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THE DIFFERENCE BETWEEN COOPERATIVE
LEARNING METHOD AND TRADITIONAL METHOD IN
TERMS OF STUDENTS' ACADEMIC ACHIEVEMENT IN
EDUCATIONAL SOCIOLOGY COURSE AT HIGHER
EDUCATION LEVEL

A Master's Thesis

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ABSTRACT

THE DIFFERENCE BETWEEN COOPERATIVE LEARNING METHOD AND TRADITIONAL METHOD ON STUDENTS' ACADEMIC ACHIEVEMENT IN EDUCATIONAL SOCIOLOGY COURSE AT HIGHER EDUCATION LEVEL

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The purpose of the study was to investigate the difference between cooperative learning method and traditional method on students' academic achievement in Educational Sociology course at higher education level.

The subjects of the study were 81 second year students from Mathematics Education and Physics Education programs of Science Education Department at Middle East Technical University.

The instruments of the study were prepared by the researcher. The first instrument was the achievement test measuring objectives of "Individual Abilities" and "Family Social Position" chapters from Educational Sociology course textbook. The second instrument was the opinionnaire which was developed to find out students' feelings toward cooperative learning method. An outline was prepared to give information about cooperative learning and cooperative learning activities.

T-test for independent samples was utilized to analyze the data. The data analysis revealed that there is no significant difference between cooperative learning method and traditional

method in terms of achieving knowledge level objectives. The results also indicated that cooperative learning method has significant positive effects on achieving comprehension and above level objectives as compared with traditional method. The results further revealed that there is no significant difference between the achievement of female and male students according to cooperative learning method.

Key Words: Cooperative Learning, Peer Teaching, Achievement in Educational Sociology.

Science Code: 222.10.00



ÖZ

YÜKSEK ÖĞRENİMDE EĞİTİM SOSYOLOJİSİ DERSİNDE ÖĞRENCİLERİN AKADEMİK BAŞARISI AÇISINDAN İŞBİRLİĞİNE DAYALI ÖĞRENME YÖNTEMİ İLE GELENEKSEL ÖĞRENME YÖNTEMİ ARASINDAKİ FARK

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Bu çalışmanın amacı yüksek öğrenimde eğitim sosyolojisi dersinde öğrencilerin akademik başarıları açısından işbirliğine dayalı öğrenme yöntemi ile geleneksel öğrenme yöntemi arasındaki farkı araştırmaktır.

Çalışmanın deneklerini Orta Doğu Teknik Üniversitesi, Fen Bilimleri Eğitimi, Matematik Eğitimi ve Fizik Eğitimi programlarında okumakta olan 81 ikinci sınıf öğrencisi oluşturmuştur.

Bu çalışmada kullanılan araçlar araştırmacı tarafından geliştirilmiştir. İlk araç Eğitim Sosyolojisi ders kitabındaki "Individual Abilities" ve "Family Social Position" konularının hedeflerini ölçen bir başarı testidir. İkinci araç öğrencilerin işbirliğine dayalı öğrenme yöntemi ile ilgili düşüncelerini araştıran bir bilgi formudur. Ayrıca, işbirliğine dayalı öğrenme ve sınıfta yapılacak etkinliklere ilişkin kısa bilgiler veren açıklayıcı bir bildiri de hazırlanmıştır.

Verileri analiz etmek için bağımsız gruplar için t-testi kullanılmıştır. Analiz sonuçlarına göre işbirliğine dayalı öğrenme yöntemi ile geleneksel öğrenme yöntemleri arasında bilgi düzeyindeki hedeflere ulaşabilme açısından anlamlı bir fark yoktur. Bununla birlikte, analiz sonuçları göstermiştir ki işbirliğine dayalı öğrenme yöntemi geleneksel öğrenme yöntemine oranla kavrama ve daha üst düzeydeki hedeflere ulaşma

açısından istatistiksel olarak daha anlamlı ve olumlu sonuçlar vermiştir. Ayrıca sonuçlara göre işbirliğine dayalı öğrenme açısından kız öğrenciler ve erkek öğrenciler arasında bir başarı farkı yoktur.

Anahtar Sözcükler : İşbirliğine Dayalı Öğrenme, Birbirine Öğretme, Eğitim Sosyolojisinde Başarı

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CHAPTER I

INTRODUCTION

In today's world, rapid development of science force people to learn more and quicker and people are bombarded by new information almost everyday. In order to be able to assimilate this new incoming information, the idea of high quality and efficient learning has gained importance. Since the educational resources and human energy and capacity were limited, people needed to find more economic and efficient ways of learning in education. This need has directed researchers towards working on learning models. All researchers have worked to reach a common goal; To improve the quality and level of learning in education.

Various theories and models have been developed for explaining teaching-learning process. The first statement constructed through these studies was "there are good learners and there are poor learners". The school system has been organized on the basis of this idea. In 1960s the idea of good learners and poor learners shifted to "there are faster learners and there are slower learners", and educational activities have been directed to enable slower learners to reach the same level as faster learners. Bloom (1976) studied on instructional process in education in order to minimize individual differences in school learning. The basic view he suggested was; most students can reach a high level of learning and motivation when they are provided with appropriate learning conditions, and differences in students' level of learning are determined by students previous learning environment and quality of instruction.

As stated in the beginning many researchers have studied and are still studying on different learning models. The idea is always the same. How and under what conditions students reach a high level of learning? As an attempt to improve level and quality of learning, and old idea has gained importance in recent years. The idea was students' active participation into teaching-learning process. John Dewey's progressive education idea has constituted a base for this active participation. Dewey perceived classroom as a social environment. He stated that students should learn how to communicate, cooperate and live in a democratic way in this social environment (Smith & Lusterman, 1979). Parallel to the idea, Bloom (1976) stated that, in a classroom environment students are not just passive listeners and receivers but instead, they are direct participants of teaching-learning process.

Tyler (1949) emphasized on the concept of "experience" during learning period. He stated that students must experience the subject to be learned by themselves. In other words, he expressed student involvement into learning activities. Additionally, Tyler offered teachers to organize courses so that students can experience the subject to be learned.

An important method that provides students' active participation into teaching-learning process is "Cooperative Learning". It is defined as a method of instruction in which students work together in small cooperative groups to reach a common goal (Demirel, 1991; Erden, 1988; Nattiv et al., 1991; Slavin, 1980). In cooperative learning method, small groups having 4 to 6 persons are established in classroom. Group formation is done on the basis of following criteria; students' sex, level of academic achievement and ethnic characteristics. Groups are established heterogenously in terms of these criteria.

In cooperative learning method group performance is strongly emphasized. Evaluations are made on the basis of overall group performance. Each member has a role in group. The responsibility of success or failure belongs to all members in group. In other words, each member is given a responsibility on group performance.

