



# Investigating the Effects of Cognitive and Metacognitive Learning Strategies to Increase Student Motivation and Probation

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## ABSTRACT

**Objective:** The method of this study is Semi-experimental research method boy and girl first academic semester of probation, **Methodology:** including 200 students, of whom 50 were selected using stratified random sampling. And Bagmarsh randomly into two control groups (n = 25 for each group) were divided. **Results:** Instruments included the Academic Motivation Scale Harter and the average score of students in the second semester of the 2013- 2014 school year. **Conclusion:** The results of the data using analysis of covariance showed that cognitive and metacognitive strategies training have a positive effect on students' motivation.

## 1. Introduction

The main characteristic of the lack of success in college is conditional. Subject to the GPA that is less than twelve, in many cases, layoffs, school dropout or prolongation leads. There are several reasons for the lack of success in learning and academic failure. One of the most important reasons is students' academic motivation. Motivation refers to the processes by which the energy behavior of a data-driven and keeps it. Motivating students in the school, because it implies students behave in a certain way. Motivation In general, the motivations, needs and other factors believed to be the cause of a person's educational environment and school and earn a degree is (Clark & Schroth, 2010). Motivation includes both external and internal motivation. Extrinsic motivation is to do something to get something else; as do the paperwork to get the approval of others or avoiding blame from others. Intrinsic motivation refers to doing something for its own sake nothing. For example, a series of difficult assignments because of the assignments test of its content (Biabangard, 2005).

## 2. Materials and methods

### 2.1 The importance and necessity of research

Given that the engine of human motivation and role in predicting human performance and rate of progress, it is necessary to explore ways of increasing motivation to learn, more to be studied scientifically. The question the family, teachers, and professors of education experts and consultants are asking is to stimulate the motivation of learners what to do. A question that seems to have the skills to respond to it in a lot of training modules there. While the answers to these questions can helps to many students' academic problems (Maleki, 2005).

#### 2.1.1 Purpose of research

The effect of cognitive and metacognitive strategies enhances academic motivation (intrinsic motivation and extrinsic motivation) and academic performance (GPA).

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### **2.1.2 Hypothesis**

Cognitive and meta-cognitive skills training is effective in increasing students' motivation.

### **2.1.3 The nature and meaning of Motivation**

There are individual differences in various aspects of social, emotional, mental and even learned earlier and is indisputable. But all we have frequently seen many people who, despite the physical and mental abilities and talents. And social opportunities are a lot of similarities with each other, but our progress is very different. In particular, there is more differences in academic achievement situations that many factors are controlled. Maybe there could be many reasons for this lack of progress is the level of inequality; but psychologists are the leading cause of human behavior linked to the area of motivation. Identify the concept of motivation and awareness of motivations and their impact on the learning process helps students to teachers and educators to design and implement better ways to coordinate their training program.

### **2.1.4 Define motivation and incentives**

Environmental and genetic factors on learning opportunities after learning the yield differences due to motivational factors (general) motivation (Special Forces) are concerned. While it is not possible to increase the genetic factors and environmental conditions in which there is only a slight improvement and more than that is not possible, but with increasing self-actualization motivation can be reached. The importance of motivation from the fact that a very close relationship with the will and independent thinking on the other hand, with the nature and origin of the individuals concerned and abstract problem (Malekian et al, 2010). Motivation has many definitions have been proposed. One of the most comprehensive definitions that define the stimulus has been presented. Motivation for the creator, maintainer and driver's behavior is said to be. The motivation of why they behave. In other words, humans do not have the motivation or behavior does not trigger it. Motivation is a process that Rftarhdfgra through it, adjusting it (Bilere, 1993). Root Motivation «Mover» Moving meaning is derived. In other words, motivation, despite the desire of the human condition that his will or spite prompted to select a stimulus from the stimulus.

Syed Mohammadi achievement motivation to attempt a maximum display capabilities enhance the personal skills to deal with failures in the field of education and employment and benefit as much as the strength of internal forces and progress in various domains of life are considered (Kamkari, et al., 2010). Also, motivation is the need or desire to make certain that the motivation is defined and believes that incentive and motivation are often used interchangeably. However, incentives can be more accurately described the motivation, in the form of a "general factor of productive behavior motivation, but the motivation to take into account the specific cause of a particular behavior."

