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Research Article

A COMPARATIVE STUDY ON THE EFFECT OF CREATIVITY- AND NON-CREATIVITY-BASED TEACHING ON ACADEMIC ACHIEVEMENT OF STUDENTS OF BABOL

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ABSTRACT
The present study was an attempt to investigate the effect of creativity- and non-creativity-based teaching on academic achievement of students of the city, Babol. It was a descriptive study enjoying a casual-comparative design. The population under study included all the secondary school students and teachers of Babol in the academic year 2013-2014. 60 teachers (30 creative and 30 non-creative) and 360 of their students were selected through cluster random sampling. The instrument comprised of teachers' innovative teaching inventory and also students' achievement was estimated based upon the final score of their previous semester in the courses where their teachers completed the innovative teaching inventory. The gathered data was analyzed employing Kolmogorov-Smirnov and Mann-Whitney tests performed in the SPSS. The results revealed that the mean score of students' academic achievement with creative teachers was significantly higher (193.54) than non-creative teachers (167.46). Moreover, the regression analysis indicated that creative teaching could explain 19.1% of the variances occurred in the students' academic achievement. Among the factors of creative teaching; thinking style, family factor and individual effort could significantly predict students' academic achievement. Since it was found that creative teaching leads to academic achievement; thus, teachers and education professionals could consider it as an appropriate alternative for educational programs in schools.

Keywords: *Creative Teaching, Academic Achievement, Students*

INTRODUCTION
In the present era, it is of crucial importance to investigate on human resource through formal training in order to gain power resources. Since formal education has been widespread in human societies, fostering higher-level cognitive capabilities such as perception, reasoning, thinking, problem solving, creativity and judgment were affirmed (Mehri-Nejad and Sharifi, 2005). The educational system of each country is in fact a set of organized measures which accomplish the potentials of its citizens and provide them with favorable conditions in the form of programs and learning opportunities in order to have a chance to become familiarized with cultural programs and experiences and be able to actualize their potentials. Educational systems with their specific plans, objectives, content and elements of their training play an important role in the development and also destruction of students' motivation and academic performance and teachers also play a key role in this regard (Fardanesh, 2008). The new educational approaches are believed that a particular teaching method cannot meet the needs of the learners in particular and classrooms in general under any circumstances. Yet, it is a combination of various techniques that could be effective in promoting the goals of education. In other word, teachers can employ a variety of teaching methods drawing the interest of their students to the content being taught as well as approaching their own teaching to an active learning condition. Furthermore, on choosing a teaching method, its efficiency and effectiveness with the content to be taught should also be taken into consideration (Shabani, 2011). In a study conducted by Naimi (2011) it was revealed to be a significant positive correlation between teaching methods and students' learning and academic achievement concluded that by employing an appropriate teaching method the teachers can improve the learning and provide a ground for academic progress.

Specifying innovative teaching strategies and employing them in effective teaching-learning process are important steps for teachers to improve their academic level. Moreover, identifying these strategies and applying them in schools lead to a raise in satisfaction, motivation and positive attitude among the learners toward their schools' curricula and also the services provided to them. Datson (2001) holds the idea that if teachers in a society are competent enough to provide appropriate teaching methods, they would be able to high qualitatively achieve the goals of educational system by promoting motives and work among their students.

Teachers are the founders of scientific ideas and informers of values and social responsibility to our children and adolescents and they are the initials in training human resources and no profession is as influential as teaching in human societies. Teachers are regarded as one of the main pillars of schools and the most important element who contribute to the development of creativity among students. Undoubtedly, the way teachers perform in a teaching - learning process directs their students' mental energy, motivation and ultimately their academic performance (Hosseinin, 2006). Aschenbrener (2008) found out that students believe creative instructors are very effective in educational system and also he reported that university instructors at a moderate to high academic level own higher creativity representing various learning opportunities, task-orientation spirit and a desire to teach. He also indicated that desire and willingness are effective constructs in an innovative teaching. Sung, Kauon and Rya (2008) demonstrated that blended learning compared to direct instruction model led to an enhancement of students' learning and progress. Unal and Inan (2010) investigated the effect of situational learning on the enhancement of students' academic motivation and achievement reporting that it is more effective than a lecture-based approach.

