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THE EFFECT OF USING DUAL CONTROL TECHNIQUE IN COURSES ON ACADEMIC SUCCESS

İkili Denetim Tekniğinin Derslerde Kullanılmasının Akademik Başarıya Etkisi

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ABSTRACT

The aim of the study is to test the effect of applying the Dual Control technique on academic success. In the unit determined for this purpose; In the experimental group, worksheets and necessary materials prepared by the researcher in accordance with the Dual Control technique; In the control group, activities in the teacher's guide book sent to schools by the Ministry of National Education were used.

The research was carried out with the participation of 78 fourth grade students attending Ismet İnönü Primary School in Çankırı.

The model of the research is the pretest-posttest control group model. The research carried out on two groups as an experimental and a control group. One of the groups assigned with equal probability was determined as the control group. Data were collected and analyzed using the achievement test and student opinion form. Arithmetic Mean, Standard Deviation, Independent t Test, Dependent t test, Covariance Analysis (Ancova) statistics were used in the study.

In the last test applied as a result of the research; The academic achievements of the experimental group students in which the Dual Control technique was applied differed statistically from the academic success of the control group students.

Key Words: Constructivist Approach, Cooperative Learning, Dual Control Technique, Social Studies

ÖZET

Araştırmanın amacı, İkili Denetim tekniğinin derslerde uygulanmasının akademik başarıya etkisini test etmektir. Bu amaçla 4. Sınıf Sosyal Bilgiler dersi, Yaşadığımız Yer teması süresince, deney grubunda araştırmacı tarafından hazırlanan İkili Denetim tekniğine uygun çalışma kâğıtları ve gerekli materyaller; kontrol grubunda ise Millî Eğitim Bakanlığı tarafından okullara gönderilen öğretmen kılavuz kitabındaki etkinlikler işe koşulmuştur. İkili Denetim tekniğine uygun çalışma kâğıtları ve gerekli materyaller araştırmacı tarafından hazırlanmış ve 6 haftalık öğretim süreci boyunca sınıf öğretmeni tarafından kullanılmıştır. Deneysel çalışma sınıf öğretmeni tarafından yapılmış olup; araştırmacı, öğretmene gerekli katkıyı sağlamaya çalışmıştır. Kontrol grubuna hiçbir müdahalede bulunulmamıştır.

Araştırma, Çankırı ili merkez İsmet İnönü İlköğretim Okulu'na devam eden ilkokul dördüncü sınıf öğrencilerinden 78'inin katılımı ile gerçekleşmiştir.

Araştırmanın modeli, ön test-son test kontrol gruplu modelidir. Bir deney ve bir kontrol grubu olmak üzere iki grup üzerinde gerçekleştirilen araştırma da eş olasılıkla atanan gruplardan biri kontrol grubu olarak belirlenmiştir. Başarı testi ve öğrenci görüş alma formu ile veriler toplanmış ve analiz edilmiştir. Araştırmada, Aritmetik Ortalama, Standart Sapma, Bağımsız t Testi, Bağımlı t testi, Kovaryans Analizi (Ancova) istatistikleri kullanılmıştır.

Araştırma sonucunda uygulanan son testte, İkili Denetim tekniğinin uygulandığı deney grubu öğrencilerinin akademik başarısı, kontrol grubu öğrencilerinin akademik başarısından istatistiksel olarak farklılaşmıştır. İkili Denetim tekniği etkinliklerinin akademik başarıya olan katkısı, MEB öğretmen kılavuz kitabındaki etkinliklerin uygulanmasının akademik başarıya sağladığı katkıdan daha etkili olduğu söylenebilir. Kontrol grubunda öğrencilerin MEB' in öğretmen kılavuz kitabı etkinliklerinin uygulanmasının da etkili olduğu anlaşılmıştır. Deney grubu öğrencilerinin sürece yönelik görüşlerinin olumlu olduğu kanısına varılabilir.