### **2.1.5 Behavioral approach**

Behaviorist approach to motivate followers to boost affiliate business and avoid punishing know these two factors determine the key motivating students to know. This view of motivation is based on the basic idea behaviorists say that the consequences of actions, directing and controlling them. The most basic principle of the pleasure-pain principle Rftargran incentive is that under the principle of pleasure and pain we are trying to escape. Accordingly, behaviorists believe that the mind begins as a blank slate and gradually experiences and behaviors of certain external events make a reservation. The motivation and learning via extrinsic rewards and awards and incentives such as chips and even the guided control. This interpretation is reinforced when certain behaviors are rewarded and will turn off when the behavior is punished.

## **2.2 Cognitive Approaches**

The cognitive approach to motivation, which was formed in reaction to the behaviorist approach; it is believed that a person's behavior is not primarily caused by the thought of reward and encouragement that we have received or has received in the past the thoughts that motivate her students to identify and control lead (Biabangard, 2005). That cognitive behavior goals, plans, expectations and attribution of cause and guided and the reason is that this behavior takes place on a map and knowledge. Human behavior, not because of external reality and living conditions, but also due to the subjective interpretation of the facts and circumstances are to happen Therefore, intrinsic motivation than extrinsic motivation emphasizes them. Locus (one's understanding about the causes of success or failure, especially when trying to understand an important factor in progress) is to look at cognitive stimulation, an example of this attitude where Frdps of the events to follow because of their behavior and others and tries to find the source documents for it. Cognitive perspective focuses on the mental processes as well as the importance of goal setting, planning and verification of progress toward the goal, perception, learning and memory, the active role of the individual student and to recognize that all knowledge; a collection of his unique belief system and judgment are emphasized.

### **2.2.1 Previous research**

In a study by Baghani & Dehghanineishabari (2011) in the 2010-2011 school years, 100 students took the boy and girl Sabzevar city colleges; it was found that there is a significant positive relationship between academic achievement and academic motivation. The results of the calculations of Pearson correlation coefficients showed there is a direct correlation between academic achievement and strategic approach to the study of deep and meaningful and significant inverse association between educational attainment and superficial approach to study.

Cacuco – Holgado et al. (2013) in a cross-sectional study on 304 students to examine the relationship between motivation (desire) and the students' progress began. The results showed that motivation factor affecting student achievement is more and more students are motivated, achievement is more. Jauregizar (2010) in a study of an innovative teaching experience in an academic context are described. The aim of this study was to determine the relationship between student use of self-assessment with feedback and assess its impact on their performance, and measuring learners' motivation and usefulness of these tools in the learning process and research of Ricks and Tennessee (Karimighartamani, 2013) showed that students who used more cognitive and metacognitive strategies and self-regulation are less negligence resulting in better academic performance. Also Bembenutty (2008) research showed that many students who are aspects of cognitive, motivational and behavioural adjustment of their performance, they have been very successful as a learner. These findings suggest that cognitive and metacognitive learning strategies, is a predictor of academic performance and learners to achieve academic success, you must learn how to adjust their performance and its objectives in spite of difficulty of assignments, maintain. Research of Tucker et al. (2002) found that motivation, specifically intrinsic has an impact on learning and achievement and also Achievement motivation as a predictor, is introduced.

### 2.2.2 The population

All probation students was girls and boys (N = 200) of Sama Technical and Vocational Institute on Najaf Abad branches in the first semester of the academic year 2013-2014.

### 2.2.3 Sample size and Sampling

50 of the total number of students in vocational and technical schools Sama probation Najaf Abad Branch, which had 200 people stratified random sampling based on the school field and hit Dropped students in each selected and randomly assigned to experimental and control groups (25 patients in the experimental group and 25 patients in the control group), respectively. Accordingly, the total number of students in each category according to the statistics of randomly selected probation students from each discipline during a week's time every single one of them was invited to visit the College Counseling Office and Harter and motivation questionnaires were administered to all of them individually. The subjects in each field were divided randomly into two groups and those groups were identified. Demographic characteristics of cases and controls, including gender, profession, number of semesters and the number of credits taken in the current semester are listed in the following tables.

Sama Technical and Vocational College has eight courses is conditional on the number of university students in many years has been fluctuating slightly. In members selected from every field test and control groups conditional statistics of college students is presented. Statistics of dropped students in each course in the first semester of the academic year 2013-2014 is as follows:

**Table 1. The population data and the control and experimental groups**

Field of Study	Statistics of Students' Probation	Number of samples	Treatment group	Control group
Building	27	12	6	6
PC	62	17	8	9
Manufacturing and Production	12	4	2	2
Physical Education	6	2	1	1
Electronic	10	2	1	1
Electrotecnic	45	7	4	3
Accounting	36	5	2	3
Design and Sewing	2	1	1	0
Total	200	50	25	25

### 2.2.4 Materials and Methods

The design of the study, half of the experimental two-group pretest-posttest designs with a control group. In this study, 50 college students from probation based on a stratified random basis in the field of school choice harter and motivation questionnaires were administered on them. Then again, the way

people were divided randomly into two groups. Individuals and Treatment group in eight sessions of cognitive and metacognitive learning strategies received and the control group did not receive any training.

