



## Investigation the change process of teaching methods in last 50 years for education sciences courses: Representing an optimized sample

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**ABSTRACT:** This study investigated the change process of teaching methods in last 50 years with the aim of explaining optimized samples of education sciences courses and showed the change process and method of relation of teaching methods. This study is from continued explanation studies, for this reason that it is a mix of quality and quantity analysis and deal to representing model considered as new research. The issue of this study is answer to this question that what we can identify strong points of teaching methods for explaining an optimized sample? The statistical society involved all of the teaching methods that explained by experts and the statistical sample involved better methods and samples of teaching. For finalization of the model used of questionnaire, interview of masters of education sciences (sample group) and factor analysis. The findings of study showed that optimized samples of education sciences involved 5 main factors and 24 sub factors.

**Keywords:** teaching method, teaching optimized method, main factors, sub factors.

### INTRODUCTION

During the education history there were two thoughts: the thought that on the base of it they believed that the human mind is the same as white paper that in born time there is no sign in it. This designable paper affected by environment gradually. In this thought, the human mind is the same as a blank warehouse that maybe full from information and knowledge. As human remember more information his mind become full of information and he is aware person. So in this kind of thought, the most important advantages of students on each other is having an strong memory and remembering materials and realities.

In contrast, the human mind not considered white but it is as active source and not accepted any signs and not remember them as he achieved of his around. The mind is an active creative that take the materials and analyze them, and not considered as a warehouse for saving information. The method of teaching in the first kind is a potential teaching method but the second is an active method (ghaedi, 1994).

Marsh (2009) said: generally course programming involved 4 concept: conceptual, strategicall, teaching and learning and evaluation methods. investigation of theory resources show that among these factors, the teaching and learning method is the most effective of the factors in teaching programming (Chiu, 2009).

Among these methods, the represented methods and samples by education coaches is very high and various. International education office depended to Enesco

mentioned more than 300 identified teaching methods. The number and varieties of some education encouraged theorists to classifying current methods and samples. The teaching methods are in changing constantly. In addition compounding them is so difficult. About independent teaching samples and even in the filed of important classifying of them there is no common agreement among all of theorists (Safavi, 2000).

In the last of century 20 collected significant science documents that proposed we should focus more on method of learning students and environmental factors that formed learning. (Kenen and Neubel, 2009). It seems that all of students have various views to learning and learning affected by many factors. So in addition of variety of teaching samples, the theorist had agreement on the scope of learning that they believed learning is an active and effective factors and the learners are able to prevention and setting learn, teaching and learning process (Christopher, Wolters, Pintrich, 2003).

Therefore the teaching programs that considered for personal growth of learners should be stimulated and forward growth and interest of learner. The learning area should provide a more active place for learners. During teaching program expected from learners that archived the considered knowledge and during it found an opportunity for examination of materials that they had learned (Robertson, 2006).

For Chikering (1997), the learners not learned through sitting on the classroom and hearing to teacher, memorizing materials and answering to questions. They should learn that discuss about course and its issues with each other and write about it, and related them to their last experiences and use of it in their daily life and finally should connected things that they learn as part of themselves.

Through this process the role of school is changed with the past significantly and instead of dealing to course materials focused on all of human and all of his life aspects. The teacher in education system is as coach that is improved learning. The students is an active and questioner learner not potential and stable hearer. Through changing the role of teacher and student the ministry of education is obligated for choosing new process. Selection and achieving to the new processes required new view far from prejudice to the changes in education system (Haghighatdost, 2002).

Therefore it seems that the methods of traditional teaching as well as lecturing methods, memorizing and repeat methods and ... today haven't necessary effectiveness and it become out of order and forgotten. However these methods have strong and weak points. In contrast using of new teaching methods developed and growth significantly. So this study through analyzing of teaching methods changes in 50 last years and investigation of weak and strong points in this method by compounding strong points of these methods and considering the current situation and moving toward good condition, explained an optimized sample of teaching for teaching education sciences courses. Hope that we will reach to the aim of preparing this study. Relay on the cited materials the main aim of this study is investigation the process of teaching methods in 50 last years for explaining the optimized sample of teaching education sciences courses.

