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ORIGINAL ARTICLE

THE METACOGNITIVE READING STRATEGIES OF STUDENTS: A RESEARCH SCHOOL OF PHYSICAL EDUCATION AND SPORTS AT ANADOLU UNIVERSITY

Abstract

The aim of this study was to investigate the metacognitive reading strategies of Physical Education and Sports School students at Anadolu University in terms of several variables. The research group was created from 416 Anadolu University Physical Education and Sports School students. The data was gathered using a “Metacognitive Reading Strategies Questionnaire”. Data analysis was conducted through descriptive statistics, t-test and ANOVA. According to the findings, this study revealed that students often used metacognitive reading strategies as well as analytical strategies and sometimes used pragmatic strategies. The levels of metacognitive reading strategies students used didn't differentiate according to gender and grade levels, but differentiated according to departments. The analytic strategies didn't differentiate according to gender and grade levels for all students, but differentiated according to departments. The pragmatic strategies didn't differentiate according to gender however, differentiated according to departments and grade levels.

Keywords: Metacognition, metacognition reading strategies, analytical and pragmatic reading strategies

INTRODUCTION

Metacognition which is one of the three components of information processing theory has an important place in terms of cognitive processes and their control including information about the learning process. The most general definition of metacognition is defined as thinking about the process of thinking (Anderson, 2002). Flavell used upper memory (metamemory) in a study conducted in the mid 1970s, based on advanced memory capabilities of children and this concept was thereafter brought to literature (Karbalaie, 2010). Developing the work in 1979, Flavell re-established his theory including the metacognition (Özsoy, 2008). Various definitions of the concept of metacognition are reached in the relevant literature.

Metacognition of Flavell (1979), is identified as mobilizing the ability of someone to understand, to control and to learn at the highest level of cognitive processes. Baker and Brown (1984) discussed the two categories of metacognition: knowledge about cognition and regulation of cognition. Information about cognition takes into account strategies that enable the success of one's own cognition and the latter focuses on the evaluation of cognitive processes of self-regulation (Baker and Brown, 1984).

Wenden (1998) implies that metacognitive knowledge involved in obtaining all facts about the students' own cognitive processes, on the other hand metacognitive strategies are skills to plan the students' learning activities, to monitor and to assess. Kuhn (2000) identified metacognition as increasing the control of the upper strategies that aim to control the implementation of strategies that you know, what you believe and how metacognitive awareness and a significant improvement in the process of new knowledge and educational strategies.

Metacognition is the learner's own information processing system and the ways of learning (Senemoğlu, 2003). When students have the metacognitive strategies, they specialize in the field of learning and also gain the ability to think independently by reviewing their own learning strategies and mental processes. Paris and Winograd (1990) asserted that metacognition would increase students' motivation and could improve academic achievement. Metacognition provides personal understanding of the idea that one has and supports independent learning. In this regard, metacognition is regarded as an important variable in reading activities.

It is very important that students read a text and understand texts in terms of lifelong learning skills. Individual's understanding of the texts they read, interpreting them, making analysis and evaluating is essential for the process of effective and high quality reading. As far as the main purpose of reading is the communication between reader and ideas, students should have the skills and strategies which are necessity for getting information from printed sources (Collins and Cheek, 1999). According to Cohen (1990), reading strategies are the mental processes that the reader chose to use its ability to achieve what he read. Harris and Hodges (1995) defined the reading strategy as "a systematic plan that a person uses deliberately to increase learning performance (Supancic, 1995). In the process of reading comprehension, reading strategies that student uses, metacognition and metacognitive awareness are very important.

In schools, students rarely read about what analysis, synthesis and evaluation are required. As a result, thinking skills don't increase for more complex processes (Collins and Cheek, 1999). Also, according to research carried out in the classroom, when college students are expected to choose a variety of texts, to organize and interpret key ideas, it is emerged that they had difficulty (Pressley and Blocks, 2002). In this case, students studying at the university fulfill their level of development skills is very important for their academic success. College level reading activities are performed with the aim of comprehending the course texts and learning theoretical knowledge. Still a reading event at this level means "the ability to read between the lines and critical thinking" (Shelton, 2006). In other words, students at college-level are required to understand the course texts they read to be well aware of reading comprehension processes and to follow these processes. College students reading texts both domain knowledge and the general cultural level may exhibit higher comprehension and recall performance due to a number of strategies they use during reading. The research refers more to low-skill that may increase the readers' metacognitive awareness of reading strategies and that these strategies can be taught by teachers (Shelton, 2006).