Teaching and learning practices are undergoing a transformation and along with advances in technology, new doors will get open for improving this process; however, such process is not of a good quality in our educational system and still some insufficiencies are observed in it (Naimi *et al.*, 2011). Investigating university instructors' use of creative teaching methods and their creativity characteristics from the view point of talented students, Nikneshan *et al.*, (2010) reported that both talented and normal students were dissatisfied with educational status. In regard to teaching methods, the specialists put an emphasis on three themes: the use of active teaching methods, creative and participatory methods of teaching. They also focus on four elements with regard to instructors' features as accordance of their knowledge with the latest information, possessing critical thinking, being creative and having familiarity with the unique personality of the learners.

Given that not any similar study has been conducted in this field with regard to ecological factors, the present study attempted to investigate the effect of creativity- and non-creativity-based teaching on students' academic achievement.

MATERIALS AND METHODS

The present study was a descriptive study enjoying a casual-comparative design. According to the research hypotheses and objectives, the study is a practical and cross-field in terms of objective, time and location. The population under study included all the secondary school students and teachers of the city, Babol in the academic year 2013-2014.

The statistical samples were selected through cluster random sampling so as the city, Babol was first classified into three clusters (North, Central and South); then, two high schools were randomly selected from each cluster (one female and one male high school). The questionnaire was randomly distributed among 100 teachers (approximately 17 teachers from each school were given the questionnaire among which 30 teachers were selected as creative and 30 as non-creative teachers) along with 360 of their students. The instruments employed comprised of the following:

1) Teachers' innovative teaching inventory: it was developed by a group of university professors in Taiwan (Chaw *et al.*, 2003) and the troubleshooting was done in Iran by Houman and Ahmadi (2011). This 45-item questionnaire is a four-point linkert scale that teachers read each item and express their current feelings on each of the statements. It is graded based upon 4 points (strongly agree to strongly

disagree). The reliability coefficient through Cronbach's general formula was estimated to be 895/0. It is possible to implement it either individually or as a group.
2) Academic achievement: it was estimated based upon the final score of students' previous semester in the courses where their teachers completed the innovative teaching inventory being then classified into creative and non-creative teachers.

RESULTS AND DISCUSSION

Results

The gathered data was analyzed employing Kolmogorov-Smirnov and Mann-Whitney tests performed in the SPSS. After presenting the data and analyzing the results, the following tables were obtained respectively:

Table 1: Results of Kolmogorov-Smirnov test

Variable	Number (N)	K - S	Sig. level	Result Normality/ Non-normality of the distribution
Academic achievement	360	3.023	0.000	non-normal

Table 2: Total ratings of academic achievement of students benefiting from creative and non-creative teachers

Variable	Group	Mean of the ratings	Sum of the ratings
Academic achievement	innovative	193.54	34837.50
	non-innovative	167.46	30142.50

Table 3: Mann-Whitney test statistics

Variable	Mann-Whitney	Z	Sig. level
Academic achievement	13852.50	-2.378	0.017

As it could be seen in the above table, the mean scores of students' academic achievement with creative and non-creative teachers were to be 167.46 and 193.54, respectively.
Furthermore, considering the significance level to be lower than 0.05, it could be concluded that the test is significant at 0.05. As a result, the research hypothesis is confirmed. In other word, there exists a significant difference between the academic achievements of students with creative versus non-creative teachers.

Table 4: The determination coefficient and adjusted coefficient

R	R^2	Adjusted R	Standard deviation
d0.437	0.191	0.182	[d] 1.66041

Table 5: Line of regression and residual

Coefficient	Sum of squares	df	Mean	F	Sig. level
Regression	230.864	4	57.716	20.935	[d] 0.000
Residual	978.720	355	2.757		
Total	1209.584	359			

The above regression equation is done through simultaneous technique. As it is appeared in table 4, the value of determination coefficient is to be R^2=0.19 meaning that creative teaching components could explain 19% of the students' academic achievement. Besides, according to table 5 and since the regression came to be significant, the effect of creative teaching components on students' academic achievement could be surveyed.

