



# Factors affecting school climate in Türkiye: A meta-analysis study

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## Abstract

This study aimed to determine the factors affecting the school climate and their effect sizes. In 107 studies examined within the scope of literature review, it was found out that the relationship between school climate and 143 variables was reviewed and the total sample size was determined as 49.577. The results of the analysis performed using the random effects model revealed that among the factors affecting the school climate, the effect size of the variables related to students and families are lower and the effect size related to the school and educators are moderate. Among the most frequently examined factors, it was further determined that the effect of the leadership of the educator and school engagement (which is one of the variables related to the school) on school climate is positive and are at moderate levels whereas the effect of aggression and violence related to students are negative and the effect size is lower. Factors related to educators such as leadership, job satisfaction, burnout, performance, communication, conflict management, value system, reliability, student control, professional learning, managerial skills and factors related to students such as violence, success, problematic internet use, life satisfaction, human value have been determined to play a moderator role in the school climate. In addition; the level of education was determined to be the only variable, among the variables of level of education, type of publication and region, which had a moderator role on the school climate.

**Keywords:** school climate, organizational climate, meta analysis, education.

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## 1. Introduction

### 1.1. Introduce the problem

Schools are defined as people-oriented and open organizations. When considered with a systematic approach, people are found to be affecting the operational process and thus the output at schools. Schools are significant institutions that are both affected by the human factor and that also affect people. The social, political, economic and individual functions of education improve the significance of these institutions. For this reason, the social dimension within the scope of the internal environmental characteristics of the schools

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should be well analyzed. School climate, therefore, has an important place among the factors that shape the social dimension of the school.

Examining the historical background of the concept of school climate revealed that studies on this subject began with the humanist view and the Neoclassical theory shaped by the Hawthorne research (1924). It was further structured by the research by Lewin et al. (1939) in which they associated different types of leadership with different groups' atmospheres and after the concept was addressed from a holistic perspective within Field theory by Gestalt psychologist Kurt Lewin (1951) who drew attention to the interaction of the individuals with their social environment stating that behavior is a function of the individuals and their environment. Thereafter studies on organizational climate began to be carried out towards the end of the 1950s. The concept of organizational climate began to be associated with schools after Halpin and Croft's (1963) publication titled "Organizational Climate of Schools" played a leading role.

Climate is a concept that has a psychological aspect (Tunç & Özen-Kutunis, 2016), used to define the perception of the members about the organization and affects the performance and personal relationships of the members of the organization (Mullins, 2006, p. 484). The key characteristics of an ideal organizational climate are reliability, openness, sincerity and helpfulness (Güney, 2004, p. 185). Some researchers say that school climate, which is described in the simplest terms as the personality of the school (Hoy & Miskel, 2010, p. 185), refers to the school building and the characteristics of the classroom environment (Moran et al., 2012). The concept further reflects people's norms, goals, values, interpersonal relationships, teaching and learning practices along with organizational structures based on their school life experiences (Cohen et al., 2009).

Defining and analyzing the school climate, which can be examined in general from two basic perspectives such as openness and health, is essential as teachers and school administrators have a positive and powerful effect on the personality development of the school (Hoy & Miskel, 2010, p. 185).

As the concept of "climate" in the definitions of school climate expresses more than personal experience and is rather a multidimensional concept, it is analyzed with different approaches. The same is true for examining its dimensions. For example, according to the first of the above mentioned approaches, organizational climate is the result of the dynamic relationship and interaction of four sub-dimensions such as ecology, environment, social system (organization) and culture. Classified within the organization dimension: Majority of the sub-dimensions such as decision making, communication, hierarchy, formal structure, bureaucratization etc. are affected by factors that are directly or indirectly strongly controlled by managers/administrators (Tagiuri, 1968). For this reason, school administrators should first begin to shape the school climate by understanding its significance (Stronge & Jones, 1991).