During the university education, the necessity of reading and understanding the text containing a variety of concepts in different areas increases the necessity of comprehension. The difference in reading at high school and later at college-age is that college students read with less support and guidance and, are not in a position themselves to remember and understand (Simpson and Nist, 2002). Therefore it is especially important for college-age individuals to be effective individuals responsible for their own learning and be efficient during their educational lives. In this context, university students learn from the course text

and acquire the means to facilitate the process of becoming aware of the cognitive strategies that will enrich their educational lives and be very important in terms of being successful.

Analyzing literature, many researchers conducted studies in the recent years on determining metacognitive reading strategies. A large number of relational studies were made in this direction. The topics of the related studies are the link between metacognitive reading strategies and the various variables. The studies were made on different students of different education levels specially higher education levels like primary school teacher students, Turkish teacher students, and foreign teacher students. Also additional studies have been done using metacognitive reading strategies on students having difficulties in learning foreign languages and students having reading difficulties (Babacan, 2012; Başaran, 2013; Ateş, 2013; Çeçen ve Alver, 2011; İnceçay, 2013). Having known about the importance of the reading strategies and their impact on learning, and considering that presently no research has been done in relation to metacognitive reading strategies of Physical Education and Sports School students studying the departments executed courses not only theoretical but also practical, this research serves as the focus of the present study.

The aim of this study was to investigate the metacognitive reading strategies of Physical Education and Sports School students at Anadolu University in terms of gender, departments and grade levels.

MATERIAL AND METHODS

Participants

Four-hundred and sixteen students from first, second, third and fourth grades of the Physical Education and Sports Teacher Training, Recreation, Coaching and Sport Management Program within the School of Physical Education and Sports of Anadolu University, participated in this study. The data were gathered during 2012-2013 Academic Year.

Data Collection Tool

Data were collected by means of “Metacognitive Reading Strategies Questionnaire (MRSQ)” which was originally developed by Taraban, Kerr and Rynearson (2004), and later translated into Turkish by Çöğmen (2008) in Turkey.

Scaling factor measures metacognitive strategies which university-level students use when they read and study. The scaling factor of reading strategies being 5 graded Likert type consist of 22 items. 1-16. items of the scale constitute analytical strategies and 17-22. Items constitute pragmatic strategies. Analytical strategies substances in size refer to metacognitive strategies which students use while they are reading. Items in the format of pragmatic strategies refer to practical strategies for remembering.

Students are required to rate themselves between 1 to 5 points for each item: 1. "I never use it", 5. "Every time I use it". The level of using the metacognition strategies intervals is calculated using the formula $(n-1)/n$. As a result of the calculation, the gap width between 1 and 5 was found to be 0.8. The level of students usage of strategy is evaluated and interpretation is made in this direction: "Every time I use", if found arithmetical average located between 4.20-5.00, if it's between 3.40-4.19 "I use frequently", 2.60-3.39 "I rarely use", 1.00-1.79 "I never use". The highest score is 220 and the lowest score is 110 on the scale. The highest score that can be taken from the sub-dimensions of the scale is 80, the lowest score is 16; the highest score that can be taken from pragmatic strategies is 30, the lowest score is 6.

Inventory were applied to 450 females and 276 males, a total of 726 students who were studying at different departments of Pamukkale University Faculty of Education in the 2007-2008 academic year. Cronbach Alpha internal consistency coefficient are calculated .81 for the whole scale, .78 for the size of analytic strategies and .82 for the pragmatic strategies subscales.

