



Study of Cooperative learning Effect on Academic Achievement*

Eghbal Zarei¹, Hossien Zainalipour¹, Hamid Haidari*¹ and S. Abdolvahab Samavi²

1. Hormozgan University, Bandar Abbas, Iran

2. Department of Educational Psychology, Science and Research Branch, Islamic Azad University, Hormozgan, Iran

*Corresponding author's e-mail: Heydari2352@yahoo.com

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ABSTRACT

Present research aims to investigate the effect of cooperative learning on the academic achievement. This is a quasi-experimental research with pre-test, post-test and control group. The statistical society include the students of Middle schools in Bandar Abbas and the sample consists of 25 girls and 25 boys for test group and the same number of students for control group. The cooperative learning method was applied in the test group for 12 sessions while the control group was being taught traditionally. The results indicated that cooperative learning method increases the academic achievement in the test group. Therefore, cooperative learning increases the academic achievement of students.

Key words: Cooperative Learning, Academic Achievement, Students.

INTRODUCTION

It is a deep seated ambition for all societies to see the improvement and eminence of its members and have educated and thoughtful citizens. Obviously, any improvement requires thoughtful, creative and critic individuals, who are able to make right decisions and plan properly, which needs an active and dynamic educational system. Thus, it can be certainly said that any improvement is derived by an efficient and right education system which depends on many factors such as the change in teaching methods and models in order to apply modern and active techniques [1]. Today, cooperative learning is among the active methods considered by many education experts, which can be useful to improve the educational performance of students. The method called cooperative learning is the one in which learners cooperate in little groups and they would be encouraged for what they achieve together. The main characteristic of this method is that the group members work together in order to meet a common goal which is profitable both for the group and each of the members [2].

In participatory approach of learning, all students would enjoy learning process and equal educational opportunities, rivalry turns to friendship, cooperation and participation is edified and all students are encouraged to think and be creative [3]. This method uses several inhomogeneous little groups in which students collaborate in order to improve together and they are responsible for their own learning and other's as well [4]. The results of the research by Mirzabeygi et al showed that the educational improvement of the students educated by participatory methods is higher than those in control group [5]. In his research, Ostovaer, also indicated that the performance of a participatory education is more effective on educational improvement of students in Mathematics and experimental sciences, compared to the traditional methods [6]. Keramati et al. concluded that the educational improvement of the students educated through participatory method is higher than those who receive regular education. Moreover, these results indicated that compared to boys, girls gain more from cooperative learning [7]. One year later, Keramati achieved similar findings based on the considerable effect of cooperative learning on educational improvement of students [8]. Yaryari et al. concluded that cooperative learning methods have a positive effect on educational performance of students [9]. Besides, the results of the research performed by Fahami et al. showed that the increase in social skills of the girls studying in fifth grade of primary school is derived by cooperative learning [10]. Findings of a similar study performed by Jalali et al. indicated that education through social learning model significantly improves the average scores of self-esteem, self-confidence, self-expression, and educational improvement among the students [11]. Another research by

Yazdaniyanpoor et al. showed a significant difference between test and control group [1]. Keramati also concluded that participatory method of learning has a significant influence on the improvement of social skills and Mathematics among both girls and boys [3].

The results of the research by Alkhateb et al. showed no significant difference between the performance of students in groups educated through cooperative learning and traditional methods [12]. Winston concluded that cooperative learning has a positive effect on the attitude of students toward Mathematics and their educational improvement in this subject [13]. In another study, Nichols showed that students in cooperative learning group have higher efficiency as they have had goal-oriented learning, they consider more value for studying and they have better educational improvement [14]. Johnson et al. concluded that cooperative learning has a better and more positive effect on educational improvement, self-esteem and the attitude of students toward studied subject and the school, both in cognitive and emotional aspects [15].

Educational improvement is one of the priorities regarded by the schools in Iranian society, thus if a method is not proved to be sufficient about this, it would be probable rejected by those responsible in schools as well as the students [5]. Therefore, the present research proceeds to investigate the effect of participatory on educational improvement of Middle school students, in order to answer this question: Does cooperative learning cause an educational improvement among students?

MATERIALS AND METHODS

The research was performed through a pretest-posttest quasi-experimental method with a control group. The statistical society consisted of all middle school students of Bandar Abbas including boys and girls. The research sample included 25 girls and 25 boys studying in the third grade of the middle school for the test group, and the same number of students for the control group. In the test group, the participatory method was applied for 12 sessions while the control group received traditional education. In order to collect the required information, tow scholar tests were applied in this research as pretest and posttest. Covariance analysis was used as to analyze the research data.