Table 6: Multivariate regression for identifying the impact of creativity-based teaching components on students' academic achievement

Variable		Title of the variable	B	Standard deviation	Beta	T	Sig. level
a		Fixed number	16.031	0.530		30.241	0.000
	X1	Thinking style	0.182	0.023	0.553	8.011	0.000
	X2	Environmental factor	[d] 0.040	-0.745	0.475	-0.040	0.788
	X3	Teaching commitment	[d] 0.003	-0.037	0.971	-0.002	0.422
	X4	Family factor	0.088	0.023	-0.229	-3.828	0.000
	X5	Individual features	[d] -0.116	-1.412	0.159	-0.075	0.338
	X6	Teaching beliefs	[d] -0.055	-0.740	0.460	-0.039	0.415
	X7	Individual effort	0.214	0.041	-0.341	5.244	0.000
	X8	Motivation	0.128	0.043	0.170	2.951	0.003

Table 6 illustrates regression coefficients for the predictor variable entered in the model in column b. In addition, the standardized beta coefficient for evaluating the contribution of variables in the model presents a measure in terms of standard deviation. The above table shows that in case the thinking style of the teachers increases one standard deviation, it is predicted that students' academic achievement will increase to 0.553 of standard deviation. According to the above tables, the regression equation will be as follow:

Y = a + b_1x_1 +b2x2+b3x3 + b4x4

Academic Achievement = 16.03 + 0.182 (thinking style) + 0.088 (family factor) + 0.214 (individual effort) + 0.128 (motivation)

Therefore, the linear regression could predict 19% of y (students' academic achievement). On the other hand and according to the coefficients B, the effect is in a way that the more the increase is in thinking style, family factors, individual efforts and teachers' motivation, the higher the increase will be in students' academic achievement.

Discussion

The present study was an attempt to investigate the comparative effect of creativity- and non-creativity-based teaching on academic achievement of students. The results revealed a significant difference between the academic achievements of those students benefiting from creative teachers versus non-creative teachers. In other word, those students being taught by creative teachers gained more academic achievements compared to those were taught by non-creative teachers. The findings of the present study is in consistence with those of Fazli *et al.*, (2004), Behrangi *et al.*, (2007) and Keramati and Hosseini (2008) confirming the effect of active and creative teaching practices on students' academic achievement.

Creative teaching is one of the most basic requirements of today's educational system. Iranian educational system still operates in such a way that students learn from the very beginning that their teachers are a source of information and they could experience the best and the most complete learning through their

teachers. Since the creation of any changes is associated with resistance; therefore, directing students from teacher-centered learning situation with learners being passive to a learner-centered learning situation where all learning activities are carried out by learners is not easy (Sarmadi, 2010). In the creativity-based teaching taken into account in the present study, the following techniques were considered as important factors leading to the implementation of new innovative beliefs: employing various learning channels and resources, developing lesson plans, devoting more time and energy for teaching, innovation, creativity and providing new ideas during teaching, employing different methods in different situations, putting yourself in the best physical and mental conditions for teaching, utilizing everyday events and issues to explore and learn, paying attention to the needs of students and helping them out in an appropriate way, consistently delivering innovative strategies for teaching, the desire to teach creatively even in limited circumstances, believing in learning and innovation in teaching and lastly teachers' motivation.

Almost all creative teachers in this study demonstrated a great passion for what they do. All these factors along with the teacher's explanations given on the content activate students in the teaching-learning process. And this not only provides a comfortable and enjoyable environment for teachers but also lead to an increase in students' learning. On the other hand, in addition to activating students in teaching-learning processes, using creative teaching methods result in development of social skills such as proper listening ability, expressing views, helping each other to achieve the goal and enhancement of learning which all are considered as the main objectives of education.

