META-ANALYSIS OF THE VARIABLES THAT PREDICT THE ORGANIZATIONAL COMMITMENT OF TEACHERS IN TURKEY[1] [2]

(TÜRKİYE'DEKİ ÖĞRETMENLERİN ÖRGÜTSEL BAĞLILIĞINI YORDAYAN DEĞİŞKENLERİN META-ANALİZİ)

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ABSTRACT

The aim of this study was to evaluate the variables that affect the organizational commitment of teachers working in secondary education and earlier schools. As statistical method, meta-analysis was used for comparing and combining of the findings of included studies. In accordance to the criteria determined by the study method, 15 postgraduate theses (54%) and 13 articles (46%) were included into the study between 2003-2014. In the coding used during the study; the effect of different variables on the teachers' commitment was investigated, and the correlation values between these variables and the teachers' commitment were combined. By employing "Comprehensive Meta-Analysis V2" software package, variables were organized into 7 main groups, and the effect sizes of these variables on the teachers' organizational commitment were calculated. It was found that leadership had a moderately positive effect (ES=0.19); that negative psychological factors had a moderately negative effect (ES=-0.35); that positive psychological factors had a moderately positive effect (ES=0.26); that organizational trust and justice had a moderately positive effect (ES=0.33); that positive organizational factors had a moderately positive effect (ES=0.21); that negative organizational factors had a moderately positive effect (ES=0.13); and that Organizational Citizenship Behavior (OCB) had a highly positive effect (ES=0.41) on organizational commitment.
Keywords: Organizational Commitment, Teachers, Meta-analysis, Literature Review, Turkish Education

ÖZET

Bu çalışmada, ortaöğretim ve altı okullarda görev yapan öğretmenlerin örgütsel bağlılıklarına etki eden değişkenlerin incelenmesi amaçlanmıştır. Verilerin birleştirilmesi ve değerlendirilmesi için istatistiksel analiz yöntemi olarak meta-analiz kullanılmıştır. Bu yöntemin işleyiş prensibine uygun olarak belirlenmiş kriterler çerçevesinde, 15 lisansüstü tez (%54) ve 13 (%46) makale dahil edilmiştir. Bu çalışmalar 2003-2014 arasında yapılmış olan çalışmaları içermektedir. Yapılan kodlamada hangi tür değişkenlerin öğretmen bağlılığı üzerindeki etkisi olduğu araştırılmış ve bu değişkenler ile bağlılık arasındaki korelasyon değerleri elde edilmiştir. Buna göre yapılan meta-analiz çalışması neticesinde 7 ana grupta topladığımız değişkenlerin öğretmenlerin örgütsel bağlılığı üzerindeki etkileri bulunmuştur. Buna göre; liderliğin orta düzeyde olumlu (EB=0,19); olumsuz psikolojik faktörlerin orta düzeyde negatif yönde (EB= -0,35); olumlu psikolojik faktörlerin ise orta düzeyde olumlu (EB=0,26); örgütsel güven ve adaletin orta düzeyde olumlu (EB= 0,33); olumlu örgütsel uygulamaların orta düzeyde olumlu (EB=0,21); olumsuz örgütsel uygulamaların orta düzeyde olumlu (EB = 0,13); ve nihayet ÖVD'nin ise yüksek düzeyde olumlu bir etki büyüklüğüne (EB=0,41) sahip olduğu sonucuna varılmıştır.
Anahtar Kelimeler: Örgütsel bağlılık, öğretmenler, meta-analiz, literatür taraması, Türkçe eğitimi.

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Introduction

The fact that three generations are nowadays working together in the same work environment, and the high turnover rate that is observed especially among the younger generation, is leading many to question the concept of loyalty to the organization they are working for. Loyalty is considered as a consequence of high organizational commitment (Çöl, 2004). In recent years, there has been a considerable increase in the number of studies examining organizational commitment and its positive effects (Balay, 1999). A similar increase can also be observed in studies performed within the field of educational sciences. (Sezgin, 2010a). As organizational commitment is one of the most basic prerequisites for retaining qualified employees, it has become an increasingly important subject for organizations (Karataş and Güleş, 2010). Organizational commitment is defined as the extent to which employees embrace the mission and values of the organization in which they are working, and their willingness to continue working at their organization (Uğurlu et al., 2013) or the tendency and willingness of individuals to identify themselves with their organization (Köse, 2014). From the standpoint of teachers working at schools, organizational commitment is described as the extent to which teachers accept and believe in the mission and value of their school; their willingness to endeavor for the school; and their willingness to continue working at their current institution (Sezgin, 2010a, p.145). It is expected that higher organizational commitment among teachers would lead to positive outcomes, such as better performing schools and higher levels of academic success among students (Sezgin, 2010b). In other occupations, higher organizational commitment is expected to contribute to the added value of an organization's products and services (Uğurlu et al., 2013). Karataş and Güleş (2010) have argued that the subject of organizational commitment was first proposed by Whyte in 1956, and that many researchers such as Becker (1960), Kanter (1968), Salancik (1977), Mowday et al. (1982), O'Reilly and Chatman (1986), Allen and Meyer (1990) later contributed to the literature on this concept.

The Purpose of the Study and Research Questions

The study is based on a meta-analysis method that only includes articles and theses from Turkey, and which examines the variables that predict the commitment of teachers to their institutions in schools ranging from kindergarten to high school. In the literature review that was performed, the earliest study that could be found on the organizational commitment of teachers was from 2003. Thus the studies included into the meta-analysis were from the 2003-2014 period. Theses were obtained by using the search function of the National Thesis Center of the Council of Higher Education's (*Yüksek Öğretim Kurulu*) web site, while articles were found and retrieved with the aid of the Google search engine (from sources such as institutes, faculties and institutional journals).

This study was based on a heuristic design, and sought to answer the three main research questions:

1. In scientific studies that have been performed in Turkey on education, what were the variables that affect the organizational commitment of teachers from kindergartens to high schools?

