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Metacognitive awareness of grades 6, 7 and 8 students in reading process

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Abstract

Metacognitive awareness shows diversity from person to person according to their features, such as their language skill levels and age groups. The purpose of the study was to investigate the differences among 6th, 7th, and 8th grades in respect to their metacognitive awareness in the field of reading. The research was conducted using a correlational method. The study group consisted of 101 students from a public school in Kutahya province of Turkey. The result of the study revealed that there was a positive correlation between grade level and metacognitive awareness in reading, but the difference was not statistically significant.
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1. Introduction

Reading is a fundamental skill to acquire information. Children and adults who have limited reading ability encounter difficulties in many areas of their life. To enhance reading ability effectively, it is quite significant to understand the reading process. Reading is not only between reader and text. Instead, as Rubin (1982) stated, reading is a more complex activity that includes different skills. According to Rubin, reading is "the bringing of meaning to and the getting of meaning from the printed page" (p. 8). This definition shows that the experiences, sensations and backgrounds are brought into reading by the readers. Studies which inquire steps of reading indicate that reading is considerably complicated (Palinscar & Brown, 1984) and it is directly related to cognitive structures and even beyond the cognitive structures (Israel, Block, Bauserman & Welsch). Because reading is related to beyond the cognitive structures, metacognitive structures can explain reading process more properly. According to Larkin, (2009) metacognition has the most impact to teach reading to children.

There are multiple meanings of metacognition; in 1979, John Flavell defined the metacognition as "knowledge and cognition about cognitive phenomena" (p. 906). According to Hartman, (1998) metacognition is important because it affects efficiency of learning, problem solving and critical thinking. Metacognitive knowledge focuses upon the strategies used and the tasks we faced (Garner, 1987). Students who use metacognitive strategies will be

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aware of both duty requirements and their own attributes as learners. It means they can select, evaluate and monitor their own strategies. Also, they can realize and correct their mistakes of comprehension such as failure to make causal inferences, failure to parse syntax correctly, and failure to know a key vocabulary word. (Yin & Agnes, 2001).

Metacognition has three functions; awareness, evaluation and regulation. Metacognitive awareness includes knowledge of mental processes. Metacognitive awareness also refers to total knowledge of obtained skills which continuously advance. Metacognitive evaluation implies an individual's thinking procedures, deficiencies and capabilities. When individuals use their metacognitive skills directly for their knowledge and thinking, metacognitive regulation takes place. Metacognitive regulation utilizes individuals' knowledge (about self and strategies, including how and why they use particular strategies) and executive skills (such as planning, self-correcting, setting goals) to use their cognitive roots most properly (Noushad, 2008). According to Borkowski, (1992) in order to choose an appropriate and feasible approach to problem solving, students need to be instructed on how to develop self-regulation skill which enables them to analyze and size up their tasks. Students who are able to use self-regulation are expected to monitor their learning.

Self- monitoring which means what learners do when they use metacognitive skills is a branch of regulation. Good readers monitor their reading behavior and understanding continually, poor readers have a little idea of how to improve their comprehension. Therefore, they are not able to change their strategies if they face more difficult texts (Forrest, Pressley & Waller, 1984). Long and Long (1987) substantiated these findings in their study by comparing the behaviors of more and less successful college readers. More successful readers try to understand events and their relationship with each other, so they know and understand what they have read. While poor readers tend to focus on some details during reading process, so they miss the meaning of the whole text (Gourgey, 1998).

1.1. Metacognition in literacy learning

For psychologists and educators who are interested in learning from text, reading has been an important issue. There have always been theoretical, research and instructional studies which explore reader-text interactions. The theory, which handles knowledge of learners and using of their own cognitive sources, is metacognition. This theory is helpful to describe the reading process especially to illustrate differences among readers from diverse ages and language skill levels (Garner, 1987). For example, Camahalan (2006) applied metcognitive structures and found that "young children do not learn memory strategies as readily as do older children and adults; and they are also far less able to organize material" (p. 78).

Learners, who have better metacognitive skills, are able to understand more effectively what they read. However, it is important to answer if using metacognitive skills show diversity from person to person. According to answer of this question, instructors can determine suitable strategies such as self questioning, using mental imagery, and displaying fix-up strategies for their classes.

There are many studies about metacognitive knowledge and metacognitive strategies. Yin and Agnes (2001) purposed to examine the metacognitive knowledge and use of metacognitive strategies by good and poor readers of the English language in Singapore. In the study, the students were from 9th and 11th grade levels. Also they were selected from two different courses. At the end of the study, Yin and Agnes found that good readers scored significantly higher than the poor readers on the reading comprehension test.

Good readers selected more strategic responses than the poor readers. Thus, the good readers displayed better awareness and knowledge of metacognition. According to the study, although they found some significant differences between same grade's poor and good readers, they couldn't find any statistically significant difference between 9th and 11th grade students.

