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Meta-Analysis on the Effectiveness of Using the Drama Approach in Social Studies Course

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Abstract

The aim of this study is to explore the effect size of the drama approach used in the social studies course on academic achievement through the meta-analysis method in the Turkish sample. The academic studies included in this study were searched at the following databases, namely, National Thesis Centre of the Council of Higher Education (YÖK), ULAKBİM TR Index, Google Scholar, and Scopus by using the keywords "creative drama", "drama", and "dramatization". As a result of the database search, the meta-analysis was carried out with 31 academic studies, including 26 master's theses, 2 doctoral dissertations, and 3 academic papers, all conducted on the effect of drama approach on academic achievement in social studies course. The data related to the studies included in the meta-analysis were analyzed by entering them into the CMA (Comprehensive Meta-Analysis) and MetaWin software programs. Due to the fact that the studies included in our meta-analysis were heterogeneous to one another, effect sizes were calculated according to the random effects model. In addition to this, grade levels, the weeks of application, and the number of samples were identified and analyzed as moderator variables. The results showed that the drama approach used in the social studies course had a positive and significant impact on students' academic achievement. Nevertheless, the moderator analyses indicated that the grade level, the week of application, and the number of samples led to no change in the effect size on academic achievement. No publication bias was found in the studies included in the analysis. Based on the results of the study, we have made a number of recommendations for future research to be conducted on the drama approach for teaching purposes in the social studies course.

Introduction

Today, students who receive schooling in various educational institutions are expected to be equipped with the necessary knowledge, skills, and values required by our age. However, the fact that the traditional understanding of education in raising today's individuals remains ineffective has triggered educators to search for new alternatives. The constructivist approach is one of those that emerged as a result of such search. With the constructivist approach, considerable changes have been made in the traditional education approach, and thus, a

student-centred one has been adopted. This understanding has revealed the need for teaching activities placing students at the centre of learning activities. In the student-centred education approach, students' active participation and interest in the lessons, as well as their attitudes and motivations towards the lessons have gained importance, leading researchers working in the field of education to seek new teaching methods to enable students to actively participate in the lesson, change their attitudes in a positive way, increase their interest and motivation towards the lesson, give them the chance to express themselves in the lesson, and provide permanent learning opportunities.

In the years when the student-centred approach to education started to become widespread, some educators claimed that the use of drama could be an effective method, believing that it allowed educational activities to be carried out in a student- and process-centred manner. The philosophy of educational drama introduced by Heathcote was influential in this approach (Bolton, 1985). The use of educational drama approach in Turkey started after the 1980s. Following the "International Seminar on Drama in Education", educational drama gradually became one of the most important issues of academic studies along with the increase in the recognition of this method. In Turkey, drama was first contained in the curriculum upon the transition to the educational approach in which the constructivist approach was dominant (Adıgüzel, 2019).

Creative drama is the interpretation and animation of an experience, event, idea, or behaviour in group work through "play-like" activities drawing on theatre or drama techniques such as improvisation and role playing, by reviewing experiences, emotions, observations, and experiences upon reorganizing the existing cognitive patterns (San, 2021). It is also a unique method that can be applied at all educational levels and in all age groups (Bal İncebacak, Sarışan Tungaç, & Yaman, 2017). In this respect, Heathcote (1991) stated that when teaching activities are associated with drama, learners are more likely to be able to associate the desired education with daily life effectively. In creative drama activities, students begin to recreate new information based on their knowledge from real-life experiences and on what they have already gained during the activities, and they sustain a natural dialogue thanks to improvisations (Metinnam, 2017). From this standpoint, creative drama is believed to provide those who are involved with the opportunity to evaluate and, if necessary, change their perspectives through real-life experiences (Olğun Baytaş & Çelik, 2020).

Creative drama is a method that exerts various positive influences on learners when used in educational activities, makes lessons more enjoyable, as well as creating a strong communication among students in the classroom environment (Nayci & Adıgüzel, 2017). In the lessons taught through the creative drama approach, students have the opportunity to take on different roles while expressing their feelings and thoughts through improvisational ways, and improving their speaking and listening skills (Maden & Dinç, 2017). Furthermore, creative drama is used in educational activities as an effective teaching method (Adıgüzel & Timuçin, 2010; Edmiston, 2013) that develops students' creativity skills (Bal İncebacak, Sarışan Tungaç & Yaman, 2017; Karaosmanoğlu & Adıgüzel, 2017), empathy skills (Avcıoğlu, 2012; Aykaç & Aykaç, 2019), and communication skills (Maden & Dinç, 2017; McNaughton, 2004; Üstündağ, 2012), and it ensures active participation of students in the lesson (Ulutaş, 2011), offering them the opportunity of learning by doing (Maden & Dinç, 2017).