2. Can these variables be combined and regrouped?

3. What are the effect sizes associated with these grouped variables?

Literature Review

Organizational Commitment (OC)

Yüceler (2009) previously expressed that because studies on organizational commitment have been subject to increasing interest from different disciplines such as organizational behavior, organizational psychology and social psychology, these studies are often presented through a variety of different perspectives, leading to confusion and negatively affecting the comprehensibility of the subject. In this context, it is possible to observe that the literature approaches organizational commitment from a number of different perspectives. Etzioni (1975) categorized organizational commitment as negative-alienating, moderate-neutral and positive-moral commitment, while Weiner (1982) categorized it as instrumental and normative-moral commitment; Allen and Meyer (1990) as emotional, continuous and normative commitment; Kelman (1958) and O'Reily and Chatman (1986) as commitment based on fit, identification and internalization; Katz and Kahn (1977) as instrumental and expressive commitment; and Buchanan (1974) as identification, embrace and loyalty (as cited by Balay, 2012, p.2463). On the other hand, in studies performed based on two different dimensions, organizational commitment was evaluated by Çöl (2004) as an attitude and behavior, while Wiener (1982) evaluated it as an instrumental and organizational subject (as cited by Bayram, 2005). Balay (2000) evaluated organizational commitment according to three levels, which were low, moderate and high. Balay claims that data from his study indicates that each level of organizational commitment can lead to a variety of both positive and negative outcomes. However, among these different outcomes, the most preferable one is for employees to exhibit "a commitment based on strong attitude and disposition" (p.65), which is considered as indicative of a high level of commitment. However, it should not be overlooked that organizational commitment may still result in various negative outcomes. For example, a low level of employee turnover may result in a reduction of development and movement among employees, in routinization, and in a decrease in creativity and innovation.

The most frequently used OC Models in Literature

In the literature review that was performed for this meta-analysis, it was observed that four different models were generally used for teachers, and that the corresponding scales of these models were commonly administered. The scales in question were as follows:

i. Balay's (2000) scale consisting of three dimensions, which are "fit, identification and internationalization."

ii. The "Organizational commitment for teachers scale" developed by Üstüner (2009) and consisting of one dimension.

iii. The "Organizational commitment scale" developed by Meyer, Allen and Smith (1993), which was first adapted to Turkish by Wasti (2000), and consists of three dimensions (emotional, continuous and normative).

iv. The "Organizational commitment scale" developed by Porter, Steer, Mowday and Boulian (1974), which was adapted to Turkish by Buluç (2009), and consists of one dimension.

The model that was the most used in the sources evaluated within the scope of the meta-analysis was the one developed by Allen and Meyer (1990), which categorizes organizational commitment as emotional commitment, continuance commitment, and normative commitment. This model appears to be one of the most commonly used models in the world literature (Jaros and Culpepper, 2014). In addition to this model, Balay's (2000) model also appears to be widely used among researchers in the literature on Education in Turkey. However, due to various reasons among which time limitations was the most significant, Allen and Meyer's (1990) model was selected for the meta-analysis. This model is one that has also been extensively used outside of Turkey.

According to Allen and Meyer (1990), emotional commitment is defined as an individual's feelings towards the organization he/she works in, as well as his/her tendency to identify himself/herself with this organization. Continuance commitment, on the other hand, refers to the extent to which the organization allows the individual to satisfy his/her needs, and also to the decision to stay within an organization due to costs that would arise in case the individual departed from the organization. Finally, normative commitment is defined as an obligatory commitment that is shaped by reasons such as a sense of responsibility (i.e. the belief that it would be morally right to stay in the organization).

Uyguç and Çımrın (2004) described that emotional commitment is the most preferred type of commitment in organizations, as well as the one for which organizations spend the most effort to improve. This is because individuals who have a high level of emotional commitment will spend more time and effort for the interests of the organization in which they work so willingly and eagerly. In contrast to emotional commitment, continuance commitment places importance on the extent to which the organization can satisfy the individual's needs, and on the costs that would arise in case the individual departed from the organization. Normative commitment is described as a perception of obligation or social responsibility among employees, and, in this context, the individual's commitment to the organization depends on what they believe is right (Gül, 2002).

Variables that correlates OC

Balay (2000) previously reported that the variables which generally affect and determine organizational commitment can be classified as personal, organizational, situational, and other factors. In this context, personal factors were

evaluated with respect to demographic characteristics such as age, gender, education level and length of service; and also with respect to psycho-social characteristics such as the motivation to achieve, the locus of control, internal motivation, work values and the central life interest. Organizational factors, on the other hand, were examined with respect to the organization's technical level and interaction with the environment, the commitment to coworkers, social participation, and the type of management. Situational factors were evaluated at three different levels, which were the instrumental level (which includes aspects such as payment, progress, fair management, and humane behavior); the similarity level (comparison with previous attitudes), and the group-value estimations of justice. In addition to this, certain researchers have also suggested that the business design and the leadership qualities of managers also represent important variables (Bayram, 2005, p.125)

The list of all works and studies that were found within the literature on education and included into the meta-analysis has been provided in works cited. The listed works and studies are organized into groups. In this context, the variables evaluated in the articles included into the meta-analysis as predictors of organizational commitment included the characteristics of school principals who are charismatic leaders (Arabacı et al., 2014), the transformational and transactional leadership exhibited by school principles (Cemaloğlu et al., 2012), ethical leadership (Uğurlu et al., 2013), transformation leadership (Aksu and Balcı, 2009), the shared leaderships of school managers (Uslu and Beycioğlu, 2013), psychological intimidation (Şener, 2013), burn-out (Çetin et al., 2011), organizational cynicism and organizational opposition (Yıldız, 2013), organizational justice (Yavuz, 2010; Bal, 2014), school culture (Sezgin 2010a), and organizational citizenship behavior (Özdem, 2012; Yılmaz and Bökeoğlu, 2008; Karacaoğlu and Güney, 2010).

Based on the same model, the postgraduate studies evaluated the following variables as predictor of organizational commitment: ethical leadership (Işık, 2009), the decision-making style of managers (Temur, 2012), organizational trust and organizational support (Eğriboyun, 2013), organizational trust (Paker, 2009; Altun, 2010), perception of organizational culture (Çakır, 2007), organizational justice (Doğan, 2008), the participation of teachers to decision-making (Kaygısız, 2012), organizational climate (Kılıçoğlu, 2010), difficulty of work and motivation (Halis, 2007), work stress and satisfaction (Yıldız, 2013), organizational silence (Kolay, 2012), level of organizational bureaucratization (Tüzel, 2010), organizational culture and psychological resistance (Selçuklu, 2012), and motivation and competitiveness (Canpolat, 2011).

The Grouping of the Variables from the Studies included into the Analyses

Based on the evaluation of the studies included into the meta-analysis; it was decided that rather than separately calculating the effect size for each one, studies using similar variables should be regrouped and merged under 7 groups, which

were "leadership," "negative psychological factors," "positive psychological factors," "positive organizational factors," "negative organizational factors," "organizational justice, support and trust" and "organizational citizenship behavior."

The Meta-analytic Studies regarding OC in the Literature on Education in Turkey

Meta-analyses find many applications in the medical literature and the field of education. Meta-analyses involve the merging and joint evaluation of previous studies, and the statistical analysis of these studies to determine the effect size. Although the meta-analysis method began to be frequently used across the world starting from the 1980s, it is described that "Turkey took notice of the meta-analysis only during the 2000s" (Aydın et al., 2013, p.805). Akgöz et al. (2004) defined meta-analysis as a method in which the results of a number of independent studies on a particular subject are merged, and the obtained study data are then subject to statistical analysis. The use of quantitative methods instead of solely relying on qualitative assessments is what distinguishes a meta-analysis from a conventional review.