Anahtar Kelimeler: Yapılandırmacı Yaklaşım, İşbirliğine Dayalı Öğrenme, İkili Denetim Tekniği, Sosyal Bilgiler

1. INTRODUCTION

The most important reason why the century we live in is called the Knowledge era is that knowledge is constantly renewing itself. The incredibly rapid change in science and technology accompanies the change of society and the individuals that make it up. In regard to catch up with the age; There are also changes in the knowledge and skills that individuals should have. In this context; In education programs, in addition to academic knowledge that bridges traditional and modern issues, the skills of "Creative and Critical Thinking", "Problem Solving", "Autonomous Learning" and "Effective Communication and Cooperation" should be acquired and maintained by learners (Hamlı, Hamlı, & Taneri, 2020). One of the main goals of education should be preparing students for the future. It should aim to acquire knowledge and skills that will make learners daily life easier and prepare them for business life (Trilling & Fadel, 2009). If in-school and out-of-school teaching activities support these skills; it becomes easier for students to take on their future roles. It is thought that they will not have difficulty coping with the problems they may encounter in the future. It is thought that to be able to reveal their full potential, students should learn both cognitive skills and non-cognitive skills such as communicating, creative thinking which will make the application of cognitive skills easier. (National Research Council, 2012).

Collaborative learning method, which has been one of the research topics for many years should not be seen merely as a way to improve cognitive student achievement. Collaborative skills are considered to have an important place in the future. The most important reason for this is the rapid development in the social and economic field (Ananiadou & Claro, 2009; Binkley et al., 2012). When viewed from this stand point; Collaboration should be one of the goals of education. Learning to work collaboratively with others; makes students successful in school life as well as in their social life. When considered in this context; Collaboration skills should be seen as an educational outcome on its own. (Barron, 2003; Blatchford et al., 2006).

Cooperative learning is a type of learning method based on the experimental model, student-centered and aimed on intrinsic motivation, reinforcing problem-solving and critical thinking, helping students to develop positive images of themselves and their friends (Kohonen, 1992; Gömleksiz, 1993).

Hayırsever (2001) defined the educational process that enables the individual to socialize as a kind of group work. Group work helps children socialize, making their self-esteem mature. They can get support from group members for the questions that they find hard to handle on their own. Cooperative learning is a method that encourages supportive relationships between group members and the desire to take risks and explore, improves the sense of trust, and also reduces the anxiety of making mistakes (Tarım & Akdeniz, 2003). Students' working towards a common goal forms group dynamic. This enables individuals to produce a more qualified product by taking the contribution of other individuals in the group rather than reaching the result alone (İflazoğlu, 2003, p.33).

Cooperative learning method differs from other learning methods in terms of in-class applications, student activities and classroom environment. The most significant difference is that cooperative learning classrooms differ from traditional classroom by appearance and environment (Akbayır, 2017). Dual Control Technique which is one of the techniques of Cooperative Learning method and among the innovative learning approaches is similar to the methods that teachers actually use frequently. One of the superior aspects of the technique is that it is easy to use and can be applied to all age groups.

1.1. Dual Control Technique

The Dual Control technique, which is at the top of the Collaborative Learning methods, is applied by using worksheets prepared in accordance with the learning outcomes of the course. Group success is important in the technique in which the students are responsible for each other's learning and work collaboratively. The careful preparation of the worksheets used in the application phase of the technique is important for the effectiveness of the technique. The worksheets are arranged in two columns. Two learners use a worksheet together. In this technique, firstly students answer the questions in the worksheets in pairs and by checking each other, in groups of four. After the questions on the worksheets are answered, subsets of pairs compare each other's answers. When students are working in pairs and when subsets of pairs are comparing each other's responses, they will use dual control technique. The Dual Control technique is a very easy technique to use in the classroom. The in-class application scheme of the dual control technique is shown in Figure 1.

