

# The Role of Meta-Cognitive Awareness of Reading Strategies in the Academic Performance of Students

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**Abstract** – This study aimed to examine the role of meta-cognitive awareness of reading strategies in students' academic performance. This was a correlation study. The population consisted of all undergraduate students of department of education science in Farhangian University. Based on simple random sampling method, 127 cases were selected as sample. The Richard and Mokhtari's meta-cognitive awareness of reading strategies questionnaire was used as research tool. The students' total square average was considered as indicator of academic performance. The results showed that there is a significant relationship between the components of meta-cognitive awareness of reading strategies and academic performance of students. The results of stepwise regression analysis showed that the problem solving strategies and overall reading strategies have the highest proportion in explaining academic performance.

**Keywords** – Meta-Cognitive Awareness, Learning Strategies, Academic Performance of Students.

## I. INTRODUCTION

The learning and study is one of the most fundamental processes of education system. The ineffective learning will lead to economic losses, problems such as frustration, low self-esteem, feelings of inferiority, depression, and lack of full flowering the individual talents and abilities (Shahidi et al., 2005). The problems of higher education systems in continuous education and learning are very noticeable. The results of various studies show that many college students have not had effective and sustainable learning. The academic failure and the resulting social and psychological problems from it are threats to society (Mayo, 1993). The meta-cognitive awareness and understanding is one of the most important factors in determining the behaviors of learning. The psychologists have used meta-cognition term to explain the knowledge and control type of people in their thinking and learning activities (Flavell, 1978, Flavell & Wellman, 1977). The meta-cognition term refers to our knowledge about our own cognitive processes and the method of using them properly to achieve learning objectives (Biehler & Snowman, 1993). For the first time, Harlo (1988) introduced the concept of meta-cognition in a field experiment with monkeys. The meta-cognition is a process in which students are aware of their learning method, the method of using information to achieve the purpose, the ability of judging cognitive processes in a specific task, and the use of strategies to achieve goals, and evaluate their progress during and after the performance. Also Lefranc (1997) argues that the main emphasis of cognitive psychology is on learning how to learn (meta-cognition).

The meta-cognition awareness refers to the knowledge of individuals about their activity, the strategies that can be used to carry out the activities, and the abilities which are related to these strategies (Taylor, 1983). In general, the meta-cognition is necessary as a mechanism for planning, monitoring, and evaluation of thinking process in problem solving (Pintrich, 2002). The research on cognitive and meta-cognitive strategies have shown that the use of these measures will lead to increase in learners' learning (Beckman, 2002). In a study, Rodolico (2002) showed that the learning of learning strategies can have a positive impact on students' educational achievement. In a study, Alexander & Jetton (2000) (quoted by Mokhtari and Richard, 2002) reported that awareness and monitoring the cognitive processes is an important aspect of skillful reading. The readers with efficient strategy are those who regulate cognitive resources in their reading. While, the beginner readers use less the meta-cognitive awareness and ignore the use of meta-cognitive strategies. In their research, Bradford & Steve (2008), Haidar & Rajabi (2008) and Artino (2008) showed a positive relationship between meta-cognition and learning and comprehension. Therefore, understanding the abilities and knowledge of cognitive and meta-cognitive strategies improve learning and academic performance (quoted by Salari Far and Pakdaman, 2009). In a study, Haffman & Spatariu (2008) showed that there is positive relationship between meta-cognition and learning and efficient students use more the cognitive and meta-cognitive strategies and are more successful in problem-solving. In his research, Hall (1999) revealed that providing special education and meta-cognitive strategies enables the students to solve complex problems more quickly. The results of Maleki (2005) study showed that the meta-cognitive strategies enhance the learning of individuals and consequently academic performance. The findings of Salari Far and Pakdaman (2009) showed a positive relationship between the meta-cognition and academic performance. They stated that three components of meta-cognitive state (meta-cognitive awareness, self-monitoring, and cognitive strategy) explain 69% of the variance in academic performance and about 63% of variance in educational performance is explained by meta-cognitive awareness component. In a study entitled "The relationship between meta-cognitive awareness of reading strategies and the students' academic achievement in Isfahan University of Medical Sciences", Javadi et al (2010) showed that all three meta-cognitive awareness components have a significant relationship with the students' academic achievement. The group with average grade over 17 had significantly higher meta-cognitive knowledge (from the different areas of meta-

cognitive awareness, there was strong correlation between problem solving strategy and the students' academic achievement). The present study addresses the following questions:

1. Whether there is relationship between meta-cognitive awareness of reading strategies variable and academic performance of students?
2. Which of the components of meta-cognitive awareness of reading strategies predict better the academic performance?

