A Meta-Analysis Study on Job Satisfaction of Class and Branch Teachers

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Abstract

The purpose of this study is to identify the effect size of classroom and branch teachers' opinions related to the teachers' job satisfaction levels. Additionally, the effect size of the studies examining the job satisfaction levels of the teachers was examined according to the moderator variables. Studies, between the years 2000-2018, that include standard deviation, average, sample number data, which examines the job satisfaction levels of teachers according to the branch variable are in the scope of this research. Research is a meta-analysis method used, and master's thesis and doctoral dissertations scanned for Google Scholar database and Council of Higher Education National Thesis Center and peer-reviewed articles published in scientific journals related to the job satisfaction levels of teachers in Turkey were identified. According to the selection criteria, 19 studies were included in the study. The sample of the study consists of 9300 teachers, 4210 males and 5090 females. In the study, random effects model was used to analyze the data. The result of the research shows that the branch has a significant but low effect on job satisfaction in favor of classroom teachers. When the studies included in the scope of the meta-analysis are classified according to the publication type and their effect sizes are examined, there is a significant difference in favor of the article type. Additionally, it was determined that there was no significant difference according to the place where it was done, when it was done, and the job satisfaction scale type used.

Keywords: Classroom Teachers, Branch Teachers, Meta Analysis, Job Satisfaction, Elementary Education

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Introduction

Nowadays, an increasing number of people expect and demand that their jobs and works are meaningful (Drucker, 2011). It can be said that job and life satisfaction will increase with the individual seeing his/her job meaningful. Job satisfaction refers to people's feelings and beliefs about their current jobs (George & Jones, 2005). Job satisfaction (Saari and Judge, 2004), which is one of the most widely studied topics in the field of organizational behavior, is very important in increasing the productivity of employees and continuing their excitement to be motivated to do their best. As employee satisfaction increases, the understanding of loyalty towards the organization develops, and the separation from the organization or change of work rarely occurs. Unhappy employees, not seeing their work meaningful, cannot be motivated to work, or they cannot give all their efforts to work for a long time (Jenaibi, 2010). Therefore, it can be said that job satisfaction plays a vital role in people's lives.

Job satisfaction, affecting physical and psychological well-being of employees, mobility, not coming to work and organizational loyalty, is important in the organizational level as well as the individual level (Briones, Taberner, & Arenas, 2010). Job satisfaction refers to the fact that all environmental factors bring happiness to the individual or to love the work of the individual and to look at the work life positively (Sisman & Turan, 2004). According to Locke (1976), the positive emotional state or satisfaction resulting from the evaluation of work or job experience is an indication of job satisfaction. Job satisfaction is closely related to the variables of pay, promotion, and employment acquisition, coping with business-related issues, dealing with interest in the work, lack of physically exhausting work, performance rewards, good working conditions, high self-confidence, role conflict and uncertainty (Locke, 1976).

While the relationship between job satisfaction and motivation is critical in the long-term development of any education system in the world, it can be expressed as the determinants of success in education and the performance of teachers (Ololube, 2006). High job satisfaction increases teacher motivation. When teachers feel good about their work and are motivated by their work, students' intrinsic motivation and achievements are increasing (Bauer, 2000; Moe, Pazzaglia & Ronconi, 2010; Morgan & O'Leary, 2004; Smerek & Peterson, 2007, Sonmezer & Eryaman, 2008). Job satisfaction contributes to the monitoring of students' appropriate scientific skills and academic achievement by teachers (Caprara, Barbaranelli, Stecca, & Malone, 2006). Research shows that individuals with high job satisfaction are more creative and show more endurance (Zhou & George, 2001). In other words, it can be said that successful teachers are creative and do their jobs with passion, and they are very effective in their students' achievements. Teachers with high job satisfaction may be expected to stay in their jobs longer, to be more sensitive about their jobs and to have more consistent interaction with their students. Therefore, it can be expected that the work performance of the teachers with high job

satisfaction will be higher (Buyukgoze & Yilmaz, 2017; Kennedy, 2014). It is generally accepted that the instructional performance of teachers plays a fundamental role in the students' learning process. The teaching performance of teachers who love their profession is of great importance in the effective functioning of the education system. Professional activities covering a significant part of the teachers' life is one of the prerequisites that will enable a more successful and healthy society (Demirel, 2014).

Dinham and Scott (1998) explained the teachers' job satisfaction model in a three-factor structure. The first is the internal aspect of teaching, the second is environmental factors for the school, and the third is school-based factors. Working with students, monitoring students' learning and development, student success, teacher success, changing student attitudes and behaviors in a positive way, recognition, mastery, development and positive relations are the internal aspects of teaching. Environmental factors for the school are changing of the educational policies and procedures, increased expectations from school, solving social problems, low status of teaching profession in society, insufficient school managers, environmental threats, new responsibilities in school, increasing administrative workload. School-based factors include school values, negative student behaviors and time pressure, as well as relationships with teachers, families and administrators (Dinham & Scott, 1998).

In many countries, researches on job satisfaction of teachers is carried out in primary and secondary schools. In the studies conducted on the job satisfaction of teachers in official primary schools in Turkey, it was determined that teachers' job satisfaction was not high (Bil, 2018; Buyukgoze & Ozdemir, 2017; Colak, Altinkurt, & Yilmaz, 2017; Sarpkaya, 2000; Tasdan &Tiryaki, 2008; Yilmaz, 2012). However, the lack of competitive opportunities, whether the salary to be fair, the possibility of realizing the expectations for the future and the amount of salary received in Turkey are among the subjects where the teachers' job satisfaction is the least (Yilmaz, 2012). According to Demirel (2014), there is a significant relationship between job satisfaction of teachers and general life satisfaction. According to the results of a research conducted by Altinkurt and Yilmaz (2012), the values of management and organizational justice are workers' significant precursor of job satisfaction. As teachers 'job satisfaction levels increase, teachers' organizational citizenship behaviors (Yilmaz (2012), organizational commitment levels (Demirtas, 2010) and autonomy behaviors (Colak, Altinkurt, & Yilmaz, 2017) increase.

