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The Relationship Between Writing Self-Efficacy and Writing Skill: A Meta-Analysis Study

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Abstract

The purpose of this study is to examine the relationship between writing self-efficacy and writing skill using meta-analysis. In line with this main purpose, the frequency and percentage distributions of the studies, which are included in the research as part of the meta-analysis, according to the moderator variables, the overall effect size of the relationship between writing self-efficacy and writing skill, and the differences in the effect sizes of the studies based on the moderator variables were examined. In order to collect data, "writing self-efficacy", "self-efficacy and writing", "writing motivation", "writing belief", "yazma öz yeterlik", "yazma öz yeterliği", "yazma motivasyonu" (Turkish terms for writing self-efficacy and writing motivation) keywords have been searched in Web of Science, Proquest, ERIC, Council of Higher Education National Theses Center, ULAKBIM (Turkish Academic Network and Information Center) Social Sciences databases, Google Scholar and Google Akademik (Turkish name of Google Scholar) search engines. 70 studies were determined as the result of these searches, and among these studies, those that did not comply with the inclusion and exclusion criteria were eliminated and 37 studies were selected as the sample of the research. In the analysis of the data, Comprehensive Meta-analysis v3.0 statistics program was used. Random effects model was chosen as the meta-analysis model for the research, and Fisher Z value was used in calculating the effect size value. As the result of the analysis carried out, the overall effect size of the relationship between writing self-efficacy and writing skill was positive and moderate (0.369). In addition to the foregoing, there were some differences between the effect sizes of the studies examining the relationship between writing self-efficacy and writing skill based on moderator variables.

Keywords

Turkish Education
Self-efficacy
Writing Self-efficacy
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Introduction

Taking into account the development stages of language skills, it can be concluded that writing skill requires a long period of time to develop. It takes a long time to acquire writing skill at the desired level since it is both a productive language skill and also learned within the schooling period. A high quality text has a number of important features such as a broad vocabulary, correct spelling, punctuation, text structure and consistent order of its elements. In the light of all these features, writing is deemed to be a complex skill. As a result, a great deal of models have been proposed to explain its complexity.

Some models which were introduced to explain writing skill (Bereiter & Scardamalia, 1987; Bridwell, 1980; Butterfield, Hacker, & Albertson, 1996; Chenoweth & Hayes, 2001; Flower & Hayes, 1981; Flower, Hayes, Carey, Schriver, & Stratman 1986; Kellogg, 1996; Sharples, 1999) tried to explain writing with a cognitive approach, prioritizing the mental activities that occur within the writing process. In these models, writing process is usually explained in line with the processes of transcribing the text designed in the mind by calling the information kept in the memory and editing the said text in case of a discrepancy between the text to be written and the text written. However, addressing writing only with its cognitive dimension was not sufficient to understand it completely. Mcleod (1987) stated that writing is also an affective process as well as being a cognitive activity, expressing that we feel as well as think when we write. Sociocultural models introduced in terms of writing (Bazerman, 2011, 2016; Dyson, 1993; Prior, 2006; Russell, 1997) addressed writing as a social activity in its social context. According to these models, there are a number of environmental, psychological and cultural factors affecting writing skill. Some of these factors are author's social and cultural identity, educational programs and policies of the respective country, and social interactions surrounding the act of writing. Certain revisions have been made over time in the models that address writing from a cognitive point of view, along with sociocultural models, such as adding certain concepts emphasizing the psychological dimension of writing to the models. For instance, Hayes, in the writing model that he put forward in 1996, mentioned factors related to the author's motivation such as his purpose, beliefs, and attitudes as well as his cognitive processes, and his short-term and long-term memory. In his model, which he updated later on, he considered motivation as a factor that identifies willingness to participate in writing activities (Hayes, 2012). The most recent writing model belongs to Graham (2018). In the model that Graham (2018) put forward by combining cognitive and sociocultural perspectives, he reached beyond the existing writing model and has greatly expanded the functioning of the writing process by including social, cultural, political, institutional and historical components in writing. In this model, beliefs in terms of writing are mentioned as one of the factors that affect the writing process. One of the beliefs regarding writing is writing self-efficacy.

Self-efficacy is defined in general as people's beliefs about their capacity to organize and carry out the activities required to achieve specified performances (Bandura, 1994). The performance of the students during their education process is related to their self-efficacy beliefs about that performance. Such that, according to Pajares and Valiante (1997, p. 353), the fact that students with the same ability differ significantly in terms of their academic results can be explained by their beliefs in terms of what they can achieve. Vice versa, students' academic activities can also change their self-efficacy beliefs. According to Shunk (2003), as students work on a task, they will progress on that task and their progress will increase their beliefs that they can complete the task. Compared to students who have doubts about their learning abilities, students with high levels of self-efficacy participate in a task more easily, work harder, continue to work on the tas longer when they encounter difficulties, and achieve a higher level of success (Shunk & Zimmerman, 2007). Therefore, academic performance and self-efficacy beliefs interact with each other.

One of the academic fields in which interaction with self-efficacy beliefs is revealed is writing. Writing self-efficacy is defined as a separate concept. Writing self-efficacy is an individual's judgment about what he/she can do in terms of writing. In this context, many studies which reveal the relationship between writing self-efficacy and writing skill in different ways have been conducted (Balcı, 2013;

Graham, Kiuhara, Harris, & Fishman, 2017; Lavelle, 2006; Pajares & Johnson, 1994; Pajares & Valiante, 2001; Pajares, Johnson, & Usher, 2007; Pajares, Miller, & Johnson, 1999; Shell, Murphy, & Bruning, 1989; Zimmerman & Bandura, 1994). According to these studies, as students' writing self-efficacy increases, their behavior of using writing strategies also increases (Graham et al., 2017), and also students with high writing self-efficacy tend to make sufficient effort (Pajares & Valiante, 1999) and produce longer texts during and after the writing process (Graham et al., 2017). Likewise, according to studies that found a positive correlation between writing self-efficacy and writing skill (Chen & Lin, 2009; Hetthong & Teo, 2013; Pajares & Johnson, 1996; Pajares, Britner, & Valiante, 2000) as the students think that they are competent in terms of writing, they produce better texts in terms of quality.

When considered in the context of writing education, it is in fact aimed to ensure that students have positive feelings towards writing and carry out their writing process effectively and produce good texts as a result. Considering within the framework of the writing skill outcomes in Turkish course curricula (Ministry of National Education [MoNE], 2006, 2015, 2017, 2018, 2019), behaviors expected from a student who graduated from secondary school are generally writing accurate, consistent, planned texts for a certain type of writing, and applying the required strategies before, during and after writing. In this context, it is seen that the learning outcomes in Turkish course curricula mostly reflect the cognitive perspective, and concepts such as motivation, anxiety, and self-efficacy related to the psychology of writing are not considered. However, despite the focus on cognitive skills in teaching writing and the inclusion of activities that would improve writing skill it is known that students' writing skills are not sufficiently developed (Atasoy, 2015, 2019; Keklik & Yılmaz, 2013; Özbay, 1995; Temizkan, 2003; Ülper, 2011). According to the results of the pilot study (MoNE, 2020) carried out by the Ministry of National Education to measure 4 basic language skills, in terms of writing skill, only 5.36% of the students were able to get scores in the range of 31-36 in an assessment where the highest score was 36. Therefore, it is required to address the writing skills of students in a multidimensional approach.

Many meta-analysis studies on writing skills of students have been conducted in the literature (Graham & Hebert, 2011; Graham & Perin 2007; Graham & Sandmel, 2011; Graham, Hebert, & Harris, 2015; Graham, Kiuhara, & Mackay, 2020; Graham, McKeown, Kiuhara, & Harris, 2012; Koster, Tribushinina, De Jong, & Van den Bergh, 2015). These studies generally aimed to examine the practices in writing education according to their effect sizes and to reveal the effects of these practices. In addition to the foregoing, there are studies addressing the relationship between the concept of self-efficacy and academic performance (Alivernini & Lucidi, 2011; Chemers, Hu, & Garcia, 2001; Dogan, 2017; Hwang, Choi, Lee, Culver, & Hutchison, 2016; Lane & Lane, 2001; Lent, Brown, & Larkin, 1986; Shunk, 1989; Shkullaku, 2013), and there are also studies that examine the relationship between the concept of self-efficacy and academic performance through meta-analysis (Huang, 2013; Multon, Brown, & Lent, 1991). During the literature review, it was seen that there were studies that established a relationship between writing self-efficacy and writing skill, but there was no study examining this relationship through meta-analysis. When the respective literature is examined, it is observed that sociocultural models are prominent in understanding and explaining the writing skill, and the affective dimensions of writing are addressed as well. Therefore, it has become a necessity to evaluate the relationship between writing self-efficacy and writing skill. In addition to these, in this research, the effects on the relationship between the type of publication, year of publication, the country where the study was conducted, education level, the language used to measure writing skill, and the text type used to measure writing skill, which were determined as moderator variables, and writing self-efficacy and writing skill were also tried to be determined. In this context, the main purpose of this research is to examine the relationship between writing self-efficacy and writing skill using meta-analysis. Based on this main purpose, the sub-purposes of the research are as follows:

1. What is the overall effect size of the relationship between writing self-efficacy and writing skill?
2. Is there a significant difference between the effect sizes of the studies according to type of publication?

