The role of metacognition knowledge component in achievement of high school male students

Davoud Hoseinzadeh a,*, Behzad Shoghi a

a Department of Educational Psychology and Educational Management, Saveh branch, Islamic Azad University, Saveh, Iran.

Abstract

The aim of this project was to determine the role of metacognition knowledge component in the achievement of first year high school male students in 2011. 70 person of first year high school male students by sampling method multistage random cluster were selected. Mean final exam scores and the guidance of third year high school scores first semester (first school) as an indicator of academic achievement were considered and met cognition knowledge of students by questionnaire, interview questions Sonson 17 (1990), which was done individually about was assessed. After coding the interview met cognition knowledge (knowledge about his person, task and strategy) a significant relationship with academic achievement and individual knowledge about variables predicting variance in achievement accounted for the largest share data. Results of repeated measures designs show that metacognition knowledge of students in the process of strong and weak academic performance than “the person about his knowledge” has been established. I.e. the differences between groups of students varied “knowledge about his person” compared to other categories of metacognition knowledge is statistically significant according to post hoc test, mean difference (LSD) only difference between the mean (variable knowledge person in comparison with their individual knowledge about the task variables and strategy is statistically significant, but among other variables, there is no significant difference. Thus each group of students strong and weak elements “knowledge about his person” compared with the other variables are more prominent. Totally finding showed that Met cognition knowledge of the relationship with academic achievement is the more metacognition knowledge will students, their academic achievement also increased.

Keywords: metacognition knowledge, academic achievement, Self-regulation, cognition skills;

1. Statement of problem

Teaching and learning how to think and how to study, the greatest discovery of the decade It was in 1970. research has been done in this area is clear, that Metacognition approach to teaching and students can progress considerably Will result in learning. Cognitive strategies to facilitate learning and completing assignments. Metacognition strategies are used to review the progress in use. In other words, when students talk about how to read to yourself, you have an important oversight to identify and rank them, know when are Easy to study, how far will lead to better learning and .... All this Metacognition refers to cases (Jan& et al, 2008).

Today The question is how quality education classrooms Life in the process of school classes, and it raised? The answer can be The use of quantitative indices that case. One of the indicators Centered quality education and
teaching process, teaching, and learning. Scientists Theory in this regard and have presented various methods and appropriate changes And development of new methods for teaching science education and learning Have been used, including the methods and attitudes “met cognition”, is. This method is the same That it can help control the growth of the students were using Methods and techniques, especially Metacognition “to regulators” in learning and teaching, their Primer, and judge with respect to values in the education system. Breeding establishment Finally, the education and human development (Ghurchian& et al,2009).

Seyf (2007) on the Metacognition model of his famous, their Metacognition knowledge About their cognitive products and actively reviewing, planning and coordination This refers to cognitive processes. His knowledge of both Metacognition experiences Metacognition refers to the Seyf (2007), three types of Met cognition knowledge. Metacognition components are considered, Include:Their knowledge about the person, Knowledge about the strategy.

In his view, and the interaction between these three types of Metacognition knowledge effects on learning performance And he touches the Metacognition experiences involve any cognitive experience Is accompanied by a conscious and intellectual effort and is more dependent on the position Which happens to be deliberately provocative and precise thinking (Seyf, 2007).

Emphasis on the role of metacognition in the learning process, a transfer of responsibility to the learner and He has to play an active role in learning. Awareness of mental processes into a single comprehensive Effective use of learning strategies will guide the evaluation of knowledge, And his experience will guide your cognitive task analysis. Generally, one of the most important Education and learning process is that the students in the same Cognitive and Metacognition processes are used? Why some students than To the more dominant and better work? Whether Metacognition skills to improve Effective education and the role of each component of Metacognition knowledge in academic achievement and performance improvement of students is fruitful?

2. Literature Review

2.1. metacognition

About the concept of metacognition as Understanding the various definitions are provided: The term metacognition, means thinking (Masson&et al,2008) and is a process occur in active or working memory. Research in the past few years about Students how to think about their own cognitive processes were Has considerable knowledge about information processing system in humans and cause Thoughts of education and raised the frequency of application (Hateminkon& Park,2005). In other words, Metacognition knowledge or awareness of individual Of his cognitive system or knowing about knowing. Metacognition knowledge to help us Gives to learning and knowing when matters, consider the following your progress. This knowledge helps us to evaluate the results of our efforts and proficiency The measure we have read your articles. Metacognition knowledge tells us that the way Materials for various organizations in order to improve ease of learning and recall They are (Seyf,2007) can be another way to Metacognition Looked, the way it did. Since the recognition There were knowing and learning, so we know how to Metacognition We learning and meaningful. Thus, very close to one of the interpretations Metacognition is “learning to learn” (Seyf,2007).