Another variable that has a strong relationship with teachers' job satisfaction is the leadership behavior of school administrators (Bilir, 2007; Boyaci, Karacabey & Bozkus, 2018; Yilmaz & Boga, 2011). In general, teachers are more satisfied with their work when they perceive school principals as sharing knowledge with others, giving authority, and keeping communication channels open with teachers (Bogler, 2001). According to Bil (2018), while the confidence in the principals in schools increases, the job satisfaction of the teachers increases, and the schools develop into a learning-

oriented structure. In other words, there are positive and meaningful relationships between the level of organizational learning and the job satisfaction of teachers in schools (Bil, 2018; Karabag-Kose, 2014). The accessible and supportive approaches of school principals directly affect teachers' job satisfaction. In addition, the fact that school leaders create a positive school environment creates positive feelings among teachers. For this reason, it is necessary to maximize teacher engagement, unity of purpose and principal support to increase teachers' job satisfaction (Aldridge & Fraser, 2016).

One of the most important variables that increase teachers' job satisfaction is self-efficacy perception (Buluc & Demir, 2015; Briones, Taberner, Arenas, 2010; Caprara et al. 2006; Peng & Mao, 2015; Skaalvik & Skaalvik, 2014; Stephanou, Gkavras, & Doulkeridou, 2013; Telef, 2011). Individuals with high self-efficacy perception are more determined when they face difficulties. They also improve their morale faster when they fail. They are more likely to achieve the result they want and thus a high level of satisfaction arises. In other words, individuals with high self-efficacy obtain high job satisfaction when they are more determined to deal with the challenges of the work (Judge et al., 2003). Teacher's self-efficacy is the teacher's belief in the ability to organize and execute the path that is followed to successfully undertake a specific teaching task (Bandura, 1997). Teachers who strongly believe in the ability to encourage students to learn, enable students to gain experience based on deeper knowledge. Teachers who have self-doubts about instructional competence in the classroom environment negatively affect students' cognitive development and abilities (Bandura, 1997). In addition, job satisfaction levels of teachers who have competencies to choose appropriate teaching strategies, have effective classroom management skills, and ensure active participation of students, increase (Telef, 2011). In other words, it can be said that the belief in one's professional competence plays an important role in job satisfaction.

It was concluded that the stress and burnout levels of teachers significantly affect job satisfaction (Diri & Kiral, 2016; Gamsiz, Yazici, & Altun, 2013; Liu & Ramsey, 2008; Yorulmaz, Colak, & Altinkurt, 2017). In a study by Liu and Ramsey (2008), it was found that stress caused by poor working conditions negatively affected teachers' job satisfaction; lack of time for preparation and planning for the lesson and excessive workload have been found to reduce job satisfaction. In the meta-analysis study conducted by Yorulmaz, Colak and Altinkurt (2017), where the relation between teachers' job satisfaction and burnout is researched, it was found out that teachers with emotional exhaustion and personal failure had lower job satisfaction.

There are many studies done to identify the relationships between teachers' job satisfaction and demographic variables. In a meta-analysis study conducted by Costanza (2012) to identify the relationships between teachers' job satisfaction and age variables, it was found that "Baby Boomers" generation had higher job satisfaction than the X and Y generation. Bolin (2007) found that there was a significant relationship between age variable and job satisfaction, teachers' perception of self-

realization increased as their age increased, and they were more satisfied with their salaries and colleagues. In some studies conducted in our country, it has been determined that job satisfaction increases as age and seniority increase (Aydin, Akyuz, Yildirim and Kose, 2016; Demirel, 2014; Gencturk 2008; Karakaya and Coruk, 2017). In some studies, there is no significant relationship between gender variable and job satisfaction (Altinkurt & Yilmaz, 2017; Bolin, 2007; Colak, Karakaya, & Coruk, 2017; Demirel, 2014; Kilic, 2011; Tasdan & Tiryaki 2008). However, in some studies, it was identified that male teachers' job satisfaction is higher than female teachers' (Buyukgoze & Yilmaz, 2017; Sarpkaya, 2000).

The concept of job satisfaction, in researches conducted in the field of educational sciences, is often dealt with quantitative research methods and meta-analysis method has been used in a limited number of studies in Turkey (Aydin, Sarier, & Uysal, 2013; Cogaltay, Yalcin, &Karadag, 2016; Gedik & Ustuner, 2017; Yorulmaz, Colak & Altinkurt, 2017). Therefore, meta-analysis studies are needed in educational research in our country. In particular, most of the meta-analysis studies are in the field of medicine; It has been identified that a small number of meta-analysis studies are carried out in the field of educational sciences. The results from the meta-analysis studies can lead the evidence-based educational management policies. Meta-analysis is an important statistical method because it provides a general data interpretation by using special statistical methods (Bakioglu & Goktas, 2018).

When the literature was examined, no meta-analysis studies on the effect of branch variable on job satisfaction levels of teachers were found. Knowing the effect of the branch variable on the job satisfaction variable allows the education principals to make some arrangements according to the classroom and branch teacher, thus finding more meaningful work, focusing on student learning, having high motivation, success and happiness in the job, less stress and burnout. In addition, by evaluating the results of the studies conducted in the literature, a holistic perspective can be created on teachers' job satisfaction levels in the literature. In this direction, identifying the effect size of job satisfaction levels according to the branches of teachers will contribute to the literature. In the light of these facts, related to teachers' job satisfaction levels in Turkey, it is aimed to identify the effect sizes of the views of classroom and branch teachers. The aim of this study is to identify the effect size of classroom and branch teachers about their job satisfaction levels. For this purpose, answers to the following questions were sought:

1. What are the frequency and percentage distributions related to the moderator variables of the studies included in the meta-analysis?