In order to create a holistic perspective, we consider it necessary to examine in a comprehensive and systematic way the studies in the literature conducted on creative drama, given the fact that they have reached different results with the impacts of different variables. In this sense, with the increase in research on creative drama, different meta-analysis studies have been conducted to generate relevant data. A number of meta-analysis studies exist in the literature especially on academic achievement (Alacapınar & Uysal, 2020; Akdemir & Karakuş, 2016; Bahadırhan, 2019; Batdı & Batdı, 2015; Cantürk Günhan, 2016; Er Türküresin, 2020; Özbey, 2017; Özdemir Şimşek & Karataş, 2020; Ulubey & Toraman, 2015), attitudes (Alacapınar & Uysal, 2020; Özbey, 2017; Toraman & Ulubey, 2016), and skills (Ulubey, 2018) in such a way that reveals the effect size of creative drama. Nevertheless, other meta-analysis studies that have dealt with the effect size of creative drama on academic achievement in science (Özdemir Şimşek & Karataş, 2020), mathematics (Alacapınar & Uysal, 2020; Cantürk Günhan, 2016), and social studies (Ertürk Üresin, 2020) courses are also included in the literature. Considering the moderator variables and inclusion of a larger number of studies into the process over a wide period of time indicates the significance of this study since we have examined the impact of adopting the creative drama approach in social studies course on students' academic achievement.

In the light of these basic reasons, the main purpose of this research is to reveal the effect size of the drama approach applied in the social studies course on academic achievement through the meta-analysis method. For this purpose, answers were sought to the following questions:

1. What is the impact of the drama approach on the academic achievement of the students in the social studies course?
2. Does the effect size of the drama approach applied in the social studies lesson differ according to the grade levels?
3. Does the effect size of the drama approach applied in the social studies lesson differ according to the duration of activities?
4. Does the effect size of the drama approach applied in the social studies lesson differ according to the sample size?

Method

It is possible to evaluate quantitative studies conducted on the same subject through an objective metric even though it is difficult to perform it for scientific research (Başol, 2020, p.17). For this purpose, some researchers (Borenstein et al., 2011; Glass, 1976; Glass, McGaw & Smith, 1981; Hedges, 1982; Rosenthal, 1978) developed the meta-analysis, which has become popular in time. Meta-analysis can be defined as a set of statistical methods that combine quantitative results obtained in more than one study with similar or related purposes (Littell, Corcoran, & Pillai, 2008, p. 1). The meta-analysis method has been found to have been increasingly contained in academic studies from the past to the present, and to have become more and more essential due to the possibility of using it in different disciplines (Sen & Yıldırım, 2020, p. 5). We employed the meta-analysis method in the current study in order to bring together experimental research results examining the effects of drama approach on students' achievement in social studies course.

Data Collection

The targeted master's and doctoral theses conducted in Turkey about the drama approach applied in the social studies course were accessed from the National Thesis Centre at the Council of Higher Education (YÖK), ULAKBİM TR Index, and Google Scholar databases, as well as ERIC and Scopus databases to reach those conducted abroad. The keywords such as "social studies" and "drama", and "social studies" and "dramatization" were used in the abstract, index, and title search sections of the databases to access the relevant studies. The present study covered the studies investigating the academic achievement variable in the social studies course in which the drama approach was applied for teaching purposes between 1999 and 2021. The studies included in the meta-analysis determined the academic achievement mostly by using the achievement tests prepared by the researchers or the tests prepared specifically for the subject. Relevant research conducted on the drama approach included in this study was accessed from the given databases between 02.03.2021 and 28.03.2021.

Inclusion and Exclusion Criteria

We included any study if:

- it was published between 1999-2021.
- it is a master's thesis, PhD thesis or an article published in peer-reviewed scientific journals.
- it examined the impact of drama approach on students' academic achievement.
- it is an experimental or quasi-experimental study using a pre-test and post-test design with control groups.
- it included an experimental group taught by the drama approach and a control group by traditional teaching methods.
- it was written in either Turkish or English.
- it consisted of a sample of primary and secondary school students.
- it was conducted during the Social Studies course.
- it included the necessary data regarding the sample size, arithmetic mean values, and standard deviation values of the experimental and control groups in order to for us calculate the effect size.

As a result of the searches made with the specified keywords, 97 studies were accessed in the first place. In the analysis process, 58 of these studies were excluded as they had a variety of research designs (qualitative research, survey, review, systematic literature review). Eight of the remaining 39 studies were also excluded from the analysis due to lack of sufficient data. Finally, 31 studies that met the inclusion criteria were included in the analysis process.

Data Coding

After the studies were chosen to be included in the meta-analysis, a coding form was created using the Microsoft Office Excel. The form consisted of two parts, the first of which was the paper ID, and the second included the necessary statistical data (arithmetic mean, standard deviation, number of samples) to calculate the effect size.

The coding process was carried out by two independent coders, one of whom had already obtained the title of Doctor in the field of Social Studies and the other was a Research Assistant in this field. The reliability analyses related to the coding process was made in line with the Cohen's kappa statistics, and the reliability was found to be 0.87 using the Cohen's kappa coefficient (Cohen's κ). According to Landis and Koch (1977), the following values must be taken into account when interpreting the kappa coefficients: κ = 0.81-1.00 (almost perfect), κ = 0.61-0.80 (substantial), κ = 0.41-0.60 (moderate), κ = 0.21-0.40 (fair), κ = 0.00-0.20 (slight), κ <0.00 (no agreement). It can thus be assumed that the level of reliability (= 0.94) in this study is almost perfect.