Hence, by gradual and step-by-step employment of creativity-based teaching methods and familiarizing students with these models and methods, teachers of different subjects can act on one of their crucial tasks that is fostering competency, creativity and eagerness to learn. Stalmijer *et al.*, (2009) holds the idea that timely support and guidance of teacher give the learners this impression that they have been given importance; as a result, they will try to learn more.

Generally, it could be stated that students in this approach will explore the facts in a free and dynamic atmosphere; thus, the learners are motivated and freed from imposed and superficial rules and this independence in learning makes learners express their views and expectations, have flexibility in learning and could easily gain a positive attitude toward learning all of which result in academic achievement among students.

REFERENCES

Aschenbrener MS (2008). *Analysis of creative and effective teaching behaviors of university instructors.* Department of Agricultural Education, University of Missouri, Columbia, MO. *Retrieved 2010 from www.Ssu.missouri.edu.*

Behrangi MR and Jafari Sani H (2007). An investigation toward the effect of a blended teaching method derived from new teaching patterns on learning a shared topic in the study of Persian language, Arabic and English of second grade of secondary school. *Journal of Educational and Psychological Studies* **8**(8) 136- 115.

Dotson M (2001). Cooperative learning structures can increase student achievement. Culminating Project, *Kagan Online Magazine, Winter.*

Fardanesh H (2008). *Theoretical Foundations of Educational Technology*, edited by Hasani A (SAMT publication) Tehran **9** 152.

Fazli R and Javadi MJ (2004). A comparative study on the effect of passive and active teaching on student's academic achievement in social studies. *Quarterly of Education* **20**(2) 7-32.

Hosseini A (2006). *Innovative Nature and Its Developing Practices* (Roshd publication) Tehran.

Keramati MR and Hosseini M (2008). A study on the effect of cooperative learning on students' academic achievement in Physics. *Journal of Psychology and Educational Sciences* **38** 166-147.

Mehri Nejad SA and Pashasharifi H (2005). Investigating the effect of problem-solving based teaching and evaluation according to scholarly standards on raising the spirit of scholarship. *Educational Innovation Quarterly* **14** 9-36.

Naimi Hosseini F, Zare H, Hormozi M, Shaghaghi F and Kaveh MH (2011). The impact of situational blended learning on motivation, academic achievement and test anxiety among university students. *Journal of Research in Curriculum* **1**(2) 177-200.

Nik Neshan SH, Nasr Esfehani AR, Mirshah Jafari E and Fatehi Zadeh M (2010). A study on university instructors' use of creative teaching methods and their creativity characteristics from the view point of gifted students. *Journal of Educational and Psychological Studies* **11**(2) 145-164.

Houman HA, Vatankhah HR and Ahmadi Sartakhti E (2011). The psychometric properties of the teachers' innovative teaching questionnaire. *Journal of Psychological Research* **2**(7) 77-90.

Sarmadi MR (2010). A study on the factors associated with academic achievement of students majoring in their third grad of secondary school according to TIMSS-R results and providing a path analysis model to assess the impact of each factor. *Quarterly of New Approaches to Education* **5.1**(115) 1-30.

Shabani H (2011). *Teaching and Training Skills. Tehran: Institute of Designing and Compiling Social Science Books* (SAMT).

Shavakhi A *et al.*, (2007). A comparative study on the effect of three teaching-learning approaches on students' learning performance of biology. *Bimonthly Journal of Behavioral Scientific Research* **24**.

Stein Mayer R and Spinath B (2009). The importance of motivation as a predictor of school achievement. *Learning and Individual Differences* **19** 80-90.

Sung YH, Kauon IG and Rya E (2008). Blendede learning on medication administration for new nurses: integration of e-learning and face to face instruction classroom. Nurse Education Today.

Unal C and Inan HZ (2010). Student's perception of a situated learning environment. *Procedial Social and Behavioral Sciences* (**2)** 2171- 2175.

Zafarbakhsh M (2004). Relationship between students' cooperation in teaching and academic achievement. *Journal of Educational and Psychological Studies* **3** (10) 65-82.