According to Cohen et al. (2009, p. 184), school climate: Should be analyzed with four dimensions as security, education and training, relationships and environmental-structural and nine sub-dimensions. Accordingly, the sub-dimensions with regard to security are physical, social and emotional; the sub-dimensions with regard to education and training are quality of teaching, social emotional and ethical skills, professional development and leadership; the sub-dimensions with regard to relationships are: respect

for differences, school community and cooperation and morale. Hoy et al. (1991, pp. 26-27) stated that school climate consists of a total of six sub-dimensions, each are related to three behaviors attributed to teachers and administrators. Among these six dimensions, those related to the behaviors of the school administrator are: being supportive, being directive and being restrictive whereas those related to the behaviors of the teacher are: acting professionally, sincerely and indifferently. In brief, school climate is: is a concept with interpersonal, organizational and instructional dimensions (Loukas et al., 2006, p. 491). While analyzing the dimensions of the school climate, it should be kept in mind that the dimensions and the effect sizes thereof may differ in accordance with the culture and time.

The analysis with regard to the historical development, definitions and dimensions of the organizational climate and school climate reveals that school climate is a more customized version of the organizational climate (Hoy & Miskel, 2010). For this reason it is possible to say that school climate is a concept that is derived from the concept of organizational climate and that these two are sometimes used interchangeably. Another concept that is often considered together with and sometimes confused with the concept of climate is culture. Some researchers consider culture within the sub-dimensions of organizational climate (Tagiuri, 1968) whereas others such as Denison (1996, p. 625) argue that these two concepts do not address the organizational environment from the same point of view and that there are differences in between in terms of epistemology, method, theoretical basis, temporal harmony and discipline. Researchers expressed the difference between these two concepts arguing that culture reflects the behavioral norms, assumptions and beliefs of the organization whereas climate reflects the perceptions of the people in the organization regarding these norms, assumptions and beliefs and they drew attention to the strong effect of organizational culture on the development of organizational climate (Aydın, 2013; Tagiuri, 1968). Şenturan (2014), on the other hand, talked about the cause and effect relationship between these two concepts and emphasized the role of organizational culture in the emergence of organizational climate. The difference between these two concepts can be more easily explained through metaphors. Cherrington (1994, cited in Sezgin & Sönmez, 2017) says that organizational climate can be associated with the weather that can change irregularly from time to time whereas culture is something similar to seasons that change slowly over a longer period of time.

The extent to which the school environment supports factors such as openness, collegiality, professionalism, reliability, loyalty, commitment, pride, academic excellence and cooperation has a critical role in developing a healthy environment for teachers and administrators. For these reasons, school climate is considered as a potential instrument to make schools more efficient (Hoy et al., 1991).

Organizational climate affects motivation, commitment, performance, attitude, individual and organizational satisfaction and behaviors (Litwin & Stringer, 1968; Rodrigues & Gowda, 2011). This effect is even more significant taking into account that schools provide a sincere and willing service. The effect of negative school climate in relation-oriented societies such as Turkish society: gets worse exponentially and affects the employees' willingness to do their jobs, their performance, their behaviors, their relationships at home and at work, with other employees and students. Prior research also revealed that a positive school climate may have positive educational and psychological consequences for students and school staff, while a negative school climate may put

obstacles before optimal learning, interpersonal relationships and development (Freiberg, 1998; W. L. Johnson & A. M. Johnson, 1993; Kuperminc et al., 1997; Kuperminc et al., 2001; Manning & Saddlemire, 1996; McEvoy & Welker, 2000). School climate is further associated with students' learning (Moran et al., 2012), students' success (Anderson, 1982; Haynes et al., 1997; Halawah, 2005; Hoy & Hannum, 1997; Johnson & Stevens, 2006; Monrad et al., 2008; Tschannen-Moran et al., 2006), alcohol consumption (Coker & Borders, 2001), less teacher bullying (Gottfredson et al., 2005), increased job satisfaction of the personnel (Taylor & Tashakkori, 1995), the efficiency of the school (Goddard et al., 2000). These results indicate that school climate is a significant concept for many reasons besides the fact that it affects students' social environment, behavior and learning (Flay, 2000).

