



## **THE EFFECT OF DRAMA TECHNIQUE ON STUDENTS' ACADEMIC PERFORMANCE AND PERMANENCE**

Münevver SUBAŞI\*, Süleyman AYDIN\*\*, Sabriye SEVEN\*\*\*

**ABSTRACT:** In this paper, the impact of Drama Technique on academic success of students and permanence of learning on the subject of static electricity for seventh class primary School science and Technology students was investigated. In the study a quasi-experimental study was carried out and a pretest-posttest control group experimental design was used. The study sample constitute forty four seventh grade students from an elementary school in the district of Erzurum Dadaskent. A simple random sampling method was used for the selection of the study sample. Attention was paid to ensure that the control and study groups be comparable with one another. As both groups were composed of students from the same environment, it was presumed that these students' socio-economic level and their level of skill and knowledge were also similar. The application implemented in 3 weeks of the first term of 2011-2012 education year. During the application process, it was used the technique of the role of drama method for testing group and traditional method for control group. The data of the investment was gathered together by academic success test (pre-test, post-test and retention test). To analyse the data was assessed from investigation; the Independent Sample T-Test method was used for comparisons the different groups and the Paired Sample T-Test was used for paired comparisons in same groups. According to the results of the analysis of the post-test and retention test, the testing group was more successful. Using the technique of drama has a positive impact on academic success and retention of learning for students.

**Keywords:** Drama Technique, Academic Success, Retention of Learning, Static Electricity

### **1. INTRODUCTION**

Abstract principles and rules play an important role in the structure of science and technology classes (Aydoğdu and Kesercioğlu, 2005). However, teaching such abstract principles and concepts in a way that is meaningful for the students is only possible if students can directly relate them with their own daily life experiences. Knowledge that is meaningful for the students not only affects their behavior, but also tends to be more permanent (Önder, 2004).

For this reason; rather than having students simply memorize concepts in science and technology classes, it is far more beneficial to create learning environments that allow students to develop their thinking skills, that teach them "how to learn," and which give them the opportunity to actively participate in class (Ministry of National Education, 2003). Creating and using such learning environments is essential for raising research-oriented and inquisitive individuals.

It is possible to use drama in classes to contribute to the learning experience. This is because drama allows students to evaluate and examine not only the events and concepts being studied, but also the attitudes, values and perceptions of others. Drama also strengthens students' verbal communication skills, thus allowing them to better express in words their newly forming

---

\* R.A., Bartın University Department of Science Education, yutuaydin@gmail.com

\*\* Assist. Prof., Ağrı İbrahim Çeçen University Faculty of Education, yupul@hotmail.com

\*\*\* Prof., Atatürk University Department of Science Education, ildiyaydin@gmail.com

opinions. Similarly, drama also provides students the opportunity to develop their own ways of thinking, and to interact with the opinions of others (Bahar, 2006).

The drama method first began to be used in the Turkish education system in 1926 (Karadağ and Çalışkan, 2008), and is still widely used in many areas such as mathematics, science and technology, social sciences, music and art/drawing.

Kılıç and Oğur (2005) previously investigated the effect of integrating the drama method into science education on the academic performance of students. Based on their study results, they determined that the drama method increased academic performance in science and technology classes (Aykaç and Adıgüzel, 2011; Gürdal and Sağırılı, 2002; Labow and Swell, 1993). In addition to its positive contribution to academic performance, the use of the drama method during teaching processes also resulted in higher permanence of learning (Karapınarlı, 2007 ; Şimşek et al., 2010) and more favorable student attitudes towards the class (Avinç, Çam and Özkan, 2009; Yılmaz, 2006; Zayımoğlu, 2006). According to the results of Peter's (2003) study, the use of the drama method contributes to the development of creativity among students, and allows them to become more creative and flexible individuals who perform better in social life (McNaughtan, 2004).

The aim of this study was to evaluate how the use of the drama method during the teaching of the elementary school science and technology class regarding “static electricity” affected the academic performance of students and the permanence of their learning.

## 2. METHOD

### 2.1. Study Model

This study, which aimed to determine the effect on student academic performance of using the drama method for teaching “static electricity” during an elementary school seventh grade science and technology class, was performed according to a quantitative study design. This study was conducted as a quasi-experimental study by utilizing the “pretest-posttest control group” study model (Karasar, 2009).

