JOURNAL OF

International Scientific Publications:

Educational Alternatives

Volume 8, Part **1**

Published at:

http://scientific-publications.net

Publishing by Info Invest Ltd

www.sciencebg.net

ISSN 1313-2571, 2010, Bulgaria

Journal of International Scientific Publication:
Educational Alternatives, Volume 8, Part 1
ISSN 1313-2571, Published at: http://www. scientific-publications.net

Journal of International Scientific Publication:
Educational Alternatives, Volume 8, Part 1
ISSN 1313-2571, Published at: http://www. scientific-publications.net

Published in Association with Science & Education Foundation.

Any paper submitted to the journal IRP: Educational Alternatives - should NOT be under consideration for publication at another journal. All submitted papers must also represent original work, and should fully reference and describe all prior work on the same subject and compare the submitted paper to that work.

All research articles in this journal have undergone rigorous peer review, based on initial editor screening and anonymized refereeing by at least two referees.

Recommending the articles for publishing, the reviewers confirm that in their opinion the submitted article contains important or new scientific results.

The authors of the articles bear the responsibility for their content.

When quoting the articles their author and edition should be mentioned.

Journal of International Scientific Publication:
Educational Alternatives, Volume 8, Part 1
ISSN 1313-2571, Published at: http://www.scientific-publications.net

THE EFFECT OF COOPERATIVE LEARNING METHOD ON ACADEMIC SUCCESS

Ayşe Elitok Kesici[1],

[1] Department of, Curriculum and Instruction, Adnan Menderes University, Aydın, Turkey

E-mail: aelitok@adu.edu.tr

Abstract

This research is planned in order to analyze the effect of cooperative learning method on the academic success of the students studying in the Department of Elementary Education regarding the lesson "Teaching Technologies and Material Design". The aim of the research is to reveal the effects of group research technique in cooperative learning method on the teaching process of the unit "material types" of the lesson "Teaching Technologies and Material Design" of the third grade students in Elementary Education Department. The research is designed according to the experimental type. There is an experimental group and a control group in the research. At the end of the research, it is found that there is a significant difference between the academic success of the students in experimental group in which cooperative learning method is used and the academic success of the students in control group. The findings show that this difference is for the benefit of the students in experimental group. Through the interviews with the students in experimental group, it is established that the students have positive views regarding cooperative learning method.

Key words: *Cooperative Learning Method, Group Research Technique, Academic Success*

1. INTRODUCTION

When the history of the education is analyzed in general, it is seen that the education has been teacher centered for a long time. With the scientific research in the field of education and with the educational theories, it can be said that the concept "teacher-centered education" started to give way to "student-centered education" in 1985 and this understanding became widespread after that (Yanpar, 2007). It is seen inevitable that the intended human qualifications will change depending on the rapid developments in science and technology. Therefore, it is found that the teacher candidates should be brought up with the student-centered education concept.

The instructors' conducting the lessons in the faculties of education considering the student-centered techniques will help the teacher candidates use the methods which make the pupils active during the teaching process. The fact that the most effective teaching technique is "learning by doing" should also be used during the education of the candidate teachers. We can expect the teacher candidates to bring up their pupils with active methods if the teacher candidates are trained through the same methods.

Most of the researches show that the methods which make the students active not only affect the academic success and attitudes in a positive way but also help the students to socialize (Slavin, 1980; Artut, Tarım, 2002; Avşar, Alkış, 2007; Yıldırım, 2006; Tok, 2008). At the end of the socialization process, the students will have been ready for their social life.

The inadequate number of cooperative learning practices in the institutions which educate the candidate teachers and in the universities is an important issue which shows deficiencies in this field. The fact that the lesson "Teaching Technology and Material Design" has both theoretical and practical content played an important role in choosing Group Research Technique of Cooperative Learning Method.

