

Impact of the Second Teacher (Teacher Contributor) On the Academic Achievement of Students in Mathematics

Fatemeh Asadi

Department of Educational Administration, Islamshahr Branch, Islamic Azad University, Islamshahr, Iran

*Corresponding author's Email: fatemat_zahra@yahoo.com

ABSTRACT: The purpose of this study was to investigate the influence of the second teacher (teacher contributor) and comparison with conventional techniques methods on the academic achievement of 50 students in the first grade of high school on math in the Qods city during the academic year 2013-2014. The research was performed semi-experimentally and with control and experimental groups by a pretest and post-test that after confirming the validity and reliability of the training content it has been designed and implemented. Experimental group during 8 weeks on mathematics with cooperative teacher and control group with no cooperative teachers have been trained. After this period, both groups were assessed through a post- test. Mean scores of achievement for control and experimental groups have a significant difference together that indicates teacher contributor's effectiveness on students' achievement. Highlights of the study are include: 1. Increase academic achievement in the classroom; 2. Create confidence and more motivation for students; 3. Vitality and promotion the learning level of mathematics in students; 4. Note to all students with different learning levels; 5. Increase students' sense of responsibility; 6. Reduce academic failure.

Key words: Teacher Contributor, Academic Achievement

ORIGINAL ARTICLE
Received 10 Jun. 2014
Accepted 25 Oct. 2014

INTRODUCTION

Always comes a moment when the door opens and lets the future will enter. A future that today is expected will come, if we know how want be we will influence it. Obviously the recognition and utilization of modern methods of teaching, is a very important issue that needs efforts.

Advancement of knowledge and human civilization owes mathematical science so that it is considered as the foundation of all the sciences, including humanities (psychology, sociology, philosophy, history, geography, literature, poetry, music, art, etc.) and experimental science (biology, geology, physics, chemistry, medicine, astronomy, Marine, Mechanical, Civil, Construction, etc.) and math is an integral part of normal life in trading, supply, technology, and chores which human dealing with it. Today the civilized world owes its progress in mathematics science, and attaches great importance to it so that it constitutes the basis of life and mathematics has a great importance in academic all levels of preschool, elementary school, secondary school and university. Therefore, worthy that we use the ways which learning math become easier and more attractive. One of these methods is cooperative teacher.

The new approach of education system based on the use of teacher contributor in schools is a very convenient and practical and general method at all stages of training. In the method, the student in addition to learning course material, are also evaluated in terms of behavioral and educational and accountability, and on the other hand It was a very active and lively classroom for student so that they were not aware of the passage of time and utilizing this approach will appeal to them (Alimardani, 2011).

All of human behavior that we observe is based on the same principle. If the student can digests the learning material as link its meaning to himself, his life, his fame, his community, people and to the society, not only learns the material in a way that does not forget but also his interest to learning will become more and more and will go in search of more recent information (Keith and Meredith, translated by Behrangi, 2002).

In fact, the teacher contributor project, namely, foster the skilled and talented citizens to play different roles in life in future. A kind of life that comes with responsibility and rational thinking and awareness and optimal enjoyment of the facilities (Alimardani, 2011).

Learning through Teacher contributor

In the learning through cooperation, the role of teacher alters from "wise of class scene to the practice guide". Although the students act to learn as a group, but their progress in learning is measured individually (Allison King, 1993).

Learning through cooperation has an order and structure and its basic focus is on to ensure that the learning occurs. Choice and active of group cause the students act creativity based on different viewpoints, ability, and ethnicity and race which they have.

Assigned the formation group to the students is possible to cause the formation of homogeneous groups, namely, it is possible the students who tend to a certain henry, scientific, social, family and social class orientation are divided to the specific group. This cause to reduce the efficiency of group and acquisition of social skill delays and focusing on homework assignments be dropped (Cooper, 1990). For these reasons, it is recommended teacher to learn through collaboration and to form groups must themselves act and build a heterogeneous group. In the

heterogeneous group, members are from different fields of science, art, ethnic, etc. The number of members in the classroom can be varied from 4 to 8 people. The number of members is for the groups of students that have some ability to manage time and words.

In the other words, if determining members of the group be done in terms of educational levels, it is better to formed 4-people groups from fourth and fifth grades upward. For the first to third grades, double work is more appropriate. Groups with many members increase the diversity of the views while groups with limited membership influence to facilitate interactions (Milis, 1993).

Learning through cooperative underpins a classroom with a social nature, in which the students reach to the solidarities that are pursuing a common goal and often members of the group shows responsibilities from each other versus learning contents of courses. The group work usually does not end until all members not mastered on the course content. Moreover, when team members are responsible for each other's learning and trying to learn each other's stories, experience individual learning. Stability of group or consistency of group members depends on their cooperative.