*In the prepared studies in the filed of teaching methods in and out according subject harmonic and its importance it is explain that:*

GhanyFar (1993) in an study as investigation the teachers' views of elementary level of Birjand dealt to effectiveness of active and in active train methods, in this study used of measuring analysis. And after preparing questionnaire and statistical analysis approved all of hypothesizes and achieved the following conclusions:

1. Explanation the train aims in elementary level and teaching by teacher and considering it as benchmark for evaluation lead to knowing the want of teacher by students and comprehend the materials better.
2. Using of various teaching methods lead to activation of classroom and encouraging classroom.
3. Aware from method of previous learning of learners and identifying their abilities lead to choosing suitable teaching method and improving their learning.
4. Cooperation of students for prepare and choosing training tools lead to making interest about classroom and continuous of learning.

Ebrahimi (2003) in an study as comparing effectiveness cooperative and traditional teaching methods in courses experimental sciences of mathematics, Islamic knowledge and society sciences of the first secondary school of area 5 in academic year 2002-03 concluded: the rate of students who teach by cooperative method were more significantly than students who teach by traditional method. In addition the students who teach by the cooperative method were very better in the social skills significantly.

Bakhtyar Nasr Abady and Norozy (2005) in an study as investigation the amount of making identification aims of the science course with traditional and research methods, controlled the effectiveness of research method in 2 phases. In addition investigated the amount of traditional teaching method effectiveness in degree 4 of elementary school, and achieved data of this study represented in two traditional and research teaching methods. Yadar (1989) prepared an study as effectiveness of learning identification theory by using of exploration learning method. Seventy-nine students who trained through guided learning method compared with the students who trained with traditional lecture method. The results of study indicated that the method of guided exploration learning in learning had better operation as compare with the lecture train method.

Yousefy (2003) in an study as out put investigation (aware, interest, application) of Ghaemshahr's teachers by the traditional and new teaching methods and with the aim of measuring of out put of them by traditional and new teaching methods explained and tested hypothesizes. In this study chosen 136 teachers of Ghaemshahr accidentally in oral form and then investigated the out put of teaching methods by researcher questionnaire, then the results showed that the out put of teachers with positive new teaching method is better than traditional method, and in other words the out put of Ghaemshahr by the new teaching methods is more positive than their out put to the traditional teaching methods.

Michon Lidvan, Chin Chan Tesie, Hong-Ming Lin, Shi Jeboye Chang (2003) in an study investigated the non technical and ultra identification and identification - technical and conceptual aspects of effective learning areas on the base of Internet, and through LisREL analysis or learning study investigated the internet learning area (CILES), that involved 6 parameters, that classified from two aspects: reflective and technical and conceptual. Also in these aspects considered parameters as well as relation, easiness in using and challenge. For investigation the relations among students' out put of these two aspects of 483 high schools in Taiwan investigated that the achieved data indicated that for investigation of students' preferences for learning internet environments showed that it is also challengeable for them.

Therefore created new suitable learning environments for preparing kinds of discussions and challenges for learners.

The studies showed that various studies and investigation in the field of effectiveness kinds of train methods prepared by researchers of education issues. Also these results considered by most of responsible men of education ministry. This conclusion depended to the kind of study and suitability of some methods as compare with other methods. the features of this study on pervious studies is that the previous studies deal for comparing the effect of a teaching method as compare with other teaching method in a classroom for example science course and no one of them not focused on representing a suitable sample for country, while this study through investigation the process of changes process of previous teaching methods explained an optimized sample of subject topics in educational sciences.

**MATERIALS AND METHODS**

The main method in this study is continued explanation method, that its aim is explanation of under studied conditions and phenomenon. Under studied society in this study is all of teaching methods that had been created and used by the theorists of education, and the studied sample in this study involved the better methods

of teaching that used in 50 last years for learning and training.

In performing these studies on the base of the nature and various stages of study used of two library and questionnaire methods for gathering information. For durability of questionnaire used of conceptual durability and approved its durability , also the resistance of the study measured by using of Cronbach's alpha index 96%, that indicated from its high validity.

In preparing this stage of study's findings from research analyzed by using of statistical methods, and represented and explained the final optimized model that the required statistical examination for analysis of gathered information involved: factor analysis for determining the structure among data and reduction of factors.

