

**Research Article**

## **THE EFFECT OF THE USE OF ACTIVE TEACHING METHODS ON MOTIVATING STUDENTS FOR RESEARCH AT THE UNIVERSITY OF MEDICAL SCIENCES AND HEALTH SERVICES**

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### **ABSTRACT**

Research has been the infrastructure of development and progress in all times and societies, and improving scientific research is one of the most important duties of university. Like all other activities, doing scientific research requires existence of enough motivation in learner, and teachers are the most important executives who can encourage students by their teaching methods. Present study was done with the goal of the study of relationship between the uses of active teaching methods to create incentives for research in Zahedan University of Medical Sciences. Examining the relationship between enabling factors of human force and entrepreneurship of medical university of Zabol staffs. Method of research is descriptive and statistical population are all students of medical university of Zahedan in 2014 which their number are 3251 people which according to Morgan's table was 346 people and selected as samples. Sampling method was simple-random. Instrument of research is made by researcher which consisted of 30 questions and their reliability was firstly approved by experts and then by supervisors. Cronbach's Alpha was calculated 0/829. For statistical analysis of data we used frequency tables, average, standard deviation, and simple t-test and analytical cause for analyzing research questions that we used by SPSS software. Results showed that there is a significant relationship between active teaching methods and motivating students to study in Medical University of Zahedan Sciences and Health Services. Also there is a meaningful relationship between inductive methods, problem solving, brainstorming and motivating processing and research of Zahedan University of Medical Sciences and Health Services.

**Keywords:** *Teaching Methods, Inductive Method, Brainstorming, Problem-Solving*

### **INTRODUCTION**

In today's world, human capitals have been identified as the most valuable resources. Development of organizations, society, and the country depends on the proper use of human capitals. The basic objective of the new philosophy of education is socialization of individuals, society, and citizenship education. The today target as a fundamental pillar is development in different communities. As a result, training can be one of the best ways of development (Muslimi, 2012).

Due to ongoing advances in technology and changes in society, circumstances change should be created in any society. The importance of effective teaching and better learning has always been of interest to scientists and researchers (Biggs, 2009).

All program planners and practitioners in education have accepted the importance of education and the necessity of a real and fruitful training, and the value of applying methods of teaching (Ferry Marshall, 2011).

Many educational experts believe that if we use active teaching methods in learning environment and opportunities, the objectives of education may be attained better and more efficiently (Salek Morad, 2012).

In active teaching methods, It has been trying that the learner to contribute in his comprehensive concept of sharing, and in different ways be forced in mental activities, and individual and group work academic activities. In other words, the content focused on engaging students in the learning experience and makes them active. Studies show that teaching methods are affecting the academic achievement of students, motivation, satisfaction, character development, and creative growth (Reese Walker, 2009).

### **Research Article**

Active teaching methods are very effective in motivating students, and the importance of motivation in making all behavior is determined. As a result, it is known as the general agent and productive of behavior (Seif, 2011). Motivation is the reason of behavior. Human motivation, whether conscious or unconscious, derives of his needs. So it can be said that the motivation or need is the internal situation and the lack or deprivation that leads man to undertake a series of activities (Seyyed Javadein, 2007). Most experts define the motivation as the motivation factor (power), guide and support of behavior (Seif *et al.*, 2011).

Active teaching is a kind of teaching that in which educational events happens as scientific interactions, emotional and social, during which students actively participate physically or mentally (Sha'abanlou, 2010). There are several active teaching methods, including inductive methods, problem solving, brainstorming, Synectic. In the inductive method, subject matter of expertise and innovative thinking are examined. And in this way, thinking skills in learners increase (Fazli Khani, 2011). Problem solving: in problem solving, learners should learn problem solving and decision making and arm them with various methods to choose in appropriate circumstances, (Safavi, 2013). Brainstorming: the implementation of the technologists and meetings that through it, some try to find a solution to one particular issue, by focusing all the thoughts and ideas presented there (Shabani, 2013). Innovative teaching methods: increases students' creativity strength because in its strategies encourage their minds to think in different fields to generate new ideas and the numerous applications, and follow activities through various analogies (Aghazadeh, 2010). Research: defined to analyze objectively and systematically controlled and recorded that it is possible to develop general rules, principles or theories and to forecast or may lead to ultimate control of events (2011: 19).

Due to the factors described in this study and study of related research can be said that in this regard the need for change is essential. Because educational psychologists believe that active teaching awaken the minds of learners and promote motives of those involved in thinking, research and logical thinking (Omid, 2010).

Active teaching methods in creating and sustain learning have an important role. It is the type of teaching that allows students to search knowledge. An expert must exercise experimental way with scientific facts and exposure to them. Rapid change and growth of science and technology, international competition in the production of knowledge and skills needs an innovative researcher, (Capel, 2012).