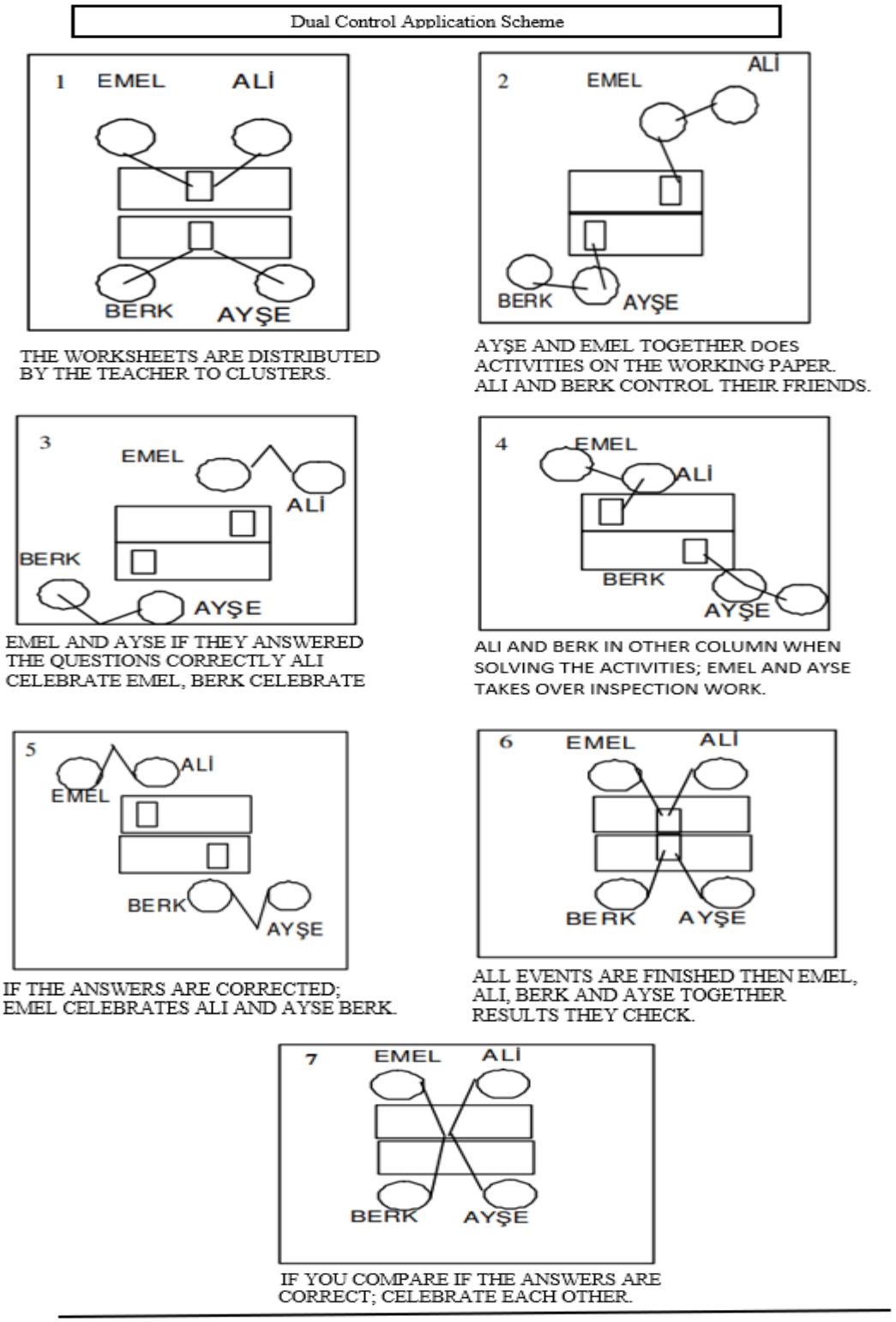

Figure 1. Dual control application scheme

The Dual Control Technique was developed by Kagan (1992) and consists of five basic components. These basic components are as follows.

- ✓ Teams: Heterogeneous groups of four people are formed in terms of gender, ethnic group and academic success. Those sitting side by side in a team form a couple.