2. What is the overall effect size of classroom and branch teachers' opinions about job satisfaction levels?

3. Is there a meaningful difference between the effect sizes of studies examining teachers' job satisfaction levels in terms of the moderator variables (the type of publication, the year of conduct, the location and the type of scales used in the study) in the literature?

Method

In this study, meta-analysis method was used to identify the effect size of teachers' job satisfaction levels in terms of the branch variable. Meta-analysis is the grouping of a subject, theme, or similar studies in the area under certain criteria and interpreting the quantitative findings of these studies (Dincer, 2014, p.13). Meta-analysis is a quantitative technique that uses specific measures such as effect size in determining the variable power of relationships for the studies involved in the analysis. Meta-analysis technique, unlike a single research results, indicates the importance of the results through many researches (Shelby and Vaske, 2008). Although there are generally differences in the results of independent studies, it can be stated that meta-analysis is a more reliable method of analysis that can interpret knowledge and provide researchers with a new and different perspective (Akgoz, Ercan, & Kan, 2004).

Data Collection

In this research, researches which examined the job satisfaction levels of the teachers according to the branch variable were used. However, in order to prevent publication bias, some criteria have been determined when selecting the studies to be included in the meta-analysis.

The first criterion in the research; the data should be from peer-reviewed journals, and master's and doctoral theses about teachers' job satisfaction in Turkey. The HEC (Higher Education Council) National Thesis Center, ULAKBIM databases and Google Scholar database were searched for the studies to be included in the meta-analysis. In order to reach the relevant studies, the surveys were scanned using the key words "is doyumu (job satisfaction)" "is tatmini (job satisfaction)" and "job satisfaction". Papers such as symposium and congress presentations are not included. As a result of the literature review, 205 studies including 114 theses and 91 essays were obtained from the job satisfaction studies.

The second criterion of the study; in order to reach the effect size, these studies in the meta-analysis should be empirical studies, between the years 2000-2018 years, and in the primary schools, the sample should be divided into two groups as classroom and branch teachers. When the samples and methods of the studies were examined, it was seen that 27 studies were in compliance with these criteria.

The third criterion of the study; the sample size, arithmetic mean and standard deviation values for classroom and branch teachers were determined according to statistical information. In the study, the effect size was calculated with "Hedges g" which is frequently used in the literature. A total

of 19 studies, which examined the job satisfaction levels of the teachers and met the criteria required to calculate the effect size, were identified. 19 studies about the branch variable related to job satisfaction were conducted to cover 9300 teachers including 4210 males and 5090 females. In order to calculate the effect size, sample size, mean, arithmetic mean and standard deviation values of the classroom and branch teacher groups were examined. It was found that there were no standard deviation measurements in 4 of the studies and there were extreme values in 4 of them and 19 studies provided the required criteria. Aydin et al. (2016), Gunbayı (2001) Canbay (2007) and Ozkan (2017) were excluded from the scope of the study because they affect the normal distribution of data by looking at extreme values. As a result, 19 studies were decided to be included in the meta-analysis.

Data Coding

In order to calculate the average effect size of teachers according to their branches, the classroom teachers represented the experimental group and the branch teachers represented the control group. While the positive sign indicates that the job satisfaction levels of the classroom teachers are higher compared to the branch teachers, the negative sign indicates that the branch teachers have higher levels of job satisfaction compared to their class teachers in terms of branch variable. The significance level of the statistical analysis was determined as .05. After the selection of the data, an appropriate coding form was forged. The main purpose of creating a form is to ensure that the whole feature of the study is coded in a way not to be overlooked (Bozalp-Unal, 2017, p.116).

The coding form used in the research is as follows:

a) Publication type of studies

b) Year of the studies

c) Study conduct region

c) Scale used in studies

An example of the coding form of the studies included in the meta-analysis is given in Table 1.

Table 1. Meta-Analysis Coding Form

No	Authors	Type of Study	Year	Region	Scale preparation	N
1	Akkaya (2015)	Thesis	2015	Aegean	Adaptation	604
2	Basalp (2001)	Thesis	2001	Marmara	Adaptation	240
3	Bilir (2007)	Thesis	2007	Central Anatolia	Adaptation	500
4	Celik (2011)	Thesis	2011	Mediterranean	Adaptation	542
5	Gencturk (2008)	Thesis	2008	Black Sea	Adaptation	373
6	Gergin (2006)	Thesis	2006	Central Anatolia	Enhanced	550
7	Gunduz (2008)	Thesis	2008	Southeastern Anatolia	Enhanced	750
8	Karakaya-Cicek and Coruk (2017)	Essay	2017	Marmara	Adaptation	310
9	Karatas and Gules (2010)	Essay	2010	Marmara	Adaptation	204

10	Kete (2015)	Thesis	2015	Mediterranean	Adaptation	537
11	Kilic (2011)	Thesis	2011	Black Sea	Adaptation	623
12	Korkmaz (2013)	Thesis	2013	Eastern Anatolia	Adaptation	237
13	Meziroglu (2005)	Thesis	2005	Black Sea	On-hand	324
14	Ocal (2011)	Thesis	2011	Marmara	Adaptation	414
15	Olcum (2015)	Thesis	2015	Marmara	Adaptation	483
16	Telef (2011)	Essay	2011	Aegean	On-hand	349
17	Turcan (2011)	Thesis	2011	Central Anatolia	Adaptation	400
18	Unal (2015)	Thesis	2015	Black Sea	Adaptation	587
19	Unverdi (2016)	Thesis	2016	Southeastern Anatolia	Adaptation	404

Data Analysis

In this stage, the calculation of the effect size, validity and bias, whether the data show normal distribution and determining the meta-analysis model were carried out respectively.