The main idea in cooperative learning is; Learning occurs in small cooperative groups (Block, 1971; Demirel, 1991; Salvin, 1980). Since success or failure is the responsibility of whole group, each member works in an effective way and therefore in spite of heterogenous group structure, all members reach a high level of learning. Furthermore, students' working together in a group help them to develop positive attitudes towards school, subject and their friends.

Cooperative Learning as a method of instruction has been used in various disciplines. As a consequence, depending on the nature of disciplines, educational institution and students' characteristics, method of application vary from one situation to another. In other words, in the application of cooperative learning several methods are used (Guyton, 1991; Nattiv et al., 1991; Platte, 1991; Sharan, 1980; Slavin, 1980; 1983).

Cooperative learning method was also studied in Turkey by a few researchers. For example Demirel (1991) stated the importance of cooperative learning in schools. He stressed that developing educational resources technologically is not the only solution in improving quality of education. Instead, current resources can be used in a more efficient and effective way. He stated an alternative learning method for this: Cooperative

learning. He explained the positive effects of cooperative learning on students' level of achievement. Demirel also pointed out that cooperative learning method has a strong affective component. It helps students to develop positive feelings towards peers, subject and school.

Demirel (1991) further suggested that when cooperative learning method is combined with mastery learning method, students' learning and achievement can be improved to a high degree.

The results of studies on cooperative learning in Turkey have indicated that cooperative learning as a method of instruction has positive outcomes in terms of both cognitive and affective domains (Açıköz, 1990; Erden, 1988). And it was recommended that cooperative learning strategies should be used more in educational programs.

As provided above, researches on cooperative learning are very limited in Turkey. Therefore, it will be helpful to conduct studies on cooperative learning which is now a contemporary issue in the world literature.

All of cooperative learning approaches stated in this chapter have a common main idea; that is: Cooperative learning as a method of instruction improves students' level of learning and achievement as compared to traditional methods.

The aim of this study is to investigate effects of cooperative learning method on students' achievement in Educational Sociology course, at higher education level.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents the related literature about cooperative learning method in the world and in Turkey.

2.1. Cooperative Learning Methods

Cooperative learning as a method of instruction have been used in various disciplines. As a consequence, depending on the nature of discipline, educational institution and students' characteristics, method of application vary from one situation to another. In other words, in the application of cooperative learning several methods are used (Guyton, 1991; Nattiv et. al., 1991; Platte, 1991; Sharan, 1980; Salvin, 1980; 1983). The major ones can be listed as follows:

Student Teams Achievement Division (STAD)

In this method, teacher presents the topic students work on worksheets in teams which are established heterogenously in terms of sex, race and level of achievement. Following studying session, students take individual quizzes. Team score is computed on the basis of each member's improvement over his/her previous achievement. That is; the scores of the highest students in past performance are compared and the top scorer gains the highest point for his/her group. The second highest scorer gains the second highest point for his/her group and so forth.

Teams Games Tournament (TGT)

In this method, heterogenous groups are formed as it is in STAD method. First, instructor gives an initial presentation of issue, consequently, students are given worksheets covering the issue. Students work on the issue in groups and all members learn the issue. Following this session, a tournament is designed in which students from different groups compete. Each student in tournament is a representative of his/her own group. Scores earned by each student in the tournament are added to their group scores.

Jigsaw

In this method, issue to be learned is broken into parts. Each part is given to a member in group. Members studying the same part from all groups come together, discuss and go back to their own group and teach other members in group. At the end of this studying session, students are evaluated individually.

Small Group Teaching

Learning occurs through cooperative group inquiry, discussion and data gathering. Instructor gives a topic and group members subdivide the topic into smaller parts. Each member prepares his/her part and teaches teammates. Following this session, the group presents the issue to the whole class. At the end presentations are evaluated by both teacher and students. This method highly allows students' autonomy.

2.2. Studies on Cooperative Learning in the World

Cooperative learning is defined as a method of instruction in which students work together in small groups to reach a common goal (Nattiv et. al., 1991). The importance of the method is expressed especially on improving social skill development, group goal and individual accountability. Based on over 35 experiences Nattiv et al. (1991) stated that using cooperative learning method help students to develop positive attitudes toward peers, teacher, subject and school. Group work functions as a socialization agent and provides students to think in different ways. According to Nattiv et al. (1991) through cooperative learning, students can learn a subject by investigating by themselves and therefore can directly participate in course. This participation increases level of learning, self-esteem, liking of peers etc. The authors claimed that cooperative learning, as a method of instruction has positive effects on both cognitive and affective dimensions of learning process.

The effectiveness of cooperative learning was also stressed by Salvin (1980). He reviewed 28 cooperative learning studies and grouped the outcomes of the researches under three titles: Academic achievement, race relations and mutual concern among students.

Based on reviewed studies, Salvin (1980) concluded the following results.

- 1) For academic achievement, cooperative learning techniques are no worse than traditional techniques and in most cases they are significantly better.

- 2) For low level learning outcomes such as knowledge, calculation, application of principles, cooperative learning techniques appear to be more effective than traditional individualistic techniques.
- 3) For high level cognitive outcomes such as identifying concepts, analysis of problems and evaluation etc. structured cooperative learning techniques that involve high student autonomy and participation in decision making may be more effective than traditional individualistic techniques.
- 4) Cooperative learning techniques have positive effects on mutual concern among students.

In another study Johnson and Johnson (1974) compared cooperative, competitive and individualistic goal structures. They reported that all three are effective under different conditions. It was stated that when a task is simple or skill oriented competition may be superior to cooperative and individualistic goal structure. But when instructional task is a higher order task, such as problem solving, it was clearly indicated that cooperation is superior to competition (Johnson & Johnson, 1974). The authors pointed out that cooperative goal structure is most appropriate one to improve achievement in problem solving tasks. They further stated cooperative goal structures encourage positive interpersonal relationships among students such as mutual liking, mutual concern, friendliness... etc.

Docterman (1991) explained the value of cooperative learning in his report and listed the positive characteristics of cooperative learning. These are:

- 1) Sharing information forces students to process information.
- 2) Interdependent group activities lead to the development of leadership and communication skills.
- 3) Mixing students in cooperative groups helps to break down social and academic barriers.
- 4) Active participation can improve students' interest and motivation.

Dockerman (1991) additionally stated that together with the characteristics above, teachers can have students who are thinking.

In order to find out in what conditions is cooperative learning more effective, Slavin (1983) studied and reviewed various cooperative learning methods. The experiments in the researches lasted at least two weeks in elementary and secondary school levels. The results indicated that among the cooperative learning methods studied, only methods that provide group rewards based on group members' individual performance consistently increase students' level of achievement (Slavin, 1983).