- ✓ Teacher Lecture: The teacher primarily cares with the whole class about the topic or topics to be discussed that week. At this stage, he gives the students the conceptual basis of the subject and solves a few examples.
- ✓ Worksheets: Worksheets consist of two columns. Worksheets are distributed, one to each pair. While one of the couples solves the first question of the first box aloud, the other follows and supports him. Later, the couples change roles. Thus, in turn, everyone solves all the questions on their side. After all the questions are over, the couple working together exchanges their worksheets with the other couple in the set, and they check each other's papers. Then, each pair is given a worksheet answer key, one for each pair.
- ✓ Subject exam: At the end of the unit, a subject exam covering the achievements is held. Students take the exam individually and their group success is calculated according to their scores from this exam.
- ✓ Certificates of achievement: Students are evaluated as a group, not individually. Group success scores are calculated based on individual progress scores. Group success certificate is given to groups that exceed predetermined criteria.

1.2. The Importance of Research

Dual Control Technique; It is a contemporary teaching method that can be easily used by teachers who continue to use traditional methods in their teaching activities. At the same time, the fact that it can be applied in all age groups increases the importance of the technique.

The Dual Control Technique, one of the collaborative learning methods, increases the social interaction between students; It enables learners to benefit from each other's thoughts and provides an opportunity to generate new ideas. This technique, in which learners are divided into groups of four, forming groups of two again within themselves, supervising each other's learning can be easily used especially in courses such as Science, Mathematics and Social Sciences. Certificates of achievement, which is one of the components of the technique, motivate learners towards the lesson. There are a limited number of studies about the Dual Control Technique that provides active participation in the lesson. In this context, it is thought that the effectiveness and importance of the technique should be understood and new researches should be made.

1.3. Purpose Of The Research

It was aimed to obtain evidence for the practicality of the Dual Control technique, one of the cooperative learning methods, in the Social Studies course. It was aimed to reveal findings regarding whether it affects the academic success of the learners. It is thought that the materials used in the research will contribute to the education system, teachers, researchers and learners.

1.4. Problem Statement

What is the effect of the Dual Control technique used in Primary School 4th grade Social Studies course on academic success?

1.5. Sub Problems

1. Is there a statistically significant difference between the post-test success scores of the experimental and control group students?

2. Is there a statistically significant difference between the pre and post test scores of the experimental group students?

3. Is there a statistically significant difference between pre and post test scores of control group students?

4. What are the experimental group students' views on the process?

1.6. Limitations Of The Study

1. Among the techniques included in the Cooperative Teaching method, only the Dual Control technique was used.

2. The skills to be tested are limited to the acquisitions of the 4th grade Social Studies course, the Unit We Live In (Unit 3).

2. METHOD

In this section, the experimental design of the research, the subjects, data collection tools, the process and the statistical methods and techniques used in the analysis of the data are explained. In the study, the applications of Dual Control Technique, which is one of the Cooperative Learning methods and a Constructivist Learning approach, is considered as the independent variable and the students' learning levels as the dependent variable.

2.1. Research Pattern

This research is an experimental research. In researches in the field of social sciences, the method that best reveals the relationship between variables is experimental research designs. It offers the opportunity to intervene in independent variables; Thus, the changes on the dependent variable can be compared easily (Gürbüz & Şahin, 2018, p. 375). Since the study was conducted in the Social Studies course and the student age group was young, a pretest-posttest control group experimental model was preferred in this study.

The research was carried out on two groups, an experimental group and a control group. One of the equally assigned group determined as the control group and the other group as the experimental group. In the experimental group, the Cooperative Learning methods, the Dual Control technique were used and in the control group activities in the teacher's guide book sent to schools by the Ministry of National Education were used. The Dual Control technique activities in the experimental group were prepared by the researcher. The classroom teacher Tahir KARABULUT carried out the practice phase of the activities in the classroom. The researcher helped the classroom teacher when necessary, during the practice phase of the activities. No intervention was made to the activities in the control group. Achievement test was used as pre and post evaluation in both groups. Experimental procedure is the Dual Control technique, which is one of the Cooperative Learning methods. At the end of the process, the opinions of the students in the experimental group were gathered. The Experiment Pattern can be summarized as in the Table 1.