Research culture is still not institutionalized in our country. And true faith has not been strengthened for research in various fields of education and culture that can be used in the development and progress of the country (Irani, 2012). To be institutionalized culture of research and scholarship in our country, we can use new teaching methods in our training centers. There are many fundamental changes in modern teaching methods that reveals attention to research, thinking and creating. Passing Through teacher-centered methods and product-oriented to learner-centered and process-oriented approach has led that all education experts believe that the main purpose is to breed creator and creative researcher. One of the most important measures of the universities is the development of scientific research. Higher education plays a crucial role in this regard. The organization utilizes research to familiarize students with the knowledge (Hamidizadeh, 2011).

University is the center of science, knowledge and awareness, and improving the scientific level of students in the education, and the quality of the education is considered of its main objectives (Petty, 2012). And in order to achieve this goal, it is important to pay attention to the active teaching as a key indicator to improve the students' motivation to research.

The main objective of this study was to investigate the relationship between the use of active teaching methods to motivate students to research in Zahedan University of Medical Sciences in 2014, which also includes the following detailed objectives:

1. The Relationship between inductive method and creating motivation to research
2. Examine the relationship between problem solving and motivation to research
3. The Relationship between innovative and motivating to research
4. Reviews regarding methods of brainstorming and motivation to research

### **Research Article**

Creating incentives to research by teaching methods in universities is necessary. A closer look shows the reasons justifying the importance and necessity of this research that can be summarized as follows: The present study reveals strengths and weaknesses of instruction, and pave the way to strengthen and improve teaching in cases where there is a weakness in their instruction.

### **Review of Literature**

-A Research by Maryam Sahranavard (2012) entitled "The role of active teaching methods to nurture the spirit of inquiry, research and academic achievement of high school students in the city of Lorestan" was done to assess the relationship between active teaching methods to nurture the spirit of the researcher and student achievement in high schools of Lorestan, the results showed that there are significant differences between teachers who teach using active teaching and passive teaching methods. This means that the teachers who teach using the active methods grow the questioning spirit in the students more than the teachers who teach passive methods.

-A Research by Ali Mortazavi (2011), entitled "The effectiveness of active teaching methods and interactive learning processes in educational processes of Azad University of Bojnourd branch" to the effectiveness of active teaching methods and interactive teaching methods in educational processes that results showed that the use of active teaching methods and interactive learning in teaching and learning process Caused new vitality in the classroom, increase in belief, and expectations of the student, the student's participation in class management, more referrals to other texts, retention and reduce absenteeism from the classroom.

- A research by Shahnaz Abbasian (2013) as "the effect of active teaching methods on students' academic progress of martyr Bahonar university" to determine the effects of active teaching methods on students' academic progress of Martyr Bahonar University was done the results showed that the experimental groups who were trained by active teaching methods were more successful than the control group of students who were trained by conventional methods.

- A research by Nichols (2012), entitled "Study of the effects of active teaching methods on motivation and achievement of 80 students in Geometry in Verses Iowa in America" in order to investigate the effects of cooperative learning on student motivation and achievement in geometry the results showed that the students who were in active teaching methods, compared to students who were in control were more effective and goal-oriented in their learning, and give more value for their geometry lesson, and showed greater academic achievement.

-Research by Bralayner (2009) entitled "Quality of active learning teaching methods including methods of group discussion rather than passive methods at Berlin International University psychology" to determine the impact on the quality of active learning teaching methods including group discussion techniques to passive methods of psychology was carried out at the University of Berlin, in which the results showed that there is a significant difference between the quality of learning who had worked with active teaching methods than those who had worked with passive methods.

- Research by Ronald (2010) as "the effect of cooperative learning on student learning at King's College of London" was carried out to determine the effect of cooperative learning on students' learning at King's College of London, the results of which showed that the application of this approach in the teaching had a great importance. And students through discussion and consultation in groups can provide a variety of solutions to solve the problem.

### **Research Hypotheses**

#### *The Main Hypothesis*

There is a relationship between the active teaching methods and motivation to research.

#### **Sub-Assumptions**

1. There is a relationship between the inductive method and motivation to research.
2. There is a relationship between problem solving method and motivation to research.
3. There is a relationship between the innovative and motivating to research.
4. There is a relationship between the methods of brainstorming and motivation to research.

## Research Article

### MATERIALS AND METHODS

#### Research Methodology

According to the topic of research, and the intended purpose for this research, in this study of descriptive - survey that was conducted in a field was used.