In an overview on cooperative learning researches, it was concluded that when teachers systematically and positively reinforce students for group work and cooperative behavior while holding individuals accountable for their own behavior, student's group and individual achievement is often higher than when

teachers reward only individual achievement. (Margolis et.al., 1990). The author also stated that in group work, students can learn great deal from each other. It was further reported that cooperative learning leads to more peer interaction and liking which help students to develop positive attitudes towards school.

Guskey and Pigott (1988) made a synthesis from 46 group-based mastery learning researchers. Their meta-analytical procedure revealed that group based mastery learning procedures indicated significantly positive results in terms of both cognitive and affective learning outcomes. It was concluded that group-based mastery learning methods increased students' immediate achievement and retention rates significantly and in terms of affective component, students who worked with group-based mastery learning liked subject more and felt more confident as compared with control groups.

The effect of cooperative learning methods was also emphasized at the end of a literature review (Guyton, 1991; Platte, 1991). It was claimed that cooperative learning methods are effective to a great extent in improving students' academic achievement in terms of both immediate achievement and retention. by helping students to develop higher level processing skills. Moreover, cooperative learning improves students positive attitudes towards peers, subject and school, cooperative behaviors and self-confidence.

The effect of cooperative learning was also studied by Sharan (1980). The author pointed out, based on literature findings, that although there are some unanswered questions related to group work, cooperative learning method has a positive effect on students' academic achievement and attitudes towards school and peers.

NCSS (National Council for the Social Sciences) (1989) presented a report for social studies' scope and sequence. It was reported that critical thinking is the major outcome of social sciences, and the council recommended teachers should use instructional methods that require students' direct intellectual involvement, and states small group work is an important instructional method providing higher level of thinking and processing.

Johnson and Johnson (1986) compared cooperative and traditional learning methods. They stressed student interaction as a powerful component but unfortunately it is generally ignored. At the end of their comparison it was concluded that students working in cooperative groups developed interdependence and individual accountability more. Johnson and Johnson (1986) added that when cooperative learning is combined with computer assisted instruction, it improves students' achievement level and problem solving abilities significantly.

Byers (1985) is another researcher who worked on cooperative learning. He compared cooperative and individualistic instructional methods. He explained that the type of instruction depends on goal structure. Byers (1985) suggested to use cooperation among students in order to reach higher level objectives. He added competition is a strong motivator but it should be among cooperating groups. The importance of peer interaction in learning was stressed in a series of studies (Buffer, 1985; Hill, 1982; Webb, 1985). It was claimed that by working in small cooperative groups students can learn a great deal from each other and consequently, can develop positive attitudes towards peers and school and can manage complex tasks which they cannot manage individually.

At this point it may be beneficial to look at some experimental findings on cooperative learning.

Mattingly and VanSickle (1991) conducted a study on cooperative learning. They investigated the effect of cooperative learning method on students' achievement in social sciences. The subjects of the study were 9th graders. At the end of a nine weeks of treatment the results indicated that the cooperative learning group's achievement was significantly higher than students in the control group.

The effect of cooperative learning on students' achievement was investigated by Nattiv (1987). The author studied on cooperative learning as an instructional strategy with 129 sixth grade social studies students. The students in the experimental group studied in small cooperative groups during nine weeks of treatment. At the end, the analysis of test scores indicated that students in cooperative learning condition scored significantly higher than students in the control group.

In another study, performance of learners working individually and cooperatively on a computer based sex education lesson were compared (Dalton et al., 1990). A total of 60 eight graders were used as subjects. The results revealed that students working cooperatively performed significantly higher as compared with the students working individually.

Fletcher (1985) compared students working in cooperative groups and students working individually. The study was carried out on a microcomputer task with 55 subjects. At the end of the treatment, the analysis indicated that students working in groups showed significantly better problem solving

performance than students working silently and individually. Additionally it was concluded that students working in groups needed less than half as much time to reach specified target values.

Johnson et al (1978) studied the effects of structuring learning goals cooperatively or individualisticly. The researchers used 30 boys and girls from 5th grade. 50 days of treatment in mathematics course indicated following results.

- 1) Students in cooperative condition solved problems more accurately and in a shorter period of time than the students in individualized condition.
- 2) Students in cooperative condition had more positive attitudes toward peers than students in individualized condition.

David (1987) conducted a study investigating the effects of cooperative learning. The study investigated the effects of Jigsaw method of cooperative learning on third grade students' academic achievement. Subjects were from 5 different classes in an elementary school. Each class had approximately 25 students. At the end of the study the researcher reached the conclusion that Jigsaw method of cooperative learning was effective in improving students' achievement level on social studies.

Another study investigating the effects of cooperative learning in mathematics was carried out by Mevarech (1985). The experiment was done with 134 fifth graders. Subjects were divided into four groups as: 1) Control group, 2) Cooperative group with mastery learning 3) only mastery learning, 4) only

cooperative learning. Mevarech concluded at the end of fifteen weeks of treatment that in the group where cooperative learning was combined with mastery learning, students obtained significantly higher scores as compared with the other three groups.

Phyllis (1990) studied on the effects of cooperative learning in improving mathematics achievement and reading. The 441 subjects were from two suburban intermediate schools. The study ended with the results indicating that the cooperative learning group had significantly higher achievement scores than the control group in mathematics. Additionally statistically significant differences were found favoring cooperative learning group with respect to attitudes toward reading, abilities in reading and self-esteem.

Hooper & Hannafin (1988) emphasized the importance of heterogeneity characteristic of cooperative learning method. They compared the achievement of high and low ability eighth grade students working cooperatively in a computer based instruction. Students were grouped heterogeneously and homogeneously on ability and received the same instruction. At the end of the treatment phase, no significant difference was obtained between the two grouping methods in terms of achievement. But the mixed ability grouping strategy substantially improved the achievement of low ability students.

2.3 Studies on Cooperative Learning in Turkey

The number of cooperative learning studies, are limited in Turkey. There are only a few studies.

Erden (1988) conducted a study on cooperative learning. The purpose of the study was to investigate the effect of cooperative learning method on students' achievement. She carried out the study with 53 second year university students in social psychology course. At the end of the treatment phase which covered one single unit, the analysis indicated that the experimental group students scored higher than the control group students, but the difference was not statistically significant. Erden (1988) further checked retention of the experimental and control groups one week later. The results revealed the experimental group students' retention scores were significantly higher than the control group students' retention scores.

Demirel (1991) made a review on cooperative learning. He suggested cooperative learning as an important instructional method to improve students' achievement and positive feelings toward peers and school. Demirel (1991) strongly pointed out in his report that, if cooperative learning is combined with mastery learning students' level of achievement can be improved to a considerably high degree. Based on this idea he recommended that the main emphasis should be concentrated on not only technological improvement of educational settings but also improvement of instructional strategies. And he stressed on group based mastery learning.