Table 1. Experiment pattern summary

Group	**Pre-Test**	**Proceses**	**Post-Test**	**Post-Test**
Control	Achievement Test	Teacher Guide Book	Achievement test	
Experiment	Achievement Test	Dual Control Technique	Achievement test	Students Opinions

2.2. Subjects

The research was conducted with the participation of 78 fourth grade students attending an formal primary school. 39 students were placed in control group and the other 39 students were placed in the experimental group. Table 2 shows the distribution of students in the experimental and control groups according to their gender.

Table 2. Distribution of subjects according to experimental groups

GROUP	Gender				TOTAL	
	Female	Male	Female	Male		
	f	f	%	%	f	%
Experiment	20	19	51,28	48,72	39	100
Control	21	18	53,84	46,16	39	100

When the table is examined, it is seen that the total number of students (f = 39) in the experimental and control groups are equal. There is a difference between the gender distribution in the groups, which is not considered as an independent variable. This is a possible situation that can be encountered in public schools.

At the beginning of the study, a test was applied to the groups in order to understand whether the success levels of the groups participating in the experiment were equal for the “Place We Live” unit. This test is a 25-item tool developed by the researcher and used as a pre-test. The results of the pretest are presented in Table 3.

Table 3. Pretest t-test statistics results

GROUP	N	χ	Sx	Df	t	P
Experiment	39	13.589	4.363	76	,319	,751
Control	39	13.256	4.865			

When the table is examined, it has been observed that the experimental and control group averages are very close to each other (experiment X = 13,589 control X = 13,256); It can be said that there is no statistically significant difference between the groups (t (76) =. 319 p = .751). It can be argued that before the experiment, the students had similar characteristics in terms of the learning outcomes measured by the achievement test before the teaching process of the subject.

2.3. Data CollectionTool

Data in the study were collected by Achievement Test and Student Opinion Form.

2.4. Achievement test

For the experimental practice carried out in the 4th grade of primary school, an achievement test for the Social Studies lesson Where We Live Unit was formed. Increasing the content validity is the key point in the preparation of the success test. The preparation of the specification table is effective in increasing the content validity (Büyüköztürk et al., 2012). In this context, in the direction of the learning outcomes of the Social Studies program, a unit specification table was initially prepared. The unit specification table is presented in Table 4.

Table 4. Unit specificationTable

Lesson Outcomes / Subject	It finds the direction of any object around it .using various methods.	Describes what she/he sees around her/his in figures and schemes.	Creates a section explaining the symbols used in the figures and schemes she/he drew	Draws a sketch of a place around it.	She/he observes the weather events occurring around her/his and transfers her /his findings to illustrated graphics	Distinguish the natural and human elements seen around her/his.	Makes inferences about the geographical features of the place where she lived by using legends, epics, stories, epics and poems.	Be prepared for natural disasters.
Direction Finding Methods	X							
Sketch		X	X	X				
Weather Events					X			
Natural and Human Elements						X		
Literature and Geographical Features							X	
Natural Disasters								X

4th Grade Social Studies course consists of 8 learning outcomes in the 3rd unit. 30 test data were written; 5 for one learning outcome; 4 for each of the four learning outcomes, 3 for each of the three learning outcomes. The data were submitted to five faculty members for their opinions. Necessary arrangements have been made by taking into account of their opinions. The test was practiced by 159 students from six different primary schools. Intended level of results could not be achieved. After making the necessary adjustments in the questions, it was practiced again. The post-application data were analyzed in the ITEMAN statistical program and the discrimination indexes, difficulties of the questions and the reliability co-efficiency of the test were calculated. Test statistics of the trial practice are presented in Table 5.

