The effect of metacognitive beliefs and self-regulation strategies on students' academic motivation

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ABSTRACT

The purpose of this study was to investigate the effect of meta-cognitive beliefs and self-regulation strategies on students' academic motivation. The statistical population of this study was all students of high school girls in the second district of Tehran in 1395. Collected results and analyzed data are presented based on statistical inference and appropriate statistical techniques to confirm or reject the hypothesis. The results of regression test showed that metacognitive beliefs and self-regulation strategies have an effect on academic motivation ($p < .05$). Also, the results of Pearson correlation test between the components of cognitive beliefs and academic achievement showed that there is a significant positive correlation between academic achievement with components of confidence in memory and positive beliefs about negative concern and with unruliness, cognitive self-awareness and the need for inhibition of thoughts. Also, the results of the test showed a correlation between the components of motivational strategies and academic achievement showed a significant positive correlation between academic achievement and motivational beliefs, cognitive strategies and meta-cognitive strategies. These results indicate that with increasing metacognitive beliefs and self-regulation strategies, academic achievement also increases.

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1. Introduction

In today's world, evaluating the quality of education is one of the main concerns of the educational system. The peoples seek to optimize their education system by looking at each other's function and appropriate adaptation. Questions like "Which class and school are efficient?", "Which educational system is more efficient?", "Which country is higher in education?" And what is the "feature of this excellence?" have been raised much In recent decades and, in many cases, students' academic achievement has been addressed as a response. But in the last two decades, educators, while studying the factors affecting academic achievement, have focused on two basic factors for academic achievement, which are both "cognition" and "motivational" factors. In fact, the school is an official training position and learners must have effective learning to be successful in this situation and achieve the cognitive goals of the system of education, and the key to effective learning is to be motivated (Mohammadi Darvish Bhgal et al., 2013). Processes that Enhance and guide behavior are generated by forces inside the person and the environment. Motivation is also an internal process that manages and motivates behavior, so motivation is a general term for identifying the common ground between needs, cognition and excitement. academic achievement motivation is important for Students. With this motivation, people follow the path to successfully complete their education, achievement of a goal or achieve a certain degree of competence in their work, in order to finally be successful in learning and studying (Noahi et al., 1391). Motivation is a major concern for most teachers as well as managers. The issue of motivation is not exclusive to the education sector, but it is also a major issue in the fields of psychology, management, health, and other socio-economic sectors. In fact, the position and role of education systems in educating an interested, responsible, researcher and efficient human resource for social organizations and the development of a citizen-friendly society have made the importance of motivation in those systems more prominent and more fundamental. (Tella, 2007). Motivation is one of the most powerful impulse resources that influences learner behavior in the school and determines the strength and sustainability of behavior. Psychologists consider motivation as internal processes that guide, activate and maintain the behavior over time (Centrach, 2008; Sa'idi, Iraqchi, Daneshfar, 1387). The school motivation structure refers to the behaviors that lead to learning and progress (Baybandrand, 1384). Self-regulation is a tendency-oriented process that helps the learner acquire academic skills, including setting goals, choosing, replacing strategies and effective control (Fan, 2010). Another variable that is considered in this study related to academic motivation is Self-regulation. Self-regulation learning is nowadays considered as an important component of education and has been addressed by policy makers, teachers, educators, parents (Takmili, 1382). Other variables that are considered in the present study in relation to academic motivation are self-regulation strategies. The results of various researches (Aker and Octamis, 2010; Lee, 2009; Abbasi and Darqa'i; 1394; Mohammadi Darvish Baghal, Hatami, Asadzadeh and Ahadi, 1392; Amini, 1392). Scrove and Brooks (2008) consider self-regulation in learning as the ability of students to understand and control their learning, which is very important for success in Course materials and makes them effective learners. But metacognitive psychology is a new field of thought, which dates back to the late 1970s (Salehi, 1380). Recognition is the currents of thought, learning, the way of organizing, storing and using information (Saif, 1387). Flavel was the first person who introduce the term metacognition in 1979. According to Flavel (1979, 1987), metacognition involves both cognitive processes and both experiential and cognitive regulation. Metacognitive knowledge refers to the acquisition of knowledge about cognitive processes and knowledge about how to use cognitive control processes (quoted by Mohammad Amini, 2007). Metcalfa and Shimamura (1994) considered meta-cognition as a means of manipulating and regulating cognitive processes. Today, a wide range of academic behaviors and outcomes such as academic backwardness, poor academic achievement, dropout, low academic performance, and inadequate communication with educational environments are threatening the health of adolescents and young people and concern Parents ,teachers and educators (Heydari et al., 1394). The effect of self-regulation strategies on academic motivation has been shown. According to Bandura (1977), self-regulation is the application of abilities and capabilities of self-direction, self-control and autonomy (quoted from Abbasi and Darqa'i, 1394). Pintrich (1991) defines self-regulation learning as an active and structured process by which the learner adjusts and controls the goals of learning, recognition, motivation and behavior (Mossolides and Philippo, 2005). Zimmermann and Schank (2004) argue that self-regulating learners initiate and direct learning processes themselves in terms of metacognition, motivation, and behavior. School and university are educational institutions that can play a vital role in the flourishing of the talents of graduates. In fact, a school or university is a professional organization that provides appropriate programs for employing talents, creating skills, and enhancing creativity. Motivation in education and its role in academic achievement has long been considered by psychologists. (Centraak, 2008; Translation of Saeedi, Araghchi, Daneshfar, 2008). Therefore motivation is a general term for identifying the common ground between needs, cognition and emotions. Students have an important role to play in motivating their academic achievement. In this research, the motivation of academic achievement in relation to meta-cognitive strategies is investigated. Studies by Osvalandr and Tob (2009) showed that learners who are more aware of and employ cognitive and meta-cognitive strategies have more academic motivation and motivational beliefs such as self-efficacy, higher internal evaluation, less anxiety in test, and Have higher academic achievement than other learners. Therefore, according to the above, the researcher is to examine whether the meta-cognitive beliefs and self-regulation strategies affect student's academic motivation?