During the data analysis, moderators were used to examine the relationships between effect sizes and study characteristics, given as follows:

• The grade level with which the study was conducted; 4th grade, 5th grade, 6th grade, and 7th grade
• The duration of the activities in the study: 1-4 weeks, 5-10 weeks.
• The sample size: 1-50 students, 51-64 students, and 65 and over students.

Calculation of Effect Sizes and Data Analysis Plan

The effect size is the basic term that constitutes the nature of the meta-analysis. This value reveals the extent to which the independent variable affects the dependent variable positively or negatively in a study (Dinçer, 2014, p.16). The data of this research were analyzed by the process efficiency method. All of the studies included in the meta-analysis contained data on arithmetic mean, standard deviation, and sample sizes. We preferred to use the Cohen's d effect size index, which reveals the corrected and standardized mean difference between the groups, for calculating the effect size values of the studies reviewed. This index shows how many standard deviations the means are apart from each other (Card, 2012, p. 85). We interpreted the effect size values on the basis of the criteria proposed by Cohen et al. (2007), which were interpreted as follows: $d<0$ adverse effect, $0<d\leq0.20$ insignificant, $0.21\leq d\leq0.50$ small, $0.51\leq d\leq1.00$ medium, and $1.01\leq d$ large. In addition, we interpreted the statistical data by taking the significance level as 0.05. We used the Comprehensive Meta-Analysis (CMA) program to calculate the effect sizes (Borenstein et al., 2013), and the MetaWin program for the normal distribution of the data. We made the analyses according to 38 effect sizes obtained from 31 studies. However, in other studies of the same researcher, which were published as both a thesis and an article, and where the same results were reported, the thesis was first taken into account and a single effect size data was included in the analysis. In addition, a Funnel Plot, Rosenthal's Safe N Test, and Duval Tweedie test results were used to determine whether there was any publication bias.

Statistical Model Selection

During the meta-analysis, whether or not the available studies show a heterogeneous distribution is examined upon calculating the mean effect size. Heterogeneity test results are usually determined by the Q test, which gives information only about whether there is heterogeneity, yet it provides no information about the extent of heterogeneity. Recently, it has been recommended to use the I^2 statistics, which determine the rate of heterogeneity, in addition to the Q test (Huedo-Medina et al., 2006, p. 2). We drew upon these two values to

interpret heterogeneity. While interpreting the I^2 coefficient, 25% (I^2 =25) was taken as low, 50% (I^2 =50) as moderate, and 75% (I^2 =75) as high heterogeneity criteria as basis (Huedo-Medina et al., 2006).

We preferred the random effects model in our study since the studies included in the research used different measurement tools and different statistical tests with different parameters. As a matter of fact, it is recommended in meta-analysis studies in the field of social sciences that random effects model for effect size analysis be used (Field & Gillett, 2010). We, therefore, used the random effects model in the present study.

Reliability and Validity of the Research

The biggest threat to reliability in meta-analysis is known to be the publication bias (Sutton, 2009), which can be measured by a variety of methods. In this regard, we used the methods such as Funnel Plot, Rosenthal's Safe N method, and Duval Tweedie in order to determine publication bias and to demonstrate how strong the meta-analysis was. However, one way of reliability in meta-analysis is to create the Q-Q plot graph, which was also used in this study.

In meta-analysis, the Funnel Plot provides the reader with a visual summary of the data set (Sterne, Becker, & Egger, 2005). We first used the Funnel Plot to determine the study bias. Figure 1 presents the funnel-shaped scatter plot of the effect sizes of the studies including the academic achievement variable:

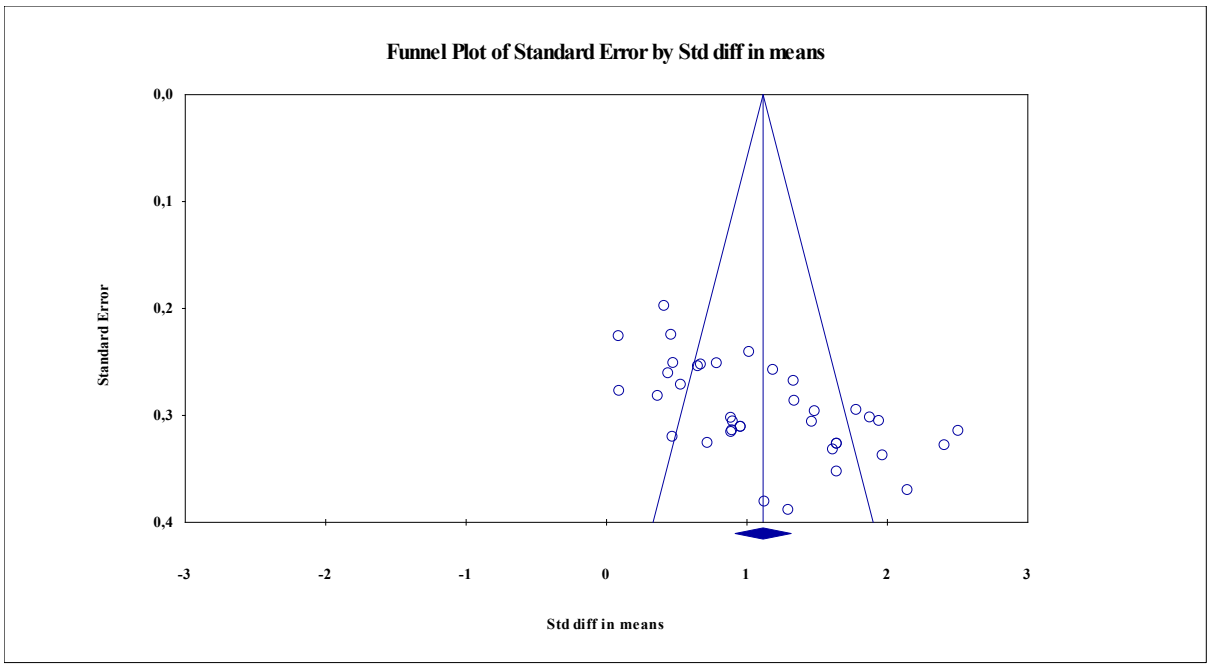

Figure 1. Funnel Plot of Included Studies

Circular dots in the funnel plot represent the effect sizes encountered in individual studies. The effect sizes are expected to be distributed within the funnel lines symmetrically so that they will not cause any publication bias. The effect sizes of individual studies that go out of the funnel plot and are distributed asymmetrically end up with publication bias. The figure shows that the effect sizes found in the studies examining the variable of

academic achievement are distributed on the graph in a close symmetrical manner, indicating no publication bias. In addition, the data presented by Rosenthal's and Orwin's Fail-Safe N method were also used to ensure that there was no publication bias. Table 1 shows the data obtained from Rosenthal's Fail-Safe N Test.

Table 1. The Calculation of Rosenthal's FSN Values for Meta-Analysis

Presence of Bias	
Z value for the studies reviewed	22.94408
p value for the studies reviewed	0.000*
Alpha	0.05
Direction	2
Z value for the Alpha	1.95996
The number of reviewed studies	38
FSN	5170

*p<.05

As seen in Table 1, the Rosenthal's fail-safe number test result obtained from this meta-analysis study is 5170. In order to eliminate the significance of this meta-analysis result, it is necessary to conduct 5170 studies with a zero-effect size value contrary to the available findings. In other words, there must be at least 5170 studies in the literature with values opposite to the available findings so that this meta-analysis result, which consists of the data of 38 studies, can be considered invalid. Obtained according to the Rosenthal's fail-safe number test result, this figure (5170) supports the data in the funnel plot.

Another publication bias method used in meta-analysis was the Duval and Tweedie's testing method, whose result is shown in Table 2.

Table 2. Number of Studies Missing According to Duval and Tweedie Test

	Removed work (Trimmed studies)	Point estimation	95% Confidence interval		Q
			Lower limit	Upper limit	
Observed value		1.115	0.915	1.314	173.666
Expected value	0	1.115	0.915	1.314	

As seen in Table 2, the observed value of the effect size is 1.115, just like the expected value being 1.115 under the random effects model. Considering the effect size classification made by Cohen et al. (2007), the fact that the observed effect size value (d=1.151) and the expected effect size (d=1.151) turned out to be the same, remaining at the same level (strong level) indicate that there is no publication bias.

One of the ways to ensure reliability in meta-analysis studies is to calculate the normal quantile graph as shown

in Figure 2 for this study:

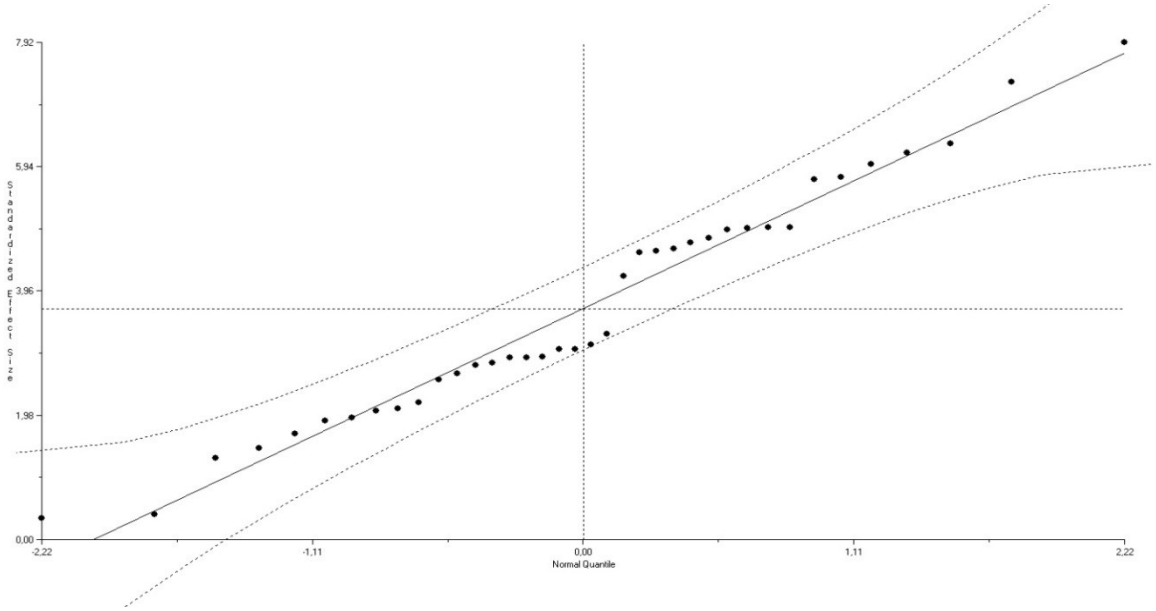

Figure 2. Normal Q-Q Graph

In Figure 2, each study is shown with a dot. The studies (dots) included in the analysis should normally be within the two lines on the graph, which appear so on the graph given above. This shows that the effect size levels of the studies are within the normal distribution, which is reliable (Rosenberg et al., 2000). However, the fact that the studies included in the meta-analysis are in two rows, as in Figure 2, shows that the estimated effect sizes are not outliers, thereby showing that the given data is suitable for calculating the effect size. It is, therefore, possible to assert that the analysis made in this study is quite reliable.

Results

Table 3 shows the demographic data distributions of the studies included. Table 3 shows the demographic data distribution of the academic publications conducted with a focus on the drama approach, included in the present study. Given the years of publication, 2019 was the year when the highest number of academic studies was conducted on the drama approach. Moreover, the studies focusing on the drama approach was mostly conducted with the 4th grade students. When it came to geographical regions, it appeared that most of the studies on the drama approach were made in the Central Anatolia Region, while no relevant studies were found in the Southeastern Anatolia region. According to the type of publication, most of such studies were found to have been carried out as a master's thesis. Articles produced from academic theses were not included in the process as they were already presented within such academic work. When compared in terms of the duration of applied activities, it seemed that 5 weeks of application was preferred more in the studies using the drama approach. The relevant studies included a total of 863 people in the experimental group, with 867 people in the control group, and 1730 people in the sample group.

Table 3. The Demographic Data Distributions of the Studies Included

by Publication Years

Years	No	%
1999	1	3
2001	1	3
2003	1	3
2004	3	10
2005	1	3
2006	1	3
2008	2	6
2009	3	10
2010	1	3
2011	3	10
2012	2	6
2013	1	3
2015	2	6
2016	1	3
2017	1	3
2018	1	3
2019	4	13
2020	2	6
Total	31	100

by Grade Level

Classes	No	%
4th Grade	10	32
5th Grade	8	25.8
6th Grade	6	19
7th Grade	6	19
4th and 5th Grades	1	3.2
Total	31	100

by Geographical Regions

Regions	No	%
Central Anatolia Region	9	29
Marmara Region	7	23
Eastern Anatolian Region	6	19
Aegean Region	4	13
Mediterranean Region	3	10
Black Sea Region	2	6
Southeastern Anatolia Region	0	0
Total	31	100

by Publication Type

Type	No	%
Master's Thesis	26	83,9
PhD Thesis	2	6,5
Articles	3	9,7
Total	31	100

by the Duration of Activities

Weeks	No	%
1 week	1	3.2
2 weeks	3	9.7
3 weeks	1	3.2
4 weeks	7	22.6
5 weeks	9	29.0
6 weeks	5	16.1
8 weeks	2	6.5
10 weeks	3	9.7
Total	31	100

by Number of Samples

Sample group	No
Experimental group	863
Control group	867
Total	1730

Results Related to Effect Sizes Measured in Studies on Academic Achievement

As can be seen in Table 1, as a result of the analyses made according to the random effects model (REM), the overall effect size of the drama approach applied in the social studies course on the academic achievement of the students was measured as 1.115, which represented a significant and positive value at the 'strong' level according to the classification of Cohen et al. (2007). In this case, the drama approach proves more effective on the academic achievement of the students compared to the traditional (current) method in social studies lessons. Table 4 presents the overall effect sizes of the studies included in the meta-analysis as to the effect models.

Table 4. The Range of Effect Sizes and Homogeneous Values by Effect Models

					%95 confidence interval				Homogeneity test result			
Model	n	d	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	df (Q)	P-value	I^2
FEM	38	1.023	0.047	0.002	0.932	1.114	21.943	0.000	173.666	37	0.000	78.695
REM	38	1.115	0.102	0.010	0.915	1.315	10.945	0.000				

FEM: Fixed Effects Model, REM: Random Effects Model

Table 4 presents data on effect models and homogeneity results. Using the random effects model, we found the Z value as 10.945. The overall effect size was calculated as 1.115 with a 95% confidence interval, besides the lower limit of 0.915, upper limit of 1.315, and standard error of 0.102. The effect of drama approach on academic achievement in social studies lesson was 1.115 according to random effects model, showing that drama approach in social studies lesson proved an effective method for the sake of students' academic achievement.