In the literature review that was performed, the earliest meta-analysis that was identified in the area of Education in Turkey was the doctorate thesis entitled the "Effectiveness of the cooperative learning method in the teaching of mathematics, and a meta-analysis study regarding the cooperative learning method" (Tarım, 2003). In addition, based on a search performed on the web site of the National Thesis Center in 12 September 2014, it was noted that, between 2000 and 2014, the majority (22 out of 37) of postgraduate theses involving meta-analyses were performed in the area of education.

Although there are numerous studies in the relevant literature predicting the commitment of teachers to the institution they are working for, only two meta-analysis studies could be identified on this subject. Both of these studies have been performed by Aydın et al. in 2011 and 2013. The first one performed in 2011 investigated the effect of gender on organizational commitment, while the second one performed in 2013 used the meta-analysis method to investigate the effect of the leadership style displayed by school principals on the organizational commitment and work satisfaction of teachers.

Methodology

Every year, numerous scientific studies are being published in both national and international journals, and it is possible to encounter many studies that have conflicting results even on the same subject. It is argued that studies with small samples have a particularly weak statistical power (Yıldız, 2002). Even in some studies with small samples, the results may not be statistically significant but when combined, the situation may change and the insignificant results may become significant. Thus, to overcome this weakness and find out if the combined studies may increase the significance, meta-analytical reviews are performed. The meta-

analysis method is used especially in the fields of health, education and psychology, and has become a very effective statistical tool for ensuring that scientific studies are published in reputable journals (Borenstein et al, 2009; Yıldız, 2009). Meta-analyses are based on combining of data belonging to a number of independent studies on a particular subject, and then statistically analyzing the obtained data (Yıldız, 2002; Borenstein et al, 2009). Through meta-analyses, results belonging to a large number of small, independent studies can be combined using various statistical methods, allowing more information to be obtained from the data. Thus, it is possible to combine the results of studies from a particular area and see the overall effect sizes (Yıldız, 2009; Borenstein et al, 2009). In this study, the meta-analysis calculation were performed using the commercial "Comprehensive Meta-Analysis V2" software package.

The question whether the number of studies required for meta-analysis has been answered. Contrary to the common belief, recent researches claim that meta-analytic papers with at least two studies may suffice because "all other synthesis techniques are less transparent and/or less likely to be valid" (Valentine et al., 2010: 245). Additionally Cohen (1988) describes "sufficient" power as having 80% chance of correctly rejecting a false hypothesis. Valentine et al. (2010) estimate that while for a fixed effects analysis approximately 27 studies are needed to meet the inclusion criteria for the significance test of the overall average effect size to have power of approximately 0,80, it is approximately 55 studies for a random effects analysis.

Stages of Meta-analysis

To be able to implement the meta-analysis method effectively, it is first necessary to determine the order or sequence in which the relevant work will be performed. Experts on the subject have a number of different recommendations for this. The order or sequence of steps that can be followed is listed below (Borenstein et al., 2009:

i. Identifying the research questions

ii. Literature Review

iii. Coding

iv. Calculation of the Effect Size

v. Statistical Analyses

vi. Results and Discussions

Initially, studies that will be included into the meta-analysis will be selected according to a set of predetermined inclusion and exclusion criteria; the results of the included studies will then be statistically combined. However, to be able to make inferences from the study findings, it will be necessary to use one of the two statistical models known as the fixed effects model and the random effects model (Yıldız, 2002; Borenstein et al., 2009). These models are summarized below:

1. Fixed Effects Model: In this model, it is assumed that each study predicts the same effect. Considering that studies uses different samples and methods, it is debatable whether each study will provide the same results even if the measurements/assessments are performed correctly. This assumption is tested using the homogeneity test, which is a test evaluates whether the relevant studies share the same effect size, and whether the effect size differs from one study to another (Yıldız, 2002; Borenstein et al., 2009).

2. Random Effects Model: The random effects model can be employed in cases where the fixed effects assumption is not applicable. In this model, both the inter-study differences as well as the intra-study differences are taken into account. The inter-study variance may be greater or lower than the expected variance. However, if the variance is lower than expected, it is possible for the fixed effects model and the random effects model to provide fairly close results (Yıldız, 2002; Borenstein et al., 2009).

Effect Sizes (ES) used in Meta-analysis

The concept of effect size was first developed by Cohen in 1977, and constitutes the basis of the meta-analysis model. The concept is based on transforming data from independent studies with different samples size into a common set of values (Bernard et al., 2004; Höffler and Leutner, 2007). The effect size is obtained based on the numerical and statistical data of studies (Bernard et al., 2004). One of the main advantages of using ES calculations is that they allow the interpretation of studies based on the same criterion. The ES is a standard indicator that illustrates that effect of the independent variable on the dependent variable. There are three types of ES methods that are commonly used in the literature:

i. Effect size d (Cohen's Effect Size)

ii. Effect Size r

iii. Odds ratio

iv. Correlation for ES

The Inclusion and Exclusion Criteria of the Study

In this context, the criteria used for including studies into the meta-analysis were as follows:

• The study must be from the field of educational sciences, and must have been prepared between 2003 and September 2014.

• The study must be based on the evaluation of variables that predict the organizational commitment of teachers working in educational institutions.

• The organizational commitment model of the study must be the three dimensional model of Meyer and Allen (1990).

• The study must include the correlation coefficient between the dependent and independent variables, which is necessary for performing the meta-analysis.

• The study sample must include teachers working in public or private schools ranging from kindergarten to high school.

Exclusion criteria for the studies was also determined. The criteria that were used for excluding studies from the meta-analysis were as follows:

• The study uses a model other than Meyer and Allen's (1990) three dimensional model.

• Despite using Meyer and Allen's (1990) three dimensional model, the study does not provide correlation values, or does not indicate correlation values for the sub-dimensions of the dependent variables.

• Despite being performed in a secondary education institution, the study sample contains personnel other than teachers, such as principals and administrators.

The coded version of the studies included into the meta-analysis is provided in works cited. The following stages of the procedures used in the meta-analysis will be described in the Results section of the manuscript.

Results

To collect data, academic articles, conference papers, theses and dissertations were reviewed online. A clear and detailed coding form was prepared. This form was composed of four sections: year of study, study identity, study content, and study data.

A total of 84 postgraduate theses, 63 articles and 5 conference reports were found, and 15 postgraduate theses and 13 articles that satisfied the inclusion and exclusion criteria were included into the study. The total sample consisted of 10,154 teachers. Descriptive data regarding the theses and articles included into the meta-analysis are provided in Table 2.