1. Measurement of Effect Size and Interpretation of Analysis Results

Effect size is the basic unit of a meta-analysis study and is a value that reflects the size of the relationship or application effect between two variables (Borenstein et al., 2013). CMA [Comprehensive Meta-Analysis] program was used in the study to compare effect sizes, variances and groups. The interpretation of the effect size is based on the classifications of Cohen, Manion and Morrison (2007):

- $0 \leq$ Effect size value $\leq 0,20$ weak level effect

- $0,21 \leq$ Effect size value $\leq 0,50$ small level effect

- $0,51 \leq$ Effect size value $\leq 1,00$ moderate level effect

- $1,01 \leq$ Effect size value $\leq$ strong level effect

2. Identifying the validity of the research and publication bias

In the case of bias in the results of the research, it was identified whether the study has a publication bias in the analysis of the data with the thought that this bias will be reflected in the meta-analysis (Borenstein et al., 2013). One way to determine whether the studies have a publication bias in the meta-analysis is to study the cone dispersion diagram. In the interpretation of the cone dispersion diagram, the position of the effect size of the individual studies included in the meta-analysis is important in the graph. If publication is not biased, it is predicted to be individual. The line in the middle represents the general effect and it is predicted that the effect sizes of the individual studies will be around this line. Publication bias may be observed in studies not included in the cone diagram (Dincer, 2014, p. 77).

A cone dispersion diagram was drawn in the CMA program to identify the positions of the effect size of individual studies included in the meta-analysis. When this graph is analyzed, it is seen

that the effect size values of Aydin et al. (2016), Gunbayi (2001) Canbay (2007) and Ozkan (2017) studies are not included in the cone graph. Normal Q-Q graph was examined to determine whether these values are extreme values in the normal distribution of effect sizes. From the normal Q-Q graph, the effect sizes of these studies were found to be extreme values and it was decided to remove the studies from the analysis.

The Cone Dispersion Graph of the effect sizes of the studies within the scope of the meta-analysis is given in Graph 1.
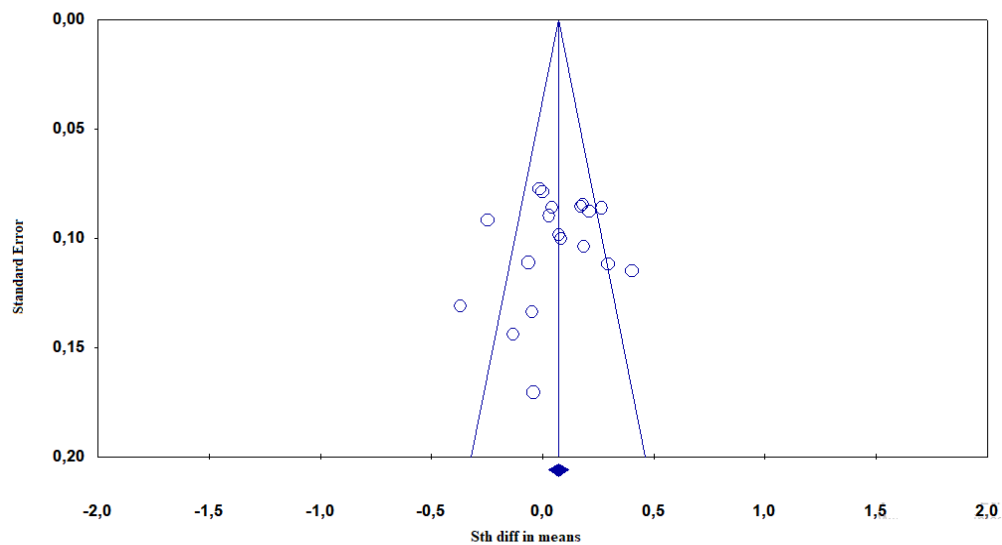
Graph 1. Funnel Scatter Chart of Impact Size of Studies

As it can be seen in Graph 1, it is seen that the majority of the individual studies included in the meta-analysis are symmetrical and the effect sizes are gathered around the middle line showing the overall effect size. The cone dispersion graph indicates that the 19 studies included in the meta-analysis did not have a publication bias. In order to determine the publication bias of the studies, Rosenthal's Safe N Test, Begg and Mazumdar Correlation, and Egger's Linear Regression Test were performed and the results are presented in Table 2.

**Table 2**. Confidence Tests and Results Showing the Bias of Studies

Confidence tests	Confidence test data	
Rosenthal's Safe N Test	Z-value in the studies examined	2,799
	P-value in the studies examined	0,005
	Alpha	0,050
	Direction	2
	Z-value for Alpha	1,960
	Number of studies examined	19
	Safe N (FSN)	20
Begg and Mazumdar Correlation	Tau	-0,076
	Z-value for Tau	0,455
	P-value (1 tailed)	0,325

	P-value (2 tailed)	0,649
Egger's Linear Regression	Standard error	-1,782
	%95 lower limit (2 tailed)	2,094
	%95 upper limit (2 tailed)	-6,201
	t-value	0,851
	df	17
	P-value (1 tailed)	0,203
	P-value (2 tailed)	0,407

When Table 2 is examined, it is seen that there is a need for 20 studies in which the effect size value shows a class score in order to avoid a significance in meta-analysis ($p = 0.00$ significance value $p > 0.05$) as a result of Rosenthal's Safe N Test. Kendall's Tau coefficient was determined to be -0,076 and $p = 0,649$ for Begg and Mazumdar Correlation, and therefore, it is determined that there is no publication bias because the expectation that p value is greater than 0.05 is met. According to the result of Egger's linear regression test, it is possible to state that, with 95% confidence, there is no publication bias.