In this project, teacher guides students in the learning path as a learning manager. Actually, facilitates learning the path. So the teacher in this project is not a teacher but also it is the facilitator the learning and all his efforts in the classroom is enabling students in group activities (Alimardani, 2011).

In this project, students addition to learn the course material, are also evaluated in terms of behavioral and educational, therefore, it can be said that the cooperation plan means foster citizens who in the near future can establish the position of its existence or learn correct way to deal with people around and have a peacefully and rationally life (Alimardani, 2011).

Teaching models in fact are the learning patterns, that is, teachers help students to gain information, ideas, skills, ways of thinking and opinion. Well as they educate how to learn. Really, the most long-term important result of education can be enhanced students' abilities to learn more and more in the future that are due to the acquisition of knowledge, skills and processes of learning. Way to teach has a great effect on self- learning ability of students. Learning and education are interdependent. The learning is a goal and teaching is a tool to reach the goal. Therefore, active teaching methods than traditional methods provides a context engaging students with the learning process with a greater quality and quantity of learning (Shabani, 2013).

In this way all students participate in teaching instead of teacher. Main feature of this method is students participate in conveying information and material to other students. In learning through cooperation, the difference of group members leads to effective learns. One of the learning objectives through this approach is that students learn to work with everyone and thereby enhance learners' academic progress, build positive relationships and transfer of experiences to them that need for social, psychological and healthy cognitive development. Methods of learning through participation are completely different with collaboration method. Encourage students to work in small groups to help each other to learn the course material is the common denominator of all these methods. In order to that cooperative groups become successful; teachers should be observing three things.

1. Consider all students' actions.
2. Tell to students the results of the social skills that they used.
3. In the appropriate situations intervene to teach essential skills in the workplace (Pour Alireza, 2009).

Cooperative teacher with guidance of the teachers and academically strong students (bright) help poor students and covered them and upgrade them to an acceptable level by practice and repetition and participation until they achieve middle academic level of the class. Based on the plan, the teacher by Identifying and organizing the students can use mental and academic abilities of high school with a grade point average to reinforce poor students. Identification of the students can be based on the average score, talent and financial of students. Nowadays, teacher contributor project is conducted in the theological schools by clerical student through discussion and negotiation and is almost successful. Well as religious attitudes in today's world, providing the participation context of students in the training programs such as morning ritual, song, cultural events and well as educational programs such as the class representative (surveillance), attendance... and even in service areas such as teacher unions, school cleaning etc. In the contemporary world, it is common and running. Creating the contexts of students' participation in the educational - training field for development of their character and having a spirit of cooperation and co-responsibility and criticism is one of the policies and objectives of the Ministry of Education (Soleymanpoor, 2006; and Godazchian, 2007).

Some of cooperation ways

- 1. Students team progress groups:** In this way students are divided into 4 groups of learning.

Students are combined through homogeneous manners in terms of performance level, gender and race. After present the lesson by teacher in order to ensure of learning individual members, students pay to inter-group activities. At the end, all students should be contributing in the individual tests in which cannot help together. The scores of students are compared with their previous scores to determine their performance and academic achievement. This way is used in teaching the subjects such as mathematics, languages, and social sciences.

2. Team rivalry: In this way, teachers' teaching methods and teamwork are completely similar to previous methods with the difference those students instead of participate in test contribute competitions.

3. Individual learning with the help of a team: In this method as well are formed four-person teams composed of students who are at different performance levels and certificates will be awarded to teams that have good performance, and in this way collaborative learning is blended with learning individual.

4. Division of the subject into different sections: Students make up the six-man teams to work on the subject of lesson that is divided into different sections, for example, can divides the biography into a variety of sectors, such as the early of lifetime, the first achievements, outstanding issues of lifetime and its role in the history. Motivation of attention to matter content and work of all teams are enhanced in the others.

5. Team research: In fact, manage the class is a general plan that based on it the students work in small groups on participatory planning. With select subjects of studied content, each group divides it into the smaller part and each part is studied by a member of team, and each part and at the last stage each of the group offers its lessons and their findings as a workgroup to the rest of the class.

6. Project of team performance: In this way, each member of the team assesses its knowledge before team discussion. After an initial review each learner answer to a series of questions is supposed be taught, then the team members discuss together about each of answers to agree. Since team members must agree on the best answer the participants at occasion exchange information and explain their reasons, assess evidence and reasons with other members. In this way, the answers key should explain the cause of trueness or falsity of each answer to allow team members to gain a deeper understanding of the best learners' answer. In this plan the learners are motivated. Learners' intrinsic curiosity is that why others think in this way and make solicitous the learner and make interested members of the team or even affect them (Seyfi and Abi, 2013).