3. Is there a significant difference between the effect sizes of the studies according to year of publication?
4. Is there a significant difference between the effect sizes of the studies according to the country where the study was conducted?
5. Is there a significant difference between the effect sizes of the studies according to education levels?
6. Is there a significant difference between the effect sizes of the studies according to the language used to measure the writing skill?
7. Is there a significant difference between the effect sizes of the studies according to the text type used to measure the writing skill?

Method

Meta-analysis was used in this research. Meta-analysis was first defined by Glass (1976) as the statistical analysis of the compiling of analysis results obtained from individual studies in order to integrate research findings. Meta-analysis is a statistical method that aims to combine data from various previous studies effectively and validly to draw a more comprehensive conclusion rather than analyzing each study separately (Tsagris & Fragkos, 2018). In this research, the results of correlational studies examining the relationship between writing self-efficacy and writing skill were gathered up. The procedures carried out for the research process are presented in Table 1.

Table 1. Research Process

1. Determination of Research Question		
What is the effect size of the relationship between writing self-efficacy and writing skill?		
2. Determination of Keywords	***3. Determination of Databases***	***4. Determination of Additional Keywords***
Writing self efficacy	Google Scholar	Yazma motivasyonu
Self efficacy and writing	Web of Science	Writing motivation
Yazma öz yeterlik	Proquest	Writing belief
Yazma öz yeterliği	YÖK Ulusal Tez Merkezi	
	Google Akademik	
	ERIC	
	ULAKBİM	
5. Access to studies		
(N=70)		
6. Determination of inclusion and exclusion criteria		
The publication language of the study should be either English or Turkish Full text of the study should be available It should be a correlational model study The number of samples of the study should be specified The sample should not indicate a specific group (those with learning disabilities, writing difficulties, etc.), The study should have statistical data in terms of the relationship between writing self-efficacy and writing success. (N= 37)		
7. Analysis		
Conducting descriptive analysis Confidence Tests regarding the biases of the studies Calculation of average effect sizes Conducting sub-group analysis		
8. Discussion of results		

The Sample of the Research and Inclusion and Exclusion Criteria

The research set out with the following question: "What is the relationship between writing self-efficacy and writing skill?" After determining the research question, searches were carried out in Google Scholar, Web of Science, Proquest, ERIC, Google Akademik, Council of Higher Education National Theses Center, ULAKBIM Social Sciences databases with the specified keywords. Searches were made in Google Scholar, Web of Science and Proquest databases with the keywords "writing self-efficacy", "self-efficacy and writing", "writing motivation", "writing belief", and the Council of Higher Education National Theses Center and Google Akademik databases were searched for the keywords "yazma öz yeterlik", "yazma öz yeterliği", "yazma motivasyonu" (Turkish terms for writing self-efficacy and writing motivation). Among the resources found with these searches, especially the studies in the form of literature reviews and their references were examined, and the references which were mentioned in these studies and did not appear as the result of the searches were also tried to be accessed.

As a result of all these searches, 70 studies that might be related to the research subject were identified at the first stage. Of these 70 studies, the resources in which scores for writing self-efficacy and writing performance are evaluated according to the sub-dimensions of the scale used, are not evaluated as a whole, the correlation coefficient for the whole sample is not determined, and the correlation coefficients are calculated separately according to the variables of gender and education level addressed in the study were not included in the study. In addition to the foregoing, studies that did not meet the criteria specified below were also excluded. Thus, the criteria determined for the studies to be included in the meta-analysis were as follows:

1. The publication language of the study should be either English or Turkish,
2. It should be a master's/doctoral thesis or an article published in scientific journals,
3. Full text of the study should be available,
4. It should be a correlational model study,
5. The number of samples of the study should be specified,
6. The sample should not indicate a specific group (those with learning disabilities, writing difficulties, etc.),
7. The study should have statistical data in terms of the relationship between writing self-efficacy and writing success.

As a result of the exclusions, a total of 35 studies were included in this study. The distribution of the studies included in the research by database and search engines are as follows: Web of Science (12), Eric (8), Council of Higher Education National Theses Center (2), Proquest (2), Ulakbim (1), Google Scholar (11) and Google Akademik (1). In 2 of the 35 studies, two different correlation values were calculated upon studying on different samples. One of these studies is the study of Balcı (2013). Balcı (2013), in his study carried out to determine the correlation between writing self-efficacy and writing skills of Turkish students (N = 61) and foreign national students (N = 68), revealed two different correlation values for these two different sample groups. The other is the study is carried out by Prat Sala and Redford (2012). In this study, the researchers found two different correlation values to determine the correlation between writing self-efficacy and writing skills of first-year (N=91) and second-year (N=54) university students. Therefore, these studies were considered as two separate studies and the number of studies included within the scope of meta-analysis was determined to be 37.

Validity and Reliability of the Coding Process

After the determining the research sample, a form including the identification and statistical information of the resources determined based on the main purpose and sub-purposes of the research was prepared. In order to ensure the content validity of the form, several studies conducted with meta-analysis method (Dağyar & Demirel, 2015; Kaldırım & Tavşanlı, 2018; Kalkan, 2020; Kansızoğlu, 2017;

Yıldırım & Şen, 2019) were examined; it was examined whether there are any titles that are within the examined studies and could serve the purpose of the research that were not included in the form. After this stage, the form has been finalized. In order to ensure the reliability of the coding, the coefficient of concordance between the coding was checked. The researcher re-coded all the studies examined within the scope of meta-analysis at intervals of three weeks. In the calculation of the reliability coefficient, Miles and Huberman's (1994) formula, Reliability = Consensus / (Consensus + Disagreement) × 100, was used. Using this formula, the reliability rate was calculated as 95%. This rate indicates that the coding are reliable.

Assessment of Publication Bias

Before carrying out the main analyzes, the publication bias of the studies included within the scope of the research was examined. There are several reasons for publication bias. These can be listed as follows: studies with significant results are more likely to be published, published studies are more likely to be included in meta-analysis in general, language bias (carrying out more research on English databases and journals), accessibility bias (the researcher chooses studies that are easily accessible), cost bias (the researcher chooses free or low-fee studies), familiarity bias (the researchers select studies from their own fields), citation bias (as statistically significant studies get more citations, these studies can be detected more easily) (Borenstein, Hedges, Higgins, & Rothstein, 2010). There are many methods that can be used to determine publication bias. One of these methods is funnel plot. Funnel plot is a graphical representation of the effect size and sample size. If there is no publication bias, the graphic should look like a symmetrical inverted funnel (Sterne, Egger, & Smith, 2001). When the funnel plot in Figure 1 is examined, it is seen that the studies are generally distributed in the middle and upper regions, symmetrically on both sides of the vertical line expressing the overall effect size. Therefore, it would be fair to say that there is no publication bias based on the funnel plot.

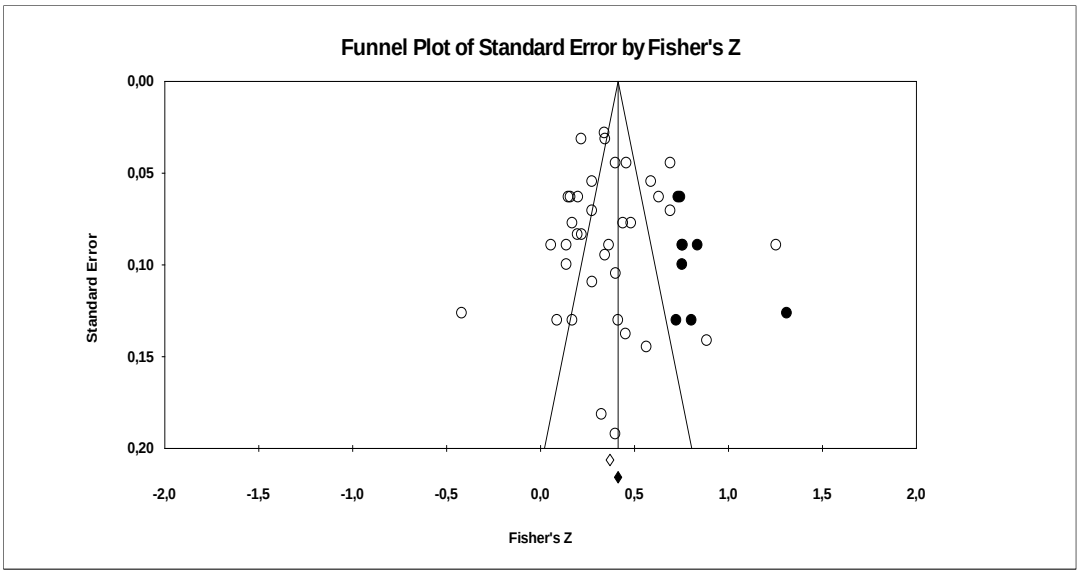

Figure 1. Funnel Plot Regarding Publication Bias of the Studies Examined within the Scope of the Research

In addition to the funnel plot, publication bias was also examined based on Rosenthal's fail-safe N, Orwin's fail-safe N, Begg and Mazumdar Rank Correlation, Egger's Regression Test, and Duval and Tweedie's trim and fill method. Table 2 shows the results of Rosenthal's fail-safe N and Orwin's fail-safe N tests, which were carried out to detect publication bias.

