitudes toward reading habits was meaningless but positive effected on metacognitive awareness of reading strategies and critical thinking tendency. It was found that the metacognitive awareness of reading strategies' intermediary role effect was meaningful to determine the effect of the attitude toward reading habit on the critical thinking tendency. In the study conducted by Gökkuş and Delican (2016), a moderate, positive, and meaningful relationship was found between pre-service teachers' attitudes towards critical thinking and attitudes towards reading habits. In the research conducted by Gündüz (2015), a meaningful and positive relationship was found between the number of books read and critical reading skills. In the study conducted by Susar-Kırmızı et al. (2014), there was a low scale, positive and significant relationship between scores of pre-service teachers' critical thinking tendencies and scores of a reading subscale defined as "The meaning and indispensability of the book reading habit". In the survey conducted by Görücü (2014), it was found that the scores of students' critical thinking tendency were originated from reading 15 or more books according to the number of books read in a year. In the study conducted by Ogurlu (2014), it can be said that there was a significant difference in the critical reading scores of the participants in favour of the readers between 51 and 101 and above. In the study conducted by Bulgurcuoglu (2016), a significant and positive correlation was found between pre-service teachers' attitudes towards the reading habits and their critical thinking tendencies. Batur et al. (2010) point out that today reading is held equivalent to have a job, but, in particular, it is an intellectual activity and that the functions of understanding the problems of life, analysing, synthesizing, and evaluating are overlooked. As a matter of fact, in the survey conducted by Iscan, Arıkan and Küçükaydın (2013), most of the students said that their grandparents did not read books to them in the preschool period and 56% of the students said they did not discuss the books that they read with their friends and teachers. In this respect, it is expected that the attitude towards reading habits will be developed from the pre-school period and new information will be produced by discussing the information read for the development of critical thinking skills reflecting the skills of inquiry, analysis, synthesis, and evaluation which are related to the students' in-depth understanding skills.

One of the other hypotheses established in the study was that metacognitive awareness of reading strategies has a significant and positive effect on the critical thinking tendency. Research findings were consistent with researches. In the study conducted by Hosseini et al. (2012), there was a significant and positive correlation between metacognitive awareness of reading strategies and critical thinking tendencies of undergraduate students by 78%. In the study conducted by Karabay (2015), there was a significant difference in favour of the group to which the critical reading program was applied in the metacognitive reading levels of the participants. Karasakaloğlu et al. (2012) found that there was a significant and positive correlation between pre-service teachers' metacognitive awareness of reading strategies and their critical thinking tendency. A significant relationship between pre-service teachers' critical thinking tendencies and their cognition-sourced learning approaches and styles was found in the researches conducted by Beşoluk and Önder (2010) and Semerci and Elaldı (2014). In the study conducted by Mohammadi et al. (2012), there was a significant positive correlation between participants' levels of reading strategies and their critical thinking tendencies. Parson (1985) examined the effect of metacognitive strategy training on critical reading skills and found that there was a difference between the critical reading scores of the experimental group that received cognitive strategy training and the control group that did not receive it, but this difference was not statistically significant. In the research conducted by Demir and Kaya (2015), while pre-service teachers' critical thinking total scores showed a meaningful relationship with the evaluation, organization, and cognitive awareness total scores in a negative way, it showed a positive relationship with searching for truth, open mindedness, analyticalness, systematicity, self-confidence, and curiosity scores. Researchers found that individuals used reading strategies in the critical thinking process. For example, in the survey conducted by Karabay (2015), while the pre-service teachers were critically reading, they used the strategies of controlling understanding and evaluating. In this study, pre-service teachers stated that purpose and target groups were defined by the text, they used the strategy of controlling understanding by analysing the similar and different sides of their preliminary information and the information in the text. They also stated that they made assessments according to fact whether the author's ideas were based on credible data, the consistency within the text, and the different perspectives. Both making sense of reading

and effective use of metacognitive skills bring with critical thinking which is another high-level thinking skill. The individual examines the alternatives and generates ideas about possible outcomes before moving on. He advances by making step-by-step assessments in every kind of intellectual action (Karasakaloğlu et al., 2012).

Suggestions and Limitations

In the light of the findings obtained in the research, some suggestions were made:

- First, the sample of the study was limited to 206 pre-service students. In order to generalize the findings of the research, pre-service teachers who study at different universities and departments should be studied.
- 21% of the critical thinking tendency of pre-service teachers is explained by reading, attitude towards reading and metacognitive awareness of reading strategies. From this conclusion, the effects of other variables affecting the tendency of critical thinking can be researched by fixing this limitation with other affective variables to be included in the model. Therefore, it is seen that there is 79% of the unexplained part. From this conclusion, the effects of other variables affecting the tendency of critical thinking can be researched by fixing this limitation with other affective variables to be included in the model.
- The tendency of critical thinking can also be studied within the related literature, including affective variables such as reading anxiety, motivation, and self-efficacy in different samples.
- The current study was carried out using cross-sectional data. The findings do not allow for a causal conclusion. Therefore, replications with a longitudinal design are needed. Experimental studies can be made that explain the cause-and-effect relationship between variables by revealing the indirect effects of the attitude towards reading and reading habits on the critical thinking tendency.
- As a result of the research, it has been seen that the attitude towards reading and the metacognitive awareness of reading strategies have an important influence on the critical thinking tendency. Particularly from primary school where reading skills are gained individuals should be provided with this skill to develop positive attitudes. However, education on reading strategies should not be overlooked.
- Individuals who do not use reading strategies cannot question what they read and cannot produce deep meaning. Therefore it is important to direct the students to use reading strategies from primary school to the higher education.

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