Learning benefits through cooperative

- The learner become familiar with the objective and whereas the purpose is distinct, traverse the way is easy.
- Gives students the opportunity to assertiveness.
- In the cooperative groups all member confide together.
- No one is not better than another and not have to do a more work.
- During the debate will be provided an opportunity to assess their people.
- Prevent academic failure of students, especially. Poor students create a spirit of cooperation, collaboration and a sense of responsibility in students.
- Reduction of Workload, classroom and teacher curriculum and optimal use of opportunities for guidance school students.
- Reduction in government spending. Using this method can be reduced to one-third of the programs and activities of the class by students.
- Reductions staffing in schools, so that about a third of the teachers are assigned to students.
- Feel of personality, development, creativity and innovation in students.
- Better and more effectively learning with warmth and vitality of the students of the same age.
- Better interaction between students with clear goals and ultimately improving education rather than wasting time.
- Flexibility and continuous learning, in addition to school, at home, online, telephone or in parks and other places of entertainment such as cultural and educational centers etc.
- Increase parent participation and cooperation with each other and their more attention to the fate of all students.
- Self-fusion and dynamism of all students in a healthy and constructive competition and growth of all students' talent, not of a specific number.
- Culturalized and institutionalized participation of the student's cooperation and collaboration with each other.

How to implement the plan

After a few sessions of teaching and testing in order to diagnostic evaluation, to establish the groups is act as follows:

1. The groups are divided into groups of 5 to 6 man.
2. Select of the captains is based on a higher score and a more activity.

3. In selected subgroups be attend to their talents and personalities.
4. The students be justified about plan and expression their activities.
5. To better explain the captains, they are invited to a meeting.
6. Be provided a specific form to deliver the information to groups.
7. Be used of educational aids.
8. Mental making space to justify better the use of necessary materials.
9. Shorthand and Overview of Entries must be noted by the members.
10. Be Checked the class with performing the class administration arts according to the previous training.
11. Be considering to teaching time.
12. The final evaluation is performed in form of written and with several questions during 10 to 15 minutes at the end of team work.
13. Evaluating the tests is performed by students. (Captains) each group evaluates the tests of other group.

It is noteworthy that this method with a title of "project of teacher contributor" is due to become familiar with the procedures. Chief point is that the point of activity in the classroom is the students. So, according to their work skills and techniques based on the experiences of each plan and the way that meets this issue is a cooperative project.

Five elements of cooperative learning (teacher contributor)

1. A Positive interdependence
2. face interaction
3. Individual and group accountability
4. small Interpersonal and group skills
5. Batch Process

Behavioral expectations of the project

1. Students should be able to effectively solve the exercises required courses and if they saw something out of the book to be able to detect it.
2. Should be able to find things taught in the lesson and do the briefing. Raise Different questions that might "be created in their minds.
3. They should also ask themselves questions and note in a group questions sheet and pay attention to them.
4. During the study, visualize the subjects in mind if possible. Should attach importance to the ideas of others and know when to ask questions.

5. If a member of the group did not understand something, others tell it

The results of the project that are expected:

1. Will be prevented early fatigue teacher and its physical disability.
2. With division of labor, we approach the educational goals sooner certainly will cause the satisfaction of the students and teacher.
3. High academic performance will be achieved. Another effect of this plan is the incidence of new ideas, hidden talent and potential creativities expression that will have a great impact in their later life.
4. Prevent diseases such as varicose veins, lumbar disc, and pain in the shoulder area, fatigue, back pain, ocular discomfort and ... for the teacher.
5. Prevention of the diseases such as chronic and nervous headaches, disorders of the larynx and vocal cords.
6. Avoid negligence in performing duties on behalf of students.
7. Avoid distraction and lack of focus in the classroom.
8. Getting up reclusive and isolated students and their creativity expression.
9. Create a cordial and friendly relationship between teachers and students.
10. Encourage teachers to continue working with more patience and better service.

Background of the research

- In a study was done by Alimardani in 2011 entitled "What is a teacher contributor project", he stated that during the 10 years that were exploited in this way, students in addition to learn the material, have been improve in terms of behavioral, educational and accountability and the classroom environment have been very active and lively.
- In a research was done by Saifi, Javan and Abi in 2013 entitled "teacher contributor impact on achievement and attitudes of secondary school students in the lesson of chemistry" concluded that the teacher contributor has been influences achievement and attitude of the student.
- In a research was accomplished by Smith in 2009 entitled "Learning together and alone" concluded that effective teaching requires the learning structure with a cooperation and collaboration.
- In a research was performed by Cross, Taylor, Lindner and Yap in 2011 entitled "Improving the quality of teaching assistance method" concluded that synergy has been made based on the best features of pedagogy and andragogy. While it does not have any of their restrictions. Synergy Structure is achieved through enable learners to acquire a codified

knowledge under situation that raises their conflict and commitment. This method is proposed the learning through cooperative.