**Table 2. The Academic Motivation Scale Harter was performed again on both.**

	Pretest	independent variable	Post test
Experimental group	RE	X	T2
Control group	RC	-	T2

In this scheme, 1 T represents the Pretest. Each group member has completed Pretest before starting to meetings. X represents the independent parameters. Experimental group participated in training sessions. Control group had no independent influence. 2 T represents the post-test and post-test in both groups after the experimental period to respond.

### 2.2.5 The study methods

After approval of the research department Sama technical and vocational college were to speak of Najaf Abad and their satisfaction with college students in order to provide statistical information on the study was drawn. The list of statistics conditional first academic semester 93-92 students were identified. Statistics of normal college students in the Spring 1274 patients, of whom 200 were students, as well as 25 individuals due to the multiplicity of the term of probation, conditional and authorized the completion of years of study at the school, expelled and excluded from the statistical community. Of the remaining students, according to the discipline of Statistics Dropped students from any discipline on the basis of a number of selected administrators group and their names were announced to people selected to conduct counseling center.

## 3. Discussion and results

### 3.1 Research Tools

#### 3.1.1 Harter Academic Motivation questionnaire

Harter Academic Motivation questionnaire that individual differences in motivational aspects of both intrinsic motivation and extrinsic motivation measures. Many measures intrinsic motivation and extrinsic motivation, and the two opposite ends of the spectrum have been considered; but at this scale, intrinsic motivation and extrinsic motivation, and thus should not have been in the perfect negative relationship between the two stimulus expected. If your Harter noted that one can imagine situations in which self-interest and external rewards are collaborating to stimulate teach. Accordingly, with the connivance of the dipole assumption of intrinsic motivation and extrinsic motivation, Harter scale as a separate question in the area of motivation, extrinsic and intrinsic motivation were divided. In a modified form of scale Harter, 36 questions were designed after examining the question of weak third question, delete and questionnaire with 33 questions (16 questions for 17 questions to measure intrinsic motivation and extrinsic motivation measurement) was obtained from the questionnaires the use of this questionnaire has been translated and validated the scale.

**Table 3. Cronbach's alpha coefficient Academic Motivation Scale Harter**

variable name	Cronbach's alpha
Academic Motivation	0.92

In the present study, in order to assess the validity of the Harter scale, scores of 50 subjects of this study were to evaluate the academic GPA scale. Concurrent validity of the scale with the Pearson correlation coefficient ((0.26) with a significance level of 46% with a coefficient  $0.05 = a$ ) is significant. The Pearson correlation coefficient 0.45 academic GPA subscale intrinsic motivation and extrinsic motivation subscale Pearson significance level of 0.001 and a significance level of 0.03 was obtained with the average grade -0.29. It also presents the results of the analysis, Cronbach's alpha reliability of all components and the total score of the scale is (0.69) all of which indicate the validity of this scale and in keeping with the results obtained by the author and translator of the scale. This questionnaire has six subscales to measure Chalsh- rather controversial issues of curriculum, focusing on curiosity, the desire to dominate independently, the three dimensions of intrinsic motivation rather easy to focus on getting good grades and good teacher and teacher judgments dependence as of motivation is extrinsic. A variety of subjects in a 5-point Likert (1 = never to 5 = almost always) are recorded. Direct all subscales, higher scores indicating grading and Academic Motivation is higher. Also, these tests are Mdadkaghzy individual or group in this study, the test was conducted on an individual basis. Harter scale reliability analysis using Cronbach's alpha, is as follows.

**Table 4. Cronbach's alpha test results**

Variable	Cronbach's alpha coefficient
Intrinsic motivation	.83
Extrinsic motivation	.79
Prefer easy work	.63
Focus on pleasing the teacher	.67
Dependence on the teacher's judgment	.67
Academic Motivation	.69

### 3.1.2 Analysis of data

Methods of statistical analysis in this study is both descriptive and inferential analyzes were in the descriptive indicators such as standard deviation, mean and so on were calculated and inferential statistical test of Shapiro and Black Kolmogorov - Smirnov for normality of distribution of variables, Levine's test for default equality of variances and according to the research design for this study because of the pre-test and post-test analysis of covariance and post hoc test LSD.