A statistical significance was found between the groups in terms of homogeneity test results (Q=173.666; p<.05), indicating that the effect size range was heterogeneous. However, the I2 value, which is different from the Q statistic, gives information about the level of heterogeneity. In the interpretation of I2, 25% indicates low heterogeneity, 50% moderate heterogeneity, and 75% high heterogeneity (Cooper, Hedges & Valentine, 2009). As regards the random effect model, the I2 value could be considered to refer to a high level of heterogeneity with 78.695% for the effect size value of 1.115.

Figure 3 presents the forest plot of the studies included in the current study. As seen in Figure 3, the brown squares in the figure represent the effect size of each study, and the lines on both sides of the squares show the lower and upper limits of the effect sizes at the 95% confidence interval. The numbers at the far right of the figure show the weight of the relevant study in the overall effect size. The dark blue diamond shape at the bottom of the figure shows the overall effect size of the studies. The smallest effect size is 0.092, while the highest one is 2.511. All of the studies included in the study seem to have a positive effect, especially in favour of the experimental group to which the drama approach was applied.

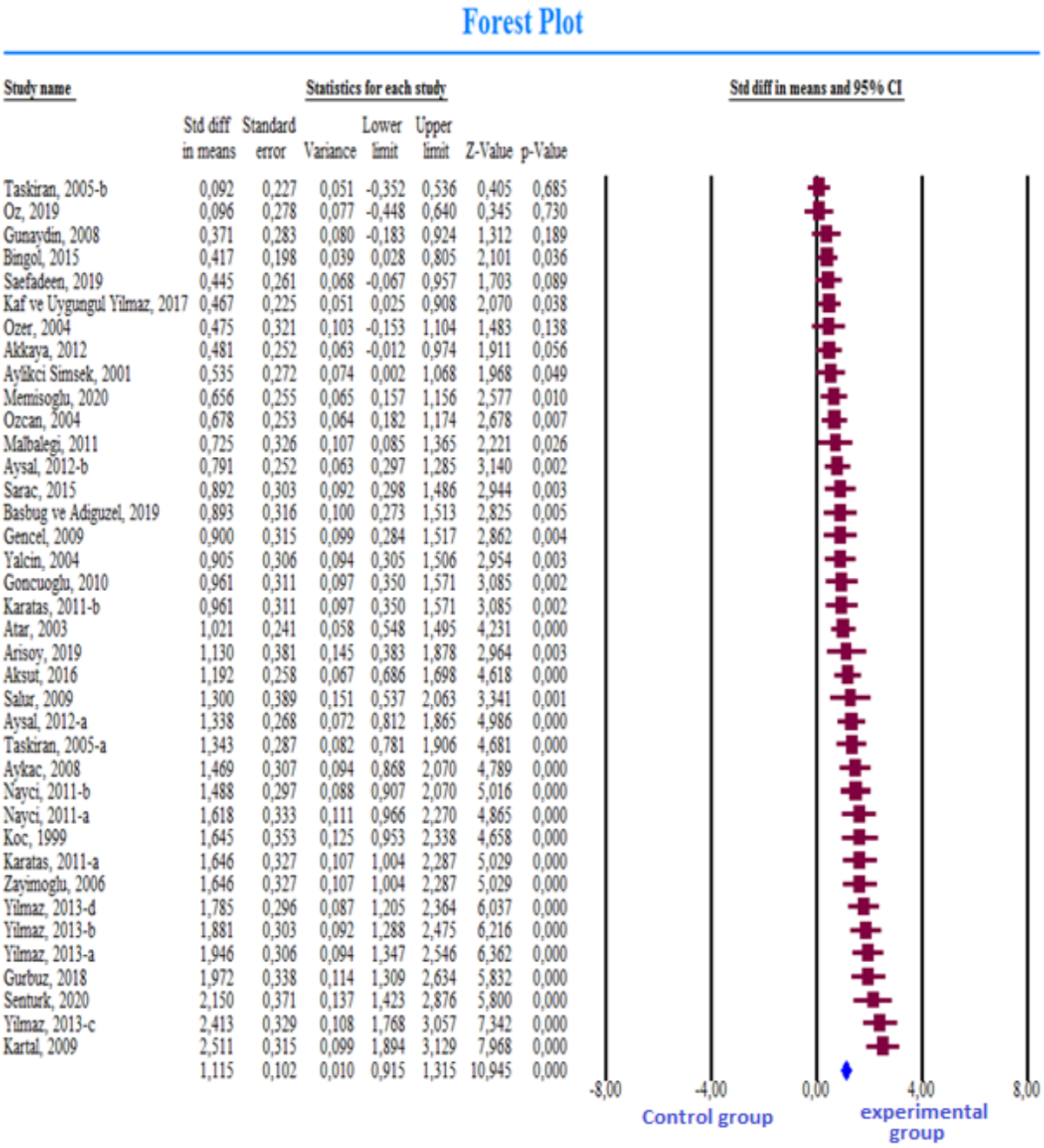

Figure 3. Forest Plot of the Studies Included

As can be seen in Table 5, the highest effect size of 1.265 appeared in the studies conducted with 7th graders according to the grade level moderator, while the lowest effect size of 0.951 was found in the studies conducted with the 4th graders. As a result of the between-group homogeneity test, the QB statistical value was calculated as 1.220. On the chi-square (X2) table, the critical number for three degrees of freedom was considered as 7.815 at 95% significance level. Since the value of homogeneity, which was QB=1.220, calculated in this study was smaller than the accepted critical value of 7.815 (QB=1.220<X2=7.815; p=0.748>.05), it could be assumed that there was no statistically significant difference between the groups. Also, the academic achievement of the students taught with the drama approach in the social studies course turned out not to change according to the grade level.

Table 5. General Effect Sizes of Studies in Moderator Analyses

			Effect sizes and 95% confidence interval				Test of null		Heterogeneity		
Moderator	Group	n	d	Std error	Lower	Upper	Z	p	Q_B	df	p
Grade levels	4	12	0.951	0.178	0.603	1.300	5.349	0.000	1.220	3	0.748
	5	10	1.134	0.134	0.871	1.397	8.448	0.000			
	6	6	1.194	0.238	0.726	1.661	5.007	0.000			
	7	10	1.265	0.299	0.679	1.852	4.228	0.000			
Duration of the applied activity by weeks	1-4	13	0.906	0.156	0:600	1.212	5.805	0.000	2.429	1	0.119
	5-10	25	1.222	0.129	0.969	1.474	9.487	0.000			
Sample sizes	1-50	13	1.267	0.042	0.864	1.669	6.168	0.000	2.075	2	0.354
	51-64	13	1.158	0.015	0.917	1.400	9.387	0.000			
	65 person and over	12	0.909	0.174	0.568	1.249	5.231	0.000			