Negative school climate may lead to the students' alienation to the school (Ellis, 1988) whereas a positive school climate may provide an optimal level of physical comfort (heating, cooling and lighting etc.) (Freiberg, 1998) by assuring a place where students and teachers are happy to be with plenty of success, joy and humor (Peterson & Deal, 1998), where the basic norm is colleague cooperation, improvement and hard work and where it is ensured that staff have a shared sense of purpose and they are dedicated to teaching. Therefore it is of great importance to ensure that schools with these qualifications become widespread in our country.

The research aimed to seek the answers to the following questions in line with the main objective which was defined as determining the factors affecting the school climate on the basis of the teachers' and school administrators' perceptions.

1-To what extent do factors originating from educators, students, schools and families affect the school climate?

2- To what extent do sub-factors, with higher effect size, originating from educators, students, schools and families affect the school climate?

3- Does the effect size of educator, student, school and family-based factors on school climate differ in accordance with the level of education, type of publication and the region?

## **2. Method**

The factors affecting the school climate were determined in this study using the meta-analysis method. This method is one of the most obvious ways to quantitatively synthesize research findings (Chambers, 2004, p. 35). Accordingly, the literature was reviewed in line with the pre-determined criteria on the subject; thereafter the quantitative findings of the research were consolidated, coded, analyzed and interpreted.

### *2.1. The Sample of the Study and the Criteria for Sampling*

The CoHE National Thesis Center, Google Scholar, ULAKBİM and ERIC databases were reviewed with the aim to identify the articles on school climate to be included in the Meta-analysis. The relevant databases were first reviewed on 01.01.2021 and secondly on 28.01.2021. The keywords “school climate” and “organizational climate” were searched both in Turkish and English for the purposes of database review. The reason why both the

keywords “school climate” and “organizational climate” were searched is because school is in fact an organization and their scope is similar. In addition to the literature review carried out within the scope of the study, further studies in the form of literature review were accessed and their bibliographies were reviewed.

Some criteria were taken into consideration while determining the studies to be included within the scope of this research. These criteria were as follows: 1) The articles, Master’s Degree or PhD thesis published between 2008 and 2018. 2) Analyzing the school climate in Türkiye. 3) Indicating the sample size (n) and correlation values (r) of the analyzed variables. 4) The studies published in English or Turkish. 5) Studies with available full text, 6) Studies whose sample is limited to schools and which do not include a special group (no science and art centers, no guidance and counselling centers etc. The articles derived from the thesis analyzing the same variables and the papers presented in symposiums and congresses were excluded. In 107 studies examined within the scope of literature review, it was found out that the relationship between school climate and 143 variables was reviewed and the total sample size was determined as 49.577.

## 2.2. *Collection of the Study Data*

The authors of the studies, that met the research criteria but could not be accessed due to limitations, were tried to be reached via e-mail. All the factors affecting the school climate were taken into consideration after reviewing the results and abstracts of the identified studies and they were included in the code list. Four weeks later, the researcher re-coded all the studies examined within the scope of the meta-analysis for the second time.

The studies determined to be included in the research were checked once again in line with the criteria to confirm whether they were suitable for meta-analysis, thereafter relevant publications were recorded in the code form. The code form included information about the surname of the first researcher and the year of publication, the title of the study, the type of publication, the region where the research was conducted, the level of education of the school and the sample size. The sub-factors affecting the school climate are grouped under four main factors: educator (teacher, school administrator and lecturer), student (who receives education in primary school, secondary education or higher education institution), school and family based factors. However, as some studies analyzed more than one factor affecting school climate, the data set determined in the research in a total of 107 publications increased to 143.

## 2.3. *Validity and Reliability*

The validity of the meta-analysis can be confirmed in two steps. These are internal and external validity. Internal validity is based on the internal validity of the included studies (DeCoster, 2004, as cited in Sarier, 2016). The most important factor determining external validity is the power of the researches to meaningfully represent the results of the population of a study (Sarier, 2016). Both types of validity were checked and tried to be ensured for the purposes of the research. In addition, the code list was checked by a faculty member working in the field of educational sciences to increase the reliability of the research. Furthermore a minimum of 30 studies should be reviewed in order to ensure

reliability in the meta-analysis for the purpose of a correlational research (Sarier, 2016). 107 studies were reviewed herein for the purposes of the research. We aimed to contribute to the validity and reliability by carefully performing all the steps of the meta-analysis.