2. THE AIM OF THE RESEARCH

The main aim of the research is to reveal the effects of Group Research Technique in Cooperative Learning Method on the teaching process of the unit "Material Types" of the lesson "Teaching Technologies and Material Design" of the third grade students in Elementary Education Department.

3. THE METHOD

The research is designed according to experimental model. Experimental models are the research model in which the expected data obtained under the researcher's control in order to determine the cause and effect relations (Karasar, 2009). The effects of the independent variables (such as Cooperative Learning Methods, Lecture Method, Question-Answer Method and traditional Group work) on dependent variable (Academic success) are examined. The research is designed according to experimental method with pre-test and posttest control group. In this model, there is an experimental group which is exposed to the experimental operations and a control group. The pre-test before the experimental process and the posttest after the experimental process are applied to both groups. In the research, there is one experimental and control group. The practices of "Group Research Technique" in Cooperative Learning Method is used in the experimental group while the practices of Lecture Method, Question-Answer Method and Traditional Group work are used in the control group. Throughout the research the lessons are conducted by the researcher herself in both experimental and control groups. "Achievement Test" developed by the researcher for the lesson "Teaching Technologies and Material Design" whose validity and reliability is checked and reliability level is found .82 by the researcher is applied to both the experimental and control group before and after experimental process. In obtaining qualitative data, "Semi-constructed Interview Form" developed by the researcher in order to measure the qualitative data. Qualitative research is a research model in which data collection tools such as participant observation, interviews and document analysis are used and in which a process enabling the attitudes, phenomena and issues to occur in a realistic and integrated way in the natural environment is adopted (Şimşek, Yıldırım, 2008). While the interview form is prepared, nonfunctional questions are omitted and experts' opinions are asked in order to provide validity and reliability. The interview form is composed of 14 questions. After posttests are applied, the interviews are made with the 6 participants (randomly chosen) in the experimental group in which the cooperative learning method is used. An interview with one participant lasts 20 minutes. For the data analysis, qualitative data acquired from the interview form are written separately for each student; after the obtained text is read line by line, coding is conducted and categories are made up.

4. WORKING GROUP

The work group of the research consists of 87 third grade students (33 female- 54 male; 45 for experimental group- 42 for control group) studying in the two branches of the Department of Elementary Education in the Faculty of Education of Adnan Menderes University in Aydın in Turkey.

The fact that there are two branches for third grade classroom has an effect on the choosing process of experimental and control groups students from these classrooms. Hence, the groups are tried to be equal with each other. Experimental and control groups are established by drawing lots. The lessons in control and experimental group are conducted by the researcher according to daily plans prepared by the researcher.

5. DATA COLLECTION

In order to collect data regarding research hypothesis, the procedures are followed as below:

1) The research is applied to 87 third grade students studying in the two branches of the Department of Elementary Education in the Faculty of Education of Adnan Menderes University in 2007-2008 education fall term through 4.5 weeks. In the experimental group, the cooperative learning method is used for the unit "Material Types". In the experimental group, the classroom is organized according to cooperative learning activities. In the control group, the lessons are conducted according to lecture method, question-answer method and traditional group work method.
2) Before the study, two weeks course for the experimental group has been conducted with integration techniques of cooperative learning methods and the students are provided with the experiences concerning the method. Necessary explanations concerning the cooperative learning methods are made to the students before the study. Because the study is limited to one unit, one week is allocated for preparatory work. During these works, brain storming technique, cluster name, cluster slogan cluster song activities are also included in the process.
3) Before starting the teaching process, the achievement test for the unit called "Material Types" is applied to both experimental and control group.

The figurative appearance of the experimental model with experimental and control group used in the research is as follows:

Table 1: The Figurative Appearance of Experimental Model

G1	O1.1	X1	O1.2
G2	O2.1	X2	O2.2

G1 : Experimental group 1

G2 : Control Group 2

X1 : Cooperative Learning Method, The implementer :The researcher

X2 : Lecture Method, Question-Answer Method,

Traditional Group work The implementer: The researcher

O1.1,O2.1 : Pre-tests scores

O1.2,O2.2 : Posttest scores

5.1.Experimental Process

The study is conducted through 4.5 weeks in 2007-2008 education years.