Forrest, Pressley and Waller (1984) assessed the skills of poor, average, and good readers from 3th and 6th grades in the field of performance and verbalization items such as decoding, comprehension and strategies and developmental factors such as language, attention and memory of reading. They found that younger and poorer readers scored lower on the performance, verbal, and metacognitive measures of reading than older and good readers. They couldn't control the reading strategies and they were not able to assess their comprehension as well as older and good readers.

2. Method

The purpose of the study is to figure out the differences among 6th, 7th, and 8th grades in respect to their metacognitive awareness in the field of reading. The research was conducted using a descriptive method.

2.1 Participants

The study group consisted of students from a public school in Kutahya province of Turkey. In that school, there are four classes for each grade level from 6-8. Our study consisted of one randomly selected class from each grade.

Table 1. Number of participants by grade level

Grade	n	%
6	31	30.7
7	36	35.6
8	34	33.7
Total	101	100

2.2 Instrument

The Metacognitive Awareness of Reading Strategies Inventory (MARSI), which is designed to assess 6th- through 12th grade students' awareness and perceived use of reading strategies while reading academic or school-related materials. MARSI was developed by Mokthari and Reichard (2002). The Inventory consists of 30 items. In order to assess students' metacognitive reading awareness an adopted version was used. During the adaptation of the instrument into Turkish was calculated Cronbach's alpha values of MARSI.

Table 2. Cronbach's Alpha Reliablilities by Grade Level

Grade	Cronbach's α
6	.86
7	.93
8	.78
Whole Scale	.86

Exploratory factor analysis using a common factor model was used to identify potential factors or subscales for the 30-item adopted instrument and to help identify any items that might need to be refined or deleted. The scree plot from the first factor analysis suggested that three factors should be retained.
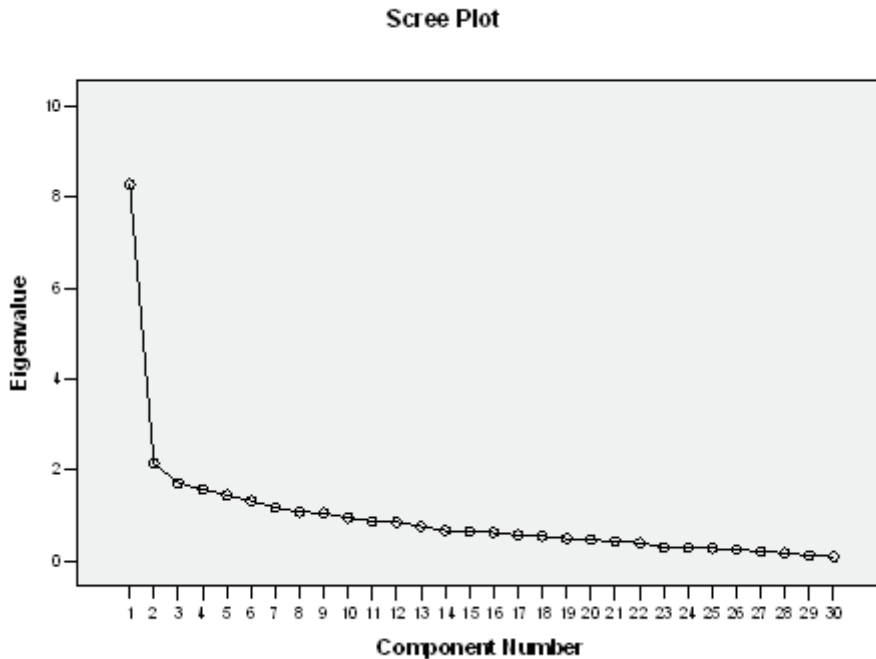
Scree Plot

Figure 1. Scree Plot

A second principal-axis factor analysis was performed using three factors and an oblique Harris-Kaiser rotation. The three factors explained 40 % of the total variance.

The first factor (Global Reading Strategies) contained 13 items and represented a set of reading strategies oriented toward a global analysis of text. The second factor (Problem-solving Strategies) contained 11 items that appeared to be oriented around strategies for solving problems when text becomes difficult to read. The third factor (Support Reading Strategies) contained 6 items and primarily involved use of outside reference materials, taking notes and other practical strategies that might be described as support strategies (Mokthari and Reichard, 2002).

The psychometric data demonstrate that the adopted instrument is a reliable and valid measure for assessing students' metacognitive awareness and perceived use of reading strategies while reading for academic purposes.

2.3. Procedure

The study was carried out during the second semester of 2008. The MARSI was administered to the participants on same day. Participants completed inventory or instrument independently. Data was obtained from instrument then organized into sub-scores and total scores for each sub-scale.