Another study was carried out by Açıkgöz (1990). The purpose of her study was to investigate the effect of cooperative learning on students' achievement level, retention and attitudes toward subject. The results of Açıkgöz's study indicated that cooperative learning as an instructional strategy has positive effects on students' academic achievement, retention of

previously learned material and attitudes toward learned material and attitudes toward school and subject. Based on these findings, Açıkgöz (1990) recommended that cooperative learning strategies should be used more in schools and further studies on cooperative learning should be conducted

On the basis of literature review above, it was observed that cooperative learning as a method of instruction has positive effects on students' 1) academic achievement, 2) attitudes toward peers, school and subject.

Based on the provided information and lack of researches in Turkey, this study was conducted to investigate the effect of cooperative learning method on students' academic achievement at higher education level.

CHAPTER III
THE PROBLEM, SUBPROBLEMS AND DESIGN OF
THE STUDY

This chapter is devoted to the presentation of the problem, subproblems and the design of the study. The purpose of the study is to provide answers to the following questions.

3.1. Problem

What is the difference between cooperative learning method and traditional method in terms of students' achievement in Educational Sociology course at higher educational level?

The subproblems of the study can be listed as follows:

- 1) What is the difference between cooperative learning method and traditional method in terms of achieving knowledge level objectives?
- 2) What is the difference between cooperative learning method and traditional method in terms of achieving comprehension level objectives?
- 3) Is there any difference between the achievement of male and female students according to cooperative learning method?

3.2. Definition of Terms

Cooperative learning: Refers to the method of instruction in which students work together in small cooperative groups to study and learn a subject. In this study all groups were assigned the same chapters. Students studied on the chapters within their own groups. Chapters were subdivided into topics and each member in groups explained his/her own topic to teammates, called peer teaching.

Peer Teaching : Refers to student's studying a topic within a group and teaching his/her own topic to teammates.

Achievement in Educational Sociology: Refers to students' score obtained from the achievement test measuring the objectives of the related chapters.

3.3. Design of the Study

In this section, the subjects, the instrument, the procedure, the data analysis and the limitations of the study will be presented.

3.3.1. Subjects

The subjects of the study consisted of 81 second year students taking Educational Sociology course in the Science Education Department at the Middle East Technical University, in 1991-92 academic year spring semester. 38 of the subjects were from the Physics Education group and 43 of the subjects were from the Mathematics Education group, (see table 3.1). The Physics Education group was randomly assigned as the experimental group and the Mathematics Education group as the control group.

Table 3.1
Distribution of subjects

	Experimental group	Control group	Total
Female	21	16	37
Male	17	27	44
Total	38	43	81

3.3.2. Instrument

An achievement test measuring the objectives of "Family Social Position" and "Individual Abilities" chapters from Educational Sociology course textbook (Boocock, 1980) was used as the instrument of the study (See App. A). The test was developed by the researcher. First, objectives of the two chapters were determined and a table of specifications was prepared (see App. B). Consequently 30 questions were written down. The number of questions was reduced into 22 after expert inspection.

The achievement test consisted of 22 questions. 18 of the questions were multiple choice and 4 of the questions were essay type questions. Of the 22 questions, 14 were at knowledge level and 8 were at comprehension level. Maximum total score of the test was set to be 28. Each multiple choice question was one point and three of the four essay questions were more than one point. The maximum score for knowledge level questions was 14,

and the maximum score for comprehension level questions was 14.

In order to obtain evidence for the validity of the instrument, in the phases of preparation, the expert inspection was done by a curriculum specialist and the course instructor.

For the reliability of the instrument, SPSS (Statistical Package for Social Sciences) was run, and $\alpha = 0.70$.

Although not stated in the main problem of the study, in order to find about affective outcomes; students' feelings toward cooperative learning method, an opinionnaire was developed and administered to the students. The opinionnaire consisted of three parts. The first two parts were about students' thoughts related to the cooperative learning method applied in the study. The third part was to find out students general feelings and thoughts about cooperative learning method. (see App.D).

3.3.3. Procedure

The two groups of subjects were randomly assigned as experimental and control groups. The experimental group was subdivided into 6 groups and each group had approximately 6 members. Members in each group were given numbers from 1 to 6.

Group formation was done according to the following criteria; 1) Students' academic standing with regard to their previous grades on "Introduction to Education" course and, 2) students' sex. Hence, all 6 groups had approximately equal number of female, male and highly successful, average and less successful students.

Two chapters were selected from the course textbook; Family Social Position and Individual Abilities (Boocock, 1980). Objectives of the two chapters were determined and a table of specifications was prepared (See App. B). The chapters were divided into subtitles by the researcher and the course instructor, and given numbers from 1 to 6, as it was done for group members. This provided each student in a group to know his/her own topic to study.

An outline about the study was developed by the researcher, (See App. C). The outline consisted of 5 parts. In the first part, a paragraph explaining cooperative learning method, took place. The subheadings of the two chapters were in the second part. In the third part, the activity program was written down so that students could follow the phases of the study day by day. Evaluation method that would be used at the end of the two chapters was explained in the fourth part. In the last part, grup lists were given.

Phases of Treatment

First Hour: The researcher and the course instructor went to the experimental group's class together in the first hour and the researcher briefly talked about himself and explained the method of cooperative learning.

Students were told that, each member in each group will study his/her own topic and teach to his/her own teammates in peer-teaching sessions, that is to say, learning will occur within groups. When the two chapters were completed, an achievement test covering the chapters would be given. Students were

explained that the evaluation of the test results will be done on the basis of group performance, that is; group members individual scores will be averaged and the averaged score will be given as that group's score. All members in that group will take that averaged score as individual achievement score, and through this procedure each member in a group will have the responsibility on success or failure of that group.

At the end of the first hour, students were asked to prepare themselves for the peer teaching session.

When the experimental group started to the two chapters, the course instructor also started to the chapters with the control group. In other words, both groups started to the some chapters at the same time but the experimental group started with cooperative learning method whereas the control group started with traditional lecture method.

Second and Third Hours: From this session on, groups started to sit as small circles in the classroom. In these block hours, peer teaching withing groups for Family Social Position chapter started. Each member in the groups explained his/her own part to his/her teammates. At the end of the session, students completed studying Family Social Position chapter.

During the peer teaching session, the experimenter and the course instructor helped groups when they needed.

Fourth Hour: This hour was assigned to group discussion and feedback. Within group discussions were made. Groups went over Family Social Position chapter and studied on same topics which were not clearly understood. When they faced a problem about

the chapter, the researcher and the course instructor helped them to make things clear.