**Articles (2) were excluded from the analysis.

Considering the moderator of duration of applied activities, the highest effect size of 1.222 was seen in studies conducted for 5 to 10 weeks, while the lowest effect size of 0.906 was seen in studies conducted for 1 to 4 weeks. As a result of the homogeneity test between the groups, the QB statistical value was calculated as 2.429. On the chi-square (X2) table, the critical value of one degree of freedom was accepted as 3.841 at 95% significance level. Since the homogeneity value of QB=2.429, calculated in this study, was smaller than the accepted critical value of 3.841 (QB=2.429<X2=3.841; p=0.119>.05), it could be assumed that there was no statistically significant difference between the groups. Hence, we concluded that the academic achievement of the students taught with the drama approach in the social studies course did not change according to the duration of applied activities.

Given the sample size moderator, the highest effect size of 1.267 was found in studies conducted with 1-50 people, while the lowest effect size of 0.909 in studies conducted with 65 people or over. As a result of the homogeneity test between the groups, the QB statistical value was calculated as 2.075. On the chi-square (X2) table, the critical value of two degrees of freedom was accepted as 5.991 at 95% significance level.

Since the homogeneity value of QB=2.075, calculated in this study, was smaller than the accepted critical value of 5.991 (QB=2.075<X2=5,991; p=0.354>.05), it could be asserted that there was no statistically significant difference between the groups. Moreover, the academic achievement of the students taught with the drama approach in the social studies course was considered not to change according to the number of samples.

Moderator Analysis Results on Academic Achievement

Due to the heterogeneity of the range in our study, the grade levels, the duration of applied activities, the sample sizes, and the titles of the academics supervising the theses were taken as moderator variables for the studies included in the study. In this regard, Table 5 presents the subgroup analyses made for the moderator variables determined in order to reveal the effectiveness of the drama approach in comparison to the traditional (current) teaching methods.

Discussion

With the aim of examining the effect of the drama approach applied in the social studies course on the academic achievement of the students via meta-analysis, we conducted a study by combining a total of 38 effect sizes taken from 31 academic studies. The sample of the study consisted of 1730 people in total, including 863 people in the experimental groups and 867 people in the control groups.

The first research question was "What is the effect of the drama approach on the academic achievement of students in a social studies course?". Since we determined that the studies included in the research had a heterogeneous structure, we used the random effects model (Q=173.666> X2=50.964; df=37). In the random effects model, the overall effect size value of the studies was calculated as '1.115', revealing that it had a strong effect size according to the effect size classification of Cohen et al. (2007). In general, a positive mean effect size (+1.115) denotes that the treatment effect is in favor of the experimental group (Wolf, 1988). For this reason, it shows that the drama approach applied in the social studies course on the academic achievement of the students proves more effective than the current teaching methods applied in the control groups.