To assess the effect of the drama method and of the traditional educational approach on the academic performance of students and their ability to recall information; a study group and a control group were formed by using a random selection method. The study group received education with the drama method, while the control group received their education through a traditional approach. In both groups, academic performance was assessed through the administration of achievement tests before the beginning and at the end of the study period (the pretest and posttest, respectively) (Karasar, 2009). A permanence test was also performed four weeks after the end of the study.

**Table 1.** Experimental Design of the Study

Groups	Random Selection	Pretest	Drama Method	Posttest
G1	R	O1.1	X	O1.2
G2	R	O2.1		O2.2

- G1:** Study Group (Group subjected to the drama method-based education).  
**G2:** Control Group (Group subjected to a traditional educational approach).  
**R:** Impartiality/Randomness in the formation of the groups.  
O1.1 and O2.1: Test performed prior to the beginning of the study (Pretest)  
**X:** Independent Variable (Group subject to the drama method).  
O1.2 and O2.2: Test performed at the end of the study (Posttest).

## 2.2. Sample

The study population consisted of elementary school seventh grade students at the Dadaşkent County of the Erzurum Province in Turkey.

The study sample was selected from two seventh grade classes at an elementary school within the Dadaşkent County of the Erzurum Province in Turkey. A simple random sampling method was used for the selection of the study sample. In this context; after selecting the school in which the study procedures would be conducted, we selected the two seventh grade classes (designated as 7-A and 7-B) in this school that would be used for forming the study sample. Students were selected from the 7-A and 7-B classes using random allocation (Büyüköztürk et al., 2010). Attention was paid to ensure that the control and study groups be comparable with one another. As both groups were composed of students from the same environment, it was presumed that these students' socio-economic level and their level of skill and knowledge were also similar.

**Table 2.** Distribution of Students within the Study and Control Groups

Gender	Study Group	Control Group	Total
Female	14	11	25
Male	8	11	19
<b>Total</b>	22	22	44

**Table 3.** Comparison of the Pretest Scores of the Study and Control Groups

Groups	Number of Participants	Arithmetic Mean	Standard Deviation	t	P
Study Group	22	25.9	9.3		
Control Group	22	25	9.1	0.326	0.746

As can be seen in Table 3, the pretest arithmetic mean of the study group consisting of 22 students was 25.9, while the pretest arithmetic mean of the control group consisting of the same number of students was 25. The purpose of the pretest was to determine, prior to both the study procedures and the class, whether the two groups of students were similar with respect to their level of knowledge on the class subject. The independent groups t test was used to analyze the pretest scores of the study and control group students. The results of this analysis are provided in Table 3. The analysis results were below the level of significance, which is set at 0.05. Thus, based on the pretest results, it was determined that there were no significant differences between the two groups, and their level of knowledge on the subject were comparable.

### **2.3. Data Collection Tools**

Both the academic performance of the students on the subject of static electricity and the permanence of their learning was assessed using an achievement test. This test consisted of 20 multiple-choice questions, each having four different answers. The multiple-choice questions of the achievement test were prepared by using the SBS, OKS and DPY examinations of the Ministry of National Education (*Milli Eğitim Bakanlığı*, MEB).

During the development of the achievement test, textbooks were first evaluated to determine the main topics that are covered on the subject of static electricity. These topics were then used to prepare 25 multiple-choice questions. After these questions were prepared, they were review by three faculty members at the Department of Science Teaching and a teacher. After performing the necessary corrections based on the expert opinions, the test was finalized and a pilot trial was performed with eight grade students of the Ertuğrul Gazi Elementary School who, despite the fact they were not among the student participants, had previously taken the classes on static electricity. Based on this trial, the Cronbach's Alpha reliability coefficient for the achievement test was determined as 0.61. Five of questions were removed from the test to increase its reliability coefficient, and the Cronbach's Alpha reliability coefficient of this modified test was calculated as 0.69. Within the context of studies on education, a reliability coefficient value between 0.60 and 0.80 indicates that the scale or test in question sufficiently reliable (Büyüköztürk et.al.,2010).

### **2.4. Application**

Before starting the class subject, a pretest was applied to both the study group and the control group to determine whether there was any difference in performance between them. After the pretests were performed, both groups began their studies on the subject of static electricity. The subject was taught to both groups for four hours a week, and over a total period of three weeks. Before beginning the teaching activities, a test/trial application of drama method was performed with the study group.