#### 2.4. Evaluation of the Publication Bias

The main purpose of the research is to determine the effects of factors originating from educators, students, school and families on school climate. Accordingly, the publication bias of the studies included in the meta-analysis was examined through graphics and statistics at the first step. The funnel plot derived as a result of the analyzes is presented in Figure 1.

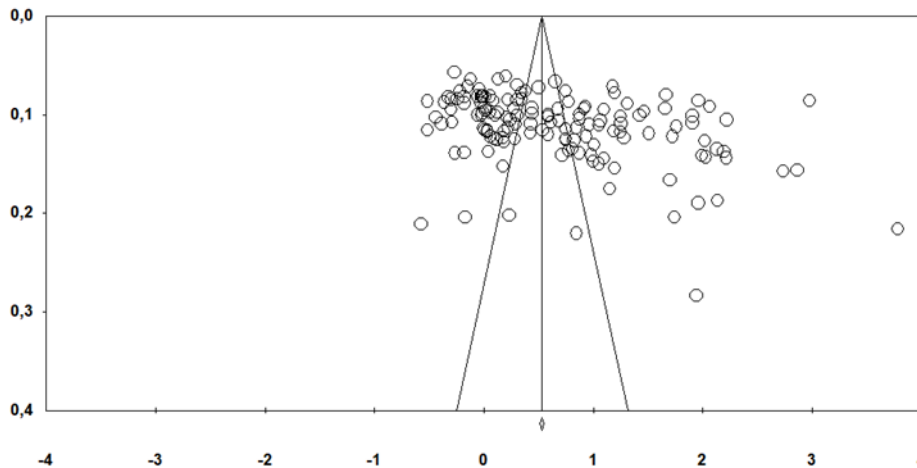


Figure 1. Funnel plot

The funnel plot presented in Figure 1 reveals that majority of the studies have been grouped in the upper part of the plot, symmetrically scattered on both sides of the line, although it is slightly more densely distributed on the left. However some studies are located outside the funnel plot. Based on this information, it is possible to conclude that the sample sizes of the studies are generally high. As there are studies scattered outside the funnel plot and the relative dense distribution on the left, publication bias was further analyzed in order to ensure the reliability of the research.

In line with the data obtained as a result of the analyzes, it was concluded that the meta-analysis was meaningful. In order for this result to change ( $p > 0.05$ ), there should be 6865 studies with a zero effect size value. Furthermore, Kendall's Tau coefficient calculated in the Begg and Mazumdar Rank Correlations is statistically significant (0.276 and  $p = 0.000$ ). This is another indication that may be considered as there is some publication bias. In addition, Egger's Linear Regression results may be interpreted as ( $p = 0.000 < 0.05$ ) there is some level of publication bias. Although the funnel plot appears to be symmetrical, the analysis of Begg and Mazumdar rank correlations and the data obtained from Egger's linear regression method suggest publication bias.

Publication bias: Meta-analysis is preferred to be performed over the results of published studies, therefore publication bias can be defined as the reflection of possible biases in

these studies to the meta-analysis (Bakioğlu & Gökdaş, 2018). Such a bias is valid for all types of research (as cited in Bakioğlu & Gökdaş, 2018, p. 48).

Rosenthal suggests calculating the safe N number in such a case. Greater this value refers to higher validity of the results obtained with the meta-analysis (as cited in Bakioğlu & Gökdaş, 2018, p. 41). Duval and Tweedie's trim and fill statistics may also be used to avoid publication bias. However, it is rarely preferred in educational sciences as it reduces the variance of the effect size and narrows the confidence interval (Dinçer, 2014, p. 78). The first way to avoid publication bias is to objectively determine the inclusion criteria (Dinçer, 2014, p. 22). For the purpose of this study, attention was paid to the inclusion criteria and all published studies were tried to be included. Despite this fact, the publication bias may be explained by the scarcity of studies that resulted with ( $p > 0.05$ ). In addition, Duval and Tweedie's trim and fill statistics were not used as Rosenthal's Safe N Test results were high and the research was conducted in educational sciences.