Table 2. Rosenthal and Orwin's Confidence Test Results regarding the Biases of the Studies examined within the Scope of the Research

Confidence Test	Data of Confidence Test	
Rosenthal's Fail-Safe N	Z Value for Observed Studies	31,392
	P Value for Observed Studies	0,000
	Alpha	0,050
	Direction	2,000
	Z for Alpha	1,959
	Fail-Safe N	9455
Orwin's Fail-Safe N	Fisher Z for Observed Studies	0,369
	Standard for Fisher Z	0,010
	Fisher Z for Missing Studies	0,000
	Fail-Safe N	1329

According to the table, Rosenthal's fail-safe N is 9455. This number represents the number of additional studies with an effect size of zero that would be necessary for the meta-analysis to lose its significant effect. Even though there is no exact rule about how big the FSN must be to get far enough away from publication bias, Mullen, Muellerleile, and Bryant (2001), based on Rosenthal's suggestion, suggested that if the N/(5k + 10) value exceeds 1, the results of the meta-analysis can be concluded to be resistant enough for future studies (as cited in Üstün & Eryılmaz, 2014). The result found after the calculation made according to this formula (9455/5 × 37 + 10) is 48.48. Accordingly, it can be stated that publication bias in this research is quite low. Orwin's fail-safe N is 1329. This number represents the required number of studies with effect size of zero so that the Fisher Z value falls below 0.01. According to Rosenthal's and Orwin's fail-safe N, it is seen that the research is resistant to publication bias.

Table 3. Begg and Mazumdar and Egger's Confidence Test Results regarding the Biases of the Studies examined within the Scope of the Research

Confidence Test	Data of Confidence Test	
Begg and Mazumdar Rank Correlation Test	Tau	0,037
	Z Value for Tau	0,326
	P Value (1 Tailed)	0,371
	P Value (1 Tailed)	0,743
Egger's Regression Test	Standard Error	1,195
	%95 Lower Limit (2 Tailed)	-2,287
	%95 Upper Limit (2 Tailed)	2,565
	T Value	0,116
	df	35,000
	P Value (1 Tailed)	0,454
	P Value (2 Tailed)	0,908

Table 3 shows the confidence test results of Begg, Mazumdar and Egger. The p value being 0.371 (p> 0.05) in Begg and Mazumdar Rank Correlation statistics, and the p value being 0.454 (p> 0.05) in Egger's regression test indicates that there is no publication bias.

Table 4. Duval and Tweedie's Confidence Test Results regarding the Biases of the Studies examined within the Scope of the Research

Confidence Test	Data of Confidence Test	
Duval and Tweedie's Trim and Fill	Trimmed studies number	8
	Observed Effect Size Value	0,369
	Reviewed effect size number	0,412
	Direction of trimmed studies	Right

Table 4 shows the confidence test results of Duval and Tweedie. The number of studies trimmed according to Duval and Tweedie's trim and fill method, among the statistical procedures for publication bias, is 8, and the trimmed studies are towards the right side. This table indicates that if 8 artificial studies are included to the right side, publication bias will be eliminated. The low number of artificial studies that needs to be added shows that publication bias in the research is extremely low.

Determination of the Meta-analysis Model

There are two models in meta-analysis studies, namely fixed effects and random effects model. According to the fixed effects model, true effect size for all studies included in the analysis is identical, and the only reason the effect size varies between studies is sampling error. According to the random effects model, however, the true effect size may differ and the common effect size is only possible with the effect size changing from one study to the next (Borenstein et al., 2010). There are several criteria taken into consideration in determining the meta-analysis model. One of them is that the research having a homogeneous/heterogeneous distribution. Ellis (2010) states that if the distribution of effect sizes is homogeneous, the fixed effects model should be used, and if it is heterogeneous, then the random effects model should be used. Based on the heterogeneity analysis performed in this study ($Q = 390.281$; $P < .05$) the I^2 value is 90.776. Therefore, 90.77% of the variance observed between studies is due to real differences in effect sizes. In other words, 9.33% of the variance observed between studies can be attributed to random error. According to Higgins and Thompson (2002), there are three categories for I^2 value. 25% represents low, 50% moderate and 75% high heterogeneity. The $I^2 = 90.776$ calculated in this study shows that heterogeneity is high. Another factor affecting the analysis model to be used in the research is the presence of intermediate variables. In this research, the publication type, year and place of studies, education level, language and text type used in measuring writing skills were used as intermediate variables. This is because the studies carried out in different countries, with different sample groups, in different years, in different text types and in different languages, suggest that the diversity may be due to the difference between studies. The random effects model is based on the idea that the true effect size may vary from study to study due to some intermediate variables such as the age of the participants, education level or class size (Üstün & Eryılmaz, 2014). In line with the reasons mentioned above, random effects model was used in this research.

Performing Meta-analysis and Interpreting the Results

In the research, all the analyzes carried out to investigate the relationship between writing self-efficacy and writing skill were performed based on the Fisher Z value, and the interpretation of the values found was carried out based on the correlation coefficient values. According to Cohen, Manion, and Morrison (2007), 0 - 0.10 represents weak, 0.10 - 0.30 represents modest, 0.30 - 0.50 represents moderate, 0.50 - 0.80 represents strong and 0.80 - 1.00 represents very strong correlation. According to Cohen (1988), 0.1 indicates a small, 0.3 moderate and 0.5 large correlation.

Results

Findings related to the sub-problems of the research are presented hereunder. Firstly, descriptive data on the frequency and percentage of the studies examined within the scope of meta-analysis, and then the effect size of the studies, the effect sizes of the moderator variables and the findings regarding the heterogeneity tests are presented.

Findings Regarding the Frequency and Percentage Distributions of the Moderator Variables

The moderator variables determined in the study are type of publication, year of publication, country where the study was conducted, education level, language used to measure writing skill, and the text type used to measure writing skill. The results of the analysis performed for the sub-purpose "What are the frequency and percentage distributions of the studies, which are included in the research as part of meta-analysis, according to the moderator variables?" are presented in Table 5.

Table 5. Frequency and Percentage Distributions of the Studies Examined within the Scope of the Research According to Moderator Variables

		f	%
Type of Publication	Thesis	6	16,21
	Article	31	83,78
Year of Publication	1989-1999	8	21,62
	2000-2010	7	18,91
	2011-2020	22	59,45
Country of Publication	Turkey	10	27,02
	USA	16	59,25
	England	2	7,40
	Iran	2	7,40
	Spain	1	3,70
	Cambodia	1	3,70
	Canada	1	3,70
	Malaysia	2	7,40
	Thailand	1	3,70
	Taiwan	1	3,70
Educational Level	Primary	5	13,51
	Secondary	7	18,91
	Highschool	2	5,40
	University	17	45,94
	Graduate	1	2,70
	Mixed	5	13,51
Language Used to Measure Writing Skill	L1	25	67,56
	L2	12	32,43
Type of Text Used to Measure Writing Skill	Narrative	5	13,51
	Informative	25	67,56
	Mixed	2	5,40
	Not specified	5	13,51

Table 5 presents the frequency and percentage data regarding the moderator variables of the studies included in the study. Accordingly, in terms of type of publication, 6 (16.21%) of the 37 studies evaluated within the scope of the study are theses and 31 (83.78%) are articles. The intervals regarding the publication years are determined to be as ten-year periods in order to see the trends of the number of studies in certain periods. In terms of year of publication; there are 8 (21.62%) studies between the years 1989-1999; 7 (18.91%) between the years 2000-2010; and 22 (59.45%) studies between 2011-2020 which are included within the scope. In terms of the country where the study was conducted, 10

(27.02%) of the studies were conducted in Turkey and 27 (72.97%) were conducted in other countries. Of the studies conducted outside Turkey, 1 (3.70%) was carried out in Cambodia, 1 (3.70%) in Taiwan, 1 (3.70%) in Thailand, 1 (3.70%) in Canada, 1 (3.70%) in Spain, 2 (7.40%) were carried out in Malaysia, 2 (7.40%) in Iran, 2 (7.40%) in England and 16 (59.25%) were carried out in America. In terms of education levels, 5 (13.51%) of the studies were carried out on students at a primary school level, 7 (18.91%) secondary school, 2 (5.40%) high school, 17 (45.94%) university, 1 (2.70%) graduate and 5 (13.51%) were carried out on students at mixed levels. The term mixed used above refers to the studies carried out with students at different education levels such as primary school, secondary school, high school, or groups of different age who participated in the activities of universities such as summer courses and foreign language courses. When evaluated in terms of the language used to measure writing skill, in 25 of the studies (67.56%) writing activity was carried out in the native language of those within the sample, and in 12 (32.43) of the studies in the language they learned as a foreign language. In terms of the type of text used to measure writing skill, in 5 (13.51%) of the studies, students were asked to write narrative texts, in 25 (67.56%) of them students were asked to write informative texts, and in 2 (5.40%) of them students were asked to write mixed texts. In 5 (13.51%) studies, the type of text used to measure writing skill was not specified.

