Investigating the Effect of Modern Teaching Methods on Students' Educational Progress (Case Study: Sama1 Boys Elementary School, Ghaemshahr City)

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Abstract

Education is a very important issue in most training and nurturing systems. The main objective of this research is to investigate the effect of modern teaching methods on students' educational progress. Research population is composed of all students of Sama1 elementary school of Ghaemshahr city (N = 169) from which 118 students were selected as sample based on Morgan's Table and in a random manner. Regression results indicated that modern teaching methods (brainstorming, synectics, problem-solving, indirect-consultancy, role-playing, scientific trip, inquiry-based method, computer-based teaching) have significant effect in the dependent variable of educational progress. Teaching is an important learning tool. Employing modern teaching methods may facilitate learning. Of course, no teaching method is good or bad per se, but their manner of use weakens or strengthens them. Hence, teachers must employ the most appropriate methods based on educational goals, teaching content, students' needs and interests, available equipment and facilities (time, space, objects, etc) to reach a desirable teaching.

Keywords: Modern methods; teaching; educational progress; students

1. Introduction

Educational progress includes "the ultimate responsible of active learning process performed with the help of training activities" (Gij and Berliner, 1993). Moreover, it involves "the speed with which a student is completing various bases and degrees and is measured through his forwardness or retard". Educational progress and its related issues are a main concern of education system in almost all countries of the world since political, economic, cultural and social decision-makers and authorities believe sociologists' progress results from development of education system and this is achieved by educational progress of students. Education is a main issue in training systems. It is a mutual procedure of learning-teaching information, skills and positive approaches toward a certain issue implemented in specific time periods fitting determined age groups. The goal of training and education is not only to transfer cultural heritage and human experiences to the new generation, but also to generate desired changes in approaches, cognition and, finally, human behavior. Teachers' knowledge on learning theories and teaching patterns is of specific importance since educational environment are places for guidance, monitoring and learning and the teacher acts as a guide, supervisor and organizer. In addition to required information on the subject, the teacher should possess sufficient knowledge and skill on methods of educational planning and its implementation (Akbari, 2010).

Scholars and researchers of educational sciences have always respected the importance and effectiveness of teaching methods and better learning. Review of literature suggests that teaching methods are effective on students' educational progress, motivating and satisfying them and on developing and growing their character and creativity. Responsibility of teachers in the teaching process is not only to transfer scientific facts to students, but also to provide desired learning conditions and to teach students how to think and learn.

Nowadays, modern and active methods have attracted attention of many authorities and teachers. These mainly focus on the learner and his interests and capabilities and the teacher tries to reinforce capabilities of learners in listening, speaking, reading, writing, argument, comparison, analysis, construction and creativity and presents the content based on these issues (Akbari, 2010).

Based on what mentioned above, the present paper aims at investigating the effect of modern teaching methods on students' educational progress. Thus, we first present theoretical concepts of this issue and then we analyze obtained data. Finally suggestions are presented respecting results and findings.

2. Literature Review

2.1 Teaching

Although the term "teaching" is well-known in the field of educational science, most teachers and performers of lesson curricula are not familiar with its accurate leaning and nature. Their various inferences from the concept of teaching may influence, positively or negatively, their approach to students and the way they work. Multiple inferences from the concept may have a variety of reasons the most important of which is the weakness of base knowledge and differences in interpretation and incorrect understanding of teachers from various educational approaches. Sometimes, confusion in understanding educational concepts is to the extent that many experts, teachers and university students of the field imagine concepts such as training, education and vocation training as same. The concepts may have many common aspects but are essentially independent and have their own meanings. Teaching includes an interaction between teacher and student based on regular and targeted plans of the former to change behaviors of the latter. Teaching involves concepts such as approaches, attitudes, beliefs, habits and manners and, generally, all changes to be made in students (Mirza Mohammadi, 2004).

2.2 Teaching modern methods

2.2.1 Brainstorming

It is one of the newest participatory teaching methods which is used not only in schools, but also in management meetings of institutions because of its unique advantages. The method was introduced by Alex Asborn (1998) to solve management problems and today is referred to as a class teaching method. The method is defined as: "the technique of holding a conference in which the group tries to find a certain solution. In this method, all ideas and opinions are completely used with no manipulation". Thus, there are two basic principles in this method:
1- Comment diversity resulting in activation of creative mind.
2- Quantity enhancement leads to quality improvement (Aghazadeh, 2009).

2.2.2 Synectics

It is a new teaching method emphasizing on fostering creativity in a group. Gordon is a founder of this method who broke traditional beliefs on creativity by proposing new theories on the subject. Despite antecedents who recognized creativity as an intrinsic issue, he introduced it as being teachable and learnable. He also suggested that group activity is the best way to foster creativity (Ahadian and Aghazadeh, 1999).
The method is composed of 6 steps including:
1- Identifying present status: In this step, all students describe their visions and the considered status becomes clear to them.
2- Direct comparison: In this step, students propose their imaginations on a certain phenomenon and compare it to another one. Having present comparison results, one of them is selected by the group.
3- Personal comparison: In this step, a student puts himself in the place of that concept and expresses his own feelings and this is usually done through personification. Of course, this comparison is performed according to previous direct comparison.
4- Compact contradiction: Here, students benefit from those personal and direct comparisons in which contradictory concepts are used. Gordon believes that compact contradiction is the best way to help expanding learners' insight and their mind flexibility.
5- In this step, another direct comparison is performed based previous steps.
6- Students return to the considered concept by teacher's guidance and evaluate it based on performed comparisons. In this step, most students try to write a composition on the subject (Ahadian and Aghaadeh, 1999).