3. Determining whether the Data Show Normal Distribution

The pre-requisite for combining the effect sizes obtained from the studies in the meta-analysis is the normal distribution. It is decided whether the effect size value of the 19 studies included within the scope of the meta-analysis show normal distribution characteristic by looking at normal Q-Q graph and coefficient of kurtosis and skewness. The normal distribution graph of the effect sizes of the studies within the scope of the research is presented in Graph 2.
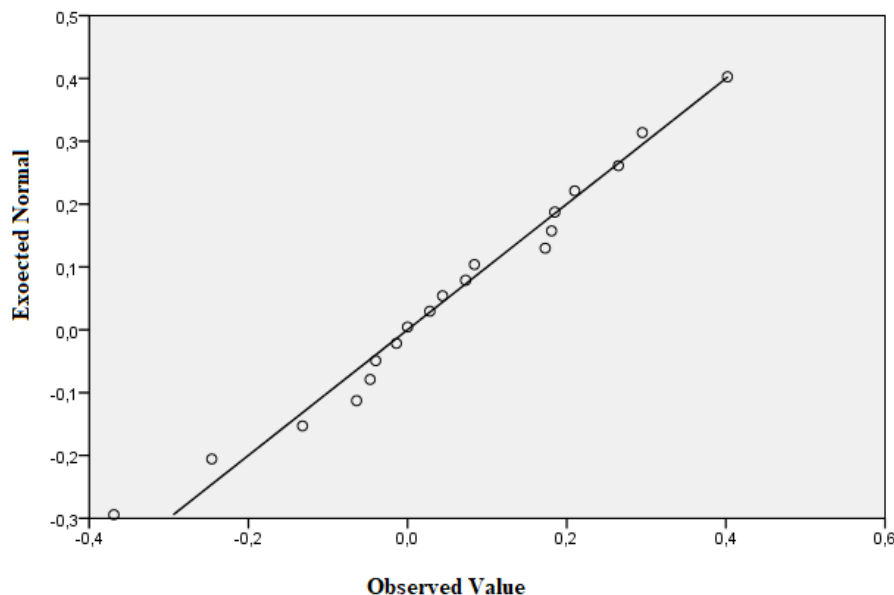
Graph 2. The Normal Distribution Graph of the Effect Size of the Studies

According to Graph 2, it can be said that the values of the effect sizes of the studies included in the research are collected along the X = Y line, that is, their effect sizes show normal distribution. It can be said that the distribution is normal because the skewness (0,278) and the kurtosis (-0,668)

values of the effect sizes are in the range of +1 and -1. According to these values expressing the normal distribution, it can be stated that the combining 19 studies with the meta-analysis is statistically appropriate.

4. Identifying the Meta-Analysis Model

Homogeneity test was performed in the study and Q statistical value was found as Q = 54,707 (p = 0,00). According to $\chi2$ table, at 95% significance level, the value of 18 degrees of freedom was determined to be 31,526. The *Q* statistic value (*Q* = 54,707) is greater than the critical value of the $\chi2$ distribution with 18 degrees of freedom [$\chi2$ (0.95) = 31,526], and at the same time, because the p value (p = 0.00) is less than 0.05, the distribution of the effect size heterogeneity can be said. Heterogeneity can be determined by interpreting the *I²* value in the researches. *I²* is expressed as the homogeneity ratio for the total change explaining the observed effect. Although it is useful for the homogeneity ratio of the total change explaining the observed effect, it is not precise about the number of studies and the effect size coefficient measurements (Borenstein et al., 2013).

According to the homogeneity test, *I²* value was identified as 67,097%. According to *I²* values classification by Higgins and Thompson (2002), 25% (*I²* = 25) is low level heterogeneity, 50% (*I²* = 50) is moderate level heterogeneity and 75% (*I²* = 75) is high level heterogeneity. The *I²* value calculated based on this classification shows moderate level heterogeneity with 67% (*I²* = 67,097). Additionally, p value was calculated as 0.00 and it was found to be smaller than p = .05. According to all these values (Q = 67,097, p <.05, I² = 67,097), the effect sizes are in a heterogeneous distribution and the effect size should be interpreted according to the random model.

Findings

The first sub-problem of the research is "What are the frequency and percentage distributions related to the moderator variables of the studies included in the meta-analysis?". For this purpose, the frequency and percentages of the studies within the scope of the study from the moderator variables according to the type of publication, year of conduct, regional school type and type of scales used in research are presented in Table 3.

Table 3. Frequency and Percentage of Moderator Variables Regarding the Studies

Variable		f	%
Type of publication	Essay	3	15,8
	Thesis	16	84,2
	2001	1	5,3
Year	2005	1	5,3
	2006	1	5,3
	2007	1	5,3
	2008	2	10,5
	2010	1	5,3
	2011	5	26,3
	2013	1	5,3
	2014	4	21,1
	2015	1	5,3
	2016	1	5,3
	2017	1	5,3
Region	Mediterranean	2	10,5
	Aegean	2	10,5
	Southeastern An.	2	10,5
	Central Anatolia	3	15,8
	Black Sea	4	21,1
	Marmara	5	26,3
	Eastern Anatolia	1	5,3
Job satisfaction scale	On-hand	2	10,5
	Enhanced	2	10,5
	Adaptation	15	78,9

When Table 3 is examined, 84.2% (n = 16) of the studies are composed of thesis and 17.6% (n = 3) of essays. Most of the studies were carried out in 2014 (26.3% (n = 5), and 21.1% (n = 4) in 2014. 26.3% (n = 5) of the studies were conducted in Marmara region and 21.1% (n = 4) in the Black Sea region. The job satisfaction scales used in the studies were adaptation 78.9% (n = 5), on-hand 10.5% (n = 2), and enhanced 10.5% (n = 2).

The second sub-problem of the research is "What is the overall effect size of classroom and branch teachers' opinions about job satisfaction levels?". For this purpose, Table 4 shows the lower and upper limits of the effect size, average effect size and 95% confidence interval for each study in the meta-analysis.