3. Results

Table3. Descriptive Statistics

		n	*M*	*SD*
Factor 1	6.Grade	23	2.92	.705
(GLOB)	7. Grade	31	3.26	.717
	8.Grade	32	3.17	.819
	Total	86	3.13	.757
Factor 2	6.Grade	30	3.23	.637

(PROB)	7. Grade	35	3.58	.968
	8.Grade	31	3.43	.604
	Total	96	3.42	.772
Factor 3	6.Grade	28	3.88	.776
(SUP)	7. Grade	34	4.10	.558
	8.Grade	32	3.78	.909
	Total	94	3.92	.761
Total	6.Grade	20	3.44	.588
(MARSI)	7. Grade	29	3.71	.653
	8.Grade	28	3.53	.710
	Total	77	3.58	.660

MARSI : Metacognitive Awareness of Reading Strategies Inventory; GLOB : Global Reading Strategies; PROB: Problem-Solving Strategies; SUP: Support Reading Strategies.

Table 3 shows 6th, 7th, and 8th grade students' means of MARSI and its subscales. Means indicate that each three grades' students use general reading strategies "sometimes". When we compare the Factor 1 means of these three grades, we can see that 6th grade students' mean (M= 2.92) is less than 7th grade students' mean (M=3.26) and 8th grade students' mean (M=3.17). This finding can be interpreted as general reading strategies such as *determining purpose, using prior knowledge, skimming, using tables and graphs in texts, using clues, analysing information in text with a critical perspective and estimating* are used more frequently in higher grade levels. However, we found out that the mean of the 8th grade is less than 7th grade. The reason of this difference may be the test anxiety. 8th grade students may read fewer academic readings than 7th grades because 8th grade students have to take a high school entrance exam (SBS) and they may focus on this exam instead of academic reading requirements of the grade.

The means of the Factor 2 subscale of 6th grade (M=3.23), 7th grade (M=3.58) and 8th grade (M=3.43) students also show differences in favor of higher grades. This finding can be interpreted that if the students face with a problem while reading a text (*e.g failing to understand the text, failing to focus attention, losing meaning because of the fast reading etc.),* they use some strategies during the reading to solve the problem. Also, they use these strategies more frequently than Factor 1 strategies.

According to the Factor 3 subscale's means of the grades, we can interpret that supportive strategies such as *using references (dictionary etc.), taking note while reading, summarizing, highlighting important sentences, asking questions about the text* are more frequently used in 6th (M=3.88), and 7th (M=4.10) grades.

ANOVA was used to measure if the differences of means (MARSI and its subscales') statistically significant. There is no statistically significant difference between the GLOB scores of 6th, 7th, and 8th grade students [$F_{(2-83)}=1.38$, $p>0.05$]. This finding can be interpreted as the frequency of using general reading strategies do not change in sample groups.

There is no statistically significant difference between the PROB scores of 6th, 7th, and 8th grade students. [$F_{(2-93)}=1.70$, $p>0.05$]. This finding can be interpreted as when students face with a problem while reading a text, the strategies used to solve this problem do not change in terms of grade levels.

There is no statistically significant difference between the SUP scores of 6th, 7th, and 8th grade students. [$F_{(2-91)}=1.56$, $p>0.05$]. This finding can be interpreted as using the supportive strategies do not change in terms of grade levels.

Table 4. ANOVA

		Sum of Squares	df	Mean Square	F	p
GLOB	Between Groups	1,570	2	.785	1.380	.257
	Within Groups	47.200	83	.569		
	Total	48.770	85			
PROB	Between Groups	1.998	2	.999	1.700	.188
	Within Groups	54.629	93	.587		
	Total	56.627	95			
SUB	Between Groups	1.792	2	.896	1.562	.215
	Within Groups	52.184	91	.573		
	Total	53.975	93			
MARSI	Between Groups	.969	2	.485	1.115	.334
	Within Groups	32.184	74	.435		
	Total	33.154	76			

4. Discussion

At the end of the study, we found out that there is no significant difference between 6th, 7th, and 8th grade students in terms of using metacognitive strategies. This finding supports Yin and Agnes's (2001) findings that there is no significant difference between 9th and 11th grade students in terms of metacognitive awareness. On the other hand, in their study Forrest, Pressley and Waller (1984) found that younger and poorer readers got lower scores on the performance, verbal, and metacognitive measures of reading than older and good readers, and according to this study there were statistically differences among them. Younger students weren't able to control the reading strategies and they were not able to assess their comprehension as well as older and good readers.

5. Conclusion and Recommendation

In terms of using GLOB, SUB and PROB strategies, there is a difference between the 6th, 7th, and 8th grades but this difference is not statistically significant. It is observed that 6th and 8th grades students' means are less than 7th grade students' mean when we compare the three factors' means.

Another finding of the study is although there is no statistically significant difference in terms of using supportive reading strategies, this study indicates that lower grade students more frequently use suppotive strategies.

This study was carried out with elementary school 6th, 7th, and 8th grades. Different school levels and larger simple size may give different information.

When some similar researches are done on some different kinds of students, such as successful readers and less successful readers or boys and girls, diffirent results can be found.

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