In this study, consequence of repeated analysis of the reliability of the scale is determined ".90", respectively. Since this value is a higher than ".70" standard which is adequate for research, it was concluded that that scale can be used in research as a whole (Kalaycı, 2008). As well, the scale subscales reliability coefficients are determined for the size of analytic strategies is .88 and for the size of pragmatic strategies is .81. All of the required scale, as well as the size of the alpha value shows that the scale is reliable for determining the level of metacognitive reading strategies of students of Physical Education and Sports School.

Analysis

After implementing as planned the data collection tool used in the study of students, responses to scale have been reviewed individually by the researcher. There were a few scales left unmarked or left blank. They were left outside the scope of the assessment. Before beginning the analysis of data related to the study of statistical methods to determine compliance with the SPSS program have analyzed the distribution of the data, the distribution of the kurtosis and skewness were studied. Even though in the literature there are no standard values certain accepted, when the normal skewness and kurtosis values are ± 2 and ± 7 intervals, Chou and Bentler (1995) and Curan, West and Finch (1996) stated they show normal distributions. A normal distribution is a cluster that each of which may be defined by a mean and standard deviation of the distribution.

When the Physical Education and Sports School students' Metacognitive Reading Strategies Questionnaire scores are analyzed in terms of kurtosis and skewness, Chou and Bentler (1995) and Curan, West and Finch (1996) stated that the kurtosis and skewness of the data showed a normal distribution according to the values they said (see to Table 2). After analysis of the distribution of data, of the tests to be used in order to decide whether the examined homogeneous (Levene > 0.05), it is determined that the data are homogeneous.

This study employed statistical calculations (mean, standard deviation, T-Test, one way ANOVA) in measuring the rate of use of reading strategies of the participants. The T-Test is used to compare the differences between the two means, and ANOVA is used to compare three or more means. In this present study, male and female participants' use of reading strategies was compared by making use of the independent samples T-Test. As there are participants belonging to different levels, one-way ANOVA was used to determine the significant differences between the groups indicated.

RESULTS

Table which is showing about the personal characteristics of students participating on research's findings are given below.

Table 1: Personal Characteristics of Students (n = 416)

Personal Characteristics	N	%
Gender		
Male	298	71.6
Female	118	28.4
Departments		
Physical Education and Sports Teaching	143	34.4
Sports Management	77	18.5
Coach Training in Sports	113	27.2
Recreation and Sports	83	20.0
Grade Levels		
1st class	109	26.2
2nd class	119	28.6
3rd class	67	16.1
4th class	121	29.1

As seen in Table 1, 28.4% of the students in the research of the study population were female, 71.6% are male. As regards students studying their departments, Physical Education and Sports Teaching Department students consist of majoring 34.4%, Coach Training in Sports Department students consist of 27.2%, Recreation and Sports Department students consist of 20.0% and Department of Sport Management students consist of 18.5% of all population. Education in relation to the grade levels, 26.2% is for freshman, 28.6% is for sophomores, 16.1% is for third graders and 29.1% is for fourth grade students population of rate involved in the study.

Table 2: The Metacognition Reading Strategies of Students Usage Levels (n = 416)

	M	Sd	Level	Skewness	Skewness Std. Error	Kurtosis	Kurtosis Std. Error
Analytic Strategies	3.44	.63	I often use it	-,111	,118	-,316	,236
Pragmatic Strategies	3.37	.75	I sometimes use	-,177	,118	-,262	,236
Total	3.42	.61	I often use it	-,094	,118	-,329	,236

As can be seen from Table 2, participants frequently use analytical strategies, and sometimes use pragmatic strategies. Accordingly, they frequently stated that they use largely strategies which are in items of the scale of the analytic strategies sized such as; "I try to remember earlier topics to help me understand what I read" or "I think other comments also after reading to decide if I understand the text or not". In a similar manner, they stated that they use some strategies which sized on the pragmatic strategies also, such as; "I take notes

and write some questions to understand to text better while I am reading” or "I underline with colored pencil or draw over them to find the location easy while I am reading important information”. Also it is said when they evaluate the whole scale, students use these strategies while they are reading to their reading comprehension.