Mullen et al. (2001) stated that whether the permanence of the results obtained in the meta-analysis will be confirmed in future new studies may be determined by the value to be obtained with the  $N/(5k+10)$  formula; the value should be greater than 1. The result of the above-mentioned calculation [ $49577/(143 \times 5 + 10) = 68.382$ ] was found to be greater than 1; this increased the reliability of the meta-analysis.

## 2.5. *Data Analysis*

The research mainly consists of two sections as descriptive analysis and meta-analysis. Accordingly, first, a descriptive analysis was conducted using the percentage and frequency values in accordance with the type and date of the research, the level of education of the school, sample size, region where the research was conducted and sample variables; thereafter a meta-analysis was carried out using 143 data sets.

The analyzes on the findings of this research were performed with the Comprehensive Meta-Analysis program (CMA). Overall effect, heterogeneity, publication bias, graphs and statistics on moderator variables along with  $p$ ,  $r$ ,  $Q$ ,  $I^2$ ,  $ES$  values were examined for analysis purposes. All relevant general correlations in the datasets were included in the analysis. However, mean values were presented with regard to the correlations of the sub-dimensions of the examined variable. The  $Q$  value and  $p=0.05$  significance level were considered while interpreting the results. A  $p$  value below 0.05 indicates that there is a significant difference between the studies (Dinçer, 2014, p. 20).

Moderator analysis is an analysis method that allows testing of the difference in mean effect size of variables (moderators) and direction of the differences between sub-groups. For the purpose of this study; the variables of the level of education of the school, type of the publication and the region where the research was conducted, which are thought to be affecting school climate, were determined as moderators.

The effect sizes calculated by using the correlations between school climate and independent variables “ $r$ ” and the sample sizes ( $n$ ) were converted into Fisher's Z values. The findings of the analysis were then interpreted after being transformed them into correlation coefficients during the evaluation phase. The following information expressed

by Cohen, Manion and Morrison (2007, p. 521) was used for the purpose of evaluating the correlation findings:

Between  $\pm 0.00 - \pm 0.10$ : Very low correlation

Between  $\pm 0.10 - \pm 0.30$ : Poor correlation

Between  $\pm 0.30 - \pm 0.50$ : Moderate correlation

Between  $\pm 0.50 - \pm 0.80$ : Strong correlation

Over  $\pm 0.80$ : Very strong correlation

### 3. Results

This section presents a descriptive analysis of the studies included in the analysis, meta-analysis and moderator analysis results on the factors affecting school climate.

#### 3.1. Descriptive Findings

Descriptive features of studies analyzing the factors affecting school climate revealed that majority of the studies between the years 2008-2018 analyzing the factors affecting school climate were conducted between 2014 and 2018; out of a total of 107 studies, 74 are master's theses, 11 are Phd dissertations and 22 are articles. This research was conducted with 143 data sets as some studies referred to the opinions of both school administrators and teachers and some studies analyzed the relationship between school climate-organizational climate and more than one variable. Furthermore it was found that majority of the studies were carried out in the Marmara region and at primary schools.

#### 3.2. Meta-analysis Findings on the Factors Affecting School Climate

##### 3.2.1. Results with regard to Heterogeneity Test Analysis

The funnel plot obtained in the Heterogeneity Test Analysis is presented in Figure 2.