## 3.2 Results:

### 3.2.1 Other results

#### 3.2.1.1 Hypothesis

Cognitive and meta-cognitive skills to increase student Academic Motivation to work.

**Table 5. Academic Motivation descriptive statistics to differentiate the control and experimental groups**

Academic Performance	Pretest		Post test	
	Average	SD	Average	SD
Experiment	108.08	13.65	112.92	14.58
Control	108.12	11.9	107.52	12.22

The average score in the experimental group at pre-test Academic Motivation (108.08) with education level (112.92) at posttest, indicating the effect of the program is increased.

**Table 6. repeated measures test results Machel on the impact of education on motivation**

Significance level	df	Machel statistics
0	0	1

According to the results, statistics Machel in  $\alpha = 0.05$  is not significant.

Results of analysis of covariance testing the effect of education on Academic Motivation

**Table 7. Levine's test for equality of variances default**

Significance level	Df2	df 1	f
.575	48	1	.32

Lavigne at the F observed for the test did not show significant differences  $P \leq 0.05$ . Thus, the assumption of homogeneity of variance, the null hypothesis is accepted.

**Table 8. Results of analysis of covariance testing the effect of education on Academic Motivation**

Source	Sum square	Degree freedom	Mean square	F value	Significance level	Eta coefficient	Ability test
Education	112.36	1	112.36	5.37	0.02	.11	.65

Effects of training in the group	184.96	1	184.96	9.44	0.003	0.14	.85
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Due to the significant contrast between pre-test and post-test results of the experimental group versus 0.021 in both tests, a significant difference can be said to confirm academic motivation out the difference between the experimental and control groups in terms of academic motivation is significant that it is important to confirm which has increased the academic motivation of the experimental group.

**Table 9. Results of LSD post hoc tests examining the impact of training on motivational groups**

Education on Academic Performance		Mean difference	SD	Significance level
Pretest	Posttest	-4.8	.88	0.02

The results show that the difference between the mean pre-test and post-test Academic Motivation in a significant difference. In other words, has increased the motivation of the subjects.

Out in the pre-test and post-test 108.08 to 112.92, grew at a rate of 4.84.

## 4. Conclusion

### 4.1 Hypothesis

Cognitive and meta-cognitive skills training is effective in increasing students' motivation. The average score in the experimental group at pre-test Academic Motivation (108.08) with education level (112.92) at posttest, indicating the effect of the program is increased. The difference between the experimental and control groups in terms of Academic Motivation is significant that it is important to confirm which increased the Academic Motivation of the group tested. Perhaps the most important reason for this is that people might think that because of the lack of knowledge of learning strategies have been faced with a lot of different failures, self-efficacy in severely weakening them and causing inefficiency and inability to believe their study will have a profound lack of interest. However, if these people receive the necessary training, new valves to open them with new and additional motivation continue studying. Thus, if the learners, academic failure to an external document sources like too much hard lesson, poorly taught professors, post-docs and professors are biased against them, in the long term, the future is likely to be motivated to try and have read and accept probation will be repeated. But the conditions under which learning strategies in their teaching, mere knowledge of the strategies and compared their study, inner source of its failure, according to documents made little effort due to academic failure and lack of planning and poor organization of content and rogers gets it in the face of theory and experience to plan and further efforts to continue their education, hope and motivation of the people increases. They also teach these strategies can help in understanding learners' strengths and weaknesses, realistic targets, outlining the objectives and assessment tasks better. So they will have more control over their actions. Teaching and learning strategies by learners will be prepared and have more confidence in the test sessions resulting in better progress in their academic performance and thus their motivation to experience positive growth.

### 4.2 Suggestions

According to the results of cognitive and metacognitive strategies to learners, it was found that the intellectual skills can be taught and learned and accordingly will be offered at all universities in the country, and meta-cognitive skills training workshops will be held for all newly arrived students of University of Education avoided many problems. Also, although this study was conducted on university students and may not generalize to schools, but according to the results of similar schools with regard to Imam Khomeini famously said ((elementary to the university to find out too late)), will be offered to teachers primarily cognitive and metacognitive learning strategies embark and secondly, it is to teach students and this way they can have a significant impact on the academic performance of their students and improve their academic motivation. The proposed system of higher education and the education of all teachers and educators, rather than focusing on the size and quantity of educational materials in the classroom, learn ways to learn and enhance their skills in attention. By using this strategy, because learners can develop their learning skills and to acquire knowledge and thereby to embark become active learners.

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