Table 5. Experimental achievement test ıtem and test statistics

Item No	$p_{(jx)}$	$r_{(jx)}$	Item No	p(jx)	$r_{(jx)}$
1	.636	.725	16	.346	.326
2	.589	.080	17	.617	.517
3	.439	.183	18	.447	.505
4	.766	.543	19	.561	.326
5	.813	.704	20	.364	.584
6	.832	.599	21	.673	.289
7	.402	.422	22	.505	.669
8	.551	.548	23	.673	.513
9	.710	.642	24	.692	.488

10	.589	.535	25	.710	.757
11	.290	.312	26	.607	.548
12	.523	.414	27	.729	.659
13	.168	.153	28	.766	.440
14	.056	-.525	29	.692	.729
15	.458	.332	30	.626	.012

Mean test	16.860
Mean standard deviation	4.751
Test reliability	.742
Mean item p $_{(jx)}$	.562
Mean item r $_{(jx)}$	.434

The arithmetic mean of the test is (X = 16.860) and the reliability coefficient of the test is (KR20 = 0.742). The average difficulty of the test items (−P = .562) is the average discrimination index (rjx = .434). It is observed that the difficulty index of the items varies between (−P = .832 and −P = .056), and the discrimination power index varies between (rjx = .757) and (rjx = -. 525). Out of 30 items in the experimental success test, items with item discrimination index (rjx = .29) and above were selected, and an achievement test consisting of 25 items was obtained without damaging the content validity of the test.

Item and test statistics related to the achievement test developed for use in the study are presented in Table 6.

Table 6. Success test item and test analysis results

Item No	p (jx)	r $_{(jx)}$	Item No	p $_{(jx)}$	r $_{(jx)}$
1	.636	.761	14	.447	.574
2	.766	.559	15	.561	.293
3	.813	.638	16	.364	.607
4	.832	.534	17	.673	.289
5	.402	.434	18	.505	.681
6	.551	.618	19	.673	.527
7	.710	.637	20	.692	.496
8	.589	.599	21	.710	.768
9	.290	.323	22	.607	.555
10	.523	.422	23	.729	.681
11	.458	.305	24	.766	.456
12	.346	.316	25	.692	.796
13	.617	.518			

Mean test	14.981
Mean standard deviation	4.781
Test reliability	.790
Mean item p $_{(jx)}$	.590
Mean item r $_{(jx)}$	.536

The arithmetic mean of the test, consisting of 25 multiple-choice items, is (X = 14.981) and the reliability co-efficiency of the test is (KR20 = .79). The average difficulty of the test items is (−P = .59) and the average discrimination index is (rjx = .53). It was observed that the difficulty indexes of the items in the final test varied between (−P =. 832 and - P = .290) and the discrimination index (rjx = .796 and rjx = .289).

2.5. Student Opinion Form

The feelings and thoughts of the experimental group students about the teaching of the lesson were taken in writing during the 3rd unit of the Social Studies course in which the Dual Control technique was used. According to Karasar (2020) with the intend of processing data easier, stating data in short and simple form is called coding. The data texts were read a few times and the code list was created. By bringing the codes together, themes were created. The themes created were associated with the codes included, and the results were presented in accordance with the research purpose.

2.6. Data Analysis

Dependent and Independent t test and Covariance Analysis were used by using SPSS 17. 0 statistical program.

While comparing the pretest scores of the groups before the experiment, Independent t test was used;

While comparing the scores of the groups after the experiment, Covariance Analysis was used;

While comparing the pre-test and post-test scores of the groups, Dependent t test was used;

While describing the written opinions obtained from the experimental group students' relationship to the process, Content analysis was used.

3. RESULTS

In this section, findings obtained based on the data of the research and comments regarding the findings are included.

3.1. Findings on The First Problem

According to the findings obtained from the descriptive statistics and Covariance Analysis (Ancova) results, the first sub-problem of the research is described as "Is there a statistically significant difference between the posttest success scores of the experimental and control group students?". Results are presented in Table 7.

Table 7. Descriptive statistics of achievement test scores according to experimental and control groups

GROUP	K	N	χ	Corrected χ
Experiment	25	39	19.051	19.072
Control		39	16.846	16.826

Although no statistically significant difference was observed between the groups in terms of pre-test results at the beginning of the experiment, the covariance analysis, which was adopted as a stronger statistic was performed by the researcher (Büyüköztürk, 2007, p. 111). While the posttest averages were determined as X = 19.051 in the experimental group and the corrected mean as X = 19.072, in the control group, the corrected mean was X = 16.826 as X = 16.846. The fact that there is little difference between the post-test averages and the corrected averages can be thought to be due to the lack of difference between the pre-test results.