## II. METHODOLOGY

This was an applied descriptive (non-experimental) correlation study. The population consisted of all undergraduate students of department of education science in Farhangian University in 2013-2014. Using Morgan table and based on simple random sampling method, 127 cases were selected as sample. The Richard and Mokhtari's meta-cognitive awareness of reading strategies questionnaire was used as research tool to assess the meta-

cognitive knowledge of readers and their understanding of reading strategies. The main purpose of this tool is to measure the learner's awareness of various processes related to reading and determine the goals and objectives of learner in reading the scientific texts. The questionnaire is consisted of three scales including Global Reading Strategies (13 items), Problem-solving Strategies (8 items), and Support Reading Strategies (9 items). The measurement scale of this questionnaire is arranged as stratified. The respondents may rank their status in any of the items by five option scale (always to never). For each mean scale, the scores 3.5 or higher mean more favorable condition, averages between 2.5 and 3.4 mean middle condition, and averages lower than 2.4 means unfavorable condition. The Cronbach's alpha coefficient was used to evaluate the reliability (0.89). In this study, the total grades average of students indicates their academic performance index (10- 13 low, 14- 16 medium, 17- 20 high). The Pearson correlation analysis and stepwise regression analysis were used for analyzing the data.

## III. FINDINGS

Table 1: The Pearson correlation coefficient of meta-cognitive awareness of reading strategies and academic performance

Total score	Support reading strategies	Problem-solving strategies	Overall reading strategies	Predictor	Criterion
.436	.361	.410	.398	r	Academic Performance
.000	.000	.000	.000	Sig	
125	125	125	125	N	

The results of Pearson correlation coefficient showed that since the r-value is significant at significance level of  $\alpha=0.05$  in the relationships between Global Reading Strategies and academic performance (with a value of 0.398), Problem-solving Strategies and academic performance (with a value of 0.410), Support Reading

Strategies and academic performance (with a value of 0.361), and finally, total score of meta-cognitive awareness of reading strategies and academic performance (with a value of 0.436), therefore, there is a significant relationship between meta-cognitive awareness of reading strategies variable and academic performance of students.

Table 2: Multiple regression of academic performance variable and meta-cognitive awareness of reading strategies components

Significance Level	F Value	Mean Square	Degrees of Freedom	Sum of Squares	Change Source	Criterion Variable
.000	24.861	101.018	1	101.018	Regression	1
		4.063	123	499.796	Remaining	
			124	600.814	Total	
.000	15.534	60.972	2	121.943	Regression	2
		3.925	122	478.871	Remaining	
			124	600.814	Total	

In this table, the results of regression analysis show that since the F-value is significant at  $\alpha= 0.05$  with 1, 123, and 122 degrees of freedom, the regression of academic performance from the components of meta-cognitive

awareness of reading strategies is statistically significant; these components significantly explain the variance in academic performance. In other words, this result indicates that the regression coefficients are significant.

Table 3: The determination coefficient for predicting academic performance according to the components of meta-cognitive awareness of reading strategies

sig	t	Beta	R <sup>2</sup>	R	Predictor	Model
.000	4.986	.410	.168	.410	Problem-solving strategies	1
.01	2.617	.267	.203	.451	Problem-solving strategies	2
.023	2.309	.235			Overall strategy of reading	

According to  $R^2$  value in the table, it can be concluded that the problem solving strategy component explain 16.8% of the variance in the academic performance in the first proposed model. In other words, the regression analysis results indicate that in terms of predicting academic performance, the problem-solving component predict better the academic performance. The results of beta coefficient show that with one unit change in the variance of problem solving component, the variance of academic performance changes as 0.410. In the second step, with the addition of overall strategy of reading component, the explain level of academic performance variance increases 20.3%. Other components were removed from predict equation, because they do not have substantial and statistically significant role in explaining the variance of academic performance.

#### IV. DISCUSSION AND CONCLUSION

On the first question "whether there is relationship between meta-cognitive awareness of reading strategies and academic performance of students?" , the results of Pearson correlation coefficient showed that there is significant direct and positive relationship between meta-cognitive awareness of reading strategies and academic performance. The highest calculated correlation coefficients in Table 1 were related to problem solving strategies, overall reading strategies, and support reading strategies, respectively. This finding is consistent with findings of Alexander Jetoan (2000, quoted by Mokhtari and Richard, 2002), Steve and Bradford, Haidar & Rajabi and Artino (2008, quoted by citing the demo Salari Far and Pakdaman, 2009), Haffman & Spatariu (2008), Hall (1999), Salari Far and Pakdaman (2009), Maleki (2005), Javadi et al (2010); they emphasized on significant and positive relationship between the components of meta-cognitive awareness and academic performance.

The regression analysis of second question "Which of the components of meta-cognitive awareness of reading strategies predict better the academic performance?" indicates that problem solving strategy predicts better the academic performance. In the second step, with the addition of overall strategy of reading component, the explanation level of academic performance variance increases 20.3%. Therefore, it is concluded that the problem-solving strategy and overall reading strategy have the highest share of predicting academic performance, respectively. According to research findings and research results mentioned in the introduction, the relationship between meta-cognitive awareness of reading strategies and academic performance of students indicates the importance and impact of meta-cognitive knowledge on development of learning. Considering the direct relationship between the use of meta-cognitive strategies and the academic achievement of students, and given that the meta-cognitive awareness may be learned, the institutionalization of teaching these strategies by educational system can be helpful in increasing students' academic performance. In fact, instead of focusing on the volume of learners' learning, the learning methods and

increase of learners' skills in the use of learning and study strategies, particularly the meta-cognitive awareness, should be considered.

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