Background

Mohammadi-Fard and Malekian (1394) studied the role of teaching cognitive and metacognitive strategies in self-regulation and academic motivation of students. The results of this study showed that the effect of education on the underlying indicators of academic motivation was

significant except non- motivation indicator. The results of the research indicate that learning strategies are Educable and teaching these strategies is effective in promoting academic motivation and self-regulation. Abbasi and Doroghi (1394), carried out a research entitled the role of procrastination, self-regulation and meta-cognitive beliefs in predicting the motivation of students' academic achievement. The results of this study showed that there was a positive and significant relationship between metacognitive beliefs, self-regulation and motivation of achievement, and the relationship between procrastination and negative motivation was negative. Acker and Octamis (2010) conducted a research on the relationship between self-regulation strategies and academic achievement of mathematics teachers in teaching mathematics. The results of the study showed the effectiveness of using cognitive and metacognitive learning strategies in increasing the motivation of academic achievement. Osvalandr and tob (2009) conducted a research entitled Family Pre-emptive Effect based on reading attitude and self-regulation on reading ability. The results of the study showed that learners who are more aware of and use cognitive and meta-cognitive strategies have more academic motivation and motivational beliefs such as self-efficacy, higher internal evaluation, lower anxiety in test and higher academic success than Other learners and also found that there was a significant difference between cognitive and meta-cognitive strategies training and learner learning performance. This research clearly showed that strategic behavior increases learning.

Theoretical literature

Zimmermann (1986), as one of the theorists of the "cognitive-social theory", defined self-regulation learning strategies as a form of learning in which learners Personally initiate and direct their efforts rather than rely on the acquisition of skills and knowledge from teachers, parents, and other educational factors. In other words, he refers self-regulation in learning to learner's active participation in terms of metacognition, motivation and behavior in the learning process to maximize learning. (Vygotsky, 1981) .Social-cultural researchers explain the transition from other regulation to self-regulation by studying Zimmerman's theory through four main steps. The first step can be understood by the limits of the learner's understanding of the homework and other adult settings or experienced person. During the second step, learners will successfully engage in relatiship through intermediary tools, and establish links between adult speech and homework position. In the third step, they will be aware of the role and function of intermediary tools that enable them to do homework independently and with greater responsibility. And also, in the final step, through social interaction, the use of cultural tools becomes part of the learner's inner organization. From the theories on self-regulation learning strategies, Pintrich and De Grout (1990) self-regulation learning theory in this model has come to the conclusion that self-regulation is an activity and a constructive process by which the learner has goals for self-learning And then tries to review and regulate his knowledge, in such a way that his goals determine his motivation and behavior. The core of this theory is based on the principle that learners organize their learning using cognitive, metacognitive, motivational, and behavioral beliefs. Pintrich and Drogrot

(1990) emphasized on the interplay of motivational variables and self-regulation learning strategies (cognitive and metacognitive) in learning and academic achievement of learners in their self-regulation learning model.

