



## Comparing the Effectiveness of Jig Saw Teaching Methods and proficient Learning Teaching Method on Academic Achievement of Sixth Grade Students, Bandar Abbas District 2

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**ABSTRACT:** Teaching method plays vital role on learning and teaching. An appropriate and good teaching method directs both teacher and student forward to better teaching and learning, respectively. Accordingly, in this research we compare the effectiveness of Jig Saw teaching methods and teaching- learning method, mastering on academic achievement of sixth grade students, district 2, Bandar Abbas. This research has been done in a semi experimental method and with a control group. All of the sixth grade students of Bandar Abbas district 2, made the statistical population of this research. The required data and information were collected through field methods. ISM's academic achievement motivation questionnaire was the tool of the data collecting. The Analysis of covariance test was used to test the research hypothesis. The results show that both methods (Jig Saw and proficient learning) have 95% significant effect. Also the means after the tests show that the Jig Saw method was more effective than the proficient learning.

**Keywords:** Jig saw teaching method, proficient learning, academic achievement, students

### INTRODUCTION

Cooperative learning or teaching through the partnership is a new worldwide teaching approach; its major goals are as follows: engage students in learning process, removing one-dimensional and teacher-centered classrooms and creating interests and motivate students for active learning. Due to the occurrence of rapid changes and developments in sciences, students need methods through which acquire learning skills; so they can learn the sciences better, faster and along with the progresses. Cooperative learning method or teaching through the partnership will help the students in this regard <sup>1</sup>.

Today's, the academic achievement of students is considered as an important and vital indicator for the educational systems evaluation. Additionally, the academic achievement is always important for teachers, students, parents, theorists and educational researchers and scholars. For example, the academic achievement of students is one of the main criteria for assessing the teachers' performance; students' academic achievement is dependent on the

quality of teachers' teaching and the use of active teaching methods. The active teaching methods refer to those which can strengthen the students' activities and change the learning to a bidirectional course<sup>2</sup>.

Therefore the teacher should engage the students with learnable materials and contents and teach them the ways of knowing, rather than rely solely on information and knowledge transmission. Sometimes lots of material are being taught, but teachers have later found out that the students retell only a few of what have been discussed and posed. What is the reason, indeed? Why sometimes after a detailed explanation about a subject, then the learners could not recall even a bit of it? Why the students tighten their memory instead of semantic understanding of the contents?

To answer these questions, the main reason can be the teachers' neglect to teaching-learning methods, namely lack of applying an active approach. For this reason, educational quality is not at a desirable level in many schools, and the students often retain the materials, and when the exams are ended, forget them. Applying the active methods of teaching makes learning to permeate to the students and not only they do not forget their findings and discoveries but also apply it practically through the life. In this research the effect of Jig Saw teaching method and master learning-teaching method was examined and studied without neglecting other important variables like, academic achievement, and we hope that it become a window for further studies and researches and a step to teaching and learning process.

Jig saw is a special method of participatory which has the track record of success and usefulness in different aspects of training, and could play a worthwhile and important role in decreasing the racial conflict and inequality, creating a positive and dynamic learning environment<sup>3</sup>.

This is a model of participatory methods that is appropriate for educational environment and setting, and Aronson used it in 1987. In this approach, the students are divided into the groups of 4 to 5 people. Aronson made groups of 6 members, but today's the number of members is different based on the researchers' results<sup>4</sup>.

Slovene has modified the Jig Saw method in 1986 in which the students are divided into the groups of 4 or 5 people. In the method all of the students learn a common subject like chapters of a book, a short story or a biography, meanwhile each of the students are asked to have a deep and detailed study about one of the desired subjects (specific section). Those groups of students who study a common subject organize and form specialized groups and completely learn about that subject, then come back to their teams in order to teach what they have learnt. Finally, all the students do individual test and the mark of each group will be determined based on the mean of the members' mark, then those groups that reached the limit will be rewarded or receive certificate<sup>5</sup>.

"Proficiency" is the most vital and essential concept in proficient learning. It is referred to the real learning of the students. Its concept is close to the concept of skill. Skill is referred to one's efficiency in using their learning. Yet the proficiency is referred to the effectiveness of the learning process in creating a desired learning. Anderson and Block suggest that, skill is gained after proficiency, i.e. one should be skillful at a task then be proficient. The students are acquiring skill through practicing the learning on which they were proficient. Then it can be said that proficiency is the prerequisite of skill<sup>4,6</sup>.

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Control of the amount of students' proficiency during learning process is possible and practicable through stage tests of final and genesis, cumulative and congestive.

Based on the Rosenstein theory the underlying factors to facilitate the learning process are as follows: step by step exercises, exercises based on examples of skill and new concepts, words of explanations about material of interest to learn, try to be proficient on concept or skill and avoiding impatient and re-explain the points. The teacher is ought to provide proper feedbacks fit to language and lesson type<sup>7</sup>.

### MATERIAL AND METHODS

The quasi-experimental method has been used in the present research, because this study controlling or manipulating the entire variable or variables is not possible. The subjects in the study are randomly divided into two groups: experimental and control. This project is displayed using the following symptoms:

Table 1: pre-test and post-test design with experimental and control groups

Groups	Pre-test	Independent variable	Post-test
Experimental group	+	+	+
Control group	+	-	+

As this scheme table shows in both experimental and control groups, pre-test and post-test are executed and experimental group is the only group that is exposed to the effects of the independent variables of the investigation. Control group has remained immune from that influence.

The research population includes all sixth grade students of district 2 elementary schools of Bandar Abbas in academic year of 2013-2014. The population is consisted of 2817 students (1333 girls and 1484 boys). Through multi-stage random sampling method, 80 subjects using random assignment have placed in experimental and control groups.