Findings Regarding the Overall Effect Size of the Relationship Between Writing Self-efficacy and Writing Skill

The results of the analysis performed for the sub-purpose "What is the overall effect size of the relationship between writing self-efficacy and writing skill?" are shown in Table 6. Data on the effect sizes, upper and lower limits, z and p values and weights of the studies are presented in the table.

Table 6. Effect Sizes, Weights and Overall Effect Size of the Studies Examined within the Scope of the Research (Fisher Z)

No	Name of Study	Effect Size	Upper Limit	Lower Limit	z	p	Weight
1	Akyol and Aktaş (2018)	0,484	0,636	0,332	6,248	0,000	2,84
2	Altunkaya and Ateş (2017)	0,199	0,363	0,035	2,379	0,017	2,78
3	Balcı (2013a)	0,090	0,346	-0,166	0,690	0,490	2,31
4	Balcı (2013b)	0,415	0,671	0,159	3,183	0,001	2,31
5	Bulut (2017)	0,590	0,697	0,483	10,772	0,000	3,03
6	Büyükikiz (2011)	0,441	0,593	0,289	5,693	0,000	2,84
7	Chea (2012)	0,150	0,274	0,026	2,372	0,018	2,96
8	Chen and Lin (2009)	1,256	1,431	1,081	14,043	0,000	2,72
9	Corkett, Hatt, and Benevides (2011)	0,058	0,233	-0,117	0,683	0,517	2,72
10	Demir (2013)	0,346	0,408	0,284	10,941	0,000	3,17
11	Erkan and İflazoğlu Saban (2011)	0,276	0,415	0,137	3,903	0,000	2,90
12	Graham, Kiuhara, Harris, and Fishman (2017)	0,161	0,285	0,037	2,546	0,011	2,96
13	Greene (1999)	0,277	0,492	0,062	2,529	0,011	2,52
14	Hetthong and Teo (2013)	0,887	1,164	0,610	6,272	0,000	2,19
15	Jalaluddin, Paramasivam, Husain, and Abu Bakar (2015)	0,327	0,683	-0,029	1,800	0,072	1,81
16	Khojasteh, Shokrpour, and Afrasiabi (2016)	0,171	0,427	-0,085	1,312	0,190	2,31
17	Lavelle (2006)	-0,417	-0,169	-0,665	-3,297	0,001	2,35
18	Martinez, Kock, and Cass (2011)	0,140	0,315	-0,035	1,565	0,118	2,72
19	Pajares and Johnson (1994)	0,400	0,777	0,023	2,080	0,038	1,72
20	Pajares and Johnson (1996)	0,693	0,832	0,554	9,800	0,000	2,90
21	Pajares and Valiante (1997)	0,632	0,756	0,508	9,993	0,000	2,96
22	Pajares and Valiante (2001)	0,459	0,547	0,371	10,264	0,000	3,10
23	Pajares, Britner, and Valiante (2000)	0,693	0,781	0,605	15,496	0,000	3,10

Table 6. Continued

No	Name of Study	Effect Size	Upper Limit	Lower Limit	z	p	Weight
24	Pajares, Johnson, and Usher (2007)	0,342	0,397	0,287	12,092	0,000	3,19
25	Pajares, Miller, and Johnson (1999)	0,401	0,489	0,313	8,967	0,000	3,10
26	Phillips (2007)	0,221	0,385	0,057	2,641	0,008	2,78
27	Prat Sala and Redford (2012a)	0,402	0,608	0,196	3,833	0,000	2,57
28	Prat Sala and Redford (2012b)	0,455	0,725	0,185	3,301	0,001	2,23
29	Rankin, Bruning, Timme, and Katkanant (1993)	0,276	0,383	0,169	5,039	0,000	3,03
30	Sanders Reio (2010)	0,202	0,326	0,078	3,194	0,001	2,96
31	Sarkhoush (2013)	0,566	0,850	0,282	3,906	0,000	2,16
32	Shah, Mahmud, Din, Yusof, and Pardi (2011)	0,759	0,934	0,584	8,486	0,000	2,72
33	Shell, Murphy ve Bruning (1989)	0,171	0,323	0,019	2,208	0,027	2,84
34	Tanyer (2015)	0,366	0,541	0,191	4,092	0,000	2,72
35	Taş (2019)	0,219	0,281	0,157	6,925	0,000	3,17
36	Villalon, Mateos, and Cuevas (2015)	0,345	0,531	0,159	3,637	0,000	2,67
37	Zimmerman and Bandura (1994)	0,140	0,336	-0,056	1,400	0,162	2,62
	Fixed Effects	**0,369**	**0,390**	**0,349**	**35,137**		
	Random Effects	**0,369**	**0,441**	**0,297**	**10,024**		

Table 6 shows the effect size regarding the relationship between writing self-efficacy and writing skill. According to the table, the relationship between writing self-efficacy and writing skill is 0.369 based on random effects model. Accordingly, the effect size value of 0.369 indicated a moderate correlation (Cohen et al., 2007; Davis, 1971). Therefore, it would be fair to conclude that the relationship between writing self-efficacy and writing skill is at a moderate level. In addition to the foregoing, there is also information regarding the effect sizes, weights, z and p values of the studies included in the study within the scope of meta-analysis. The study with the largest effect size is the study of Chen and Lin (2009) and the study with the smallest effect size is the study of Corkett, Hatt, and Benevides (2011). Of the 37 studies examined, 36 has a positive and 1 has a negative effect. When examined in terms of weight, the study with the highest weight is the study of Pajares et al. (2007), and the study with the least weight is the study of Pajares and Johnson (1994).

The Effect Size of the Studies According to the Type of Publication and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to type of publication?" are shown in Table 7.

Table 7. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to Publication Type

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Type of Publication	Article	31	0,393	0,042	0,311	0,476				
	Thesis	6	0,240	0,037	0,168	0,312				
Total		37	0,306	0,028	0,252	0,360	1	3,841	7,541	0,006

Table 7 contains information on the distribution of effect sizes according to publication type and on the heterogeneity test results. The studies examined within the scope of the research were evaluated in two groups as article and thesis in terms of publication type. Effect size value of articles (0.393) is more than effect size value of theses (0.240). The overall effect size of the studies is 0.306. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies have a significant difference in terms of publication type (Q_B= 7.541; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill varies significantly according to publication type.

The Effect Size of the Studies According to the Year of Publication and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to year of publication?" are shown in Table 8.

Table 8. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to Publication Year

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Year of Publication	1989-1999	8	0,379	0,072	0,238	0,520				
	2000-2010	7	0,403	0,117	0,173	0,634				
	2011-2020	22	0,348	0,039	0,271	0,425				
Total		37	0,359	0,033	0,294	0,424	2	5,991	0,300	0,861

Table 8 contains information on the distribution of effect sizes according to publication year and on the heterogeneity test results. The studies included within the scope of the research were evaluated in three groups in terms of their publication years as those published between 1989-1999, 2000-2010 and 2011-2020. The publication years of the studies with the highest effect value are respectively 2000-2010, then 1989-1999 and finally 2011-2020. The overall effect size of the studies is 0.359. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies do not have a significant difference in terms of publication year (Q_B= 0.300; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill does not vary significantly according to publication year.

The Effect Size of the Studies According to the country where the study was conducted and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to the country where the study was conducted?" are shown in Table 9.

Table 9. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to the country they were conducted in

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Country	T.R.	10	0,349	0,046	0,259	0,440				
	Ouf of T.R.	27	0,377	0,050	0,279	0,475				
Total		37	0,362	0,034	0,296	0,429	1	3,841	0,171	0,679

Table 9 contains information on the distribution of effect sizes according to the country they were conducted and on the heterogeneity test results. The studies examined within the scope of the research were evaluated in two groups as those published in Turkey and those published outside of Turkey in terms of the countries they were conducted. Effect sizes of studies published outside of Turkey (0.377) are higher than effect sizes of studies conducted in Turkey (0.349). The overall effect size of the studies is 0.362. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies do not have a significant difference in terms of the countries they were conducted in (Q_B= 0.171; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill does not vary significantly according to the publication place of the studies.

The Effect Size of the Studies According to Education Levels and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to education levels?" are shown in Table 10.