Table 2. Descriptive data regarding the theses and articles included into the meta-analysis

Year of Issue	Type	n	% n=13	Type	n	% n=15
2014	Article	2	0.15	Postgraduate	-	-
2013	Article	4	0.31	Postgraduate	2	0.13
2012	Article	2	0.15	Postgraduate	4	0.27
2011	Article	1	0.08	Postgraduate	1	0.07
2010	Article	3	0.23	Postgraduate	3	0.20
2009	Article	-	-	Postgraduate	2	0.13
2008	Article	1	0.08	Postgraduate	1	0.07
2007	Article	-	-	Postgraduate	2	0.13

One thesis that used different independent variables was included into three groups; another thesis that used different independent variables was included into two groups; and an article that used different independent variables was included into two groups. Only one of the postgraduate studies was a doctorate thesis. Four of the articles were written in English. The studies investigating the organizational

commitment of teachers were mainly from 2010 (n=3) and 2013 (n=4), while the theses were mainly from 2010 (n=3) and 2012 (n=4). An evaluation of the 10,514 teacher sample included into the meta-analysis indicated that 20 of the studies collected data from elementary schools; 6 collected data from secondary schools; 1 collected data from a pre-school; 1 collected data from an Applied Education and Occupational Training, Vocational Education, and/or Special Education and Rehabilitation Center; and 2 collected data from both elementary and secondary schools. In 2 of the studies, the type of school was not indicated.

The Meta-Analysis Results regarding the Leadership Effect

For the studies included into the meta-analysis; the sample size, the effect size calculated based on the Pearson's correlation coefficient, the summary effect calculated for each model, the 95% confidence interval, and the values for the homogeneity and heterogeneity parameters are provided in the tables below. The first table (Table 3) shows the data regarding the effect of leadership on organizational commitment.

Table 3. The Effect of Leadership on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p- value	Sample Size (n)
Arabacı et al.,2014	0.17	0.04	0.29	2.48	0.01	217
Cemaloğlu et al.,2012	0.14	0.10	0.19	6.21	0.00	1896
Işık,2009	0.22	0.16	0.28	7.21	0.00	1040
Temur,2012	0.05	0.02	0.08	3.08	0.00	3924
Uğurlu et al.,2013	0.19	0.05	0.32	2.62	0.01	195
Uslu and Beycioğlu,2013	0.38	0.28	0.47	7.15	0.00	324

According to Table 3, the correlation between organizational commitment and leadership varied between 0.05 and 0.38. These results indicated a positive correlation between organizational commitment and leadership. The effect size for each study was within the upper and lower limits of the confidence interval. In addition, all of the calculated values were statistically significant.

Table 4 shows the estimated effect size according to both models, the upper and lower limit values for the confidence interval, the value for the homogeneity test, the I^2 value (which indicates the extent/proportion to which the variance in the effect size reflects the real variance), and the τ^2 value (which reflects the inter-study variance).

Table 4. Models used for the Leadership Effect

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	6	0.12	0.10	0.14	10.28	0.00	58.22	0.00	91.43	0.11
Random Effects	6	0.19	0.10	0.27	4.06	0.00				

The effect size estimated for the fixed effects model was 0.12, while the effect size estimated for the random effects model was 0.19. These result showed that an increase in leadership practices was associated with a moderate level (Valentine, 2010; 225) increase in the organizational commitment of teachers. The lower limit of the confidence interval was the same for both models, while the upper limit values were different. The confidence interval determined by the random effects model was broader than the one determined by the fixed effects model. The Z-value was 10.28 for the fixed effects model, and 4.06 for the random effects model. The Q-value, which was used in order to test whether the calculated correlation values were homogenous, was found as 58.22. When compared to the five degrees of freedom χ^2 value, or to the p-value shown on the table (0.00), the difference was found to be statistically significant. This indicated that the studies included into the current meta-analysis did not all share the same effect size. The variance observed for the I^2 value accounted for 91.43% of the real variance. Just as each study did not have the same effect size, there were also difference between the studies. The inter-study variance was found as 0.11.

Figure 3 below provides a funnel plot regarding the relationship between leadership and organizational commitment. The funnel plot is a method used for assessing the presence of bias. It was observed that nearly all of the studies gathered at the upper section of the graph. This indicated that the level of bias was very low.
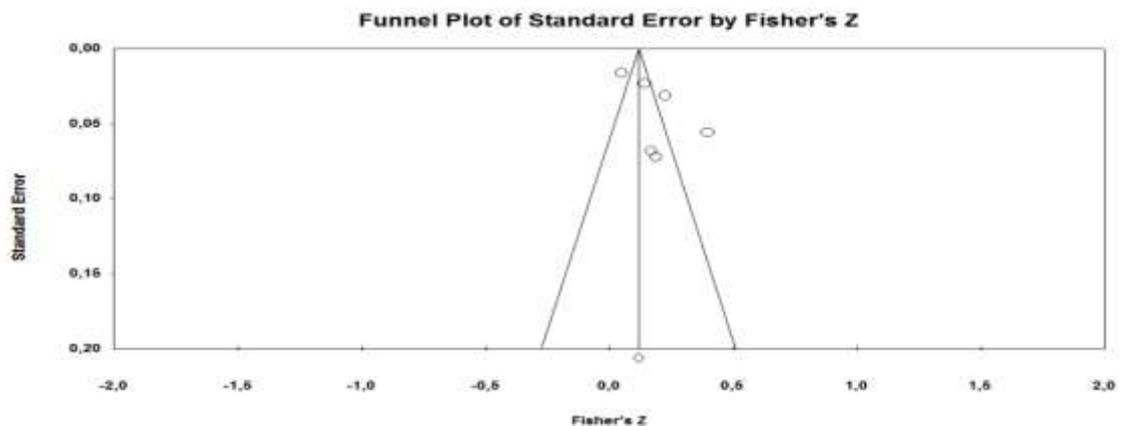
Figure 3. Funnel Plot regarding the Relationship between Leadership and Organizational Commitment

Meta-Analysis Results Regarding the Effect of Positive Psychological Factors

Table 5 indicates that positive psychological factors had a positive effect on organizational commitment. The effect size for the group varied between 0.17 and 0.30. According to the classification performed by Lipsey and Wilson (2001), it is possible to state that the effect size were of a moderate level and positive. The z-value was found to be statistically significant.