Table 3: The Metacognition Reading Strategies Levels according to genders of students (n = 416)

		N	M	Sd	t	df	P
Analytic Strategies	Female	118	3.55	.71	-2.02	414	.05(>.05)
	Male	298	3.40	.59			
Pragmatic Strategies	Female	118	3.46	.85	-1.29	414	.20(>.05)
	Male	298	3.34	.71			
Total	Female	118	3.52	.71	-1.92	414	.06(>.05)
	Male	298	3.38	.56			

According to the values in Table 3, there is no significant difference between in using male and female students’ levels of analytical strategies statistically ($p > .05$). There is no significant difference in levels of male and female students in using pragmatic strategies ($p > .05$). When assessed the whole scale, there is no statistically significant difference in using level of reading comprehension strategies students according to gender ($p > .05$). Considering the average, it can be said female students use reading comprehension strategies more frequently than male students.

Table 4: The Metacognition Reading Strategies Levels according to departments of students (n = 416)

Source of Variation		df	Sum of Squares	Mean Squ.	f	P
Analytic Strategies	Between Gr.	3	5.537	1.846	4.78(>1)	.00(<.05)
	Within Gr.	412	158.923	.386		
	Total	415	164.459			
Pragmatic Strategies	Between Gr.	3	14.464	4.821	9.00(>1)	.00(<.05)
	Within Gr.	412	220.689	.536		
	Total	415	235.153			
Total	Between Gr.	3	7.156	2.385	6.72(>1)	.00(<.05)
	Within Gr.	412	146.187	.355		
	Total	415	153.343			

According to the findings in Table 4, Physical Education and Sports School students' reading comprehension strategies which they use analytically and pragmatically don't differ from their education segment ($p < .05$). In addition, it shows a statistically significant difference in their reading comprehension strategies according to their departments when it is assessed the whole scale ($p < .05$).

Table 5: The Metacognition Reading Strategies Levels according to grade levels of students ($n = 416$)

Source of Variation		df	Sum of Squares	Mean Squ.	f	p
Analytic Strategies	Between Gr.	3	1.757	.586	1.48(>1)	.22(>.05)
	Within Gr.	412	162.702	.395		
	Total	415	164.459			
Pragmatic Strategies	Between Gr.	3	5.629	1.876	3.37(>1)	.02(<.05)
	Within Gr.	412	229.524	.557		
	Total	415	235.153			
Total	Between Gr.	3	2.487	.829	2.26(>1)	.08(>.05)
	Within Gr.	412	150.856	.366		
	Total	415	153.343			

According to the findings in Table 5, there is no statistically significant difference according to grade levels in students in reading comprehension strategies which Physical Education and Sports School students use ($p > .05$). In addition, when assessed the whole scale, there is no statistically significant difference according to students' grade levels in reading comprehension strategies which they use ($p > .05$). However, it is revealed a statistically significant difference in pragmatic reading comprehension which students use according to their grade levels ($p < .05$).

DISCUSSION AND CONCLUSIONS

This study aimed to explore the metacognitive reading strategies of Physical Education and Sports School students at Anadolu University according to gender, departments and grade levels. The results were as follows:

It has emerged that Physical Education and Sports School students use frequently metacognitive reading strategies. Also when taken separately in an analytical and pragmatic

dimension, the strategies which students use are often their analytical strategies; and they use sometimes their pragmatic strategies.

Coming at a similar level of frequency of total students, analytical strategies are interpreted as meaning that they intended to perform the read the course texts as long-term data. It was found that students use less the pragmatic strategies such as highlighting, underlining, and taking notes which facilitate their memories to remember while they are reading the course texts when compared with the analytical strategies.