Also for identifying the main and sub factors of the optimized samples of teaching educational sciences used for determining the structure among data and reduction of the main and sub factors.

**FINDINGS**

1. In question 1 of the study in 50 last years what methods designed and proposed for teaching educational sciences? In table 1 dealt to classifying various teaching methods and in table 2 showed the teaching methods that used in 50 last years.

**Table 1: Classification of teaching methods.**

Teaching methods	Name methods include	Year
Traditional teaching methods	Memorizing and repeating, lecture, question and answer, demonstration, role-playing techniques, methods, field trips, group discussion, experimental method	Decade 1950 1960 1970 1980
New teaching methods	Individual teaching methods, learning to dominate, private tutoring, linear programs, learning by computer, Individualized Education conducted, Teaching work units, Exploring teaching method, collaborative approach, innovative methods	Decade 1960 1970 1980 1990
Teaching models	pattern organizer, Problem-Solving Model, Inductive thinking model, concepts attaining, model scientific exploration, group investigation method, Mastery learning model, Direct instruction model	Decade 1960 1970 1980

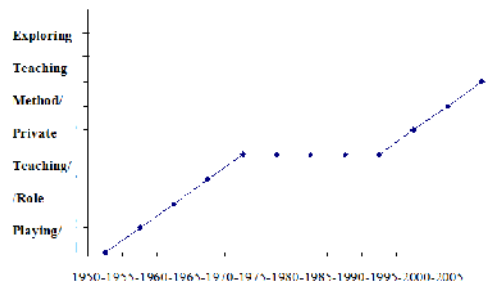


Diagram 1: The teaching methods used in the past 50 years.

**Table 2: The process of changing teaching methods.**

Teaching methods used in last 50 years	year
Home school system / Socratic method of teaching / teaching expository / teaching memorize and repeat /Interactive lecture method	The first decade: of 1969 to 1959
teaching memorize and repeat/ interactive lecture method/ method of teaching questions and answers/ teaching demonstration/ role playing	The second decade: 1979 to 1969
interactive lecture method/ method of Teaching questions and answers/ Teaching demonstration/ role playing/field trip method/ Group discussion/ Experimental method/	Third Decade: 1989 to 1979
Interactive lecture method/ method of teaching questions and answers/ Teaching demonstration/role playing/ field trip method/ Group discussion/private teaching/ linear program/ teaching by computer/ Teaching work units	Fourth Decade: 1999 to 1989
Interactive lecture method/ method of teaching questions and answers/ role playing/ teaching demonstration/field trip method/ Group discussion/ Exploring teaching method/ Collaborative method/ teaching by computer/ Teaching work units/ linear program/ Innovative teaching method/ pattern organizer/ Problem-Solving/ concepts attaining/ Group discussion	Fifth decade: 2009 to 1999

2. The results of the second research question that in each of the teaching methods of the strengths, weaknesses, threats and opportunities have? "

Through investigation the advantages and disadvantages of various teaching methods we concluded that all of teaching methods whether new or traditional have advantages and disadvantages. In no time an especial method could be the best method for teaching. Therefore if in choosing suitable teaching method by teachers and masters considered the weak

and strong points and finally the best method used for them the issue of teaching become meaningful.

Also on the base of the fact that the main subjects of teaching allocated in both styles of teacher and students oriented and in 4 sections beginning relation, continuous of relation, effectiveness of relation and finish of relation . In addition, we deal to classifying advantages of teaching methods in any one of these 4 sections that showed in table 3.

**Table 3: Teacher-centered and student-centered style-features.**

Features student-oriented style	The stylistic characteristics teacher centered
1. Waiting for good situation for creating attention by students	1. Trying to attract the attention of students
2. Friendship and intimacy with men	2. Maintaining the majesty and dignity of teacher students
3. Questions or provocative questions before the start of the course	3. Explain the objectives before the start of the course
4. Conduct agreement with the students in the classroom	4. Customer determine behavior in the classroom
5. Create enthusiasm for learning in students over course	5. Asking students to learn without preparation
6. Stimulate students to both phone and collaborative	6. Stimulate students to learn and compete in learning
7. Humor	7. Strict(serious)
8. The flexibility of the contingent conditions and needs of students	8. 8. formality (adherence to specified and predetermined criteria)
9. Emphasis on student performance (including mental activity, physical, etc.)	9. The emphasis on expression lesson by teacher
10. Efforts to raise questions and cause confusion for students	10. Efforts to explain lesson
11. Encourage students to explore and search and bearing their incorrect answers	11. Emphasis on the acquisition of a correct answer by students
12. Stimulate students to interact and vibrant	12. Maintaining order and silence in the classroom