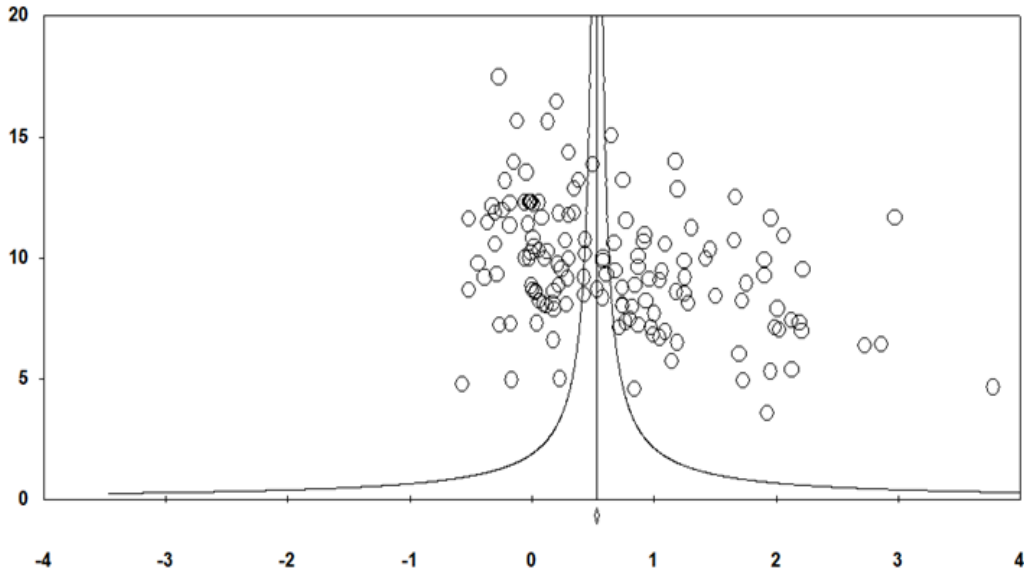


Figure 2 reveals that some studies are not evenly distributed within the slope lines. Therefore, it is possible to talk about the heterogeneous nature of the research. To confirm



this, the  $Q$ ,  $p$  and  $I^2$  values obtained in the heterogeneity analysis were examined. The analysis indicated that  $Q = 7825.883$  (for  $Q > 168.613$ ,  $df: 142$ ),  $P = 0.00$  ( $p < 0.05$ ),  $I^2 = 98.186$  ( $I^2 > 75\%$ ). The random effect model is suitable for combining effect sizes in non-homogeneous studies (Borenstein et al., 2013). As the distribution of the effect sizes of the studies was determined to be heterogeneous based on the funnel plot and heterogeneity analysis data, it was further decided to use the random effects model when interpreting the effect sizes.

### 3.2.2. Results with regard to Mean Effect Size

Analysis with regard to the correlation values of 143 variables based on the relationship between the factors affecting the school climate, Fisher  $Z$  values and weighted distribution of studies indicated that the majority of the studies mostly take values between (0.67-0.71). It was further observed that 112 studies showed positive correlations and 31 studies showed negative correlations and the correlation values varied between -0.276 and 0.884. The correlation value calculated in accordance with the random effects model is 0.302, the Fisher's  $Z$  effect size is 0.311 and the  $p$  value is 0.00.

The sub-factors affecting the school climate are grouped under four main factors: educator (teacher, school administrator and lecturer), student, school and family based factors. Analysis determined that these main factors are affected by various different variables. Teacher-based sub-dimensions: were listed as teacher's resilience, leadership, professional burnout, job satisfaction, personality traits, performance, self-efficacy, guidance attitude, autonomy, work engagement, experience and work motivation etc. School administrator-based sub-dimensions were listed as student control ideology, managerial skills, leadership, managerial effectiveness, trust in the teacher, peer learning, personal development, mobbing, communication skills, power type, value system, conflict management system etc. In the related studies conducted with teachers and school administrators, it was observed that the sample sometimes consists of teachers, sometimes of administrators and sometimes of both. For this reason, these two groups were consolidated under the title of educator based factors. Student-based sub-dimensions were listed as aggression, violence, cyberbullying, life skills, academic self-efficacy, self-concept, altruism, problematic internet use, SBS score, grade point average, school destruction, perception of universal value, life satisfaction, resilience etc. School-based sub-dimensions were listed as job satisfaction, school-induced loneliness, school engagement, organizational trust, organizational citizenship, school culture, school building, organizational justice, working hours, quality of life at school, commitment to school, organizational effectiveness, organizational health, organizational support, school atmosphere and organizational cynicism. Finally, family-based variables are family's functions, relationships, familial process, participation, perception of support etc. Based on this information, the sub-dimensions affecting the school climate were consolidated under four main factors in order to carry out the meta-analysis. The results are presented in Table 1.