In various studies conducted to determine the reading comprehension strategies which students used, it has been observed that they use these strategies in the middle or upper intermediate levels. One of these studies was conducted in 2004 by Berkowitz and Cicchell. In Berkowitz and Cicchell's studies, they compared with metacognitive strategies which were used by gifted students and middle school students who were expected being successful and not in terms of differences and similarities they had or not. In conclusion, it has been revealed that all students who are included in the survey are aware of the whole reading comprehension strategies and they introduce yourselves as middle level of strategies users. Another study was carried out in 2006 by the Muhtar. According to the research made by Muhtar, it has been found to moderate of the students in the study group overall use of language learning strategies. Similarly, in research of Bedir (2002) with high school preparation students, it is observed that metacognitive strategies are used within the highest frequency (Muhtar, 2006). In study of Vianty (2007), mother tongue analytical strategies are more preferred by university students. Survey made by Çöğmen (2008) reflects the level of using metacognitive reading comprehension strategies used by students who were student at faculty of education to range of "often use" on literature. Also, in Babacan's research (2012) about classroom teachers it was frequently seen the working group students' analytical and pragmatic reading comprehension strategies. In addition, it is seen the arithmetic mean of the total scale of the 'I often use the' range. The findings from this research support the findings of the present study. At the end of this studies, it can be said that pragmatic strategies is a point of beginning in stages such as more challenging, in-depth inferences. There for, these strategies are more appropriate on simple level readers. However, it can be said that analytical strategies is preferred by students using the strategies required to understand more in-depth, to make evaluations, to make inferences. It is observed that students who participated in the study prefer to use analytical strategies requiring high-level skills in reading comprehension rather than pragmatic strategy requiring very basic skills.

When it is examined the Physical Education and Sports School students' using the level of metacognitive reading strategies according to their gender, No significant difference was observed. In addition, when considered students according to gender strategies, analytical and pragmatic in the same case, there isn't any significant difference. These findings obtained from this study are consistent with the result of Oluk and Başöncül (2009) have done the research reputation of the reading strategies that students use when reading any type of strategy and genders.

When the averages were analyzed in this study, it is seen that female students use reading comprehension strategies more frequently than men. These results obtained from this study are similar to the results of various studies. Tone of these researches was carried out in 2011 by Tuncer. Tuncer's research results revealed that female students use the metacognitive reading strategies more frequently than male students. Similarly, In most research which were evaluated the gender according to the strategies students use by Moss (2000), Rudell (2000), Rothman (2002), Phakiti (2003) and Çöğmen (2008) has been observed that women use reading strategies more than men. Coleman (1997) refers to this difference like that: According to Coleman, when women are compared to men, they have a more integrative motivation. In addition, women have more positive attitudes in using strategy against the broad framework and more positive toward learning exhibits. Since female students have been exhibit a positive attitude in their academic achievement and the community recognition of such achievement, it might help explain the difference between the averages found in the study on the use of the metacognitive reading strategies.

When evaluated in terms of departments of Physical Education and Sports School students, it is seen that the difference between levels of using strategies are significant. In addition, it was revealed when examined separately, analytical and pragmatic strategies at both levels showed a significant difference segment. This result can be due to the different topics of the lessons in the department and the common lessons are mostly practiced lessons. In addition, in physical education and sports teaching department's and the in sports management department's courses are more complex and severe than in other parts of the courses in the other departments, which shows idea that students develop skills in textual analysis.

There was no significant difference in the use of strategies between the levels of Physical Education and Sports School students at grade levels. When analyzed at grade levels,

analytical and pragmatic, despite the absence of a significant difference in analytical reading strategies, a significant difference in pragmatic strategy was found. Research derived from these findings, Çöğmen (2008) showed those students' analytical strategies in the classroom by the level of significant difference was observed, pragmatic strategies in students' strategy use meaningful differentiation with the result shows parallelism. Reason why first class and second class students in the research group use more pragmatic reading strategies lies in the long process of education before starting university; it leads them to use pragmatic strategies more often to have success. In Turkey students need to pass a very difficult exam to study at the university. To have success in these exams students need to improve their learning strategies by being aware of it or not. Taking into consideration that these exams are based on rote knowledge, first class and second-class university students have to improve pragmatic strategies according to the upper class. According to the findings obtained, the existence of an education system based on multiple-choice exam process is thought to be an important factor explaining differ according to grade levels of pragmatic strategies using physical education and sports students

As a result, this study was conducted with students studying in departments of a college of Physical Education and Sports College of Physical Education and Sports Teacher Coaching, Recreation and Sport Management. It is thought that this study will provide significant contributions to literature by comparing with students of other universities departments of Physical Education and Sports in Turkey and including in other faculty and departments' students. Designed quantitative and qualitative research will improve the scope of work.

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