3. The findings of study about the third question About the third question of study "what we can compound the strong points of teaching methods for explaining an optimized sample? On the base of the results of analysis of data we concluded that 7 main optimized factors of courses of educational sciences reduced to 5 factors and named as

the main factors for determining the structure among data, that exploited in table 4. For representing more information, we can point to the sub factors of any main factors. In table 5, these sub factors showed in order of factor loads.

**Table 4: The principal components of variance extracted.**

Principal components	total	Percent of variance	Density percentage
Preparation	15/418	49/736	49/736
Implementation of teaching	3/557	11/473	61/209
Analysis of teaching	2/292	7/395	68/603
Evaluation	1/724	5/561	74/164
Feedback	1/410	4/548	78/712

**Table 5: Sub-component factor loads.**

Main factors	Sub-components	Load factor
The first factor preparations	Study limitations of time, place, content	% 676
	Statement of unknowns and uncertainties	% 754
	Select the content and method of work and procedures	% 835
	In considering appropriate solutions	% 817
	Plan appropriate teaching methods	% 742
	Budget, determine the duties of teacher and pupil, educational technology	% 705
	Experimental teaching	% 776
	Structure, preparation and coordination	% 799
	Leadership, motivation, empowerment, supervision, guidance	% 935
	Pretest	% 897
The second factor is the implementation of teaching	Analysis	% 651
	planning	% 689
	Course design and presentations	% 853
	Process changes and how teaching methods	% 901
	Educational Technology (attention to the global growth of science)	% 869
	Communicating with the factors affecting learning	% 795
	Science-based teaching methods	% 754
Content-based teaching methods	% 614	
The third factor analysis of teaching	Situation analysis	% 792
	Design	% 913
	Analysis of environmental factors, both internal and external	% 716
	Objectives and values	% 780
The fourth factor evaluation	Investigation restrictions	% 727
	Formative assessment	% 816
	Diagnostic evaluation	% 841
	Further evaluation	% 785
	The use of student-centered teaching methods	% 760
The fifth factor feedback	Evaluation	% 734
	Determine the strengths and weaknesses	% 860
	Identify opportunities and threats are	% 836
	Frequency and period	% 827

*Representing the optimized sample of teaching educational sciences topics:*

On the base of the sub and main factors that exploited for model of teaching educational sciences courses and on the base of the logical relations among these factors showed this proposed model in the next page. As *Of advantages of these models are:*

observed in this proposed model, this model is rely on completed development such that method of interpretation of teaching methods showed by teacher oriented, concept oriented and student oriented. On the base of the used methodology used of a cycle process for development of methods and teaching samples.

1. Reflective design
  2. Possibility of cost calculations
  3. Direction and performance control
  4. Development of knowledge along with development of model and ability of creation of communication
- This snail model in the view of activity divided in few groups that they called work sections. They are

involved 6 main stages of main points and start, programming, investigation of created limitations of design, subject topics and representation and evaluation. In addition method of changing teaching and relation among them indicated that any one of them have sub factors that showed in table 7-2.