Table 1. Meta-analysis with regard to main factors affecting school climate

<u>Main Factor</u>	<u>k</u>	<u>df</u>	<u>R</u>	<b>95% Confidence Interval</b>		<b>Heterogeneity Test</b>		P
				<u>Lower limit</u>	<u>Upper limit</u>	<u>Q<sub>B</sub></u>	<u>χ<sup>2</sup></u>	
Educator	69	68	0.331	0.248	0.408			
Student	34	33	0.149	0.020	0.272	134.065	7.815	0,000*
School	35	34	0.413	0.315	0.502			
Family	5	4	0.106	-0.177	0.373			
School Climate (Overall)	143	142	0.302	0.243	0.358			

\*P<0.05

The data presented in Table 1 indicate that the effect sizes of the factors affecting the school climate are ranked as school-based factors ( $r=0.413$ ), educators-based factors ( $r=0.331$ ), students-based factors ( $r=0.149$ ) and family-based factors ( $r=0.106$ ). These findings indicate that the effect size of student- and family-based factors are lower while the effect size of school- and educator-based factors are relatively moderate. In brief, it is possible to argue that school climate is highly affected by school and educator-based factors. Random effects model revealed that the difference in the effect size between the groups (Q<sub>B</sub>) is [Q<sub>B</sub> =134.065,  $p < 0.05$ ] was higher than the critical value of the  $\chi^2$  distribution [ $\chi^2(0.95) = 7.815$ ] at the 95% significance level with three degrees of freedom, therefore it is possible to argue that there is a statistically significant difference between the mean effect sizes found in the moderator analysis with regard to the factors affecting the school climate.

For the purposes of this research, analyzes were performed with the educator, student and school-based variables nominated because of their high frequency along with the variables with the highest frequency in each main factor. In this context, leadership was nominated representing educator-based variables (instructional, technological, shared, creative and ethical leadership, academic intellectual leadership, leadership style and leadership behavior, teacher leadership), school commitment was nominated representing school-based variables (organizational commitment-school commitment) and aggression

and violence were nominated representing student-based variables. The results are presented in Table 2.

Table 2. Meta-analysis with regard to three factors affecting school climate

Variable	95% Confidence Interval				
	<u>K</u>	<u>df</u>	<u>ES</u>	<u>Lower limit</u>	<u>Upper limit</u>
Leadership	15	14	0.489	0.280	0.698
Organizational/School Commitment	7	6	0.464	0.229	0.700
/ Aggression	6	5	-	-	0.103
Violence			0.029	0.161	

The data presented in Table 2 revealed that: among the factors affecting the school climate, the effect size of leadership is positive and moderate (ES: 0.489) and close to strong; the effect size of the school/organization commitment is positive and moderate (ES: 0.464); the effect size of aggression is negative and low (ES: -0.029).

Following the meta-analysis performed with three main factors affecting the school climate, a moderator analysis was further conducted with the factors whose relationship with the school climate was examined and whose frequency values were two or above. The results of this analysis are presented in Table 3.