The scale of academic achievement motivation (ISM) was used in order to determine the motivation of academic achievement of students either supported or not by Bandar Abbas relief committee. The scale has been prepared of 43 questions of 5 multiple answers (the scoring of one to five, from completely disagree to completely agree) based on the Likert scale, and has eight main components in the fields of motivation of interest in the task (Select the task in conditions of freedom and motivation of students to do school work, with four items), trying (much efforts, especially on difficult material, consisting of seven items), social power (Student motivation to supervise the team and being the leader, with six items), gain continuity (doing group works in the field of education, with three items), social interest (student motivation and attention to help others academic achievement, including five items), Earn Praise (student motivation to get others attention and encouraging them in education, with five items), being the model (student motivation to appreciate and receive the reward of the education, a total of seven items). The reliability of the tool is estimated by various researchers, and the Cronbach's coefficient has been reported 0/67. The Cronbach's alpha test was used in this research to calculate reliability of questionnaire. The obtained reliability was 0/73.

In order to describe and demonstrate the students' academic achievement and academic performance, the descriptive method is used that include frequency, mean, standard deviation, percentage, and the Table is applied. Inferential statistics are obtained from the chi-square test. To analyze data obtained from the study, SPSS software, independent group's t-test and analysis

of covariance are used . The study has been conducted having experimental group and the control group and applying Jig Saw teaching method and mastery learning teaching method for the experimental group for a certain period (six 50-minute sessions). To gather information from the sample, the achievement test is used in two groups of pre-and post-tests.

**RESULTS**

**Table 2:** Summary of the independent group’s t-test results of pre-test and post-test of academic achievement variable

Test	Groups	No.	Mean	Standard Deviation	Means differences	T value	DF	P
Pre-test	Jig Saw	20	2.47	1.34	-0.22	0.53	38	0.59
	Mastery learning	20	2.7	1.33				

The table above shows the results of the t test for independent groups between two Jig Saw and mastery learning teaching methods in the variable of science course scores in two stages of pre-test and post-test. As can be seen, in the pre-test stage no significant difference is observed between the two methods, but in the post-test stage, the difference between two groups is significant in academic achievement scores variable with the t of -15.58 at the alpha level of 0.01. This means that the scores of students who have been trained using Jig Saw teaching method are high than the scores of students who have been trained through mastery learning teaching method.

**Table 3:** Results of Leuven test to check the assumption of variances equality of the academic achievement variable

Significance level	Df2	Df2	F value
0.91	38	1	0.012

Covariance analysis test is used to evaluate the effectiveness of Jig Saw and mastery learning teaching methods on science course academic achievement of sixth-grade students. To use the covariance analysis test, the assumption of variances homogeneity is essential. To test this assumption, Leuven test results are presented in the table above that is not significant with the f=0.012, and the alpha value of 0.91. It means that the lack of significance of inequality assumption of variances is rejected. It shows that the present study data are suitable for analysis of covariance. The following table presents the results of covariance analysis test.

**Table 4:** Results of covariance analysis test of Jig Saw and mastery learning teaching methods effectiveness

Dependent variable	Changes source	Mean of squares	Sum of squares	DF	F value	P	Eta coefficient
Academic achievement	Between-group factor	43.51	43.51	1	6.2	0.01	0.14
	Between-group factor	7.01	266.37	38	-----	----	----
	Within - group factor	2880	2880	1	1174.24	0.01	0.96
	Within - group error	2.45	93.2	38	-----	----	----
	Interaction	57.8	57.8	1	23.56	0.01	0.38

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The above table shows the covariance analysis test results of the effectiveness of Jig Saw and mastery learning teaching methods on science course academic achievement of sixth-grade students. As it is clear from the above table characteristics, between-group factor is significant with  $F=124.77$  at 0.01 Alpha level. Also the within -group factor is significant with  $F=33.83$  at 0.01 Alpha level. Interaction between the two positions (pre-test and post-test) and groups (experimental and control) with the  $F$  value of 297.10 at 0.01Alpha level is significant. In general, the results show that the increase in post-test scores mean in the experimental group is significant. Thus, we can say that the Jig Saw and mastery learning teaching methods significantly increase academic achievement scores mean of science course of sixth-grade students.

## CONCLUSION

This comparison revealed that students who have been trained using Jig Saw teaching method compared to those students who have been trained by mastery learning method have higher academic achievement mean. This finding is the same in two groups of boys and girls. Perhaps it can be said that the major advantage of the Jig Saw method is not only cognitive learning and major cognitive changes, but also responsibility and social skills practice are the other its major benefits. On the other hand, Jig Saw teaching methods instead of boosting competition among students strengthens the participation and reinforces a spirit of collaboration among them. This is why Jig Saw learning method is not used only in the field of cognitive skills transfer and school issues, but it includes a wide range of topics and social and emotional categories.

Generally, the pattern of Jig Saw that can be involved in cooperative patterns family, as the model used in the present study, suggests a favorable impact on academic achievement. Using Jig Saw cooperative model considering the calculated effect value and also  $t$  test represents its remarkable and good impact on the teaching of science basic course at the sixth grade. So that it excels not only the traditional common method, but also its relative superiority over mastery learning teaching model has been confirmed in the present study. What is displayed numerically is based on the direct training effects on students' academic achievement. However, educational and indirect effects of using Jig Saw model on social, interpersonal and behavioral skills as well as students' self-awareness are very high and more research needs enough time. The results of this study promise the effect of using this model in other different subjects, courses and grades.

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