Table 5. Analysis of Studies Regarding the Effect of Positive Psychological Factors on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p- value	Sample Size (n)
Canpolat,2011	0.30	0.25	0.35	11.04	0.00	1281
Çakır,2007	0.30	0.17	0.43	4.41	0.00	200
Halis,2007	0.28	0.17	0.37	5.22	0.00	343
Selçuklu,2012	0.17	0.12	0.22	6.91	0.00	1602

According to Table 6, the effect size estimated for the fixed effects model was 0.24, while the effect size estimated for the random effects model was 0.26. These results showed that an increase in positive psychological factors was associated with a moderate level increase in the organizational commitment of teachers. Between the two models, the upper and lower limits of the confidence interval calculated for the effect size were fairly close. The Q-value was found as 14.81. This value indicated that the studies included into the meta-analysis did not share the same correlation values (in other words, they were not homogenous). The I^2 value was found as 79.75.

Table 6. Meta-Analysis Results Regarding the Effect of Positive Psychological Factors on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	4	0.24	0.21	0.27	14.19	0.00	14.81	0.00	79.75	0.00
Random Effects	4	0.26	0.18	0.33	6.07	0.00				

The funnel plot in Figure 4 shows the corresponding standard deviation for each effect size.
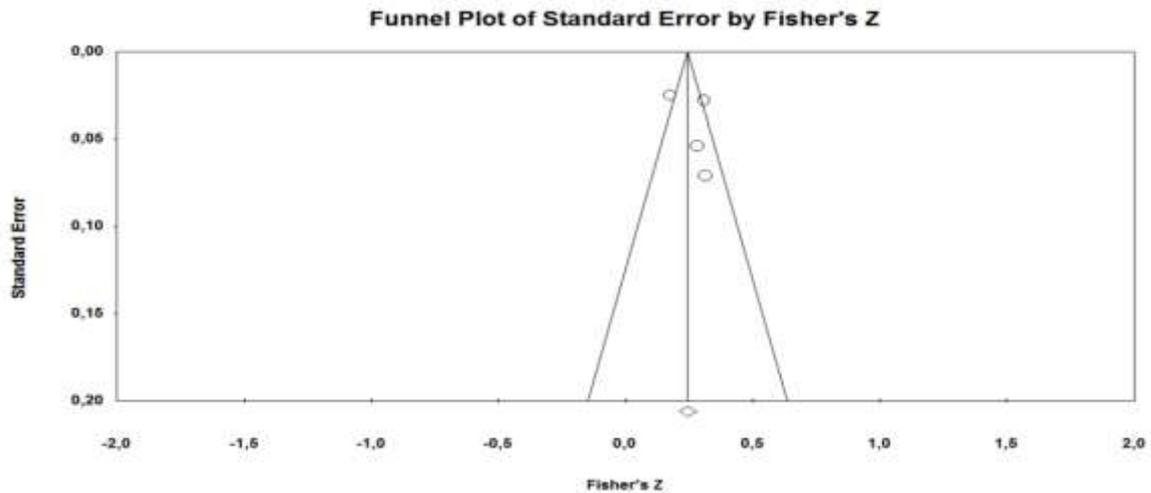
Figure 4. Funnel Plot regarding the Relationship between Positive Psychological Factors and Organizational Commitment

Meta-Analysis Results Regarding the Effect of Negative Psychological Factors

Table 7 indicates that negative psychological factors had a negative effect on organizational commitment. Especially in the study conducted by Yıldız (2013), the ES was found as 0.61. This value indicates that negative psychological factors had a highly negative effect in the said study. In other words, an increase in negative psychological factors was associated with a considerable decrease in organizational commitment. The Z-value (calculated in order to assess significance) was found to be statistically significant.

Table 7. Analysis of Studies Regarding the Effect of Negative Psychological Factors on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Sample Size (n)
Çetin et al.,2011	-0.19	-0.25	-0.13	-6.17	0.00	1047
Şener,2013	-0.17	-0.32	-0.01	-2.11	0.03	155
Yıldız,2013	-0.61	-0.67	-0.55	-14.79	0.00	438

According to Table 8, the effect size estimated for the fixed effects model was -0.32, while the effect size estimated for the random effects model was -0.35. This result showed that an increase in negative psychological factors was associated with a moderate level decrease in organizational commitment. The Q-value of 86.72 for the negative psychological factors in the fixed effects model was then compared with the 2 degrees of freedom χ^2 value of 5.991. As the calculated Q-value was greater than the χ^2 value, this indicated that each study included into the meta-analysis did not share the same correlation values (in other words, they were not homogenous). In addition to this, it was found that the τ^2 value was not equal to 0, which indicated that the use of the random effects model was more suitable in this context. This τ^2 value also indicated that the studies included into the meta-analysis did not have the same effect sizes. The I^2 value was found as 97.69.

Table 8. Meta-Analysis Results Regarding the Effect of Negative Psychological Factors on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	3	-0.32	-0.36	-0.27	-13.21	0.00	86.72	0.00	97.69	0.10
Random Effects	3	-0.35	-0.62	0.01	-1.92	0.05				

According to Figure 5, all of the studies demonstrated a different distribution. This indicated that the level of bias in these studies was very low.
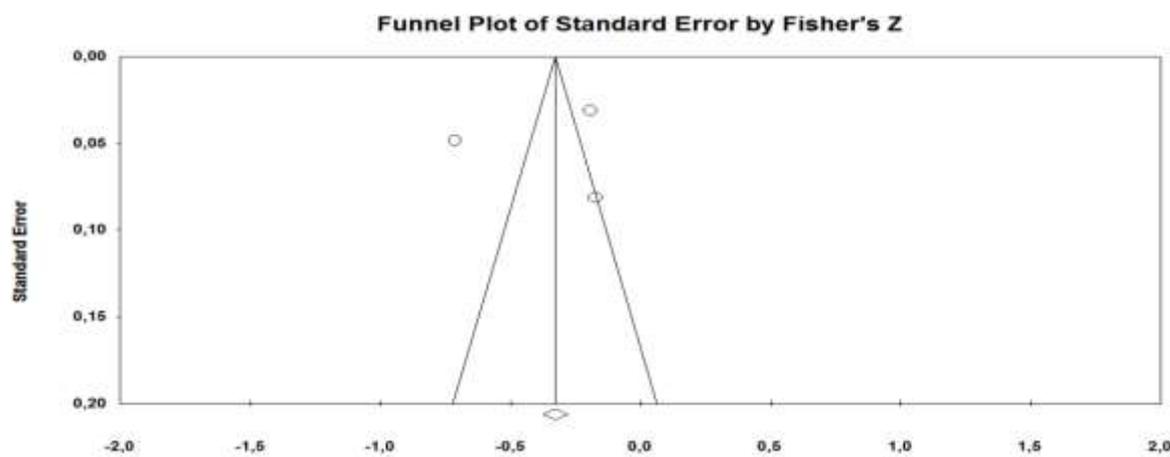
Figure 5. Funnel Plot regarding the Relationship between Negative Psychological Factors and Organizational Commitment

Meta-Analysis Results Regarding the Effect of Organizational Trust and Justice

Table 9 indicates that organizational trust and justice had a positive effect on organizational commitment. For the group included into the meta-analysis, the effect size varied between 0.20 and 0.55. According to the classification system of Lipsey and Wilson (2001), these values sizes mostly corresponded to moderate level effect sizes. However, one of the studies had an effect size of 0.55 (Yavuz, 2010), indicating that organizational trust and justice had a high level positive effect. Based on these results, it is possible to state that an increase in organizational trust and justice was associated with a moderate level increase in organizational commitment. The Z-value was found to be statistically significant.