The results of the Covariance (Ancova) analysis according to the groups of the posttest success scores corrected according to the pre-test results are given in Table 8.

Table 8. Covariance (ancova) analysis of post-test success scores according to groups, corrected according to pre-test results

Source Variance	Sum of Squares	Df	Mean Squares	F	P
Pre test	24.314	1	24.314	1.431	,235
Group	98.321	1	98.231	5.780	,019
Error	1274.661	75	16.995		
Total	26522.0	77			

According to the results of the Covariance Analysis in Table 8, a statistically significant difference was found between the experimental and control groups between the posttest corrected mean scores ($F_{(1-75)} = 5.780$, $p < .05$). In this case, it can be accepted that the Dual Control technique, which is among the Cooperative Learning methods applied in the experimental group, is effective. In this case, it can be thought that the Dual Control technique applied in the place unit where we live in Social Studies can be applied in similar units.

3.2. Findings Regarding The Second Sub-Problem

The second sub-problem of the study in accordance with the findings obtained according to the t-test statistical results was described as "Is there a statistically significant difference between the pre and post test scores of the students in the experimental group?". The findings obtained are given in Table 9.

Table 9. Experimental group pre - post test average scores t-test results

Measurement	N	χ	Sx	Df	t	P
Pre test	39	13.589	4.363	38	5.792	,001
Post test	39	19.051	3.025			

When Table 9 is examined, a significant difference was observed between the pre and post test average scores of the students in the experimental group (t (38) = 5.792 p <.001). It is a result that the Dual Control technique applied in the experimental group is effective. The fact that the relative variability coefficient in the experimental group was 32 at the end of the pre-test and 16 in the post-test can be thought to increase the similarity of students' success scores as a result of the application of the Dual Control technique. In other words, while success of students increased, there was also a positive development in weak students.

3.3. Findings Regarding The Third Sub-Problem

The third sub-problem of the study in accordance with the findings obtained according to the t-test statistical results was described as "Is there a statistically significant difference between the pre and post test scores of the students in the control group?". The results are given in Table 10.

Table 10. Control group pre - post test average scores t test results

Measurement	N	χ	Sx	Df	t	P
Pre test	39	13.256	4.865	38	3.089	,004
Post test	39	16.846	5.002			

It is understood that the teaching process applied in the control group was also effective (t (38) = 3.089 p <.004). It can be argued that the relative variability coefficient was 36 in the pre-test, similar to the experimental group, and 32 in the post-test, as a result of the very limited change in the students' scores in the control group. It can be stated that activities that make students active, sharing and supporting each other positively affect the success level of the students.

3.4. Findings Regarding the Fourth Sub-Problem

At the end of the unit, the opinions of the students in the experimental group about the unit process were taken. There are three questions in the student opinion form.

- ✓ What were your thoughts about the process before starting the unit?
- ✓ What were your thoughts during the process of the unit?
- ✓ What are your thoughts about the process at the end of the unit?

The students said that;
“Getting the support of my friend next to me and discussing was the best part of this work. “

“I reinforced the subjects we learned in the Social Studies course better thanks to this study and I saw that it is very nice to do something with my friends by helping each other. I was not bored while doing the study; I have rested my mind. "

“I support this work. It was a very good work. I would like to thank those who made this study. The most impressive thing for me in this work was working as a team. The activity in which we cut and paste was very fun. “

“We created groups of four as a class. The name of our group was “Snow”. I had fun during these activities. Our teacher posted the certificates named 'Most successful group' on the board. We were very happy to see our name there. "

The Interview Results of the Experimental Group Students on the Unit Process are presented in Table 11.