RESULTS

Table 1 illustrates the average scores and standard deviations of educational improvement of the participators in this research. The results of Levene's test are shown in table 2. As it is observed in table 2, the result of the equality of variances achieved through Levene's test is significant for the variable of educational improvement ($p < 0.001$) and variables of educational improvement of boys and girls ($p < 0.05$). Thus, the covariance analysis can be applied in this research. The results of covariance analysis are shown in table 3. The intercalated results in this table indicate that education through cooperative learning can increase the educational improvement of all students ($P < 0.001$) including boys ($P < 0.05$) and girls ($P < 0.01$). These results also show that the effect of pretest is statistically significant in all three groups ($p < 0.001$) and its effect on the results of posttest is also investigated in this research.

Table 1. Average scores and standard deviations of educational improvement of the participators in this research

Variable	Group	Gender	Pretest		Posttest	
			Average	Standard Deviation	Average	Standard Deviation
Educational improvement	Test	Boys	15.74	2.98	17.48	1.27
		Girls	16.46	2.50	17.72	1.24
		Total	16.10	2.74	17.60	1.24
	Control	Boys	15.90	2.71	16.78	1.89
		Girls	16.38	2.42	16.60	2.15
		Total	16.14	2.55	16.69	2.00

Table 2. The results of Levene's test for assessment of equality of variances

Variable	F	Df1	Df2	Sig.
Educational improvement	12.98	2	98	0.23
Educational improvement of boys	7.02	2	48	0.11
Educational improvement of girls	6.03	2	48	0.18

Table 3. Summarized results of covariance analysis

Variable	Variation resource	MR	F	Sig	Power
Educational improvement	Pretest	124.04	80.00	0.000	1.000
	Education	21.48	13.85	0.000	0.958
Educational improvement of boys	Pretest	62.04	46.48	0.000	1.000
	Education	7.28	5.45	0.024	0.629
Educational improvement of girls	Pretest	63.55	35.15	0.000	1.000
	Education	14.64	8.10	0.007	0.796

DISCUSSION

The fact that the characteristics of the present world in all aspects are different from those in near past, is remarkably observed in after the researches, disquisitions and investigations of this study and it is regarded important from the viewpoint of the scholar, therefore, the traditional education systems which rely on the contents of textbooks, look to students as a submissive and prehensile creature, and consider the teacher as the pivot of education, can't survive in the modern world. Many scholars tend to resolve this problem by presenting new methods of teaching and learning. They have investigated and analyzed these methods and all of them have agreed that the traditional teaching methods can no longer respond to the needs of 21 century human.

Considering the significant role of experimental science in different subjects such as Biology, Meteorology, Medicine, etc., the necessity of a deep learning, the ability of analysis among the students, and the role and importance of teaching method on deep learning, the present research investigates the effect of participatory teaching on educational improvement of students. Regarding the great effect of teacher's method on learning of students and the necessity of fundamental evolutions in education system, it seems proper to move toward active teaching methods through which the ability of deep understanding, significant and enjoyable learning, analyzing and creative thinking can be increased among the students. Teachers should be persuaded to learn these methods properly and use the suitable teaching method for each particular subject. Besides, these participatory methods should be also used in teaching applied sciences, so that students can achieve a deep learning through using them in real daily problems and go beyond memorizing a few subjects .

Considering the statistical findings of this research, the research hypothesis was approved, i.e. participatory teaching of experimental science subject is highly effective on educational improvement of the students. The findings of this research are in accordance with the results of Shacher et al. [16], Alkhateb et al. [12], Winston [14], Nichols [13], and Johnson et al. [15]. Besides, the findings of the researches performed inside the country about the effectiveness of cooperative learning indicate that this method is adequately efficient which also confirmed by the present research. For instance, the findings achieved through this research are in accordance with the achievements of Pakize, [17], Samadi Shal [18], Mirzabeygi et al. [5], Ostovar [6], Keramati et al. [7], Keramati [8], Yaryari et al. [9], Fahami et al. [10].

Besides the aforesaid findings, there is a strong theoretical basis about the effectiveness of participatory learning. One of the newest educational theories, which have been able to change educational systems in recent years, is Lev Vygotsky's viewpoint. According to him, the learners build their own learning. Therefore, in order to achieve deep and constant learning, we should try to perform the information for the learners in a passive way. In an active process, the students should form the knowledge themselves. Besides Vygotsky, Jean Piaget also believes in such processes in formation of cognitive structures. He believes that children are like little scientists, they discover the knowledge about the surrounding phenomena themselves. According to Piaget, the active interaction between the child and the environment which is changing continuously, results in the formation of the cognitive patterns and structures. Based on the social learning theory, children can also achieve some skills and information through observing the performance of their peers. As to the participatory methods of learning, students can find suitable models of educational, social and moral behavior in the groups formed by the same individuals. Besides, in order to justify their presence in the group and avoid punishments, they should also cooperate with members to meet the educational goals [19]. Therefore, considering the discussed theoretical basis and the scholar findings inside and outside the country, and the present research as well, it can be concluded that cooperative learning can be a suitable alternative for traditional educational methods. Constitution of service training for the teachers in order to justify the education methods in improved groups and make them familiar with these methods can apply a part of the achieved results by this research in education system.

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