The study sample consisted of all students studying medical sciences at Zahedan University of Medical Sciences and Health Services in the academic year of 2014-2015 had been studying in the fields of dental, paramedical, rehabilitation, health, medicine, nursing and midwifery. The study sample consisted of 3251 people. In order to determine the sample size, the table of Morgan (1976) and the tables of Krejcie was used. Due to the size of the population, the sample size (according of Morgan table) for this study is 346.

#### Research Tools

Whereas in the case of this study, there was no standard questionnaire, the researcher of the study was to prepare the questionnaire. In this research, data collection tool is a researcher made questionnaire.

The questionnaire contains 6 variables as follows: A: inductive: items numbered 1 to 7, Problem Solving: item number 8 to 15, Synectics: Number of items 16 to 23, Brainstorming: Number of items 24 to 30.

Due to that the questionnaire used in this study is self-made. To determine the validity of the research of the experiences of the experts, and then with the help of the supervisor in terms of content and face, four variables in the form of 30 questions were approved.

To calculate the validity of the questionnaire, 30 questionnaires distributed among the sample and then analyzed with SPSS statistical software, the Cronbach's alpha obtained which is equal to 0.927. Considering that alpha obtained, the amount is considerably high, so this questionnaire can be run and trusts.

In order to analyze the data after data collection, they were entered in the application of SPSS- 19.

Data analysis, according to the nature and scale of measurement data, descriptive statistics including the frequency, percentage, mean, standard deviation, and in inferential statistics, one sample t-test was used.

### RESULTS AND DISCUSSION

#### Research Findings

**Table 1: Descriptive Characteristics of Components**

Component	Mean	Median	Standard Deviation
Inductive Method	3.350	3.285	0.713
Problem Solving	3.393	3.500	0.713
Innovative Teaching Methods	3.424	3.500	0.765
Brainstorming	3.304	3.285	0.793
Active Teaching Methods	3.371	3.366	0.636

Based on the results from Table 1, the highest and lowest active components of teaching methods, in terms of impact on students' motivation to study, related to components of innovative methods (with an average of 3.424) and brainstorming (with the 3.304). The highest and lowest standard deviation was related to the components of inductive method and problem solving (with a standard deviation of 0.713), and Brainstorming (with a standard deviation of 0.793). The mean, median and standard deviation of variables of active teaching methods, respectively, 3.371, 3.366 and 0.636.

Using analysis of variance T test and Friedmann nonparametric test, we tested the hypothesis. In order to perform this test, the average of all items related to each component, as points, and index intended to identify it, and tests to do for these concessions.

Due to the variety in the questionnaire, which is obviously a positive difference in Mean scores of the number 3 in each component indicates that the component has a significant influence on motivating students to research.

**Research Article**

**Table 2: Normal Test Results Without the Observations**

Component	Significance Level	Kolmogorov Statistics	Result
Inductive Method	0.063	1.588	Normal
Problem Solving	0.052	1.884	Normal
Innovative Teaching Methods	0.055	1.820	Normal
Brainstorming	0.072	1.502	Normal
Active Teaching Methods	0.085	1.478	Normal

Based on significant levels obtained from the Kolmogorov-Smirnov test was observed that the significance level for all components obtained more than 0.05 Type I error. And therefore, the normal assumption observations at 0.05 were accepted.

Due to the significant level derived from Table 3 (less than 0.001), has been less than level of Type I error .05, the hypotheses of the equal of the average scores with number 3 rejected. Citing the positive difference between the Mean of the number of participants for this variable (0.371), it can be concluded that the effectiveness of teaching methods to motivate students to study in the study population was significant.

As a result, the main research hypothesis is accepted by 95%, and to-be said that there is a significant relationship between the active teaching methods and motivating students to study at Zahedan University of Medical Sciences.

Achieving a significant level of Table 3 (less than 0.001), Suggests that the influence of the inductive method was not the medium. Citing the positive difference between the Mean of the number of participants and 3 (0.035), it can said that the impact of this variable is higher than average and it can be considered one of the components affecting students' motivation to research. As a result of this research hypotheses in the Type I error is an accepted of .05, and can say: There is a significant relationship between the inductive method and motivation to research of Zahedan University of Medical Sciences students.

The results of Table 3 show that the impact of problem solving on motivation to research in the University of Medical Sciences and Health Services students of Zahedan were more than average 3. It achieved a significant level (less than 0.001), less than 0.05 Type I error and the mean of the number of participants (0.394) is positive. As a result the research hypotheses are also accepted and can say with 95% confidence, and there is a significant relationship between problem solving and motivate students to research at Zahedan University of Medical Sciences.

Due to the significance level obtained from Table 3 (less than 0.001), the hypothesis of equality of average rates of these components with the subject number 3 (average) is rejected. Citing the positive difference between the Mean of the number of participants (0.424), it can be concluded that the impact of innovative methods is more than average and it can be considered one of the most influential components in motivation to research of students. As a result the sub-research hypothesis is accepted at Type I error .05, it can be said: there is a significant relationship between the innovative and motivating way to research at Zahedan University of Medical Sciences students.