The following activities were performed with the students within the context of the drama method:

As an introductory activity, students in the study group were first asked questions about the subject that was to be covered in class that day, thus raising their interest towards the subject, and prompting them to identify relationships with their own daily lives.

The introductory activity was followed by the development activity, in which various scenario templates relating the class subject were given to the students, who were then divided

into groups such that they could further elaborate/develop these scenarios between themselves. The students were given a certain amount of time to prepare their own scenarios, and materials necessary for the conduct of the scenarios were provided by the researcher. At the end of the time that was given to them, the groups were asked to play and enact the scenarios they prepared (the order in which groups played their scenarios depended on the order they volunteered). Each scenario was played at least three times by the students.

In the ensuing final activity, questions were asked to the students regarding the subjects relating to static electricity that were covered in the enacted scenarios, and the answers provided by students were discussed and evaluated.

After the study-related procedures and the studies on the subject were completed for both groups, the posttest was performed to evaluate the effect on the different teaching methods on academic performance. To assess the effect of the different teaching methods on the permanence of learning, permanence test were performed four weeks after the end of the study.

### 2.5. Analysis

The academic achievement test prepared for this study was used before (pretest) and after (posttest) the teaching of the class subject entitled “Electricity in our Daily Lives.” A permanence test was also performed four weeks after class subject was covered and completed. The scores the students obtained in these tests were evaluated in a computer environment using the SPSS 15 package program.

Depending on the type of data being evaluated; paired comparisons between the two groups was performed using the independent t-test, while paired comparisons within the same group were performed using the matched t-test. Differences between the study and control groups were evaluated with respect to the relevant variables, and p-values < 0.05 were considered as being indicative of statistical significance (Eymen, 2007).

### 3. FINDINGS

The aim of this study was to evaluate the effect of using the drama method during the teaching of the elementary school science and technology class on “static electricity” on the academic performance of students and the permanence of their learning. The study results and the effectiveness of the drama method were interpreted based on the tables and data listed below.

**Table 4.** Comparison of the Posttest Scores of the Study and Control Groups

<b>Groups</b>	<b>Number of Students</b>	<b>Arithmetic Mean</b>	<b>Standard Deviation</b>	<b>t</b>	<b>P</b>
<b>Study</b>	22	48.6	13.9	2.12	0.032
<b>Control</b>	22	40.6	9.4		

The independent groups t test was used to analyze the posttest scores of the study and control group students. As can be seen in Table 4, the pretest arithmetic mean of the study group

consisting of 22 students was 48.6, while the pretest arithmetic mean of the control group consisting of the same number of students was 40.6. The p-value calculated between the mean posttest scores of the two groups was 0.032. As this value is below the level of significance set at 0.05, a significant difference was identified between the two groups in favor of the study group. The study group students performed better in the posttest than the control group students.

*Was there a significant difference between the posttest and the permanence test scores of the study group, in which the drama method was employed?*

**Table 5.** Comparison of the Posttest and Permanence Test Scores of Study Group

<b>Test</b>	<b>Number of Students</b>	<b>Arithmetic Mean</b>	<b>Standard Deviation</b>	<b>t</b>	<b>P</b>
<b>Posttest</b>	22	48.6	13.9		
<b>Permanence Test</b>	22	50.2	17.5	.523	606

The independent groups t test was used to analyze the posttest and permanence test scores of the study group students. As can be seen in 5, the arithmetic mean of the study group students' posttest score was 48.6, while the mean permanence test score was 50.2.

In addition, the p-value of the t test was determined as 0.606. There was no significant difference between the posttest and permanence test scores of the study group students. This reflects that the students did not forget the information they were taught.