Table 10. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to Education Levels

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Education Level	Primary	5	0,453	0,080	0,296	0,611				
	Secondary	7	0,395	0,080	0,238	0,552				
	Highschool	2	0,525	0,174	0,184	0,866				
	University	17	0,365	0,071	0,226	0,503				
	Mixed	5	0,321	0,067	0,190	0,453				
Total		36	0,383	0,036	0,312	0,454	4	9,487	2,359	0,670

Table 10 contains information on the distribution of effect sizes according to education levels and on the heterogeneity test results. The studies examined within the scope of the research were evaluated in five groups in terms of education levels: primary school, secondary school, high school, university and mixed. In terms of education levels, the effect size of the studies conducted on students at primary school level is 0.453; 0.395 for secondary school level, 0.525 for high school level, 0.365 for university level and 0.321 for mixed. The overall effect size of the studies is 0.383. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies do not have a significant difference in terms of education levels (Q_B= 2.359; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill does not vary significantly according to the education level of the studies.

The Effect Size of the Studies According to the Language used to measure the Writing Skill and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to the language used to measure the writing skill?" are shown in Table 11.

Table 11. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to the language used to measure the writing skill

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Language	L1	25	0,322	0,038	0,247	0,398				
	L2	12	0,483	0,101	0,285	0,682				
Total		37	0,343	0,036	0,272	0,413	1	3,841	2,216	0,137

Table 11 contains information on the distribution of effect sizes according to the language used to measure the writing skill and on the heterogeneity test results. The studies examined within the scope of the research were evaluated in two groups as those written in the native language and those written in foreign language in terms of publication type. Effect sizes of studies written in a foreign language (0.483) are higher than effect sizes of studies written in native language (0.322). The overall effect size of the studies is 0.343. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies do not have a significant difference in terms of the language used to measure the writing skill (Q_B= 2.216; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill does not vary significantly according to the language used to measure the writing skill.

The Effect Size of the Studies According to the Text Type used to measure the Writing Skill and the Findings Regarding the Heterogeneity Test

Analysis results for the sub-purpose "Is there a significant difference between the effect sizes of the studies according to the text type used to measure the writing skill?" are shown in Table 12.

Table 12. The Effect Size and Heterogeneity Test Results of the Studies examined within the Scope of the Research according to the text type used to measure the writing skill

Moderator		*N*	Effect Size	Standard Error	Lower Limit	Upper Limit	sd	*0.5* X^2	Q_B	p
Type of Text	Narrative	5	0,335	0,087	0,164	0,505				
	Informative	25	0,381	0,057	0,269	0,494				
	Mixed	2	0,341	0,030	0,281	0,400				
	Not specified	5	0,366	0,103	0,165	0,567				
Total		37	0,349	0,025	0,301	0,398	3	7,814	0,452	0,929

Table 12 contains information on the distribution of effect sizes according to the text type used to measure the writing skill and on the heterogeneity test results. The studies examined within the scope of the research were evaluated in four groups as narrative, informative, mixed and unspecified in terms of text type. According to the text type used to measure the writing skill, the effect size of the studies in which students wrote narrative texts was 0.335, the effect size of the studies in which students wrote informative texts was 0.381, it was 0.341 for mixed texts, and the effect size of the studies in which the text type was not specified was 0.366. The overall effect size of the studies is 0.349. As a result of the heterogeneity analysis carried out to evaluate whether the difference between the effect sizes is significant, it is seen that the studies do not have a significant difference in terms of the text type used to measure the writing skill (Q_B= 0.452; p <.05). In line with this result, the relationship between writing self-efficacy and writing skill does not vary significantly according to the text type used to measure the writing skill.

Discussion and Conclusion

In this research, in which the relationship between writing self-efficacy and writing skill is examined through meta-analysis, 37 studies determined within the framework of the specified criteria were examined. The total sample size of the studies examined is 7392. First, the descriptive data of the studies examined within the scope of the research were presented according to the specified moderator variables, and then the confidence tests in terms of publication bias were conducted. It was concluded that the studies included presented heterogeneous distribution and random effects model was selected as the analysis model. Then, analyzes were carried out regarding the overall effect size of the studies. The effect sizes of the studies were calculated both individually and by combining them to find the overall effect size. Lastly, sub-group analyzes were carried out.

Within the framework of this research, in which the relationship between writing self-efficacy and writing skill is examined through meta-analysis, firstly, the findings regarding the frequency and percentage distribution of the moderator variables were examined. The moderator variables determined within the scope of the study are type of publication, year of publication, country where the study was conducted, education level, language used to measure writing skill, and the text type used to measure writing skill. According to the findings, the majority of the 37 studies examined were articles (f = 31). The studies examined within the scope of the research were discussed in three categories according to their years of publication. The first category is for those published between 1989-1999, the second category is for those published between 2000-2010, and the third category is for those published between 2011-2020. Accordingly, the number of studies in the first category is 8, the number of studies in the second category is 7, and the number of studies in the third category is 22. It is seen that the studies examining the relationship between writing self-efficacy and writing skill increased between the years 2011 and 2020. Studies conducted in different fields of education (Gülmez, Özteke, & Gümüş, 2020; Şeref & Karagöz, 2019) have also revealed that the number of publications in this regard has been continuously increasing. This increase can be considered as an expected situation in the context of the cumulative progress of scientific activities and the increase in the means of access to information. In terms of the countries where the studies were conducted, 10 of the 37 studies were conducted in Turkey and 27 of them were carried out in countries outside Turkey. All 10 studies conducted in Turkey were

carried out between 2011-2020. Therefore, depending on the trends in the world, it can be said that the subject has recently begun to be studied in Turkey, and this situation is in parallel with the studies conducted outside Turkey as well. As a result, it can be concluded that the need for a meta-analysis research has arisen with the increase in the number of studies. Most of the studies (f = 16) conducted outside Turkey were conducted in America. Therefore, it can be stated that there are very few studies examining the relationship between writing self-efficacy and writing skill in Turkey. When evaluated in terms of the language used to measure writing skill, in 25 of the studies, writing activity was carried out in native language of those within the sample, and in 12 of the studies, in the language they learned as a foreign language. When evaluated within the scale of Turkey, 5 out of 10 studies were conducted in native language and 5 in a foreign language, so it can be said that there is a more balanced distribution. In terms of the type of text used to measure writing skill, in 5 of the studies, students were asked to write narrative texts, in 25 of them students were asked to write informative texts, and in 2 of them students were asked to write mixed texts. Therefore, it is seen that informative texts are preferred in studies discussing the relationship between writing self-efficacy and writing skill. This can be explained by the fact that the story genre has its own elements, so there may be some differences between the general writing self-efficacy and the writing self-efficacy of a particular genre.

Another result of the study is that there is a positive and moderate correlation between writing self-efficacy and writing skill. Only 1 of the 37 studies examined within the scope of the research had a negative effect size and the other 36 studies had positive effect sizes. Even though there is no research examining the relationship between writing self-efficacy and writing skill through meta-analysis, there are studies addressing the relationship between gender and academic self-efficacy (Huang, 2013), self-efficacy and academic performance (Multon et al., 1991), achievement goals and self-efficacy (Huang, 2016) using meta-analysis method. Multon et al. (1991) reported that there is a moderate (.38) correlation between self-efficacy beliefs and academic performance, however, that there is a stronger (.56) relationship between the self-efficacy beliefs of students with low achievement and their academic performance. There are also studies (Klassen, 2002; Pajares, 2003) examining the relationship between self-efficacy beliefs and writing skills through a literature review. In several studies examining the relationship between writing self-efficacy and writing skill (Bruning & Horn, 2000; Rankin, Bruning, & Timme, 1994), it has been concluded that writing self-efficacy moderately predicts writing skill. In this research, similar results with the results of the mentioned studies were obtained.

In this research conducted to examine the relationship between writing self-efficacy and writing skill, subgroup analyzes were conducted on whether the effect sizes differ significantly according to moderator variables such as the type of publication, the year of publication, the country where the study was conducted, education levels, the language used to measure writing skills, and the text type used to measure writing skills. At first, the question "Is there a significant difference between the effect sizes of the studies according to type of publication?" was tried to be answered. After the analysis, it was seen that there was a significant difference (Q_B=7.541; p<.05) between the effect sizes of the studies according to the type of publication. According to Coe (2002), there are essentially two kinds of relationship between effect size and significance value. These are effect size or sample size. In order for the results to be significant, either the effect must be very large (despite the small sample) or the sample must be very large (despite the weak effect size). In this research, it is seen that the effect sizes of the articles were large. The reason for the large effect sizes of articles can be explained by one of the limitations of the meta-analysis method, that journals tend to publish articles that have generally positive and have high correlation (Cooper, Hedges, & Valentine, 2019; Egger, Davey Smith, & Altman, 2001).

In terms of the country where the study is conducted moderator variable, the effect sizes of studies conducted outside of Turkey (0.377) are higher than effect sizes of studies conducted in Turkey (0.349). Studies to understand writing skills started much earlier in America, which constitutes a large part of the studies carried out abroad, compared to Turkey. Even though Emig's study, in which he examined the writing processes of students in 1971, was accepted as the beginning of experimental writing research in America (Nystrand, Green, & Wiemelt, 1993), many articles were published stating

that the writing skill is a process even in 1912 (Nystrand, 2008). In Turkey, master's and doctoral programs were opened in the Department of Teaching Turkish Education in 1989. Although Sever (1993) and Özbay's (1995) doctoral studies aimed at evaluating the writing skills of students are systematic studies for the evaluation of writing skills, it can be said that the acceptance that the writing skill is a process skill occurred at end of the 2000s. This may have enabled the factors that may affect the writing skill to be understood earlier in the United States, therefore causing the studies aimed at improving the writing skill being carried out within the framework of all this knowledge.