Significance level (less than 0.001), and the mean of the number of participants 3 (0.304), derived from Table 3 indicate that the brainstorming is also one of the components of the motivation to study in population of the study. As a result, the research hypothesis is accepted with 95% of confidence.

There is a significant relationship between the methods of brainstorming and motivate students to research at Zahedan University of Medical Sciences.

**Research Article**

**Table 3: The Relationship between the Use of Active Teaching Methods and Students' Motivation to Research**

Students' Motivation to Research				Variable
Statistics T	Degrees of Freedom	Significance Level	Mean Difference	
10.840	345	P<.001	0.371	Active Teaching Methods
9.132	345	P<.001	0.350	Inductive Method
10.288	345	P<.001	0.394	Problem Solving
10.310	345	P<.001	0.424	Innovative Teaching Methods
7.140	345	P<.001	0.304	Brainstorming

To prioritize the components of active teaching methods, applied the non-parametric Friedman test, the results of which are presented in Table 4. In this test, the ratings area are based on Mean ratings, and each component that has a greater average rating among other factors, is of the more importance.

**Table 4: Test Results of Friedman Ranking**

Component	Average Ratings	Ranking
Inductive Method	2.52	2
Problem-Solving Method	2.48	3
Innovative Teaching Methods	2.65	1
Brainstorming Method	2.35	4

**Chi-Square Test: 10.137 Significance Level: 0.017**

According to table (4), there is a significant difference between the components of active teaching methods in terms of effective in motivating students to research (according to the level of significance 0.017) in the community research. Based on the results, Innovative teaching method (mean Rank 2.65) is in the first priority importance. Prioritize other components as follows: 1. Innovative teaching method 2. Inductive method 3. Problem solving 4. Brainstorming

**Discussion and Conclusion**

The main hypothesis of the study is that "there is a significant relationship between the active teaching methods and motivating students to research at Medical Sciences University of Zahedan", the results demonstrated that there is a significant relationship between active teaching methods and motivating students to research in Medical Sciences students of Zahedan. The results of this study are adapted with Sahranavard study entitled: The role of active teaching methods to nurture the spirit of inquiry, research and academic achievement of high school students in the city of Lorestan which showed that teachers who are teaching with the active teaching methods foster a spirit of inquiry in students more than teachers with passive methods.

In relation to the first research hypothesis that "there is a significant relationship between the inductive method and motivation to research of Zahedan University of Medical Sciences students", the results showed that there is a significant relationship between the inductive method and motivation to research students' University of Medical Sciences and Health Services of Zahedan. The results of this study were similar to the results of Nichols as: the effects of active teaching methods on student motivation and achievement of 31 students in geometry of Iowa verses of America showed that students who were in active teaching methods group, than students in the control group were more efficient and goal-oriented learning of geometry, and also to give more value and showed greater academic achievement.

### **Research Article**

In relation to the second sub-hypothesis research that "there is a significant relationship between Problem solving method and motivation to research of Zahedan University of Medical Sciences students", the results show that there is a significant relationship between the Problem solving method and motivation to research of students' University of Medical Sciences and Health Services of Zahedan.

The results of this study were similar to the results of Winston as: Teaching problem-solving approach according to Shern Feild theory, and measure its effectiveness in America, New York University showed that Shernnfyld. mathematical problem solving theory has a significant impact on the ability of students.

Regarding the third sub-hypothesis research that "there is a significant relationship between Innovative teaching methods and motivation to research of Zahedan University of Medical Sciences students", the results showed that there is a significant relationship between the Innovative teaching methods and motivation to research of students' University of Medical Sciences and Health Services of Zahedan.

The results of this study were aligned with the results of Panahi as: Assess the research community in the philosophy program for children with active and participatory teaching methods in the city of Najafabad which showed that the philosophy program for children using active teaching methods increases the ability to reason and understand themselves and the world around themselves. Regarding the fourth sub-hypothesis research that "there is a significant relationship between brainstorming methods and motivation to research of Zahedan University of Medical Sciences students", the results showed that there is a significant relationship between the brainstorming methods and motivation to research of students' University of Medical Sciences and Health Services of Zahedan.

The results of this study were aligned with the results of Mortazavi as: The effectiveness of active teaching methods and in educational processes of Azad University of Bojnood which Showed that application of active teaching and interactive learning in teaching and learning processes, leads to new vitality in the classroom, increases believe and expect of the student, the student's participation in class management, more referrals to other texts, increases retention and reduces absenteeism from the classroom.

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**Research Article**

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