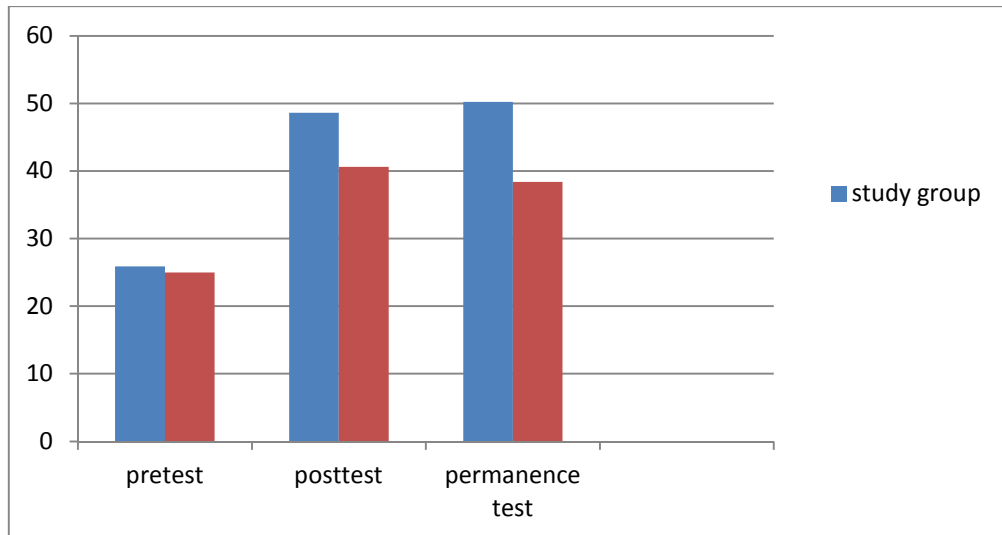
*Was there a significant difference between the posttest and permanence test scores of the control group, in which a traditional educational approach was employed?*

**Table 6.** Comparison of the Posttest and Permanence Test Scores of the Control Group

<b>Test</b>	<b>Number of Students</b>	<b>Arithmetic Mean</b>	<b>Standard Deviation</b>	<b>t</b>	<b>P</b>
<b>Posttest</b>	22	40.6	9.4	0.970	0.343
<b>Permanence Test</b>	22	38.4	12.5		

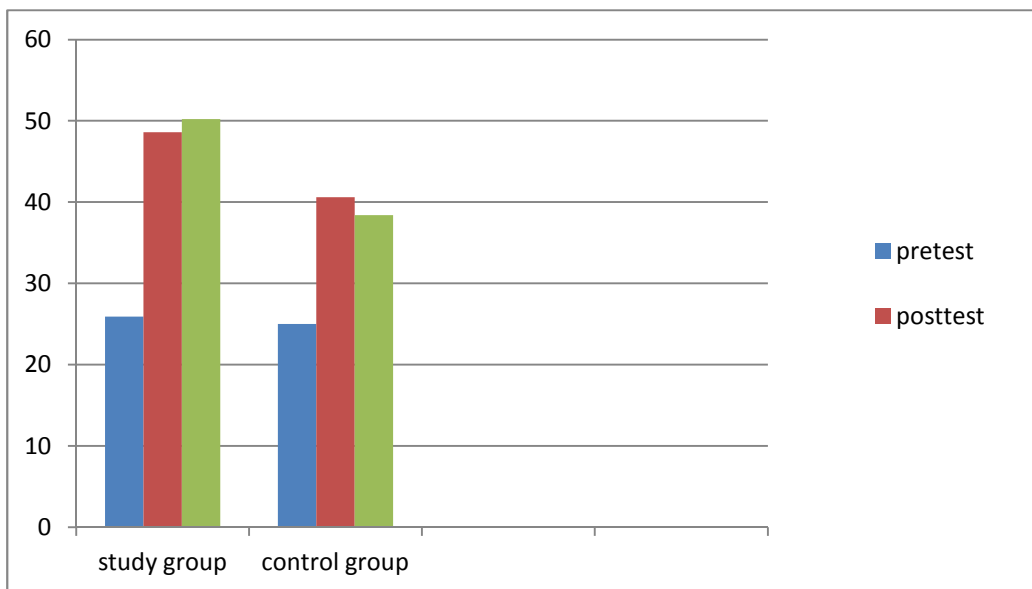
The independent groups t test was used to analyze the posttest and permanence test scores of the control group students. As can be seen in Table 6, the arithmetic mean of control group students' posttest score was 41.3, while the mean permanence test score was 38.4. The arithmetic mean score indicates that the control group students performed better in the posttest.

In addition, the p-value of the t test was determined as 0.369. This indicates that there were no significant differences between the control group's posttest and permanence test scores. However, an evaluation of mean test scores demonstrates that the control group students performed better in the posttest.