Research hypotheses

Metacognitive beliefs affect student's academic motivation. Self-regulation strategies affect students' academic motivation.

Research Methodology

Research method is determined in behavioral sciences according to the criteria: 1) the purpose of the research; 2) how to collect data; and 3) the manner of implementation (Bazargan et al., 1386). A) Research Method By Purpose: The present study is an applied research in terms of purpose. B) Research method according to the method of data collection: The present study is a descriptive study in terms of the method of data collection and information and the method of analyzing. C) Method of research according to the method of implementation: The present research is in field-survey in terms of implementation. In this research, library studies and field researches will be used to collect information. The statistical population of the study includes all students of high school girls in the second district of 2 Tehran. Whose number is 6597 people. According to the size of the society in the Cochran formula, 363 female students, second grade secondary school in Tehran 2nd district were selected by simple random sampling method. In this research, Wales and Houghton Metacognitive Questionnaires (MCQ 30), McInnerney academic Achievement Motivation (ISM), and Pintrich and Diegrot Self-Regulation Learning Strategies (MSIQ) were used to collect data.

Data analysis

The researcher uses different analytical methods to answer the issue or decide whether to reject or confirm the hypothesis or assumptions that are considered for the research. Therefore, it is necessary to note that the analysis of the data obtained alone is not enough to find the answers to the research questions, the interpretation of these data is also necessary. First, we need to analyze the data and then interpret the results of this analysis. This information for present study was collected from a questionnaire that was validated. This information was analyzed in SPSS software version 19 by applying appropriate statistical tests in accordance with the research hypotheses. In this chapter, the collected and the analyzed data are presented based on statistical inference and with the help of statistical techniques to confirm or reject the hypothesis. In this section, in order to describe the characteristics of the sample, firstly, the collected data are summarized and classified using descriptive statistics indicators and then, using the inferential statistics indicators, we can confirm or reject the hypotheses.
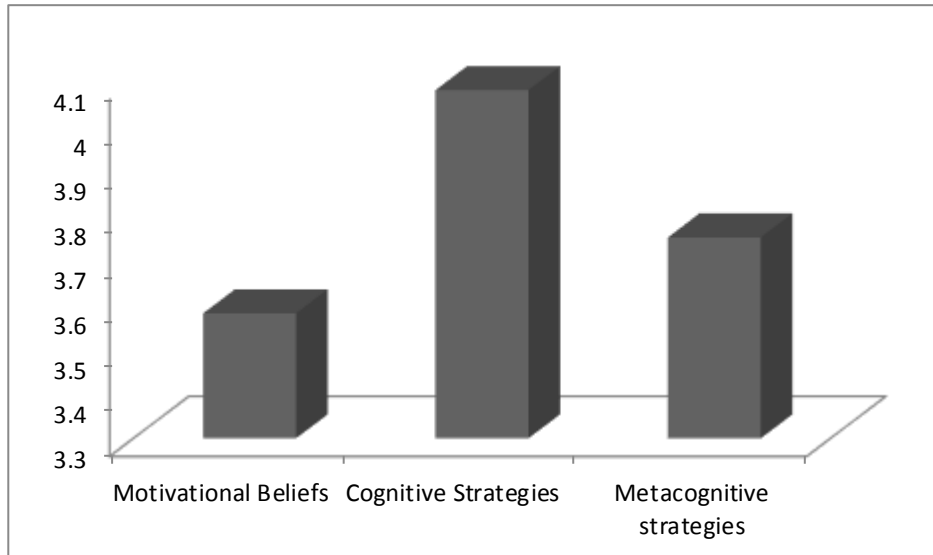
The values of the components of self-regulation strategies
As shown in the chart, among the components of self-regulation strategies, cognitive-learning strategies have the highest average values.
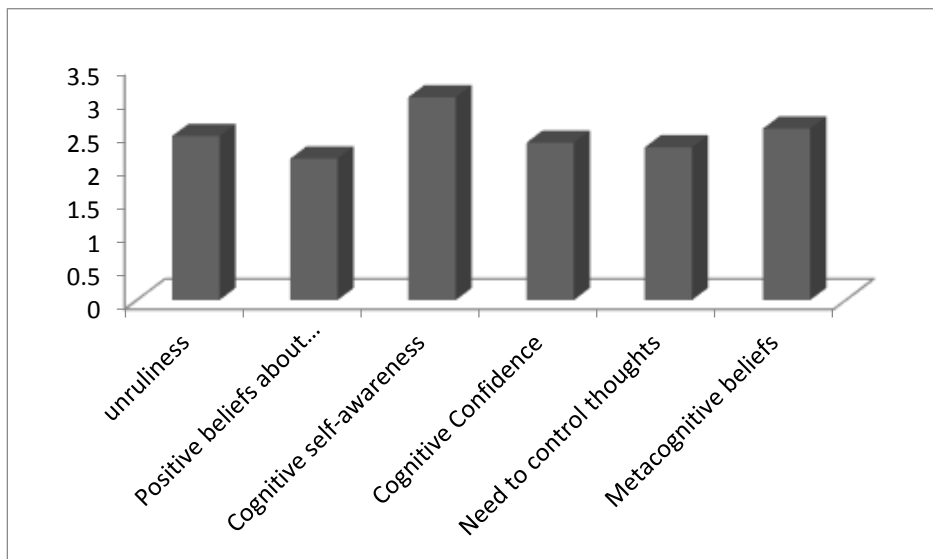
The Values of Metacognitive Beliefs
As shown in the chart, among metacognitive beliefs, the cognitive self-awareness scale has the highest average values.
Statistical Indicators of academic Motivation