At the end of the fourth hour, students completed studying Family Social Position chapter and they were reminded to perpare themselves for Individual Abilities chapter.

Fifth and Sixth Hours : In these block hours, students started peer teaching for Individual Abilities Chapter. Each member in the groups explained his/her topic to his/her teammates. Within these two hours, students completed studying Individual Abilities chapter.

The experimenter and the course instructor helped groups, when they needed, during peer teaching.

Seventh Hour: The seventh hour was assigned to group discussion and feedback. Within group disscussions were made. The groups studied on the parts of Individual Abilities chapter which were not clearly understood. In case of a problem about the chapter, the researcher and the course instructor helped the groups.

Students completed studying Individual Abilities chapter at the end of the seventh hour and were reminded that an examination an the two chapters will be given in the eighth hour.

Eighth and Ninth Hours: In the eighth hour, students were given an achievment test measuring the objectives of Family Social position and Inividual Abilities chapters.

In the ninth hour, students were administered an opinionnaire. After collecting opinionnaires, oral conversations were made with students to find out their thoughts, ideas and complaints about the cooperative learning method.

The control group also finished Family Social Position and Individual Abilities chapters and took the same examination at the same time with the experimental group. In other words, both groups started and ended at the same time. They spent approximately equal time on the two chapters.

Examination papers of both groups were evaluated with a structured key, by the researcher.

3.3.4. Analysis of Data

For the purpose of analysis of the main problem of the study, t-test for independent samples was used. Additionally, in order to make some comparisons within the experimental group, t-test for dependent samples was run.

The analysis of data was actualized by running t-test and reliability subprograms of SPSS (Statistical Package for Social Sciences) (Nie, et al., 1975) in the computer facilities of Middle East Technical University.

3.3.5. Limitations of the Study

The scope of the study was limited to the data collected from second year students taking Educational Sociology course at Middle East Technical University in 1991-92 academic year spring semester.

Another limitation is that only two chapters from the course textbook were used in the study.



CHAPTER IV
RESULTS OF THE STUDY

This chapter is devoted to the presentation of the results of the study related to findings about the stated problems.

The level of significance for this study was set to be 0.05.

Although the two groups were randomly assigned as experimental and control groups, in order to test if the experimental and control groups were equal in terms of previous level of achievement at "Introduction to Education" course, a t-test subprogram was run. Results of the analysis indicated that the two groups were not statistically different from each other according to their grades at Introduction to Education course (See table 4.1).

Table 4.1.
Comparison of experimental and control
groups according to their grades at
Introduction to Education course (on the basis of 40)

Measure	(n ₁ = 38) Experimental group		(n ₂ = 43) Control group		t
	\bar{X}_1	SD	\bar{X}_2	SD	
Introduction to Education course grades	25.00	9.22	24.18	11.35	.36

The main problem of the study was; What is the difference between cooperative learning method and traditional method in terms of students' achievement on "Family Social position" and "Individual Abilities" chapters in Educational sociology course at higher education level? A t-test analysis indicated that there is no significant difference between the experimental and control groups in terms of total achievement scores on the test (See table 4.2).

Table 4.2 .
Comparison of experimental and control groups
in terms of total test scores (on the basis of 28)

Measure	(n ₁ = 38) Experimental group		(n ₂ = 43) Control group		t
	\bar{X}_1	SD	\bar{X}_2	SD	
Total test score	17.76	3.49	16.76	2.87	1.41

The first subproblem of the study was; What is the difference between cooperative learning method and traditional method in terms of achieving knowledge level objectives? In order to test the problem, a t-test for independent samples subprogram was run. The results indicated that the experimental and control groups were not statistically different on achieving objectives at knowledge level (see table 4.3; Figure 4.1). In other words, the cooperative learning method did not have a significant effect on achieving objectives at knowledge level.

The second subproblem of the study was; what is the difference between cooperative learning method and traditional method in terms of achieving comprehension level objectives?

To test this problem, a t-test for independent samples subprogram was run. The results revealed that the experimental group's students got significantly higher scores than the control group students on questions measuring comprehension level objectives (Table 4.3 ; Figure 4.2).

Table 4.3 summarizes the effect of cooperative learning method on achieving objectives at knowledge and comprehension levels.

Table 4.3
Comparison of the experimental and control groups in terms of knowledge and comprehension level question scores.

Measure	Total Scores	(n ₁ = 38) Experimental group		(n ₂ = 43) Control group		t
		\bar{X}_1	SD	\bar{X}_2	SD	
Knowledge	14	9.76	1.56	10.39	2.01	-1.59
Comprehension	14	8.0	3.10	6.37	1.77	2.85**

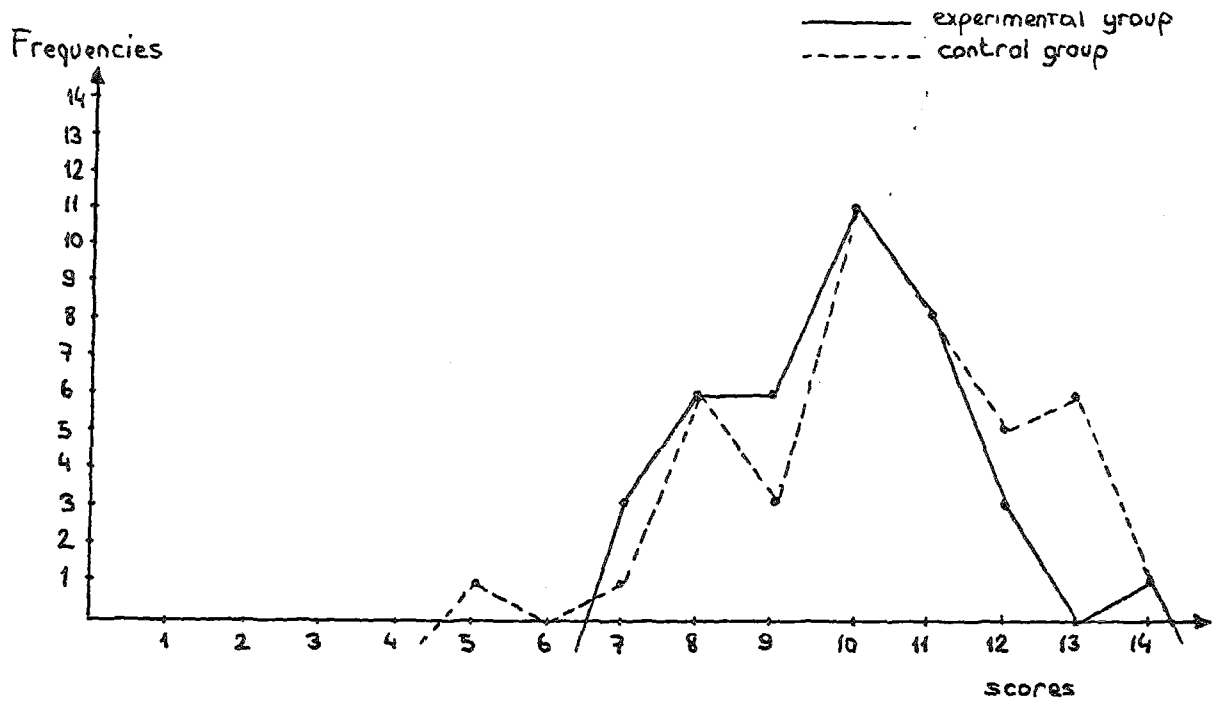


Figure 4.1 Comparison of experimental and control groups' test scores on knowledge level questions.