2.2. Implementation stages of metacognition

First stage:the stage of diagnosis and evaluation of prior knowledge, at this stage The following steps are required.

Step One: The teacher or instructor in this course before starting the new lesson, should be recognize students preknowledge,that is determine the temperature of their mind. Step two: teaching and learning, begin from current information of students.

Second stage: planning at this stage, conduct with following the four steps:Step one: create the obligation (determined by the student's choice). Teacher or instructor must provide opportunities for the selection of students
will provide. Step Two: Creating the thinking, that man can through conscious effort, can be conquered and learn everything. Step three: voluntary and autonomic attention to matters details. Step Four: The teacher or instructor must identify and classify the kind of knowledge that learners should learn. Types of knowledge are: Knowledge of expression (they should learn what?) and Procedural knowledge: (how to learn?) and Background knowledge: (Why should I learn?).

Third stage: self-regulation in learning (continuous monitoring stage and progression to Objectives by the students) will be removed at this stage the following steps: First step: Without prejudice to the role of the teacher or coach should be the intellectual scaffolding, help students to start themselves. Step Two: The teacher should give the students the opportunity to see the affairs. Step Three: The teacher or instructor should help students and provide opportunities for students to judge themselves.

Fourth stage: continuous control of the learning objectives and revise in self-regulation that needs to following steps: Step one: control in learning by the students based on goals reach amount. Step two: review of processes and activities to reach the absolute targets (Ghurchian & et al, 2009).

2.3. Helps to Metacognition students

Brown of the University of California - Berkeley, is progressive in research about metacognition and is written a lot of issues about research application in education. What follows is Brown of instructions that may help to teachers in students metacognition completion:

1 - Students should be helped to understand the different learning activities. Create different expectations. For example, primary students, the new words Should learn that reading a list of words or even maintain their best Learning new words were used or not. Effective learning and to define any word Making it work in many different cases. (Eg, in conversations, discussions, assignments writing, conversation with the parents) were also high school students who try Must pass a simple test to learn a simple method for studying To test, right or wrong, is different. The written exam related to Building concepts with, cited examples from the text discussions and assessing needs. Subjects and subjects with multiple choice answers this completely different, right or wrong. In general, the research on Met cognition, teachers should not only content Curriculum to their students learn, but the method of evaluation and preparation For learning and teach.

2 - Students should learn to read in the regulation of signs and symptoms. It is used. Title, Introduction, Summary, symptoms and important information like Makes about size of a Text.

3 - Students should be taught to recognize that information, the effect is important in learning. Students should learn the results of a comprehensive knowledge of the possibility of recall Increases. You should also know their motivation for learning in total quality. Has a direct effect of addition, students should be helped and weaknesses. When learning new material and to realize their strengths, strengths and weaknesses of their Should be considered.

4 - Students will learn basic scientific methods. Met cognition content summary procedure, Reading and note taking techniques and methods of approach to the question of the study and They are prepared to listen to her and to teach them rather to be added (Ghurchian & et al, 2009).

2.4. Met cognition and Academic performance

One being enacted that many of us paid for recognition that important applications in teaching and developing Met cognition Is academic. Studies show people who have problems in reading having read many of are Met cognition deficits (Jan & et al, 2008). Such Compared with those of the skilled reader will reflect on the less difficult texts, or texts I have learned again that not reviewed the related activities. Reading needs of the objectives specified in the implementation of the reading assignment (Kathy & Julia, 2002). Their way to the efforts Comply with a duty to consider the time of cholera for academic learning. Are effective but may be so modified variant of the school curriculum to their The skills taught (Kathy & et al, 2006).
Many researchers, invent the school programs for children schooling in those Metacognition skills, that is required to them for effective comprehension reading (Alessan& et al., 2005). These programs have been included given awareness. In this type of training guidelines are not only children who Some strategies to use, but about how these strategies can improve their learning is useful. Perceived benefits likely to use strategies to encourage students from these strategies when increases have not done well in their reading skills, research, and Problem Solving. They may improve the scientific and academic achievement and improvement in academic performance. Statist even has a following. It seems that the awareness training given during the description such training will be placed improve their learning binding (Alessan& et al., 2005).