2.2.3 Problem solving

This is another participatory teaching method. Although many scholars recognize this method as compatible with the individual pattern, but experience showed that it is more effective in group format than individual one (Parsons et al,

2006). Problem solving is defined as "a process to discover the sequence of ways ending in a goal or solution". Hence, it should be noticed that not only the answer, but the way to reach it is of great importance in the process of problem solving.

Two points are highly significant in this method:
1- Students' past experiences and providing conditions to recall them,
2- Reaching a solution which was already unknown for the person (Safavi, 2003).

2.2.4 Indirect- consultancy method

Learning through consultancy is also known as indirect learning. Thus, the method is considered as a teaching method in which thoughts of Carl Rogers, the founder of special consultancy method, are expressed as effective learning guidelines. What is presented in the consultancy techniques and philosophy of Rogers covers and supports indirect teaching method (considered as a teaching pattern). One of the most important implications of indirect or consultancy teaching is in a highly "dormant" classroom in which the teacher tries to motivate students through drills and presenting lessons. This pattern emphasizes friendly relationships between teacher and learner and the former tries to help the latter and to play his own role in educational guidance. As a facilitator and learning manager, the teacher tries in the classroom to present basis information and moves learners toward problem solving (Aghazadeh,, 2009).

2.2.5 Role play

Role play is a teaching method used to imagine subjects and lessons proper for a play or performance. In this method, an individual (or a group of individuals) act a subject as a short play (Safavi, 2003). Role play, with the meaning employed here, does not require certain artistic skills such as acting in cinema or theater and teacher uses it as a method based on the situation, goal and considered subject (Shabani, 2003) to to develop learners' personal and social character. If students acquire life skills, they live successfully in their whole life. In this method, students select roles based on their interests and play it through supervision of teacher and coordination of classmates. In this way, social regulations are taught in a better manner and this leads to efficient learning since students analyze social norms while recognizing them. They also may stabilize their approach and establish a type of humanistic and emotional relationship with others while playing their roles (Fazli Khani, 2003).

2.2.6 Scientific trip

Nowadays, not only school and classroom but also environments other than these are considered as educational places. Fazli Khani (2003) believes that today's community expects students acquire their main experiences and information from environments outside the school since they lack the opportunity of gaining personal and first-handed experience inside the school because of limitations of formal school education and teachers may provide students with the chance to gain sciences of this era by taking them out of school.

Scientific trip enables students to obtain a scientific experience by observing the nature, events, activities, objects and people (Khorshidi, 2002). Scientific trip or experimental activity out of the school is a practical task performed outside the classroom, laboratory or library and includes direct study of an issue, collecting information through observation, questionnaire, interview, sampling and other research techniques and these help hypotheses validation, change recognition and accuracy of conditions and status (Safavi, 2003).

2.2.7 Inquiry-based method

This method was conducted and developed by Richard Sachman to train process of searching and explaining phenomena. The pattern Sachman developed gets students involved with procedures of which researchers use to organize knowledge and to create "principles". Inquiry-based teaching method was mainly developed to face students directly with scientific processes. It based upon the belief that the learner must grow independence. Application of this method requires activities in the form of scientific inquiry. The general purpose of inquiry-based teaching method is to help generate intellectual discipline and requires skills to ask and answer. It starts with presenting a relatively complicated concept. The basis of Sachman's theory on this teaching method is as follows:
1- Students move toward inquiry and exploration while facing a problem.
2- They may learn thinking guidelines and be informed of their role in the process of inquiry.

3- Thinking guidelines may be directly taught to students.

4- Coordination in inquiry enhances thinking richness and helps students in rethinking on the essence of methods.

In the process of inquiry-based teaching concepts should presented in a manner that students do not neglect them. Having faced a problem, they ask questions from their teacher and he (she) has to avoid giving descriptive answers. Teacher must give "yes" or "no" answers. In this case, students must be told not to ask explanations of concepts and first try to search and organize information (Ghorchian, 1993).

2.2.8 Computer-based teaching

Some of experts in the field of education refer to learning as "construction" and chose those teaching tools and activities which provide students with the opportunity to generate knowledge. Polen (1992) suggested that experts have to consider some features while selecting an educational tool. An instrument or tool should be selected that encourages and supports the whole learning, reduces some problems and helps in learning those sections the learner may not manage alone. Electronic technologies are an inseparable part of structuralism-based teaching methods and function as the main change factor in the classroom, the most vital transformation place (Zofan, 2007). Computer is a practical and experimental tool used by both students and teachers based on various teaching and learning strategies. Computer-based teaching is an educational status in which the teacher is mainly in charge of providing and controlling teaching activities through a direct link between students and computers. In this method, study progress is controlled by a machine and those students are allowed to progress that have learned something in that step. Therefore, there are computers with preplanned educational programs and the learner perceives and learns educational matter through these machines (Shabani, 2003).