Table 9. Analysis of Studies Regarding the Effect of Organizational Trust and Justice on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Sample Size (n)
Altun,2010	0.35	0.24	0.46	6	0	265
Bal,2014	0.22	0.16	0.29	6.43	0	824
Çakır,2007	0.33	0.2	0.44	4.75	0	200

Doğan,2008	0.33	0.27	0.38	10.21	0	918
Eğriboyun,2013	0.39	0.34	0.44	13.34	0	1058
Paker,2009	0.2	0.13	0.26	5.92	0	900
Sezgin,2010	0.27	0.16	0.38	4.52	0	270
Yavuz,2010	0.55	0.48	0.61	12.98	0	445

According to Table 10, the effect size estimated for the fixed effects model was 0.32, while the effect size estimated for the random effects model was 0.33. These results showed that an increase in organizational trust and justice was associated with a moderate level increase in organizational commitment. The confidence interval calculated with the fixed effects model was narrower than the one calculated with the random effects model. Comparison of the Q-value of 69.08 with the 2 degrees of freedom χ^2 value of 5.991 indicated that, since the calculated Q-value was greater than the χ^2 value, the studies included into the meta-analysis were not homogenous. In addition to this, it was found that the τ^2 value was not equal to 0, which indicated that the use of the random effects model was more suitable in this context. This τ^2 value also indicated that the studies included into the meta-analysis did not have the same effect sizes. The I^2 value was found as 89.87.

Table 10. Meta-Analysis Results Regarding the Effect of Organizational Trust and Justice on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	8	0.32	0.30	0.35	23.17	0.00	69.08	0.00	89.87	0.02
Random Effects	8	0.33	0.25	0.41	7.38	0.00				

According to Figure 6, the studies generally were generally distributed in the upper sections of the graph and had small standard deviations.
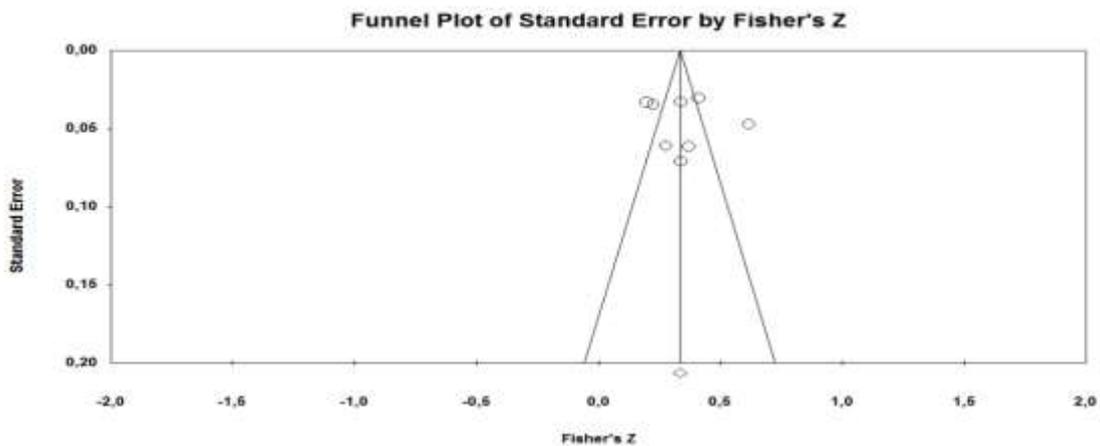
Figure 6. Funnel Plot regarding the Relationship of Organizational Trust and Justice with Organizational Commitment.

Meta-Analysis Results Regarding the Effect of Positive Organizational Factors

Table 11 indicates that positive organizational factors had a positive effect on organizational commitment. For the group included into the meta-analysis, the effect size for the group varied between 0.16 and 0.32. According to the classification system of Lipsey and Wilson (2001), these values corresponded to moderate level effect sizes. According to these results, an increase in positive organizational factors was associated with a moderate level increase in organizational commitment. The z-value was found to be statistically significant.

Table 11. Analysis of Studies Regarding the Effect of Positive Organizational Factors on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	z-value	p-value	Sample Size (n)
Çakır,2007	0.20	0.14	0.26	6.42	0.00	1000
Kaygısız,2012	0.25	0.15	0.35	4.51	0.00	308
Kılıçoğlu,2010	0.16	0.07	0.24	3.46	0.00	484
Öztürk,2009	0.32	0.14	0.47	3.52	0.00	117

According to Table 12, the effect size for both models was found as 0.21. This result showed that an increase in positive organizational factors was associated with a moderate level increase in organizational commitment. The confidence intervals calculated for the two models were nearly similar. The Q-value of 3.67 was lower than the 3 degrees of freedom χ^2 value of 7.815. This indicated that the studies included into the meta-analysis had the same correlation values, and they were hence homogenous. In addition to this, it was found that the τ^2 value was equal to 0. This showed that the use of the fixed effects model was more suitable in this context. The I^2 value was found as 18.30.

Table 12. Meta-Analysis Results Regarding the Effect of Positive Organizational Factors on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	4	0.21	0.16	0.25	9.07	0.00	3.67	0.30	18.30	0.00
Random Effects	4	0.21	0.16	0.26	7.86	0.00				

According to the funnel plot in Figure 6, the studies had a close distribution in the upper parts of the graph.
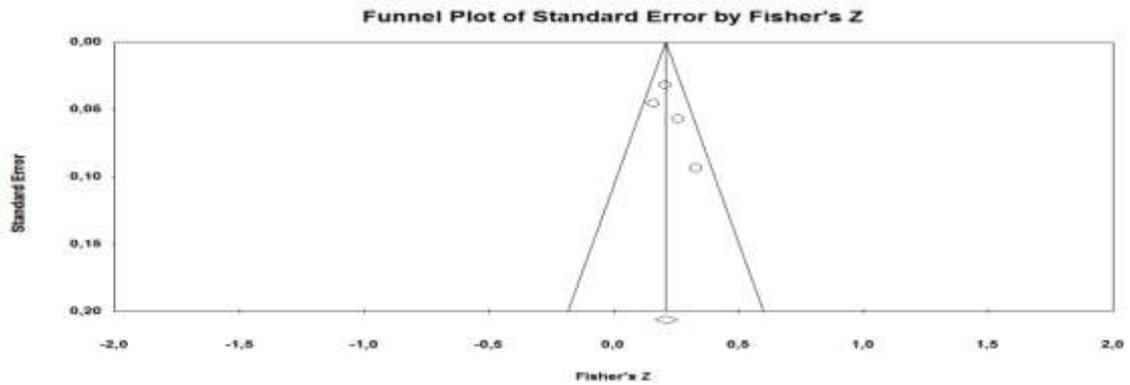
Figure 7. Funnel Plot regarding the Relationship between Positive Organizational
Factors and Organizational Commitment