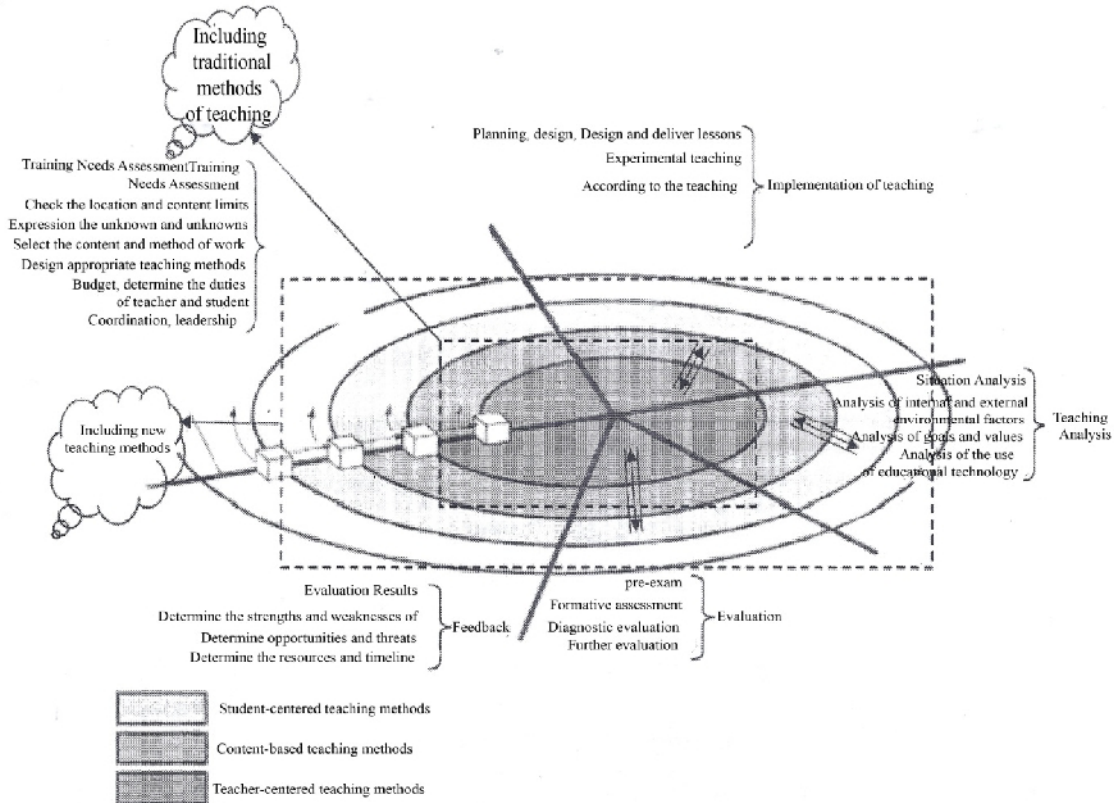


Fig. 1. The optimal model of educational science courses.

4. Findings of study for question four

About the fourth question of study "how much the represented model in the view of educational sciences' masters is acceptable? The adoption degree of the model represented.

*The adoption degree of model*

For designing of this model at first studied the internal and foreign experiments, and also investigated the theory principles for methods and various samples of teaching and then exploited the main and sub factors rely on the history of study in Iran and the world and also theoretical principles. The designed model for interview of masters prepared for calculation of adoption degree of model.

The harmonic degree of the model for 5 main factors were: readiness (85/72%), teaching operation (84/15%),

teaching analysis (81.99%), evaluation( 86/,63%), out put (90/66%).

**RESULTS AND DISCUSSION**

After gathering information and analysis of data it was clear that the proposed model in the view of masters of educational sciences was 85/82%. Therefore the total harmonic degree of the sample was 85/,82%.

In the past, they believed that the duty of education was readiness of few graduated persons that could prepare their welfare tools. However, it seems that in the new century the education systems passed this stage and now preparing students just for welfare is not sufficient , and in fact education systems should prepare students for a creative and good life, so that their education meets their needs, hopes and interests.

Therefore learning is a magic, of course if we know it and prepare its conditions and these conditions will not prepare unless through using a suitable teaching method.

According to the fact that the represented teaching methods and samples by education coaches and teachers is very various and different and also because it is changed continuously, and compounding of them is difficult issue, so there is no agreement in this field among theorists. Therefore this study investigated and classified the better teaching methods that used in 50 last years by education responsible men, and in other side designed a picture of changes process of these methods during last half century in education field so that the masters choose the best methods through attention to the conditions and facilities and also considering learning environment. The results of this study show that the masters upon the necessity of making changes in their teaching methods and represented models choose the best one and move toward deep and effective learning.

So hope that teachers through considering this sample could create effective methods for challenging in classroom, and surrender the responsibility of learning to the students so that they connected the current issues in the classroom to the real world.

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