In terms of education levels, the studies with the largest effect size are those that have been conducted at the high school level, and the studies with the smallest effect size are those that have been conducted at a mixed level. According to Pajares (2010), people form their self-efficacy perceptions by interpreting the information from four main sources. The most effective of these sources is to interpret the result of one's performance or experience. The other is that the person interprets the vicarious experiences gained by observing the experiences of others. Another is self-efficacy beliefs of a person formed by the verbal messages or social persuasion. The last one is the emotional states of people. It can be stated that high school students are experienced in terms of their writing beliefs and performances. Therefore, the effect size of studies at high school level can be explained within the framework of this perspective.

The effect sizes of studies conducted to measure the writing skills in a foreign language (0.483) are higher than the effect sizes of studies conducted to measure the writing skills in native language (0.322). However, this difference is not significant. Balcı (2013), in his study examining the relationship between writing self-efficacy and writing skills of foreign students who learn Turkish as a foreign language and Turkish students, revealed that there was no significant difference between the two groups. Williams and Takaku (2011), on the other hand, found out in their research that students with lower self-efficacy beliefs who learn English as a second language visit writing centers more than students whose native language is English with higher self-efficacy perceptions. This can be considered as the effort of the students they make while learning a foreign language.

In terms of the text types used in the measurement of writing skill, the ones with the largest effect size were informative texts (0.381), and the ones with the smallest effect size were narrative texts (0.335). Narrative texts have their own unique upper structural features. The elements that determine the upper structural features can be expressed as story elements. Story elements can be in general considered as characters, plot, time, location, perspective, conflict, solution (Akyol, 1999; Coşkun, 2005; Harris, 1993; Temizkan & Atasoy, 2014). Therefore, in the evaluation of writing self-efficacy through narrative texts, it may be necessary to consider the features of the narrative genre as well as general writing criteria such as fluency of sentences and consistency between paragraphs. As a matter of fact, Pajares (2010) also reported that researchers should be careful about the match between writing self-efficacy and written product. The fact that the effect size of the studies in which informative texts were written was slightly higher in terms of the correlation between writing self-efficacy and writing skill can be explained in this way.

This research has several limitations. These limitations can be explained as follows. In some studies, no holistic evaluation of writing self-efficacy and writing skill has been carried out. Instead, the correlation between the sub-dimensions of writing self-efficacy and the sub-dimensions of writing skill (Al-Mekhlafi, 2011), the correlation in which writing self-efficacy and writing skill are addressed according to different groups (Karaglani, 2001; Maimon, 2002; Raoofi, Gharibi, & Gharibi, 2017; Sabti, Rashid, Nimehchisalem, & Darmi, 2019; Shell, Colvin, & Bruning, 1995) are identified. In some of the studies, no statistical data could be identified regarding the correlation between writing self-efficacy and writing skill (Huerta, Goodson, Beigi, & Chlup, 2017; Kim & Lorsbach, 2005; Mascle, 2013; Singh & Rajalingam, 2012). These studies could not be examined within the scope of the research. Likewise, in terms of effect size and heterogeneity test analyzes according to education level "post-graduate" level category which included only one study was excluded from the analysis. The reason for this is that at least two studies belonging to a category are required to carry out the subgroup analyzes. Therefore,

the effect size of the post-graduate education level could not be calculated. In addition to the foregoing, in this research, based on the idea that each of the paragraph, sentence and text writing processes can give information about the heterogeneity of the research, subgroup analyzes were also tried to be made on what the people in the sample of the studies were asked to do regarding the writing process. However, this could not be carried out since the information on this subject is insufficient and ambiguous. Another limitation of this research is that the studies examined within the scope of the research were written only in Turkish and English.

Based on all these limitations mentioned above, following recommendations can be suggested for future studies. Since it was not possible to examine the sub-dimensions of writing self-efficacy and writing skill separately within the scope of this research, the relationship between these sub-dimensions can be examined in future studies. In this way, conclusions regarding to what extent writing self-efficacy is effective on which dimensions of writing skill can be revealed. Since only studies published in Turkish and English languages are addressed in this research, studies to be conducted in other countries through meta-analysis may present different perspectives on the relationship between writing self-efficacy and writing skill. Again, it was determined that the effect size showed a significant difference only according to the category of publication type among the subgroups determined in this research. In future studies, different categories can be determined for the sub-dimensions of writing self-efficacy and writing skill and the effect of these categories on the effect size can be discussed and evaluated.

References

*Studies Included in the Meta-Analysis

Akyol, H. (1999). Hikâye haritası yöntemiyle metin öğretimi. *Milli Eğitim Dergisi,* 142.

*Akyol, H., & Aktaş, N. (2018). The relationship between fourth-grade primary school students' story-writing skills and their motivations to write. *Universal Journal of Educational Research, 6*(12), 2772-2779.

Al-Mekhlafi, M. A. (2011). The relationship between writing self-efficacy beliefs and final examination scores in a writing course among a group of Arab EFL trainee-teachers. *International Journal for Research in Education*, 29, 16-33.

Alivernini, F., & Lucidi, F. (2011). Relationship between social context, self-efficacy, motivation, academic achievement, and intention to drop out of high school: A longitudinal study. *The Journal of Educational Research, 104*(4), 241-252.

*Altunkaya, H., & Ateş, A. (2017). The relationship between writing self-efficacy and writing skills of Turkish learners as a foreign language. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 19*(3), 86-103.

Atasoy, A. (2015). *Ortaokul öğrencilerinin akıcı yazma becerilerinin değerlendirilmesi* (Unpublished master's thesis). Hatay Mustafa Kemal University, Hatay.

Atasoy, A. (2019). *Metin değiştirimi bağlamında Türkçe öğretmeni adaylarının yeniden yazma becerilerinin değerlendirilmesi* (Unpublished doctoral dissertation). Hatay Mustafa Kemal University, Hatay.

*Balcı, A. (2013). A study on correlation between self-efficacy perceptions and writing skills of students with Turkish ancestry and foreign students. *Anthropologist, 16*(3), 539-549.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (pp. 71-81). New York: Academic Press.

Bazerman, C. (2011). Writing, cognition, and affect from the perspectives of sociocultural and historical studies of writing. In V. Berninger (Ed.), *Past, present, and future contributions of cognitive writing research to cognitive psychology* (pp. 89-105). İngiltere: Psychology Press/Taylor Francis Group.

Bazerman, C. (2016). What do sociocultural studies of writing tell us about learning to write?. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 11-23). New York: The Guilford Press.

Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition.* New York: Routledge.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods, 1*(2), 97-111.

Bridwell, L. S. (1980). Revising strategies in twelfth grade students' transactional writing. *Research in the Teaching of English, 14*(3), 197-222.

Bruning, R., & Horn, C. (2000). Developing motivation to write. *Educational Psychologist, 35*(1), 25-37.

*Bulut, P. (2017). The effect of primary school students'writing attitudes and writing self-efficacy beliefs on their summary writing achievement. *International Electronic Journal of Elementary Education, 10*(2), 281-285.

Butterfield, E. C., Hacker, D. J., & Albertson, L. R. (1996). Environmental, cognitive and metacognitive influences on text revision: Assessing the evidence. *Educational Psychology Review, 8*(3), 239-297.

*Büyükikiz, K. K. (2011). *Türkçeyi yabancı dil olarak öğrenenlerin yazma becerileri ile öz yeterlilik algıları arasındaki ilişki üzerine bir araştırma* (Unpublished doctoral dissertation). Gazi University, Ankara.

*Chea, S. (2012). *The relationships among writing self-efficacy, writing goal orientation, learning strategies, and writing achievement* (Master's thesis). Northern Illinois University, Illions.

Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology, 93*(1), 55-64.

*Chen, M. C., & Lin, H. J. (2009). Self-efficacy, foreign language anxiety as predictors of academic performance among professional program students in a general English proficiency writing test. *Perceptual and Motor Skills, 109*(2), 420-430.

Chenoweth, N. A., & Hayes, J. R. (2001). Fluency in writing: Generating text in L1 and L2. *Written Communication, 18*(1), 80-98.

Coe, R. (2002). *It's the effect size, stupid. What effect size is and why it is important*. Annual Conference of the British Educational Research Association. University of Exeter, England.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* New Jersey: Lawrence Erlbaum.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education.* USA: Routledge.

Cooper, H., Hedges, L. V., & Valentine, J. C. (2019). *The handbook of research synthesis and meta-analysis*. New York: Russell Sage Foundation.

*Corkett, J., Hatt, B., & Benevides, T. (2011). Student and teacher self-efficacy and the connection to reading and writing. *Canadian Journal of Education, 34*(1), 65-98.