Meta-Analysis Results Regarding the Effect of Positive Organizational Factors

Table 13 indicates that negative organizational factors had a negative effect on organizational commitment in certain studies, and a positive effect on organizational commitment in other studies. The effect size for the group varied between -0.03 and 0.22. According to the classification system of Lipsey and Wilson (2001), some of the studies had negative effect sizes, while other studies had moderate level positive effect sizes. Calculations for the Z-value indicated that some of these studies were statistically significantly (p=0.00), while others were not ($p = 0.55, 0.87$).

Table 13. Analysis of Studies Regarding the Effect of Negative Organizational Factors on Organizational Commitment

| Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p- value	Sample Size (n)
Halis,2007	0.14	0.11	0.17	8.98	0.00	4116
Kolay,2012	-0.03	-0.12	0.07	-0.60	0.55	432
Sezgin,2010	0.01	-0.11	0.13	0.17	0.87	270
Tüzel,2010	0.22	0.18	0.27	9.65	0.00	1816
Yıldız,2013	-0.16	-0.25	-0.06	-3.25	0.00	423

According to Table 14, the effect size estimated for the fixed effects model was 0.13, while the effect size estimated for the random effects model was 0.05. The result for the fixed effects model showed that an increase in negative organizational factors was associated with a moderate level increase in organizational commitment; while the result for the random effects model showed that an increase in negative organizational factors was associated with a smaller increase in organizational commitment. The confidence interval calculated for the fixed effects model was narrower than the confidence interval calculated for the random effects model. The Q-value of 67.09 was higher than the 4 degrees of freedom χ^2 value of 9.488. This indicated that the studies included into the meta-analysis had different correlation values, and they were hence not homogenous.

Thus, the use of the random effects model was more suitable in this context. The I^2 value was found as 94.04.

Table 14. Meta-Analysis Results Regarding the Effect of Negative Organizational Factors on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	5.00	0.13	0.11	0.15	10.85	0.00	67.09	0.00	94.04	0.02
Random Effects	5.00	0.05	-0.07	0.16	0.77	0.44				

According to Figure 8, all of the studies were distributed towards the center and the left-side. This indicated that these studies had a certain level of bias.
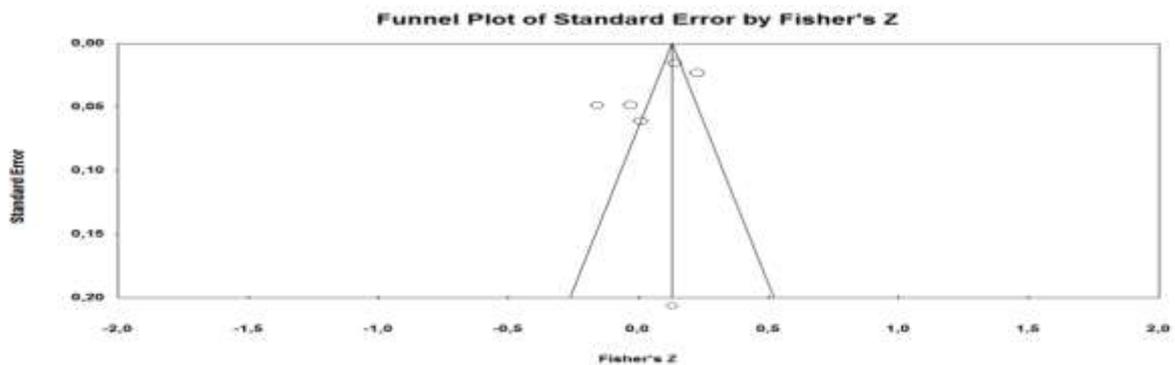
Figure 8. Funnel Plot regarding the Relationship between Negative Organizational Factors and Organizational Commitment

Meta-Analysis Results Regarding the Effect of Organizational Citizenship Behavior (OCB)

Table 15 indicates that OCB had a positive effect on organizational commitment in certain studies. The effect size for the group varied between 0.14 and 0.69. According to the classification system of Lipsey and Wilson (2001), these values corresponded to moderate and high level positive effect sizes.

Calculations for the Z-value indicated that some of these studies were statistically significantly (p=0.00), while others were not ($p = 0.55, 0.87$). The Z-value was found to be statistically significant for some of the studies.

Table 15. Analysis of Studies Regarding the Effect of OCB on Organizational Commitment

Study Name	ES Value	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Sample Size (n)
Karacaoğlu and Güney,2010	0.14	0.00	0.27	2.03	0.04	206
Özdem,2012	0.69	0.65	0.72	24.17	0.00	832
Yılmaz and Bökeoğlu,2008	0.32	0.19	0.43	4.87	0.00	225

According to Table 16, the effect size estimated for the fixed effects model was 0.56, while the effect size estimated for the random effects model was 0.41. The result for both models showed that an increase in OCB was associated with a high level increase in organizational commitment. The confidence interval calculated for the fixed effects model was narrower than the confidence interval calculated for the random effects model. The Q-value was found as 104.96. This indicated that the studies included into the meta-analysis had different correlation values, and they were hence not homogenous. Thus, the use of the random effects model was more suitable in this context. The I^2 value was found as 98.09.