6. TEACHING METHODS AND THEIR APPLICATIONS

In experimental group, group research technique is included. In the control group, lecture method, question-answer technique and traditional group work is included.

6.1. Group Research Technique

Group Research Technique depends on the communication among the individuals and student-centered learning activities are highlighted. Affective and social aspects of the learning in the classroom are emphasized (Açıkgöz, 2002). Students make researches by planning a subject, implementing the plan, collecting data, and using the data in solving multi-dimensional problem, synthesizing and combining their works. This technique has got 6 main stages:

1. To clarify the subject about which is investigated and organize the students in research group
2. Planning and researching within the groups
3. Making the research
4. Preparing the final report
5. Presenting the report
6. Evaluation (Sharan and Sharan, 1990; cited by Gömleksiz, 1997).

The implementation process regarding the technique takes place as follows:

Before the study, the properties and the implementation stages of Group Research, the importance of sharing and cooperation are explained to the students in experimental group with all the details. Each of the questions asked by the students is answered.

The duration of the application and the distribution of the subjects in this term are announced to the students. Seating in the classroom during the cooperative learning studies is of great importance. Group with 2-6 should be formed so that it can contribute to the cooperation and interaction (Johson, Johson, 1991). Therefore, in the experimental group, the lessons are conducted in the classroom where chairs with armbands are put instead of the one which they generally used. The chairs are organized according to cooperative learning by the students under the instructor's control.

Before the experimental works, previous unit are taught through Integration Technique which is one of the Cooperative Learning Method with aim of making the students gain experience related to cooperative learning.

The activity of forming the chain of names is carried out within the preparatory works. The activities of defining the identity of the group (establishing the subjects, organizing the group) are implemented during the first stage of Group Research Technique.

6.1.1. The Application of the Technique:

After the preparatory works, with the unit "Material Kinds" the application of the technique starts. The thing asked the students is to form interest groups. The students are expected to think about the subject with intriguing questions asked by the instructor's guiding the pupils to make research. Sources related with the subject are brought to the classroom and analyzed by the students. Providing students with different sources, they are expected to look at the same subject with different point of views and their

attentions are tried to be drawn. The pupils analyze the sources with interest and make the question into subgroups suitable to the research. After all these preparatory works, the students' ideas are obtained through brainstorming activity. Each of the suggestions is listened carefully and the suggestion list is formed. Working on the list, the subjects are combined in a way that can be research problems in this research which will be carried out together with the students. (Because the number of the group is 12, the subjects are organized under 12 subtitles.) The groups are formed according to the latest version of the list. In forming the groups, each student writes the number of the subject on a paper and gives it to the instructor. In the process of forming the groups, the students' interests are also taken into consideration. The students are grouped according to their interests, pretest scores and their genders and the fact that there should be four students in each group is also considered.

What is expected from each group is to plan their research, to prepare research plan and to conduct their research according to this plan. After the works, each group is explained that they will prepare a final report. This report is presented to the whole class. In the evaluation of the group these presentations are also taken into consideration. The presentation of each group is assessed by the instructor. Post-tests are applied to the experimental group in the afternoon after which all the presentations are over.

6.2. The Application and Methods Used in Control Group:

In the control group of the research, lecture method, question-answer method and traditional group work take place. The lessons are carried out by the instructor. There are no changes made about the traditional seating of the classroom. The subjects in the unit are taught by the instructor with the support of CD; during the lesson, questions are asked to the students and the lesson continues with the answer taken by the students. The time allocated for the lesson is the same with the one allocated for experimental group (4.5 weeks). 1.5 weeks is allocated for theoretical part of the subject explained by the instructor; 1 week for the students' group works and 2 weeks for the students' presentations. The forming of the group is up to the students and they organize the group with the ones they like. Each group composes of 4-6 students. The presentation of each group is evaluated by the instructor. Posttests are applied to the control group in the lesson after which the presentations are over.