Coşkun, E. (2005). *İlköğretim öğrencilerinin öyküleyici anlatımlarında bağdaşıklık, tutarlılık ve metin elementleri* (Unpublished doctoral dissertation). Gazi University, Ankara.

Dağyar, M., & Demirel, M. (2015). Effects of problem-based learning on academic achievement: A meta-analysis study. *Education and Science, 40*(181), 139-174.

Davis, J. A. (1971). *Elementary survey analysis.* New Jersey: Englewood Cliffs.

*Demir, T. (2013). İlköğretim öğrencilerinin yaratıcı yazma becerileri ile yazma özyeterlik algısı ilişkisi üzerine bir çalışma. *Uluslararası Türkçe Edebiyat Eğitim Kültür Dergisi, 2*(1), 84-114.

Dogan, U. (2017). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*(3), 553-561.

Dyson, A. H. (1993). *Social worlds of children learning to write in an urban primary school.* New York: Teachers college Press.

Egger, M., Davey Smith G., & Altman, D. G. (2001). *Systematic reviews in health care: Meta-analysis in context.* London: BMJ.

Ellis, P. D. (2010). *The essential guide to effect sizes: Statistical power, meta-analysis, and the interpretation of research results*. Cambridge: Cambridge University Press.

*Erkan, D. Y., & İflazoğlu Saban, A. (2011). Writing performance relative to writing apprehension, self-efficacy in writing, and attitudes towards writing: A correlational study in Turkish tertiary-level EFL. *Asian EFL Journal, 13*(1), 164-190.

Flower, L., & Hayes, J. R. (1981). A cognitive process of writing. *College Composition and Communication, 32*(4), 365-387.

Flower, L., Hayes, J. R., Carey, L., Schriver, K., & Stratman, J. (1986). Detection, diagnosis and the strategies of revision. *College Composition and Communication, 37*(1), 16-55.

Glass, G. V. (1976). Primary, secondary and meta-analysis of research. *Educational Researcher, 5*(10), 3-8.

Graham, S. (2018). A revised writer(s)-within-community model of writing. *Educational Psychologist, 53*(4), 258-279. doi:10.1080/00461520.2018.1481406

Graham, S., & Hebert, M. (2011). Writing to read: A meta-analysis of the impact of writing and writing instruction on reading. *Harvard Educational Review, 81*(4), 710-744.

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology, 99*(3), 445-476.

Graham, S., & Sandmel, K. (2011). The process writing approach: A meta-analysis. *The Journal of Educational Research, 104*(6), 396-407.

Graham, S., Hebert, M., & Harris, K. (2015). Formative assessment and writing: A meta-analysis. *The Elementary School Journal, 115*(4), 523-547.

Graham, S., Kiuhara, S. A., & MacKay, M. (2020). The effects of writing on learning in science, social studies, and mathematics: A meta-analysis. *Review of Educational Research, 20*(10), 1-48.

Graham, S., Kiuhara, S. A., Harris, K., & Fishman, E., J. (2017). The relationship among strategic writing behavior, writing motivation and writing performance with young, developing writers. *Elementary School Journal*, *118*(1), 82-104.

Graham, S., McKeown, D., Kiuhara, S., & Harris, K. (2012). A meta-analysis of writing instruction for students in the elementary grades. *Journal of Educational Psychology, 104*(4), 879-896.

*Greene, G. L. (1999). *Writing self-efficacy, gender, aptitude, and writing achievement among fresman university students* (Doctoral dissertation). Alabama University, Alabama.

Gülmez, D., Özteke, İ., & Gümüş, S. (2020). Overview of educational research from Turkey published in international journals: A bibliometric analysis. *Eğitim ve Bilim, 46*(206), 213-239. doi:10.15390/EB.20209317

Harris, J. (1993). *Introducing writing.* London: Penguin English.

Hayes, J. R. (2012). Modeling and remodeling writing. *Written Communication, 29*(3), 369-388.

*Hetthong, R., & Teo, A. (2013). Does writing self-efficacy correlate with and predict writing performance?. *International Journal of Applied Linguistics & English Literature, 2*(1), 157-166.

Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta analysis. *Statistics in Medicine, 21*(11), 1539-1558.

Huang, C. (2013). Gender differences in academic self-efficacy: A meta-analysis. *European Journal of Psychology of Education, 28*(1), 1-35.

Huang, C. (2016). Achievement goals and self-efficacy: A meta-analysis. *Educational Research Review, 19*, 119-137.

Huerta, M., Goodson, P., Beigi, M., & Chlup, D. (2017). Graduate students as academic writers: Writing anxiety, self-efficacy and emotional intelligence. *Higher Education Research & Development, 36*(4), 716-729.

Hwang, M. H., Choi, H. C., Lee, A. Culver, C. D., & Hutchison, B. (2016). The relationship between self-efficacy and academic achievement: A 5-year panel analysis. *Asia-Pacific Education Researcher, 25*(1), 89-98.

*Jalaluddin, I., Paramasivam, S., Husain, S., & Abu Bakar, R. (2015). The consistency between writing self-efficacy and writing performance. *Journal of Language Teaching and Research, 6*(3), 545-552.

Kaldırım, A., & Tavşanlı, Ö. F. (2018). The effect of collaborative learning approach on students' academic achievement in Turkish courses in Turkey: A meta-analysis study. *Education and Science, 43*(194), 185-205.

Kalkan, F. (2020). The relationship between teachers' self efficacy beliefs and job satisfaction levels: A meta-analysis study. *Education and Science, 45*(204), 317-343.

Kansızoğlu, H. B. (2017). The effect of graphic organizers on language teaching and learning areas: A meta-analysis study. *Education and Science, 42*(191), 139-164.

Karaglani, A. H. (2001). *Examining the relationship between writing self-efficacy, writing performance and general achievement for third graders* (Doctoral dissertation). University of Southern California, California.

Keklik, S., & Yılmaz, Ö. (2013). 11. sınıf öğrencilerine ait öyküleyici metinlerin bağdaşıklık ve tutarlılık açısından incelenmesi. *Uşak Üniversitesi Sosyal Bilimler Dergisi, 6*(4), 139-157.

Kellogg, R. T. (1996). A model of working memory in writing. In M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 57-71). Mahwah, NJ: Erbaum.

*Khojasteh, L., Shokrpour, N., & Afrasiabi, M. (2016). The relationship between writing self-efficacy and writing performance of Iranian EFL students. *International Journal of Applied Linguistics & English Literature, 5*(4), 29-37.

Kim, J. A., & Lorsbach, A., W. (2005). Writing self-efficacy in young children: Issues fort he early grades environment. *Learning Environments Research, 8*(2), 157-175.

Klassen, R. (2002). Writing in early adolescence: A review of the rol of self-efficacy beliefs. *Educational Psychology Review, 14*(2), 173-203.

Koster, M., Tribushinina, E., De Jong, P. H., & Van den Bergh, B. (2015). Teaching children to write: A meta-analysis of writing interventions research. *Journal of Writing Research, 7*(2), 249-274.

Lane, J., & Lane, A. (2001). Self-efficacy and academic performance. *Social Behavior and Personality: An International Journal, 29*(7), 687-693.

*Lavelle, E. (2006). Teachers' self-efficacy for writing. *Electronic Journal of Research in Educational Psychology, 4*(1), 73-84.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33(3), 265*-269.

Maimon, L. (2002). The relationship between self-efficacy and the functions of writing. *Journal of College Reading and Learning, 33*(1), 32-45.

*Martinez, C. T., Kock, N., & Cass, J. (2011). Pain and pleasure in short essay writing: Factors predicting university students' writing anxiety and writing self-efficacy. *Journal of Adolescent & Adult Literacy, 54*(5), 351-360.

Mascle, D. D. (2013). Writing self-efficacy and written communication skills. *Business Communication Quarterly, 76*(2), 216-225.

Mcleod, S. (1987). Some thoughts about feelings: The affective domain and the writing process. *College Composition and Communication, 38*(4), 426-435.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook.* Thousand Oaks, CA: Sage.

Ministry of National Education. (2006). *İlköğretim Türkçe dersi (6, 7, 8. sınıflar) öğretim programı.* Ankara: Millî Eğitim.

Ministry of National Education. (2015). *Türkçe dersi (1-8. sınıflar) öğretim programı.* Ankara: Millî Eğitim.

Ministry of National Education. (2017). *Türkçe dersi öğretim programı. (ilkokul ve ortaokul 1, 2, 3, 4, 5, 6, 7, ve 8. sınıflar).* Ankara: Millî Eğitim.

Ministry of National Education. (2018). *Türkçe dersi öğretim programı. (ilkokul ve ortaokul 1, 2, 3, 4, 5, 6, 7, ve 8. sınıflar).* Ankara: Millî Eğitim.

Ministry of National Education. (2019). *Türkçe dersi öğretim programı. (ilkokul ve ortaokul 1, 2, 3, 4, 5, 6, 7, ve 8. sınıflar).* Ankara: Millî Eğitim.