Table 4. Effect Size, General Effect Size (Hedge's g), Validity and Reliability Intervals for the Studies in the Meta-Analysis

Study (Author, Year)	Effect size	Std. Error	Lower Limit	Upper Limit	z	p
Korkmaz (2013)	-0,369	0,131	-0,625	-0,113	-2,285	0,005
Akkaya (2015)	-0,246	0,091	-0,426	-0,067	-2,695	0,007
Karatas and Guler (2010)	-0,312	0,143	-0,413	0,149	-0,918	0,359
Meziroglu (2005)	-0,064	0,111	-0,281	0,154	-0,6574	0,566
Basalp (2001)	-0,047	0,133	-0,308	0,214	-0,351	0,725
Unverdi (2016)	-0,040	0,170	-0,374	0,293	-0,237	0,813
Gunduz (2008)	-0,014	0,077	-0,165	0,138	-0,174	0,861
Olcum (2015)	0,000	0,079	-0,154	0,154	0,000	1,000
Bilir (2007)	0,028	0,090	-0,148	0,203	0,312	0,755
Celik (2011)	0,044	0,086	-0,125	0,212	0,509	0,611

Ocal (2011)	0,073	0,100	-0,120	0,265	0,742	0,458
Turcan (2011)	0,084	0,085	-0,112	0,280	0,838	0,402
Gergin (2006)	0,173	0,084	0,005	0,340	2,023	0,043
Unal (2015)	0,181	0,104	0,015	0,346	2,141	0,032
Kete (2015)	0,185	0,088	-0,018	0,388	1,784	0,074
Gencturk (2008)	0,210	0,086	0,038	0,381	2,394	0,017
Kilic (2011)	0,265	0,112	0,097	0,434	3,083	0,002
Telef (2011)	0,295	0,115	0,076	0,514	2,645	0,008
Karakaya Cicek and Coruk (2017)	0,402	0,022	0,177	0,627	3,505	0,000
Random effects model	0,063	0,040	-0,016	0,141	1,571	0,116

When Table 4 is examined, it is seen that in 19 studies, the standardized effect sizes of job satisfaction for the branch variable ranged between -0,369 and 0,402. While there was a significant difference in 8 studies, it was identified that there were no significant differences in 11 studies. The studies within the scope of the research were analyzed according to random effect model. It was identified that the average effect size value was 0.063, the standard error value was 0.040, the upper limit of the confidence interval was 0.143 and the lower limit value was -0.016. Because the effect size value is less than 0.20, when interpreted according to Cohen et al. (2007) classification, it has been shown that it has a low effect. The statistical significance of the study was calculated according to Z test and it was determined that z = 1,571. The result obtained in the analysis is p = 0.111 and has no statistical significance. However, the lack of statistical significance should not be interpreted as meaning that there will be no effect (Borenstein et al., 2013). For this reason, considering the effect size classification of Cohen et al. (2007), it can be said that branch variable has an effect on job satisfaction levels of teachers as a result of having a small effect size. In summary, according to the random effects model, job satisfaction perception can be said to be in favor of classroom teachers. In other words, since the difference is in favor of the classroom teachers, it can be said that the level of job satisfaction of the classroom teachers is higher than the branch teachers.

A meta-analysis diagram has been used to identify the uncombined effect sizes of the studies in the meta-analysis according to the branch variable and is presented in Figure 1.
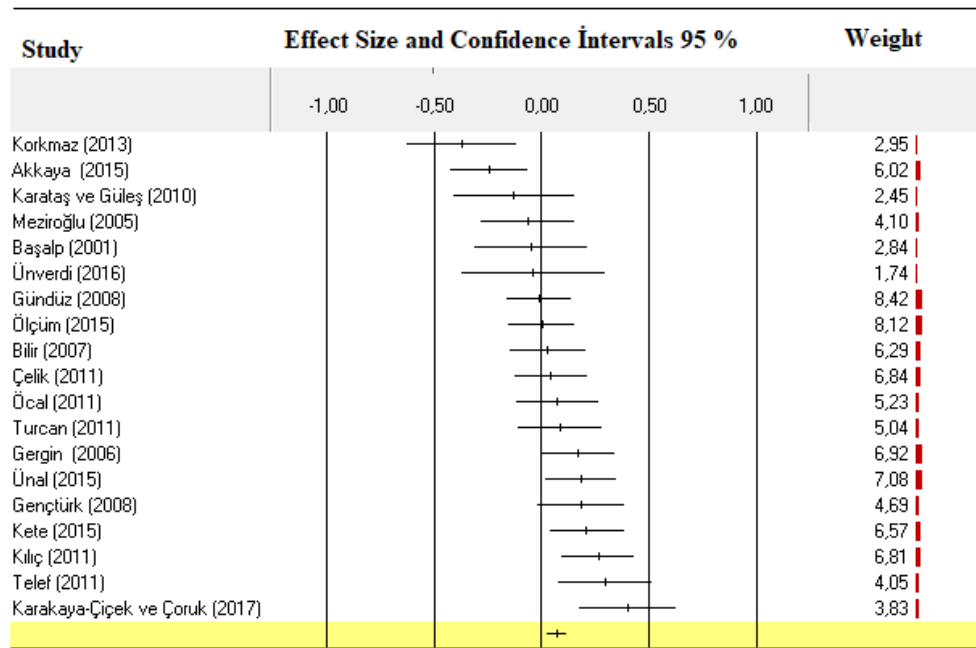
Figure 1. Meta-analysis Diagram showing the Relative Weights of Studies and the Effect Direction of Studies (Forest Plot)

The effect sizes are depicted with a square and the length of the horizontal lines in each square shows the larger the confidence interval (Gunay, Kaya and Aydin, 2014). The confidence interval shows whether there is a statistically significant difference for the findings obtained. However, in small samples, the confidence interval is wide, whereas in the large sample the confidence intervals are narrow (Sarier, 2013). According to Figure 1, the narrowest confidence interval is in the study conducted by Gunduz (2008) and the widest confidence interval is in the study conducted by Unverdi (2016). In Figure 1, 7 of the 19 studies (36,70%) were found to have the negative effect with the branch variable. However, although the negative effect size is a difference in favor of branch teachers, it can be stated that this difference is very close to the ineffectiveness line.