However, schools should teach Metacognition skills simple and complex included in the program (Kele& Chan, 2006). Research shows, children who He has well developed Met cognition skills regularly issues with program of cognitive approach so that it can somehow present Met cognition skills have not grown used to that child. Children formulation of possible solutions to the linear decide which Cognitive functions is necessary, appropriate strategies are applied properly, That leave be diverted focus on problem-solving process are monitored. Their reflection and are searching for a solution are effective and efficient in their cognitive activities. Teachers often have the characteristics of the child's academic performance. School education in his opinion (Masson& et al., 2008).

3. Conclusion And Discussions

Based on results, components of Metacognition knowledge was positively and significant associated with academic achievement and showed, notice of Metacognition skills and their application in teaching and learning process cause to academic performance improvement.

The results of the research study findings approved the relationship between cognitive processes, especially Metacognition knowledge with academic achievement and noted that any changing in students Metacognition knowledge will affect on their abilities to improve their academic performance.

The results of this study showed that person knowledge variable about itself has a highest contribution in academic achievement and predicted 56% of the variance in academic achievement that compared to other components of Metacognition knowledge is debatable. Perhaps due to the special situation of Students in this study this results are significant. Because in this region The level of the education parents is low and don't have inform from Metacognition skills and strategies learning to help their children, for this reason students in the study are relied to himself, and himself try to recognize their abilities and regards to cognition rate earn in this academic way, move toward himself academic achievement and Maybe we can have in this case stated that the academic achievement of students is related to self-awareness.

On the other hand, you should also know that the person's knowledge about self, allow to person regarding memory system characteristics and cognition rate proportion to it, act appropriately in educational situations. Generally people who have more knowledge in this field, have more complete information about abilities, talents, and their memory, and correctle will evaluate desired assignments. Then based on These evaluations and their cognitive characteristics, will use special strategy for desired goals. These people not only inform from their memory function, but in this case consciously control their actions. Certainly these people make a good performance in educational situations when face to tasks and duties.

On the other hand person knowledge about self relate with academic achievement and is a strong predictive variable for academic achievement and results in study also confirms this opinion. Shabanivarki (2010) believe in get inform about how to think and thinking method, affect the individual performance very well about how to meet Assignments. In salari far research (2009) Variable of person knowledge about himself, predicted only 17% of the variance in academic achievement, that in comparison with the results of this study is very low. And the most
predicted variance is related to Strategy that predict estimated 30% of academic achievement variance. Also he stated in academic achievement field, person attekt to consequence, firstly, and whants with use of the best strategies, get to highest results, in such situation where a person's knowledge is more about strategies in different situations Educational progress will be higher. This difference in results maybe related to study society, parents informs and guiding the childs, this cases are completely different in both study.

Also person knowledge about assignment cause to person identify proportion to nature of information is faced on educational situations and besides on about nature of assignments obtain required informations. Individual with use of such cognition history begun their activities in educational situations and because has information about assignment characteristics, will select strategies that in getting to achievement have been more success.

Fouladchang (2004), studied the differences in students' Metacognition skills in problem solving. Results showed that students with learning disabilities, in their knowledge field about problem solving skills have less rectitude and their predictions about number of problems, can solve accurately is significantly less than their predictions about normal students. On the other hand, students with learning disabilities, in comparision of normal students, have less knowledge about problem solving skills, and their performance is less in problem solving situations. These research findings based on relationship between Academic achievement and person knowledge about strategy, is coordinated, means whatever person's knowledge increase About Metacognition skills and strategies will have better performance in problem solving situations.

about Metacognition processes with academic achievement Kathy and etal (2006), found that The epistemological opinions of students can affect their academic achievement. Also Allesan and etal (2005) in her study found a positive relationship between the epistemological beliefs and academic achievement. Shomer Based on these study results, states Whatever the epistemological beliefs of students be advanced, will have higher academic achievement.

Kathy & Julia (2002), in their study found out among 228 factors affects on learning, metacognition has a very positively impact and also subjects with high metacognition, have had better academic achievement. So should say consequences of present study, support the above findings researchs and indicate students with high meta-cognition in comparision of students with low meta-cognition, have better academic achievement. Also salari far(2009) in its study showed that there is relationship between Metacognition knowledge and academic achievement and whatever increase Metacognition knowledge of student will increase their academic achievement.

References