Statistical index	value
Average	152.58
The standard deviation	4.32
the most	155
The least	98

As seen in the table, the scores mean obtained from this variable is 152.58. The data deviation from the mean is also 4.24. The maximum and minimum data in this variable are also 155 and 98, respectively.

The results of the Kolmogorov-Smirnov test

Variable	Distributed type	The significance level	Error value	Confirm hypothesis	Result
Metacognitive beliefs	normal	0.061	0.05	H 0	Normal
Self-regulation strategies	normal	0.13	0.05	H 0	Normal
The motivation for academic achievement	normal	0.5	0.05	H 0	Normal

In this table, according to the results obtained from Smirnov-Kolmogorov statistics, it can be deduced that the expected distribution with the observed distribution for all variables is not significant and therefore the distribution of these variables is normal. Therefore, parametric statistics should be used to test the assumptions.

Discussion and Conclusion of The effect of metacognitive beliefs and self-regulation strategies on students' academic motivation

The results of the first hypothesis regarding the effect of meta-cognitive beliefs on students 'academic motivation from regression test showed that metacognitive beliefs affect students' academic achievement. Also, the results of the correlation test between the components of meta-cognitive beliefs and academic achievement indicated that only the components of positive beliefs about concern and assurance were related to academic achievement and other components of such a relationship were not found. Therefore, it can be said that with increasing metacognitive beliefs, students' academic achievement also increases. The results of the second hypothesis regarding the effect of self-regulation strategies on student's academic motivation from regression test showed that self-regulation strategies affect students' academic achievement. Also, the results of the correlation test between all the components of self-regulation strategies and academic achievement have positive and significant relationship. Regarding the coefficients, the most effectiveness and relevance is for the component of the metacognitive strategies. Finally, it can be said that by increasing self-regulation strategies, students' academic achievement increases. The reason for explaining this finding is that self-regulation strategies allow students to plan and learn organizing and self-review self-regulation strategies do their tasks and daily activities with more task-oriented method. Therefore, self-regulation learning by using cognitive and meta-cognitive strategies as well as proper resource management strategies is trying to increase the students' learning and understanding and thus, improve the academic achievement of students.

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