7. THE ANALYSIS OF THE DATA

The data obtained from data collection tools are analyzed with the help of SPSS 11.5 packet program. The statistical techniques used in the research are as follows:

When the pretests and posttests of the students regarding the lesson "Teaching Technology and Material Design", whether there is a differentiation between pretests and posttests is measured with covariance analysis and in order to determine the direction of the differentiation, Benferroni Comparison test for two samples is utilized. In the evaluation of the result, significance level is accepted as .05 (p=.05).

8. FINDINGS

8.1. Findings Regarding Achievement Test

Table 2: The Mean, Standard Deviation, Corrected Posttest Mean and Standard Error of the Achievement Pre/Posttests Scores of the Students in the Experimental and Control Group

Groups	N		Total Scores		Corrected Mean Posttest Scores	
			X	SS	Xd	Std. Error
Experimental	45	Pretest	18.54	3.32		
		Posttest	25.52	3.53	25.55	.453
Control	42	Pretest	17.97	3.38		
		Posttest	23.25	2.99	23.30	.469

It is seen that the mean of posttests of the control and experimental group achievement test increase compared to pretests' mean. The posttest mean of the experimental group is X=25.55 which is higher than the posttest' mean of the control group. In order to determine whether there is significant difference between the groups' means, covariance analysis is used and the results are shown in the table.

Table 3: Covariance Analysis Results of the Post Test Mean of Ac,hievement tests of the Students in the Experimental and Control Group

Source of the variable	Sum of squares (KT)	Sd	Mean Square (KO)	F	P
(Pretest) Controlled variable	145.032	1	145.032	15.729	000
The main effect of groups	109.830	1	109.830	11.912	001
Error	774.517	84	9.22		
Total	53133.000	87			

When the covariance analysis results are looked into, it is seen that there is a meaningful differentiation in terms of corrected posttest's mean of the groups (F=11.912. p= .001).

Depending upon this, the achievement levels of the students in experimental group (X=25.55) is higher than the achievement levels of the students in the control group (X=23.30) according to Benferonni test carried out for the corrected achievement test means. The findings obtained from the achievement test show corrected posttest scores have a meaningful difference in favor of experimental group that when the pretest scores of the control and experimental groups are controlled.

9. DISCUSSION AND COMMENTS

When the findings of the research are taken into consideration, it can be said that cooperative learning method has a more positive effect on the academic achievement of the students compared to the traditional methods. When the achievement scores are analyzed, meaningful differences are found in favor of the experimental group between the control and experimental group. This result is consistent with the findings of the previous researches conducted regarding cooperative learning method. This result has also matched up with the findings of the research conducted by Gömleksiz and Yıldırım (1996) on the university students utilizing cooperative learning method. Moreover the findings of this research correspond to the findings of the study conducted by Yılmaz (2007) on which the effects of Group Research Technique on academic success of Science and Technology lesson.

The students' willingness and participation actively in the lessons may have an effect on the results' being in favor of the experimental group. This issue is expressed by a girl student as follows "We know our friends better and we have found the chance to study together with our friends whom we have never studied before. We search the subject on the internet and in the library. The way the lesson conducted has really increased our research desire."

When the answers to the interview questions are analyzed in terms of qualitative methods, 6 of the students (6 is the total number of the students who participate in the interview) talked about the positive sides of the technique. These positive features can be listed such as working in cooperation, providing socialization and positive effect on the academic success. These results match up with both the theoretical quality and practice studies of cooperative learning. The duration allocated for the group research technique is found inadequate by two of the students in the interview. In fact, if group research technique is applied by limiting the time 4.5 weeks, there can be problems. Therefore, making the application lasts throughout a term can affect the success of the technique in the following researches.