Table 16. Meta-Analysis Results Regarding the Effect of the OCB on Organizational Commitment

Model Used	Number of Studies	ES	Lower Limit of the Confidence Interval	Upper Limit of the Confidence Interval	Z-value	p-value	Q-value	p-value	I^2	τ^2
Fixed Effects	3	0.56	0.52	0.60	22.51	0.00	104.96	0.00	98.09	0.16
Random Effects	3	0.41	-0.02	0.72	1.87	0.06				

An evaluation of the funnel plot in Figure 9 shows that 2 of the studies are distributed towards the left-side, while 1 of the studies is distributed towards the right-side. As the standard deviation of these studies were considerably large, the direction of the study was not affected.
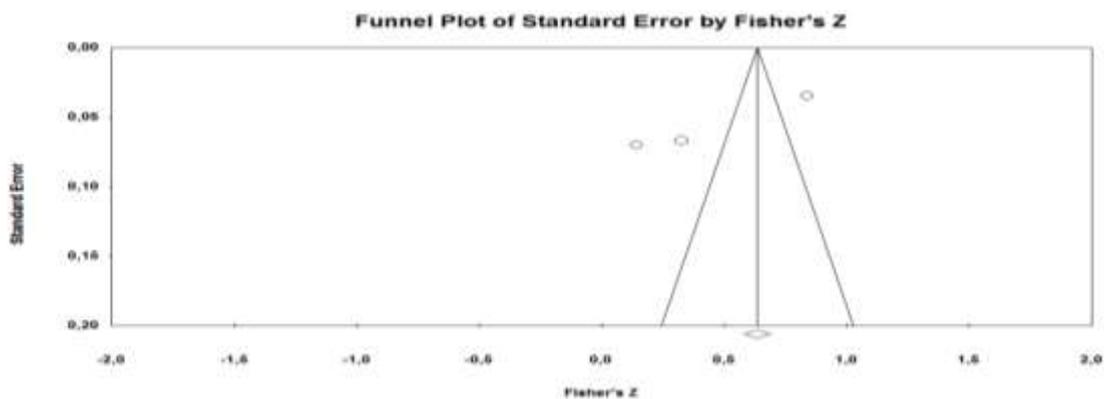
Figure 9. Funnel Plot regarding the Relationship between OCB and Organizational Commitment

Discussion and Conclusion

In this section, the results obtained from the study were discussed, and recommendations were made for future studies. The meta-analysis was performed with 15 postgraduate theses (54%) and 13 articles (46%) that met the study criteria. These scientific studies had all been conducted between 2003 and 2014. The coding performed during this study took into consideration the name of the authors, the title of the studies, the type of thesis, and the sample size of the studies. As research questions, the variables that affected teacher commitment were investigated, and the correlation values between these variables and organizational commitment was determined. Based on the meta-analysis that was performed, the variables were

organized into 7 main groups, and the effect of these variables on the teachers' organizational commitment was estimated. Based on the study results, it was found that leadership had a moderately positive effect (ES=0.19); that negative psychological factors had a moderately negative effect (ES=-0.35); that positive psychological factors had a moderately positive effect (ES=0.26); that organizational trust and justice had a moderately positive effect (ES=0.33); that positive organizational factors had a moderately positive effect (ES=0.21); that negative organizational factors had a moderately positive effect (ES=0.13); and that OCB had a highly positive effect (ES=0.41) on organizational commitment. The size effect values corresponding to each factor that affected organizational commitment are shown in Figure 10.

According to Duma and Eren (2005, p.218), public servants (such as teachers) generally prefer not to leave or change their occupation in the public sector due the "relaxed working environment, suitable office hours, lifelong employment opportunity, and pension rights that arise as a result of continuance." For this reason, individuals in the public sector may tend to avoid personnel investments to their institutions (such as taking career-related decisions, or developing new skills). In other words, emotional commitment has a less determining role for public servants than continuance commitment or normative commitment. Compared to the other factors in the study, the highest ES was observed in the OCB factor. Özdem (2012) previously described that workers with high levels of OCB willingly assume extra tasks in addition to those described in their job definition. This suggests an emotional connection with their institutions, and also that they identify themselves with the institution. High ES values are very likely an indication of such a relationship between teachers and their institutions. Other meta-analysis studies in the literature report numerous positive effects and outcomes associated with organizational commitment (Meyer et al., 2002). In schools, higher emotional commitment among teachers towards their institutions means that they will place greater effort in their work, and that they will be more productive and efficient teachers.

In this study, negative organizational factors were associated with a moderately positive ES value (ES=0.13). Although this may at first appear as an unexpected result, this observation can be possibly explained by the fact that teachers have high continuance commitment (e.g. due to potential retirement benefits, etc.) and normative commitment (e.g. sense of moral responsibility, etc.), which means that they are willing to continue performing their profession in the best manner they can despite any difficulties and negative aspects they might encounter in their institutions. However, to confirm this assumption, it is necessary to conduct a detailed analysis that also investigates the sub-dimensions of commitment (emotional, continuance and normative), rather than focusing on commitment a whole.

Limitations and Recommendations

The variable with the highest ES value was the OCB (ES=0.41). OCB was followed by organizational trust and justice (ES=0.33) and positive psychological factors (ES=0.26), which both had moderate level ES values. According to these results; to increase the commitment of teachers to the institutions in which they are working, it is first necessary to implement policies and systems that will favorably affect their organizational citizenship behaviors. On the other hand, the study results also indicated that the most important factors which can result in a decrease in commitment were negative psychological factors, which can lead to tension, stress, discouragement, desensitization, emotional exhaustion, low motivation, and similar problems. Thus, in addition to creating an environment of trust within the organization, it is also necessary to establish an organizational culture based on justice and fair administration. Such measures will favorably contribute to organizational commitment.

One of the most important difficulties that was encountered during the selection of studies for the meta-analysis was the lack of a standard for the presentation of statistical data in both articles and theses. The fact that the studies in question had been peer-reviewed and/or had been approved by a thesis advisor/commission had not remedied the problems in these studies with regards to the presentation of data.

Even in academic works and processes that required a more detailed and meticulous approach on the researchers' part (such as in doctorate studies), it was observed that researchers often failed to fully or correctly provide necessary and essential statistical data.
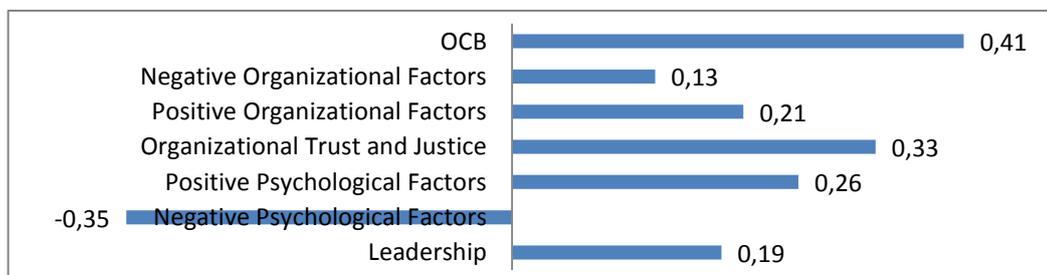
Figure 10. A General Illustration of the ES Values for All Groups

It is possible to state that this situation represents an important issue concerning postgraduate and doctorate education that needs to be properly addressed. Similarly, we consider that it will be beneficial to provide researchers with a suitable guide regarding the article/publication evaluation processes of journals, which will ensure standardization in terms of the data presentation. Showing the necessary attention to the preparation and presentation of data will not only prevent the unnecessary loss of time and effort, but will also ensure that studies can be readily included and referred to in meta-analyses such as the current study.

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* Marked sources indicate the studies that included into the meta-analysis.