Based on what mentioned above, research hypotheses are as follows:

There is a significant relationship between brainstorming method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between synectics method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between problem-solving method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between indirect-consultancy method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between role playing method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between scientific trips method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between inquiry-based method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

There is a significant relationship between computer-based method of teaching and educational progress of students of Sama1 elementary school in Ghaemshahr.

3. Methodology

3.1 Research method

The present study is an applied research performed through descriptive method and is research of descriptive – survey type. Further, since results may be practically used, it is an applied case study. Inferential statistics was used for data analysis.

3.2 Population and sample

The population (N = 169) was composed of all students of Sama1 elementary school in Ghaemshahr city. The statistical sample was selected randomly and based on Morgan's Table (n = 118).

3.3   Data and measurement

Requires data was collected through reference to documents and questionnaire.

3.4   Data analysis

Various methods of descriptive statistics were used to analyze obtained data and test hypotheses. Moreover, data pertaining to research questions were analyzed by a variety of inferential statistics methods. Cronbach's Alpha to test questionnaire validity and regression analysis to investigate research hypotheses were performed using SPSS.

3.5   Questionnaire validity and reliability

Required data for the research were obtained using questionnaire validity of which was determined by collecting opinions of experts and scholars. The preliminary questionnaire was collected and another one was designed based on scholars' opinions and was resent to population for a consensus. Also, there were a variety of methods to be used to test tool reliability of which we used Cronbach's Alpha in this paper. Values larger than 0.7 were proper. Hence, the obtained alpha (0.862) was larger than 0.7, it is concluded that questionnaire possesses acceptable reliability.

4.   Findings

4.1   Hypothesis testing

Regression analysis between dependent variable (educational progress) and independent variables (teaching methods) In this research, we proposed 8 hypotheses to examine the relationship between dependent and independent variables.

Table 1: coefficients of raw (B) and standardized (Beta) regression equation., F, correlation (R), determinant coefficient (R^2) and Dorbin – Watson statistic

Durbin Watson	R^2	Sig	R	F	Sig	T	Beta	B	independent variables
				dependent variable (educational progress)					
1.752	0.254	0.000	0.367	35.865	0.000 0.000	17.353 5.746	- 0.475	3.754 0.187	brainstorming method of teaching
1.643	0.235	0.000	0.342	45.654	0.000 0.000	20.453 5.865	- 0.465	3.876 0.254	synectics method of teaching
1.843	0.267	0.000	0.354	37.987	0.000 0.000	19.874 5.465	- 0.487	2.987 0.236	problem-solving method of teaching
1.639	0.254	0.000	0.365	38.659	0.000 0.000	18.875 5.339	- 0.464	2.756 0.194	indirect-consultancy method of teaching
1/980	0.275	0.000	0.333	40.792	0.000 0.000	17.341 5.574	- 0.384	3.363 0.252	role playing method of teaching
1.643	0.253	0.000	0.324	42.674	0.000 0.000	16.034 5.653	- 0.543	2.643 0.243	scientific trips method of teaching
1.879	0.287	0.000	0.487	39.578	0.000 0.000	16.954 5.758	- 0.478	3.176 0.365	inquiry-based method of teaching
1.659	0.276	0.000	0.476	41.643	0.000 0.000	18/873 5.754	- 0.574	3.265 0.358	computer-based method of teaching

The obtained significance level (when sig < 0.05, regression possesses required statistical validity) and the sig number obtained for every single variable, it is evident indicate whether there is a relationship between variables. Results showed that independent variables brainstorming, scientific trips, inquiry based-method and computer-based teaching have a significant effect on the dependent variable "educational progress". Dorbin-Watson statistic of every model also demonstrates that observations are independent since the value of these statistics is between 1.5 and 2.5.

5. Conclusion

Students' educational progress is a main indicator in evaluating education system of a country and all the efforts in this system move toward realizing this. Generally, the whole society and, especially, education system are interested in and worried about children's future and their successful evolution in the community. They also expect students to grow and progress in various aspects including cognitive aspects and skill learning and in personal and emotional aspects. Teaching is a main learning tool. Learning is facilitated by employing modern teaching methods. Of course, no teaching method is good or bad, *per se*, but the way they are used weakens or strengthens them. Hence, the teacher has to choose the best and most proper method based on educational goals, teaching content, students' interests, available equipment and facilities, student population, etc. Teachers are frontier soldiers of education and they need to be equipped with the last recent scientific weapons, namely modern and active teaching methods. Besides, they have o know which method is used in which conditions.

6. Future Research

Performing a similar research on students of other grades and levels Investigating the effect of modern teaching methods on other variables such as students' anxiety, etc.

Resources

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