**Figure 1.** Comparison of the Study and Control Groups with respect to Pretest, Posttest and Permanence Test Scores.

Figure 1 illustrates the mean pretest, posttest and permanence test scores of the students in the study and control groups. As can be seen in Figure 1, the arithmetic mean of the study and control groups' pretest scores were very similar; in other words, there was no difference between the two groups with respect to their pretest scores. An evaluation of the mean posttest test scores indicates that the study group students performed better in the posttest than the control group students. The study group also performed better with respect to the permanence test scores. Thus, the drama method contributed more to the students' academic performance and to the permanence of their learning than the traditional educational approach.



**Figure 2.** Comparisons of the Pretest, Posttest and Permanence Test Scores of the Study and Control Groups.

Figure 2 shows the comparison of the pretest, posttest and permanence test scores for the study and control groups. It can be seen in this Figure that the study group performed better in the posttest than in the pretest. On the other hand, the study group's posttest and permanence test scores were nearly similar. It was thus observed that the favorable effect of the study method

continued after the application period of the study method was completed. The control group students also performed better in the posttest than in the pretest. However, the control group students' scores decreased in the permanence test.

Based on the results shown in Figure 2, it is possible to state that the drama method employed in the study group had a more positive effect on academic performance and the permanence of learning than the traditional educational approach employed in the control group.

#### **4. RESULT AND DISCUSSION**

While there was no significant difference between the pretest scores of the study and control groups, the 4 week study period resulted in a significant improvement of the performance of the study group. Thus, using the drama method in class led to an increase in the academic performance of the study group students. This result is in parallel with the study findings of Labow and Swell (1993), Kılıç and Oğur (2005), Sözer (2006), Aykaç and Adıgüzel (2011). Four weeks after completing the application of each group's respective teaching method/approach, students in both groups were performed the permanence test. Both groups demonstrated a certain level of recall of the subject they were taught. However, based on the mean scores of the permanence test, the level of recall – and hence the permanence of knowledge in the study group administered with the drama method was higher in comparison to the control group (Gürdal and Sağırılı, 2002; Sözer, 2006).

Using the drama method as a teaching approach improves both the academic performance of students and the permanence of the knowledge they acquired (Karapınarlı, 2007; Şimşek et al., 2010). It can be said that since the group educated with the drama method learned information through experience and comprehension rather memorization, students in this group were less likely to forget the information they were taught (Gürdal and Sağırılı, 2002). Using creative drama in class is a student-centered activity; such activities contribute not only to the development of creative and scientific thinking, but also allow the students to gain a more concrete understanding of the information and subjects they learn (Annarella, 1992).

Other studies in the literature (Atan, 2007; Karapınarlı, 2007; Şimşek et al., 2010) have also described the positive effect of the drama method in ensuring the permanence of learning and knowledge. In all previous studies on this subject, the time between the posttest and the permanence test was 45 days at most. Certain researchers are currently considering whether the level of permanence would be affected if the time between the posttest and permanence test was extended, or if the drama method-based teaching approaches were performed periodically.

However, in none of the previous studies that assess the effectiveness of the drama method were the test questions divided according to the type and stage of learning. In future studies; the study test questions could be divided and categorized according to those that assess the students' understanding of the subject, the students' level of knowledge, the students' application of learned knowledge, the students' analysis and synthesis skills, and the students' learning stage. Such an approach may contribute to determining the learning stages and areas in which the drama method is the most effective.