The third sub-problem of the research is "Is there a significant difference between the effect sizes of the studies examining the job satisfaction levels of teachers in the literature in terms of the moderator variables (type of publication, type of scales, year, region)?". For this purpose, Q statistics-homogeneity test was performed according to the moderator variables and the results were presented as tables. Table 5 presents the results of the effect size of type of publication from the moderator variables and the homogeneity test.

Table 5. Distribution of Effect Size of Publication Type Moderator and Homogeneity Test

Moderator			%95 Confidence Interval			Homogeneity Test		
Publication type	n	E.B.	Std. Error	Lower limit	Upper limit	Q	df	p
Essay	3	0,234	0,070	0,097	0,371	6,070	1	0,014
Thesis	16	0,052	0,024	0,005	0,099			

According to Table 5, studies are divided into two categories as essays and thesis to determine the effect of the type of publication on the total effect size. The effect size value of the essay type (0,234) was found to be greater than the effect size value (0,052) of the thesis type. In the analysis, it was found that the homogeneity test value between classes was Q = 6,070. Q is the statistical value [Q = 6,070; p = 0,014] 1 degree of freedom with 95% of significance level although over the χ2 distribution of the critical value [χ2 (0,95) = 3,841] and can be said to be significant. Hence, homogeneity hypothesis in the distribution of effect sizes was accepted in the random effects model. Thus, it can be stated that there is a significant difference in favor of the essay type when the studies in the meta-analysis are categorized according to the type of publication and the effect sizes are examined. In other words, it was found that job satisfaction levels of the teachers differed according to the branch variable, and the essay type (g = 0.234) was higher than the thesis type (g = 0.052).

Table 6 presents the results of the studies with moderator variables, the effect sizes in the studies and the results of the homogeneity test.

Table 6. Distribution of the Effect Sizes of Year of Conduct Moderator and Homogeneity Test Analysis

Moderator		%95 Confidence Interval				Homogeneity Test		
Year of Conduct	n	E.B.	Std. Error	Lower limit	Upper limit	Q	df	p
2008	2	0,058	0,04	-0,063	0,179	3,312	2	0,191
2011	5	0,147	0,02	0,064	0,230			
2015	4	0,042	0,02	-0,041	0,126			

When the Table 6 is examined, the studies are divided into three different groups as 2008, 2011, 2015 in order to determine the effect of the year on the total effect size. In order to calculate the effect size, at least two studies are required in each category. For this reason, having less than 2 works, 2001, 2005, 2006, 2007, 2010, 2013, 2014, 2016, 2017 has been excluded from the analysis. When studies compared in terms of year of conduct, the biggest effect size value is (0,147) the year 2011, and the lowest effect size value is (0.042) the year 2015. The inter-category homogeneity test value was Q = 3,312. Q is statistic value [Q = 3,312 p = 0,191] 1 degree of freedom with a 95% significance level under χ2 distribution's critical value [χ2 952 (0,95) = 5,991], and it can be said that it is not significant. Therefore, it was decided that the distribution of the effect sizes would be accepted in the fixed effects model according to the result of homogeneity hypothesis. Accordingly, it can be said that the studies in the scope of meta-analysis were classified according to years and did not have a significant difference when looking at the effect sizes. Region moderator variable of the studies, the effect sizes in the studies the results of d and homogeneity test are presented in Table 7.

Table 7. Distribution of the Effect Sizes of the Region Moderator and Homogeneity Tests Analysis

Moderator			%95 Confidence Interval			Homogeneity test		
Region	n	E.B.	Std. Error	Lower limit	Upper limit	Q	df	p
Mediterranean	2	0,125	0,061	0,005	0,245	8,113	5	0,150
Aegean	2	-0,029	0,071	-0,167	0,110			
Southeastern An.	2	-0,018	0,070	-0,156	0,120			
Central Anatolia	3	0,098	0,053	-0,005	0,201			
Black Sea	4	0,163	0,047	0,070	0,255			
Marmara	5	0,065	0,047	-0,028	0,158			

According to Table 7, the studies have been divided into 6 different groups as Mediterranean, Aegean, Southeastern Anatolia, Central Anatolia, Black Sea and Marmara in order to identify the effect of Region variable on the total effect size. In order to calculate the effect size, at least two studies are required in each category. For this reason, Eastern Anatolia Region, which has less than 2 studies, was excluded from the analysis. According to the region of studies, the highest effect size value is (0, 163) the Black Sea region and the lowest effect size value is (-0,029) the Southeastern Anatolia region. The inter-category homogeneity test value was found to be Q = 8,113. Q is the statistic value [Q = 8,113 p = 0,150] with 1 degree of freedom at 95% significance level under the distribution of χ2's critical value [χ2 (0,95) = 11,070]and it can be said that it is not significant. Therefore, it was decided to accept the homogeneity hypothesis of the distribution of effect sizes according to the result of the fixed effects model. According to this, it can be said that the studies in the scope of meta-analysis were categorized according to regions and no significant difference was observed when the effect sizes were examined. Table 6 presents the effect size of the scale type moderator variable and the result of d and homogeneity tests.