Consequently, the findings of the research show that cooperative learning method is more effective than the traditional method in term of the academic success of the students studying in the Department of Elementary Education regarding the lesson "Teaching Technologies and Material Design"

10. SUGGESTIONS

- The same method can be used in the lesson of Educational Science for undergraduate level.
- The applications of Cooperative Learning Method can take place in every level of the institutions from preschool period to high school level.
- Scientific research can be conducted regarding the applications of Cooperative Learning Method in every level of the institutions from preschool period to high school level.
- The primary school teacher and candidate teachers can be taught about Cooperative Learning Method.
- This researched can be carried out in larger samples and in longer terms.
- The effect of this teaching method on different variables can be investigated.
- This teaching method can be compared with different methods from the ones used in this research.

REFERENCES

1. Açıkgöz Ü.K.Aktif Öğrenme. Eğitim Dünyası Yayınevi (İzmir) 2002.
2. Artut P, Tarım K. İşbirlikli Öğrenme Yönteminin İlköğretim Bölümü Sınıf Öğretmenliği Ana Bilim Dalı Öğrencilerinin Matematik Öğretimi Dersine İlişkin Akademik Başarılarına Etkisi. ODTÜ. Matematik Sempozyumu (Ankara) 2002.
3. Avşar Z, Alkış S. İşbirlikli Öğrenme Yönteminin "Birleştirme I" Tekniğinin Sosyal Bilgiler Dersinde Öğrenci Başarısına Etkisi. 2007; 6(2):197-20.3.
4. Gömleksiz M. İşbirlikli Öğrenme: Temel Eğitim Dördüncü Sınıf Öğrencilerinin Matematik Başarısı ve Arkadaşlık İlişkileri Üzerine Deneysel Bir Çalışma. Baki Kitabevi. (Adana) 1997.
5. Gömleksiz M, Yıldırım F. "İşbirlikli öğrenme yönteminin Türk dili dersine ilişkin tutumlar ve akademik başarı üzerindeki etkisi". Ç.Ü. Eğitim Fak. Dergisi (Adana) 1996.
6. Johnson D.W, Johnson R.T. Learning Mathematics and Cooperative Learning Lesson Plans for Teacher. Edina, İnteraction book Company (Minnesota) 1991.
7. Karasar N. Bilimsel Araştırma Yöntemi: Kavramlar- İlkeler- Teknikler. Nobel Yayın Dağıtım (Ankara) 2009.
8. Kavcar N, Kaya S. The Effects of the Cooperatıve Learnıng on The Physıcs Teacher Candıdates'. E-Journal of New World Sciences Academy (NWSA) 2009.
9. Slavin R.E. Cooperative Learning. Review of Educational Research.1980; Vol. 50, No.2, 315-342
10. Şimşek H, Yıldırım A. Sosyal Bilimlerde Nitel Araştırma Yöntemleri. Seçkin Yayınevi (Ankara) 2008.
11. Tok Ş. Effects of Cooperative Learning Method of Pairs Check Technique on Reading Comprehension. Ilköğretim Online .2008; 7(3), 748-757.
12. Yanpar T. Öğretim Teknolojileri ve Materyal Tasarımı. Anı Yayıncılık (Ankara) 2007.
13. Yıldırım, K. Çoklu Zeka Kuramı Destekli Kubaşık Öğrenme Yönteminin İlköğretim 4. Sınıf Öğrencilerinin Matematik Dersindeki Erişilerine Etkisi. Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi. 2006; Cilt.7, Sayı 2, 3001-315.
14. Yılmaz. S. İşbirlikli Öğrenmenin İlköğretim Dördüncü Sınıf Öğrencilerinin Fen ve Teknoloji Dersine İlişkin Akademik Başarılarına ve Birlikte Çalışma Tutumlarına Etkisi.Yayınlanmamış yüksek lisans tezi. Adnan Menderes Üniversitesi: (Aydın) 2007.