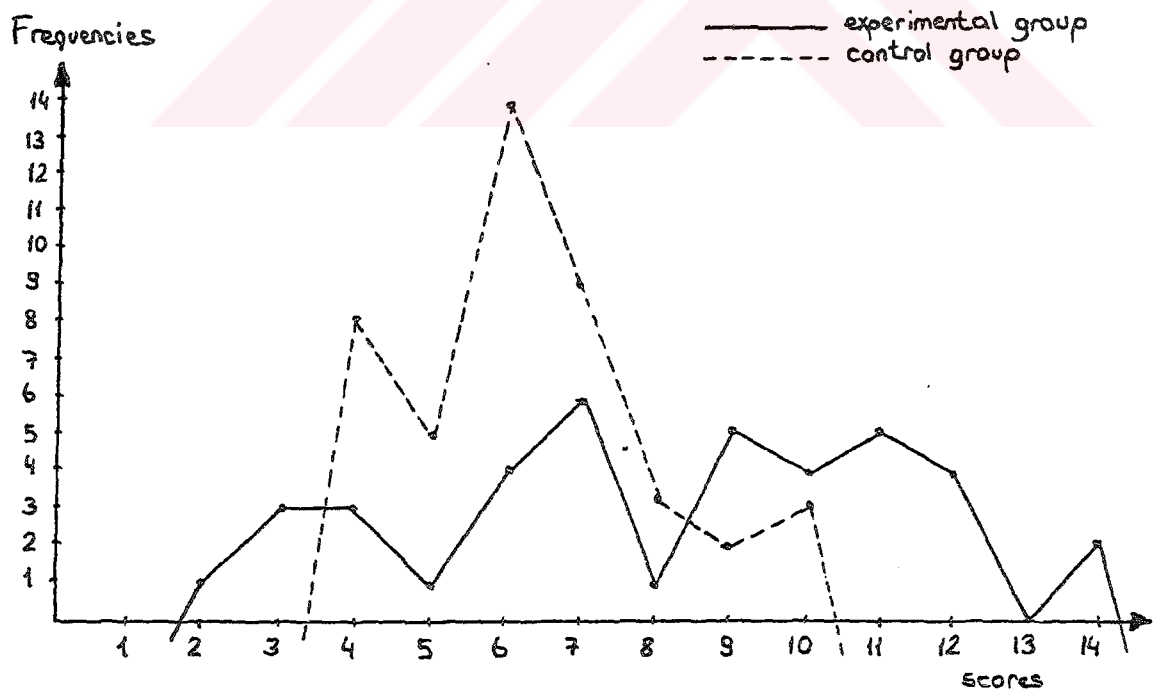


Figure 4.2 Comparison of experimental and control groups' test scores on comprehension level questions.

The third subproblem of the study was Is there any difference between the achievement of male and female students according to cooperative learning method? In order to test the problem, a t-test subprogram was run. As table 4.4 indicates, the analysis revealed that there is no significant difference between the achievement of male and female students according to the cooperative learning method.

Table 4.4
Comparison of total test scores
in relation to gender in the experimental group.

Measure	(n = 17) Male		(n = 21) Female		t
	\bar{X}	SD	\bar{X}	SD	
Total test score	17.41	3.57	18.04	3.48	.55

In summary, the analysis of the results indicated that the experimental group and the control group did not differ on total test scores. When the questions in the test were considered as comprehension and knowledge level questions, the experimental group' students did better than the control group students on comprehension level questions whereas there was no significant difference between the two groups in terms of knowledge level questions. The analyses also indicated that there is no significant difference between the achievement of males and females according to the cooperative learning method.

Opinionnaires that were administered to find out students' thoughts toward cooperative learning method were evaluated. The evaluation indicated some trends. About three-fourth of the students thought cooperative learning method as an effective type of instruction. And they reported, through cooperative learning method that they enjoyed the subject and class atmosphere more. A considerable majority of students reported that they can use cooperative learning method with their own students in their future carrier. About the applicability of the method, students' ratings did not indicate a sharp trend for or against cooperative learning method. Together with the positive thoughts, students reported some complaints. The major one was the noise occurred during group work in classroom. Another common complaint was the absence of group members, (See App. D).

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

The following chapter is devoted to a discussion of the results and recommendations for further studies.

5. 1. Discussion

As stated previously, the first problem of the study was; What is the difference between cooperative learning and traditional method in terms of students' achievement on "Family Social Position" and "Individual Abilities" chapters in Educational Sociology course at higher education level? The data analysis revealed that there is no significant difference between cooperative learning method and traditional method in terms of students' total scores on the achievement test. Two weeks of treatment in an Educational Sociology course and using the method for only two units might not be enough to show the possible positive effects of cooperative learning on students achievement. As it was stated in review of literature, most of cooperative learning studies were carried out with primary, secondary and high school students. The aim of the study was to create and experience a cooperative learning atmosphere at higher educational level.

In the literature, Erden (1988) obtained similar results. She compared students studying with cooperative learning method and traditional method in terms of total test scores on a social science course. The results revealed that there was no statistical difference between cooperative learning method and traditional method in terms of students' total test scores.

The first subproblem of the study was; What is the difference between cooperative learning method and traditional method in terms of achieving knowledge level objectives? The results

indicated that there was no statistical difference between the two methods in terms of achieving knowledge level objectives. This result is consistent with the findings of Bayers, (1985) and Slavin, (1980) who concluded that when target learning outcomes are simple such as memorizing, retrieving information etc. most of the instructional methods have similar effects on achievement. In other words, traditional method and any alternative instructional method have similar effects on achievement for low level learning outcomes.