Table 8. The Distribution of the Effect Size of the Scale Type Moderator Used in the Studies and the Homogeneity Test Analysis

Moderator			%95 Confidence Interval			Homogeneity test		
Scale Type	n	E.B.	Std. Error	Lower limit	Upper limit	Q	df	p
Enhanced	2	0,071	0,057	-0,042	0,183	0,346	2	0,841
On-hand	2	0,115	0,079	-0,040	0,269			
Adaptation	15	0,066	0,026	0,016				

When the Table 8 is examined, it is seen that the scale type is grouped as adapted, enhanced and on-hand in order to identify the effect of the job satisfaction scale used in the studies on the total effect size. According to the job satisfaction scales used in the studies, the biggest effect size value is (0,115) adaptation and the lowest effect value is (0,066) on-hand scale. Homogeneity test results of the inter-group is found to be QB=0,346. QB statistic value [QB = 0,346, p = 0,841] with 1 degree of freedom is at 95% significance level under χ2 distribution critical value [χ2 (0,95) = 5,991] and it can be said that it is not significant. Therefore, it was decided to accept homogeneity hypothesis in the distribution of effect sizes in the fixed effects model. According to this, the studies within the scope of

meta-analysis are classified according to the type of job satisfaction scale used and it can be stated that there is no significant difference when looking at the effect sizes.

Discussion, Conclusion, and Suggestions

In this study, which was conducted to identify the effect size of classroom and branch teachers' opinions about job satisfaction levels, the effect size of 19 studies including 9300 teachers was scaled. There was a significant difference in 8 studies while there was no significant difference in 11 studies. With the cone dispersion graph to determine the publication bias, it was determined that there was no publication bias in the studies included in the scope of this paper. In addition, Rosenthal's Safe N Test, Begg and Mazumdar Correlation and Egger's Linear Regression test were used to determine the validity and publication bias of the study and concluded that there was no publication bias. Before combining the effect sizes of the studies within the scope of the meta-analysis, the normal distribution of the effect sizes was examined, and a homogeneity test was performed to determine which meta-analysis model should be used to combine the effect sizes. As a result of the homogeneity test, the meta-analysis model of the study was decided as random effects model and the effect sizes of the studies included in the meta-analysis were combined in this model and the overall effect size was calculated.

In addition, it was determined whether there was a significant difference between the effect size of the studies that examined teachers' job satisfaction levels according to the moderator variables (type of publication, region, year and the scale type).

The first sub-problem of the study was related to the frequency and percentage distributions of the studies included according to moderator variables. For this purpose, the frequency and percentage distributions of the moderator variables of the studies included in the meta-analysis were examined. It was observed that the studies which examined the job satisfaction level of the teachers according to the branch variable were mostly made in the form of thesis. Most of the studies were in 2011 and 2015, higher than in other years; most of them were observed in the Marmara and Black Sea regions. When the studies are examined, it has been identified that to examine the job satisfaction levels of the teachers, adaptation scales were mostly used Accordingly, it can be stated that the number of domestic publications in the essay type should be increased in order to examine the job satisfaction levels of teachers according to the branch variable, especially, the measurement tool for teachers' job satisfaction levels should be developed in a socio-cultural context rather than adaptation.

The second sub-problem of the research is aimed to identify the overall effect size of classroom and branch teachers' opinions about job satisfaction levels. As a result of homogeneity tests (Q and I²), there was a moderate (67%) heterogeneity between the studies and random model was used in the interpretation of effect sizes. The effect size in the random effect model was found to be low according to the classification of Cohen et al. (2007). The effect sizes were examined according to

Cohen et al. (2007) classification and although it is said to have a low effect size, it can be said that the branch variable has an effect on job satisfaction levels of teachers.

In other words, it can be said that the perception of job satisfaction according to the random effects model is in favor of classroom teachers. It can be stated that the difference in favor of classroom teachers means that classroom teachers have higher levels of job satisfaction than branch teachers. According to the results of the research conducted in the literature, it is observed that the level of job satisfaction of teachers being statistically significant compared to the branch variable can change. In some studies from the literature, it was found that job satisfaction levels of classroom teachers were higher than branch teachers' (Celik, 2011; Gencturk, 2008; Karakaya-Cicek and Coruk, 2017; Kilic, 2011; Ocal, 2011; Telef, 2011). Depending on the affective, cognitive and developmental characteristics of the pupils' age group, their close relationship with students, having more time with the students, being more autonomous in their class than branch teachers, feeling the sanctity of the profession more intensely and consequently experiencing less burnout, it can be said that classroom teachers have a higher level of job satisfaction than branch teachers. With the central entrance that start after the primary school, the students begin to worry about the exams and branch teachers may experience stress and burnout depending on this situation. Additionally, job satisfaction of branch teachers may be lower due to school management, parents and families' expectations. In summary, job satisfaction levels may vary due to classroom and branch teachers' working conditions, different levels of responsibility and commitment to school.

In the third sub-problem of the study, it was investigated whether there was a significant difference between the effect sizes of the studies which examined the job satisfaction levels of the teachers according to the branch variable of the moderator variables (the type of publication, the year, region and the scale used). According to this, a significant difference was found in favor of the essay type when the studies included in the meta-analysis were classified according to the type of publication and their effect sizes were examined. According to this, it is determined that the essay type is higher than the thesis type in the differentiation of the job satisfaction levels of the teachers in terms of the branch variable. In addition, it can be stated that there are no significant differences when the studies in the meta-analysis compared in terms of year in which the study is done, the region where it was conducted and the job satisfaction scale used.

This meta-analysis study is aimed at examining teachers' job satisfaction levels in terms of branch variable. According to the results of the study, it can be said that it is not meaningful to examine the job satisfaction levels of the teachers according to the branch variable. In subsequent studies, meta-analysis can be done according to other demographic variables of teachers (gender, seniority, working time in school, educational status). With the increase of new studies and scales, the findings can be analyzed, and comparisons can be made. This research can be supported by qualitative

research methods. Although it is a limitation that the research has been done domestically, following studies can be examined by comparing the same subject in different countries.

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Appendix 1. Studies Included in Meta-Analysis

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