This result is similar to that of the meta-analysis conducted by Er Türküresin (2020) to examine the effect of drama approach on students' achievement in social studies course. Moreover, similar to the results of the current research, there are meta-analysis studies (Bahadırhan, 2019; Batdı & Batdı, 2015; Özbey, 2017; Ulubey & Toraman, 2015) in the literature stating that the drama approach has a strong impact on students' academic achievement. Apart from the examples in Turkey, some other meta-analysis studies (Conard, 1992; Lee et al 2015; 2020) conducted on the drama approach seemed to have concluded that this method had a moderate impact on students' academic achievement. As a result, the effect sizes of all those studies mentioned have shown that the drama approach is particularly effective in this regard. Nevertheless, the results of the current study are also consistent with the results of individual studies in the national and international literature, reporting that the drama approach proves more successful than the traditional teaching method in terms of students' academic achievement, apart from the studies included in the present analysis (Ay, 2005; Karaosmanoğlu, 2015; Saab, 1987; Timothy & Apata, 2014; Özensoy, 2010; Ütkür, 2012). As a specific example, the study conducted by Sarı (2017) revealed that there was a statistical significance in favor of the experimental group when the students were compared in terms of their academic achievement in the experimental group taught with the drama approach and that in the control group taught in line with the existing methods and techniques prescribed by primary school curriculum for a social studies class in the 4th grade. The

results obtained from those studies in the literature could be considered compatible, consistent, and overlapping with the results of the current research.

The second research question was “Does the effect size of the drama approach applied in the social studies lesson differ according to the grade levels?”. In this context, we accessed 12 studies conducted with the students at the 4th grade, 10 studies with those at the 5th grade, 6 studies with those at the 6th grade, and 10 studies with those at the 7th grade. The comparison of the effect sizes by grade levels revealed that according to the classification of Cohen et al. (2007), the effect size ended up moderate for the 4th grade students, and strong for the 5th grade, 6th grade, and 7th grade students. No statistical significance was found between the effect sizes of the groups formed according to grade levels (QB=1.220<X2=7.815; sd:3; p=0.748>.05), a result which shows that the drama approach applied in the social studies course does not differ significantly in academic achievement according to grade level. In the literature, a meta-analysis study conducted by Bahadırhan (2019), examining the impact of the drama approach on academic achievement in secondary and high schools, reported a result similar to that of the current research. Still, the drama approach being applied in higher grade levels turned out to be more effective.

The third research question was “Does the effect size of the drama approach applied in the social studies lesson differ according to the duration of the applied activities?" In this context, there were 13 studies conducted for 1 to 4 weeks, and 25 studies for 5 to 10 weeks. The comparison of the effect sizes based on the duration of the applied activities revealed that the effect size was found to be at a moderate level for studies conducted for 1 to 4 weeks, whereas at a strong level for studies conducted for 5 to 10 weeks. No statistical significance was found between the effect sizes of the groups formed according to the duration of applied activities in weeks (QB=2.429<X2=3.841; sd:1; p=0.119>.05), a result that is in conformity with some meta-analysis studies in the literature examining the effect of drama approach on academic achievement (Bahadırhan, 2019; Batdı & Batdı, 2015). However, it is also similar to the meta-analysis result of Cantürk Günhan (2016), who introduced the duration of applied activities in hours, while it is not in conformity with another meta-analysis result conducted by Özbey (2017); the reason may be that it covers a narrower time period than the current research.

The fourth research question was “Does the effect size of the drama approach applied in the social studies lesson differ according to the sample sizes?”. We accessed 13 studies with a sample of 1-50 people, 13 studies with 51-64 people, and 12 studies with a sample of 65 and over. No statistical significance was found between the effect sizes of the groups formed according to the sample size (QB=2.075<X2=5.991; Sd;2 p=0.324>.05). This result conforms to the meta-analysis result reported by Cantürk Günhan (2016), examining the effect of drama approach on academic achievement. The comparison of effect sizes according to the sample sizes in line with the classification of Cohen et al. (2007), showed that the studies conducted with 1-50 people and those with 51-64 people were strong, while those with 65 and more people were found moderate in terms of effect sizes. On the basis of these results, it could be assumed that as the number of samples increases, there is a decrease in the effect sizes, though slightly. The relevant literature includes some studies reporting that class size negatively affects academic achievement (Acar, 2013; Akyüz, 2006; Boozer & Rouse, 2001; Çelebi 2010; McGiverin, Gilman & Tillitski, 1989; Uzun, 2017). As a matter of fact, this result supports the finding of our study.

Conclusions

The results of our study have shown that the drama approach in the social studies course proves effective in increasing students' academic achievement. It can thus be suggested that drama is an effective method and that teachers and researchers should make use of this method for teaching in social studies lessons. In this study, we examined the effect of drama approach on students' academic achievement in social studies lesson. Future studies may consider examining the effect of drama approach in social studies course in relation to certain variables such as students' attitudes, values, skills and motivation. In addition, only 2 of the 31 studies included in this study were found to have consisted of PhD theses, pointing out to the need for more studies conducted at the level of doctoral thesis on drama approach to be applied in social studies course.

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