Ministry of National Education. (2020). *Dört beceride Türkçe dil sınavı: Pilot çalışma sonuçları.* Ankara: Millî Eğitim.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*(1), 30-38.

Nystrand, M. (2008). The social and historical context for writing research. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 11-28). New York: The Guilford Press.

Nystrand, M., Green, S., & Wiemelt, J. (1993). Where did composition studies come from? An intellectual history. *Written Communication, 10*(3), 267-333.

Özbay, M. (1995). *Ankara merkez okullarındaki üçüncü sınıf öğrencilerinin yazılı anlatım becerileri üzerine bir araştırma* (Unpublished doctoral dissertation). Gazi University, Ankara.

Pajares, F. (2003). Self-efficacy beliefs, motivation, and achievement in writing: A review of the literature. *Reading & Writing Quarterly, 19*(2), 139-158.

Pajares, F. (2010). Self-efficacy beliefs, motivation, and achievement in writing: A review of the literature. *Reading & Writing Quarterly,* 19, 139-158.

*Pajares, F., & Johnson, M. J. (1994). Confidence and competence in writing: The role of self-efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English, 28*(3), 313-331.

*Pajares, F., & Johnson, M. J. (1996). Self-efficacy beliefs and the writing performance of entering high school students. *Psychology in the Schools, 33*(2), 163-175.

*Pajares, F., & Valiante, G. (1997). Influence of self-efficacy on elementary students' writing. *The Journal of Educational Research, 90*(6), 353-360.

Pajares, F., & Valiante, G. (1999). Grade level and gender differences in the writing self-beliefs of middle school students. *Contemporary Educational Psychology, 24*(4), 390-405.

*Pajares, F., & Valiante, G. (2001). Gender differences in writing motivation and achievement of middle school students: A function of gender orientation?. *Contemporary Educational Psychology, 26*(3), 366-381.

*Pajares, F., Britner, S. L., & Valiante, G. (2000). Relation between achievement goals and self-beliefs of middle school students in writing and science. *Contemporary Educational Psychology, 25*(4), 406-422.

*Pajares, F., Johnson, M. J., & Usher, E. L. (2007). Sources of writing self-efficacy beliefs of elementary, middle, and high school students. *Research in the Teaching of English, 42*(1), 104-120.

*Pajares, F., Miller, M., D., & Johnson, M. J. (1999). Gender differences in writing self-beliefs of elementary school students. *Journal of Educational Psychology, 91*(1), 50-61.

*Phillips, W. C. (2007). *Writing behaviors and attitude: A survey of writing process behaviors, self-efficacy, writing achievement, and writing preferences of sixth, seventh, and eighth grade students* (Doctoral dissertation). George Fox University, Newberg, Oregon.

*Prat Sala, M., & Redford, M. (2012). Writing essays: Does self-efficacy matter? The relationship between self-efficacy in reading and in writing and undergraduate students' performance in essay writing. *Educational Psychology, 32*(1), 9-20.

Prior, P. (2006). A sociocultural theory of writing. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 54-66). New York: The Guilford Yayınları.

Rankin, J. L., Bruning, R. H., & Timme, V. L. (1994). The development of beliefs about spelling and their relationship to spelling performance. *Applied Cognitive Psychology, 8*(3), 213-232.

*Rankin, J. L., Bruning, R. H., Timme, V. L., & Katkanant, C. (1993). Is writing affected by spelling performance and beliefs about spelling? *Applied Cognitive Psychology, 7*(2), 155-169.

Raoofi, S., Gharibi, J., & Gharibi, H. (2017). Self-efficacy and its relation to ESL writing proficiency and academic disciplines. *International Journal of Applied Linguistics and English Literature, 6*(5), 127-134.

Russell, D. R. (1997). Rethinking genre in school and society. An activity theory analysis. *Written Communication, 14*(4), 504-554.

Sabti, A. A., Rashid, S. M. Nimehchisalem, V., & Darmi, R. (2019). The impact of writing anxiety, writing achievement motivation, and writing self-efficacy on writing performance: A correlational study of Iraqi tertiary EFL learners. *Sage Open, 9*(4), 1-13.

*Sanders Reio, J. (2010). *Investigation of the relations between domainspecific beliefs about writing, writing self efficacy, writing apprehension, and writing performance in undergraduates* (Doctoral dissertation). Maryland University, Maryland.

*Sarkhoush, H. (2013). Relationship among Iranian EFL learners' self-efficacy in writing, attitude towards writing, writing apprehension and writing performance. *Journal of Language Teaching and Research, 4*(5), 1126-1132.

Sever, S. (1993). *Türkçe öğretiminde uygulanan tam öğrenme kuramı ilkelerinin öğrencilerin okuduğunu anlama ve yazılı anlatım becerilerindeki erişiye etkisi* (Unpublished doctoral dissertation). Ankara University, Ankara.

*Shah, P. M., Mahmud, W. H. W., Din, R. Yusof, A., & Pardi, K. M. (2011). Self-efficacy in the writing of Malaysian ESL learners. *World Applied Sciences Journal 15 (Innovation and Pedagogy for Lifelong Learning)*, 8-11.

Sharples, M. (1999). *How we write: Writing as creative design.* London: Routledge.

Shell, D. F., Colvin, C., & Bruning, R. H. (1995). Self-efficacy, attribution, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology, 87*(3), 386-398.

*Shell, D. F., Murphy, C. C., & Bruning, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Journal of Educational Psychology, 81*(1), 91-100.

Shkullaku, R. (2013). The relationship between self-efficacy and academic performance in the context of gender among Albanian students. *European Academic Research, 1*(4), 467-478.

Shunk, D. H. (1989). Self efficacy and achievement behaviors. *Educational Psyhology Review, 1*(3), 173-208.

Shunk, D. H. (2003). Self-efficacy for reading and writing: Influence of modeling, goal setting, and self-evaluation. *Reading & Writing Quarterly, 19*(2), 159-172.

Shunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self- regulation of reading and writing through modeling. *Reading & Writing Quarterly, 23*(1), 7-25.

Singh, T. K. R., & Rajalingam, S. K. (2012). The relationship of writing apprehension level and self-efficacy beliefs on writing proficiency level among pre-university students. *English Language Teaching, 5*(7), 42-52.

Sterne, J. A., Egger, M., & Smith, G. D. (2001). Systematic reviews in health care: Investigating and dealing with publication and other biases in meta-analysis. *BMJ, 323*(7304), 101-105.

Şeref, İ., & Karagöz, B. (2019). Türkçe eğitimi akademik alanına ilişkin bir değerlendirme: Web of science veri tabanına dayalı bibliyometrik inceleme. *Dil Eğitimi ve Araştırmaları Dergisi, 5*(2), 213-231. doi:10.31464/jlere.578224

*Tanyer, S. (2015). The role of writing and reading self-efficacy in first-year preservice EFL teachers' writing performance. *Procedia-Social and Behavioral Sciences, 199*, 38-43.

*Taş, H. (2019). O*rtaokul 8. sınıf öğrencilerinin yazma öz yeterlilik algıları ile hikâye yazma becerileri arasındaki ilişkinin değerlendirilmesi* (Unpublished master's thesis). Hatay Mustafa Kemal University, Hatay.

Temizkan, M. (2003). *Yazılı anlatım etkinliği çerçevesinde Türkçe öğretmenlerinin çalışmalarına ilişkin bir değerlendirme* (Unpublished master's thesis). Hatay Mustafa Kemal University, Hatay.

Temizkan, M., & Atasoy, A. (2014). Türkçe ders kitaplarında yer alan hikâye türündeki metinlerin üst yapı açısından değerlendirilmesi. *Uluslararası Türkçe Edebiyat Eğitim Kültür Dergisi, 3*(3), 210-237.

Tsagris, M., & Fragkos, K. C. (2018). Meta-analysis of clinical trials versus diagnostic test accuracy studies. In G. Biondi Zoccai (Ed.), *Diagnostic meta-analysis* (pp. 31-40). Almanya: Springer.

Ülper, H. (2011). Öğrenci metinlerinin tutarlılık ölçütleri bağlamında değerlendirilmesi. *Turkish Studies, 6*(4), 849-863.

Üstün, U., & Eryılmaz, A. (2014). A research methodology to conduct effective research syntheses: Meta-analysis. *Education and Science, 39*(174), 1-32.

*Villalon, R., Mateos, M., & Cuevas, I. (2015). High school boys' and girls' writing conceptions and writing self-efficacy beliefs: What is their role in writing performance?. *Educational Psychology, 35*(6), 653-674.

*Williams, J. D., & Takaku, S. (2011). Help seeking, self-efficacy, and writing performance among college students. *Journal of Writing Research, 3*(1), 1-18.

Yıldırım, İ., & Şen, S. (2019). The effects of gamification on students' academic achievement: A meta-analysis study. *Interactive Learning Environments*, 1-18. doi:10.1080/10494820.2019.1636089

*Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Educational Research Journal, 31*(4), 845-862.

Appendix 1. Forest Plot of the Studies According to the Random-Effects Model