Necessary to perform the research

Since plan of cooperation namely the rearing of citizens who in the not too distant future can to stabilize their existential situation and learn the correct way to handle around and have a peacefully and logical life is a life with optimal accompanying and productivity of resources and talent available in the community. Since using various methods and participation in teaching and assessment to promote science level and create interest and motivation and confidence in the very impressive therefore it can be seem that using this plan can be success in time management and optimum use of it with active and diligent student for their achievement.

Statistical population

This study has been carried out is based on 50 first high school girl students in math in the city of Qods in the year 2013-2014. Samples are divided into in two separate classes, control and experimental groups which each group consisted of 25 people that were performed with matched controls of their before final math grades.

MATERIAL AND METHODS

- The research was performed semi-experimentally and with two control and experimental groups by a pretest and posttest.
- Measurement tools is the researcher made achievement test of academic achievement.

- Validity of achievement test was examined by several scholars in way of formal and content method.
- Reliability of achievement test was obtained using software SPSS by Cronbach's alpha 0.07, which indicates good reliability for the test.
- The independent variable in this study is the teaching method that was implemented in two ways of teacher contributor and traditional teaching and dependent variable is the level of students' achievement. During this research before running was taken pre-test academic achievement from each experimental and control groups and again, after teaching two chapter of the book of the first year of high school mathematics were assessed groups using teacher contributor method by post- test that the results of the analysis are as follows.

RESULTS

Data analysis

Hypothesis: there is significant differences between experimental and control groups about learning of students.

According to the results of pre- test and post-test mean differences distribution in the both test and control groups, the distribution is not normal and therefor to investigate the difference between experimental and control groups can be used Mann - Whitney scores.

Test of learning mean analysis in the pre-test and post-test differently in two control and experimental groups.

This hypothesis is confirmed.

Test Group	The pre-test scores		The post-test scores		Significance level
	Standard Deviation	Average	Standard Deviation	Average	
Experimental	1.217	1.62	2.912	26.23	<0.0001
Control	1.421	1.98	1.628	14.11	<0.0001
Significance level	0.312		<0.0001		

CONCLUSION

According to the research conducted, taking advantage of teacher contributor has had a significant difference in student achievement.

Suggestions

Since mathematical is language of science therefore familiarity with new ways of teaching math for teachers is important.

- holding seminar meetings on active teaching methods
- Optimal use of education time using the teacher contributor

- Increase student participation and their interaction with the teacher in use of the teacher contributor
- This plan can be used in the fifth and sixth elementary school, or secondary school.
- The project can be experimental or be on a grade or a lesson or a province.
- Textbooks is so designed and arranged to provide the grounds of their participation.
- Necessary training should be given to teachers.
- Use the experiences of other developed countries.

- Interaction facilities (distance learning), such as electronic and internet facilities to be provided at school and at home.

- The student's score Calculated based on the group and is given on the report card.

- Initially the project execute pilot in the educational complex (due to the necessary facilities).

- Through parent-teacher associations is done necessary training and information to parents.

- With relevant agencies and organizations, such as radio and television, and ... be coordinate and cooperate.

- This project can be based on class or educational level.

Limitations

- The need for sufficient time for teachers to implement contributor approach

- Difficulty to control the class

- Providing opportunities for collaborative learning (should be developed a new lesson plan for the implementation of this method)

- Having sufficient resources for learners

Authority Have Resources Sufficient For Learners

REFERENCES

Alimardani, I., (2011), "What is the project of teacher contributor" teacher, no. viii, April.

Cooper, J. (1990). Cooperative learning college teaching: tips from the trenches, the teaching professor, 4 (5).

Godazchian, F. (2007), "innovation at class" development of education technology, volume 23, number 5.

King, Allison (1993). From sage on the stage to guide on the side, college teaching. 41 (1)

Kroth, Michael; Taylor, Bryan; Lindner, Larry; Yopp, Marty (2011). "Improving your teaching using synergistic andragogy", electron in journals, university of Idaho.

Maleki, S. (2012), "teachers contributor" Resalat Newspaper, issue of 7608, page 5 of cultural.

Millis, Barbara (1993). Learning cooperative, a workshop presented at Dalhousie University.

Pour Alireza Toutkaleh, A. (2009), "the several role of the teachers at class course," journal of scientific information, number 366.

Smith, Karl, (2009). "Learning together and alone: cooperation, competition and individualization" college of education, university of Minnesota.

Saifi, F.; Javan, F. And Abi, M. (2013), "impact of the second teacher (teacher contributor) on educational progress and view of secondary

students "eighth Iran educational seminar on chemistry of, 28 and 29 august.

Soleymanpoor, J. (2006), "skills of teaching", publication of Novin Nashr.

Saeidi Moghaddam, MR, (2008), "method of teacher contributor".

Shabani, H. (2013), "the educational skills of teaching methods and techniques", publication of Samt.