The second subproblem of the study was; What is the difference between cooperative learning method and traditional method in terms of achieving comprehension level objectives? The analysis of data showed that the students working in small cooperative groups got significantly higher scores than the students in traditional method condition on comprehension level questions. This is consistent with the findings of Byers (1985), Guyton (1991), Johnson & Johnson (1974; 1986), Platte (1991) and Slavin (1980). The researches reported that when higher order learning outcomes such as solving problems, identifying concepts, evaluation... etc. are considered, it is more appropriate to use cooperative learning methods as compared with traditional method. It was claimed that cooperative learning as a method of instruction forces students to process information.

The third subproblem of the study was; Is there any difference between the achievement of male and female students according to cooperative learning method? The data analysis indicated that gender of the students did not have a significant effect on achievement according to the cooperative learning. During the treatment phase, it was observed that willingness to participate in the cooperative learning activities of female and male students was not different from each other. This is consistent with the literature findings. Research on cooperative learning did not indicate gender as an effective factor on cooperative learning.

In summary, it was firstly observed that there is no difference between cooperative learning method and traditional method in terms of students' total achievement scores. Secondly, it was seen that, using cooperative learning method or traditional method did not significantly effect achieving knowledge level objectives. Thirdly, it was observed that cooperative learning method had significant positive effects on achieving higher level objectives. Finally, the data analysis indicated that students' gender did not have a significant effect on cooperative learning activities. In terms of affective dimension, opinionnaire results indicated that students percieved cooperaitve learning method as an effective type of instruction. Students reported that they liked the course and class hours more through the cooperative learning method.

5.2. Recommendations

The following recommendations could be formulated within the limitations of this study: 1) The findings of the study concerning higher level educational objectives can be used in teacher training programs and curriculum development studies for social sciences programs. 2) This study can be replicated with a longer treatment duration. 3) This study can be replicated in different courses and disciplines. 4) A similar study can be conducted at different school levels. 5) The study can be replicated in different regions of Turkey with different samples.

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↻ Webb, N.M. 1982. Peer Interaction and Learning in Cooperative Small Groups. Journal of Educational Psychology, 74, 642-655.



APPENDIX A
ACHIEVEMENT TEST

EDS 240 Sociology of Education Exam

This examination covers "Family Social Position" and "Individual Abilities" chapters and consists of two sections. The first part contains 18 multiple choice questions and the second part contains 4 essay type questions. (Total score: 28)

Multiple Choice Questions (1 point each)

Each question has one single correct answer. Please encircle the correct answer.

- 1- What is the effect of exposure to mass media and interaction among other people on children?
 - a) creates unsuccessful students
 - b) helps development of verbal skills
 - c) inhibits development of intelligence
 - d) has no main effect on development

- 2- In order to use an intelligence test in a culture that is different from the one in which it is developed, the test should be
 - a) adapted to new culture's characteristics
 - b) translated to new culture's language
 - c) changed in terms of figures only
 - d) reduced into a simple level

- 3- Which of the followings describe the behavior of a creative person?
 - a) solving a problem in a short period of time
 - b) producing interesting but absurd reactions
 - c) finding alternative solutions to a problem
 - d) stating one clear reaction to a given situation

- 4- A person who creates original and divergent ideas can be said to be using mainly which style of thinking?
- a) cognitive
 - b) creative
 - c) intelligent
 - d) descriptive
- 5- Which one of the following groups emphasizes more for their children to be clean, obedient to rules and a good student?
- a) lower SES
 - b) middle SES
 - c) Majority group
 - d) high society
- 6- Which one of the followings reflects black and white students' perceptions of academic achievement and higher education?
- a) both perceive as valuable
 - b) only black percieve as valuable
 - c) only black percieve as valuable
 - d) neither blacks nor whites percieve as valuable
- 7- Which characteristics do higher SES parents emphasize most for their children?
- a) obeying rules put by authority
 - b) being interested in how and why things happen
 - c) showing comformity to external rules or authority
 - d) having characterisitcs of a good student
- 8- Which one of the followings is not a major indicator of SES?
- a) education
 - b) income
 - c) occupation
 - d) sex

- 9- What do IQ tests measure?
- a) interest in dealing with complex problems in school
 - b) capacity for abstract reasoning and problem solving
 - c) level of academic achievement
 - d) attitudes toward subjects in school
- 10- A person who groups a table, a chair, a stereo cassette player, a bookshelf and a room under the title of "appropriate atmosphere for studying" can be said to be using which one of the following style of thinking?
- a) relational
 - b) analytic
 - c) descriptive
 - d) strategic
- 11- What is the relationship between SES and academic achievement?
- a) SES is not a predictor of academic achievement
 - b) the lower the SES- the higher the achievement
 - c) the higher the SES, the lower the achievement
 - d) the higher the SES, the higher the achievement
- 12- In order to apply an IQ test that is sensitive to only a particular ethnic group, which one of the following tests a researcher should use?
- a) standard test
 - b) culture free test
 - c) culturally specific test
 - d) revised test

- 13- It is widely held by most scientists that an individual's intelligence is determined by .
- a) father's and mother's intelligence
 - b) environmental influences and SES
 - c) genetic and social factors
 - d) experiences during childhood
- 14- Research findings of equality of educational opportunity survey indicate that minority children have
- a) a chance of getting attention
 - b) advantage which goes on until the end of school
 - c) equal opportunities with majority children
 - d) disadvantage which continues through school life
- 15- When parents' behaviors toward their children is considered, findings indicate that both working class and middle class mothers use physical punishment. But the differences is
- a) they use it for different reasons
 - b) working class mothers use it more severely
 - c) middle class mothers use it more severely
 - d) middle class mothers use it rarely
- 16- For a group of researchers, middle class children have better communication skills than lower class children. The reason is: In middle class families
- a) children talk more than parents
 - b) children talk less than parents
 - c) mostly restricted linguistic code is used
 - d) mostly elaborated linguistic code is used

- 17- "Mental ability" can be defined as a concept that
- a) has a one dimensional structure
 - b) is a combination of different talents
 - c) represents an individual's chronological age
 - d) refers to a person's psychological state
- 18- IQ tests might not give valid results for every child from all social classes because they are developed on the basis of experiences of children from
- a) minority group
 - b) lower class
 - c) middle class
 - d) upper class

Essay Questions

Answer the questions below in brief sentences.