Table 11. Interview results of experimental group students regarding the unit process

Theme	Definition	Sample sentences	Codes	Repetition frequency	
				f	%
Thoughts at the beginning of the teaching	At the beginning of the teaching process; students about the process feelings and thoughts	. Us this event different when told to a fun study I thought I was going to start.	. Funny	19	50
		. Our teacher when you tell us to work; of this study I thought it would be fun and informative.	. Informative	5	13

Thoughts during teaching	During the teaching process; students about the process feelings and thoughts	. We saw the name of our group on the school board. We were very happy. Proud of ourselves we heard.	. Confident	6	15
		. I think working as a team will bring positive behavior.	. Teamwork	10	25
		. I think this activity is very enjoyable.	. Enjoyment	10	25
		. The most beautiful aspect of this work; It was helping my friend and arguing with him.	. Helping	4	10
Thoughts at the end of teaching	At the end of the teaching process; students about the process feelings and thoughts	. I think this activity is very, it was helpful and useful.	. Useful	9	23
		. I reinforced what I learned thanks to this activity.	. Reinforcement	4	10
		. My favorite part was to get a certificate	. Certificate	6	15

When the opinions received from the experimental group students about the process were resolved and as a result, when the Dual Control technique was explained to the students before it was put into practice; It made the students feel that this work would be fun. During the process, positive characteristics such as self-confidence, solidarity, and enjoyment of the work were developed in the students. At the end of the process, it was concluded that permanent learning was provided, the knowledge learned was reinforced, and the certificates received created a sense of success in students. The application of this technique based on student opinions will contribute to academic success; It is thought that it will enable students to develop positive behaviors such as helping each other and self-confidence.

4. CONCLUSION AND SUGGESTIONS

According to the findings obtained from the first sub problem; the experimental process was successful. In other words, it can be said that the contribution of the Dual Control technique activities applied during the Place We Live Unit in the 4th grade Social Studies course to the academic success is more effective than the contribution of the activities in the MEB teacher's guide book. Similar results were obtained in previous studies at different course and grade levels. Tarım (2003) compared the effects of two-barrel learning techniques (Cluster Supported Individualization technique and Dual Control technique) on the mathematics achievement and attitudes towards mathematics of primary school 4th grade students with the traditional method. As a result of the research, it has been seen that both cubic learning techniques are more effective than the traditional method.

In the second sub-problem, it was determined that there is a statistically significant difference between the pre and post test scores of the students in the experimental group in terms of academic achievement. Similar results have been obtained in previous studies. Tok (2008) examined the effect of the Dual Control technique, one of the Cooperative Learning methods, on reading comprehension in the third-grade Turkish lesson of primary education. As a result; When the pre-test scores of the students are checked, it was found that there is a significant difference between the post-test scores in favor of the experimental group.

In the third sub-problem, it was understood that the practice of the teacher guide book activities of the Ministry of Education of the students in the control group was also effective.

In the fourth sub-problem, the experimental group students' views on the process were taken in writing. Accordingly, it can be concluded that the students' views about the process are positive. Ertürk (2020) examined the effect of the Dual Control technique used in the Mathematics lesson on academic achievement and the attitude of students towards the Mathematics lesson. Although it was found that applying the Dual Control technique does not make a statistically significant difference in terms of academic achievement, It was concluded that there was a significant difference between the attitudes of the experimental and control group students towards the Mathematics course.

4.1. Suggestions

4.1.1. Suggestions for Researchers

Researchers can apply the technique in different classes. Applying this technique in a less crowded classrooms increases the effectiveness of the technique. They can also apply this technique in different lessons. Applying this technique especially in verbal lessons can contribute to academic success. Dual Control technique applied successfully in first grade students can be used in upper grades. More tangible data about the feelings and thoughts of the students can be obtained by shooting the video of the experimental group in which the Dual Control technique is applied throughout the process. It will also meet the feedback and evaluation needs of the students.

4.1.2. Suggestions for Practitioners

This technique is not just for classroom teachers; Other branch teachers can also try the Dual Control technique in schools where the class size is around 30 people.

Teachers can develop the three compulsory exercise papers to be used in the Dual Control technique, and share the tested materials on the internet.

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