## REFERENCES

- Annarella, L. (1992). *Creative drama in classroom*.  
[http://eric.ed.gov/ERICWebPortal/search/detailmini.jsp?\\_nfpb=true&\\_&ERICExtSearch\\_SearchValue\\_0=ED391206&ERICExtSearch\\_SearchType\\_0=no&accno=ED391206](http://eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED391206&ERICExtSearch_SearchType_0=no&accno=ED391206).  
Retrieved on October 2013.
- Atan, O. (2007). *Resim-iş öğretmeni yetiştirmede yaratıcı drama yönteminin grafik tasarımı derslerinde kullanılmasının erişimi, tutum ve kalıcılığa etkisi*. Doktora tezi, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Avinç, İ. Çam, Ö. ve Özkan, E. (2009). Fen ve teknoloji dersinde drama yönteminin akademik başarı ve derse karşı ilgi açısından karşılaştırmalı olarak incelenmesi: Köy ve merkez okulları örneği. *GÜ, Gazi Eğitim Fakültesi Dergisi*, 29 (2), 459 - 483.
- Aydoğdu, M. ve Kesercioğlu, T. (2005). *İlköğretimde fen ve teknoloji öğretimi*. Ankara: Anı Yayıncılık.
- Aykaç, M. ve Adıgüzel, Ö. (2011). Sosyal bilgiler dersinde yaratıcı dramanın yöntem olarak kullanılmasının öğrenci başarısına etkisi. *Kastamonu Eğitim Dergisi*, 19 (1), 297- 314.
- Bahar, M. (Editör). (2006). *Fen ve teknoloji öğretimi*. Ankara: Pegem A Yayıncılık.
- Büyüköztürk, Ş., Çakmak, K. E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2010). *Bilimsel araştırma yöntemleri*. (6. Basım). Ankara: Pegem A Yayıncılık.
- Eymen, E. U. (2007). *SPSS 15.0 veri analiz yöntemleri*. [www.istatistikmerkezi.com](http://www.istatistikmerkezi.com). Erişim Tarihi: 14.03.2013.
- Gürdal, A. ve Sağırlı, H. (2002). Fen bilgisi dersinde drama tekniğinin öğrenci başarısına etkisi. *M.Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 15, 213–224.
- Karadağ, E. ve Çalışkan, N. (2008). *Kuramdan uygulamaya ilköğretimde drama*. (2. Baskı).Ankara: Anı Yayıncılık.
- Karapınarlı, R. (2007). *İlköğretim yedinci sınıf matematik dersinde yaratıcı drama yönteminin öğrencilerin akademik başarı ve kalıcılık düzeyine etkisi*. Yüksek lisans tezi, Muğla Üniversitesi Sosyal Bilimler Enstitüsü, Muğla.
- Karasar, N. (2009). *Bilimsel araştırma yöntemi*. (20.Baskı). Ankara: Nobel Yayın Dağıtım.
- Kılıç, G. ve Oğur, B. (2005). Fen bilgisi dersinde drama entegre edilmesinin öğrenci başarısı üzerindeki etkisi. *Eğitim Araştırmaları Dergisi*, 20, 178–188.
- Labow, B. J. and Sewell, R. (1993). Command performances. *Science and Children*, 31 (2), 23-24.
- McNaughtan, M. J. (2004). Educational drama in the teaching of education for sustainability.  
[http://www.google.com.tr/#hl=tr&sclient=psyab&q=mcnaughton+drama&oq=mcnaughton+drama&aq=f&aqi=&aql=1&gs\\_l=hp.3...3307.5164.2.5413.6.6.0.0.0.0.327.1576.2](http://www.google.com.tr/#hl=tr&sclient=psyab&q=mcnaughton+drama&oq=mcnaughton+drama&aq=f&aqi=&aql=1&gs_l=hp.3...3307.5164.2.5413.6.6.0.0.0.0.327.1576.2) Retrieved on 05.May, 2012
- MEB. (2003). Milli eğitim bakanlığı ilköğretim kurumlar yönetmeliği.  
[http://mevzuat.meb.gov.tr/html/225\\_0.html](http://mevzuat.meb.gov.tr/html/225_0.html). Erişim 02.05.2012

- Önder, A. (2004). *Yaşayarak öğrenme için eğitici drama-kuramsal temellerle uygulama teknikleri ve örnekleri* (6.Baskı). İstanbul: Epsilon Yayıncılık.
- Peter, M. (2003). Drama, narrative and early learning. *British Journal of Special Education*, 30 (1), 21-27.
- Sözer, N. (2006). *İlköğretim 4. Sınıf matematik dersinde drama yönteminin öğrencilerin başarılarına, tutumlarına ve öğrenmenin kalıcılığına etkisi*. Master Thesis, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Şimşek, T., Topal, Y., Maden, S. ve Şahin, A. (2010). İlköğretim II. kademe türkçe dersinde zarf konusunun drama yöntemi kullanılarak öğretimi. *Eğitim ve Sosyal Bilimler Dergisi*, 186, 106- 120.
- Yılmaz, G. (2006). *Fen bilgisi öğretiminde drama yöntemi kullanımı*. Yüksek lisans tezi, Pamukkale Üniversitesi Fen Bilimleri Enstitüsü, Denizli
- Zayimoğlu, F. (2006). *İlköğretim 6. Sınıf sosyal bilgiler dersi” coğrafya ve dünyamız” ünitesinde yaratıcı drama yöntemi kullanımının öğrenci başarıları ve tutumlarına etkisi*. Yüksek lisans tezi, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.