- 19- Explain a negative consequence of intelligence testing by giving example. (1 point)
- 20- For some researchers, why do lower SES children start school as "disadvantaged" as compared with higher SES children? State at least two reasons. (2 points)
- 21- Which social factors influence intelligence and how? Explain at least three reasons. (3 points)
- 22- Explain, in what ways SES, linguistic development, intelligence and achievement are related to each other by giving examples. (4 points)

APPENDIX B

Table of Specifications for the two chapters in Educational Sociology course

Content	COGNITIVE DOMAIN			
	Knowledge Level		to understand relationships among concepts	Comprehension and above levels
	to know general concepts	to recognize concepts and definitions		
1.0 Family Social Position				
1.1 Socioeconomic Status	8, 11*	7		22
1.2 SES & Linguistic Development	15, 16	1	5, 20	22
1.3 Race	6	14		
2.0 Individual Abilities				
2.1 Measurement of Intelligence	9, 17	2	12	22
2.2 Origins of intelligence	13		21	
2.3 Cognitive Style			4, 10	22
2.4 Creativity		3		22
2.5 Consequences of testing		18	19	

* Item numbers in the test

OUTLINE

COOPERATIVE LEARNING

What is cooperative learning?

Cooperative learning is a method of instruction in which students work together in a group to reach a common goal. The underlying logic is student's active participation in teaching learning process and "learning by doing". In the method, learning takes place in small cooperative groups. Each member in group takes responsibility for group performance and for teaching his/her own part to the other members in group. Evaluation is done on the bases of group performance.

Researches on cooperative learning show that the method gives positive outcomes in terms of both academic achievement and students' feelings about subject, school and the method.

UNITS

INDIVIDUAL ABILITIES (subheadings)

- 1) Introduction
- 2) Measurement of Intelligence
- 3) Origins of Intelligence
- 4) Cognitive Style
- 5) Creativity
- 6) Consequences of Testing
- 7) Conclusions

FAMILY SOCIAL POSITION (subheadings)

- 1,2) Introduction +
Socioeconomic Status
- 3,4) SES & Linguistic
Development
- 5,6) Race
- 7) Conclusions

ACTIVITY PROGRAM

- 14.4.'92 Group formation and introducing "Cooperative Learning".
16.4.'92 Peer Teaching for "Family Social Position" chapter.
28.4.'92 Group discussion and feedback session.
30.4.'92 Peer teaching for "Individual Abilities" chapter.
5.5. '92 Group Discussion and Feedback session.
7.5.'92 Examination on the two chapters. Opinionnaire and discussion of the method used in the two chapters.

EVALUATION

Evaluation of the chapters will be based on group performance. Average of group members' individual scores will be given as that group's score. Each member in a group will take that averaged score as individual achievement score.

GROUPS

Group I

- 1) Burçak AKIN
- 2) Erdal ÖZKAYA
- 3) Mustafa IŞIK
- 4) Bengü DEMİREL
- 5) Osman YILMAZ
- 6) Özlem ŞENTURK
- 7) Hasan DEMİRBAŞ

Group II

- 1) Alaaddin YILMAZ
- 2) Saime KERMAN
- 3) Uğur EREKTİ
- 4) Nahide ÇENGEL
- 5) Soner CENĞİZOĞLU
- 6) Özden ÖZPEK
- 7) Yeşim GÖGEN

Group III

- 1) Aslı Gülsüm ERDOĞAN
- 2) İbrahim YILMAZ
- 3) Faruk BİRSEN
- 4) Celal YILDIRM
- 5) Rahile ULUSAN
- 6) Deniz ERASLAN

Group IV

- 1) Arzu SALCAN
- 2) Serhat MUTLU
- 3) Erhan ŐENGEL
- 4) Nasuh YAGYEMEZ
- 5) Nihal UYGUN
- 6) Sibel SOLAKOGLU

Group V

- 1) Sertaç ERDEN
- 2) Suna ERDUGAN
- 3) Hlyya ATMACAN
- 4) Erol SANIN
- 5) Őule SABUNCU
- 6) Serap KAYACI

Group VI

- 1) Banu ŐAHOĐLU
- 2) Ahmet ACET
- 3) Halil TOPĐUOĐLU
- 4) Semra ŐİMŐEK
- 5) Dilek SEĐKIN
- 6) Canan EMİR



APPENDIX D
OPINIONNAIRE

(Numbers in blanks refer to students' responses in percentages)

Bu form "Cooperative Learning" yöntemi ile ilgili düşüncelerinizi öğrenmek amacıyla hazırlanmıştır. Aşağıdaki soruları dikkatle okuyup size en uygun gelen seçeneği işaretleyiniz. Yardımlarınız için teşekkür ederim.

__ Uygulamadan önce "Cooperative Learning" yöntemi hakkında yeterince açıklama yapıldı mı?

hiç 4 biraz 18 oldukça 67 çok 9

__ Sizce "Cooperative Learning" metodu işlediğiniz dersin konularına uygun muydu?

hiç 6 biraz 30 oldukça 48 çok 12

__ Derslerinizin sürekli olarak böyle bir yöntemle yapılmasını ister miydiniz?

evet 61 hayır 30

__ Birer öğretmen adayı olarak, "Cooperative Learning" yöntemini sınıfınızda, kendi öğrencilerinize uygulamak ister miydiniz?

evet 73 hayır 21

__ Dersin "Cooperative Learning" yöntemi ile yapılması dersi daha zevkli bir hale getirdi mi?

evet 82 hayır 13

__ Derste "Cooperative Learning" yöntemi ile çalışmak sınıf arkadaşlarınızla aranızdaki yakınlığı, samimiyeti olumlu etkiledi mi?

hiç 12 biraz 39 oldukça 39 çok 12

__ Cooperative learning yönteminin derste uygulanması sırasında size ne gibi sorunlar, aksaklıklar oldu?

Birden çok seçeneği işaretleyebilirsiniz.

students' responses
(in percentages)

- a) gruplar çok kalabalıktı (_)
b) grup uyelerinin devamsızlığı sorun yarattı (79)
c) sürekli aynı grupta olmak sıkıcıydı (12)
d) ders süresi 'peer teaching' için yeterli değildi (21)
e) konuları yalnızca öğrencilerin anlatması bilgi eksikliğine neden oldu (70)
f) sınıftaki gürültü grup çalışmasını zorlaştırdı (48)
g) bir ünite için ayrılan süre çok azdı (18)
h) değerlendirmede her kişinin grup ortalamasını bireysel not olarak alması uygun bir yöntem değildi (33)
i) yukarıdaki seçeneklerden başka önerileriniz varsa kısaca açıklayınız.

.....
.....

__ Aşağıdaki maddeleri "Cooperative Learning" ile ilgili düşüncelerinize göre işaretleyiniz.

zor uygulanabilir	<u>12</u>	<u>15</u>	<u>21</u>	<u>15</u>	<u>24</u>	kolay uygulanabilir
yararsız	<u>-</u>	<u>9</u>	<u>18</u>	<u>24</u>	<u>18</u>	yararlı
sıkıcı	<u>3</u>	<u>3</u>	<u>21</u>	<u>18</u>	<u>42</u>	zevкли
etkisiz	<u>-</u>	<u>3</u>	<u>30</u>	<u>30</u>	<u>24</u>	etkili