Table 3. Meta-analysis with regard to sub-dimensions affecting school climate

Main Factor	Sub-dimension	K	df	R	Lower limit	Upper limit	Q <sup>B</sup>	χ <sup>2</sup>	P
School	Commitment	7	6	0.433	0.225	0.604			
	School atmosphere	2	1	0.281	0.054	0.481	1.237	7.815	0.744
	Organizational justice	2	1	0.420	0.263	0.556			
	Organizational trust	2	1	0.204	-0.209	0.556			
Educator	Leadership	15	14	0.453	0.273	0.603			
	Job satisfaction	5	4	0.502	0.288	0.667			
	Burnout	4	3	-0.03	-0.117	0.054			
	Performance	3	2	0.343	0.117	0.054			
	Communication	3	2	0.343	0.117	0.535			
	Conflict Management	2	1	0.524	-0.118	0.857	112.41	18.307	0,000*
	Value system	2	1	0.013	-0.191	0.216			
	Reliability	2	1	0.070	-0.06	0.198			
	Student control	2	1	0.015	-0.066	0.096			
	Professional learning	2	1	0.443	0.25	0.603			
	Managerial skills	2	1	0.640	0.048	0.899			

Student	Violence	6	5	-0.03	-0.16	0.103			
	Success	5	4	0.331	-0.186	0.704			
	Problematic Internet use	3	2	-0.01	-0.185	0.174	82.664	9.488	0,000*
	Life satisfaction	2	1	0.515	0.461	0.564			
	Humanitarian Values	2	1	0.254	-0.057	0.52			

Table 3 data reveals that the highest effect size ( $r=0.433$ ) in the school-based factors pertains to commitment which is at a moderate level while the lowest effect size ( $r=0.204$ ) pertains to organizational trust which is at a low level. The difference in the effect size between the groups (the statistical value of QB) [ $QB = 1,237, p>0,05$ ] was below the critical value of the  $\chi^2$  distribution [ $\chi^2(0,95)=7,815$ ] at the 95% significance level with three degrees of freedom, therefore it is not statistically significant. For this reason, it is possible to argue that school does not play a moderator role on the school climate. Concerning the educator-based factors, the highest effect size ( $r=0.640$ ) was found in managerial skills which was at a strong level; the lowest effect size value ( $r=-0.03$ ) was found in burnout which was at a very low level. The difference in the effect size between the groups (the statistical value of QB) [ $QB = 112.41, p<0.05$ ] was higher than the critical value of the  $\chi^2$  distribution [ $\chi^2(0.95)=18.307$ ] at the 95% significance level with ten degrees of freedom, therefore this result was found to be statistically significant. For this reason, it is possible to argue that the educator does play a moderator role on the school climate. Furthermore, the highest effect size ( $r=0.515$ ) was found in life satisfaction which was at a strong level; the lowest effect size value ( $r=-0.01$ ) was found in problematic Internet use which was at a very low level. The difference in the effect size between the groups (the statistical value of QB) [ $QB = 82.664, p<0.05$ ] was higher than the critical value of the  $\chi^2$  distribution [ $\chi^2(0.95)=9.488$ ] at the 95% significance level with four degrees of freedom, therefore this result was found to be statistically significant. For this reason, it is possible to argue that the student does play a moderator role on the school climate.

### 3.2.3. Moderator Analyses

Finally, analyzes were conducted to compare the effects of the collected data on the school climate on the basis of moderator variables such as level of education of the school, publication type and the region where the research was conducted. Four studies covering all regions and a study conducted at secondary and high school levels were excluded. The results of this analysis are presented in Table 4.

Table 4. The results of the meta-analysis comparing the factors affecting school climate based on various variables

School Climate	k	R	95% Confidence Interval		Q <sub>B</sub>	χ <sup>2</sup>
			Lower limit	Upper limit		
Moderator (Level of Education)						
Primary School	81	0.299	0.220	0.375		
Secondary School	36	0.209	0.089	0.324		
Primary and Secondary School	19	0.431	0.313	0.536	7.963	7.815
Higher Education	6	0.465	0.131	0.704	0.04*	
Moderator (Publication Type)						
Article	28	0.360	0.246	0.464		
Master's theses	88	0.256	0.181	0.328	3.767	
PhD thesis	27	0.383	0.236	0.513	5.991	
	2	0.178	-0.437	0.679	0.15	
Moderator (Region of the Research)						
Mediterranean						
Blacksea	3	0.355	0.068	0.588		
Aegean	21	0.216	0.066	0.356		
Central Anatolia	26	0.376	0.201	0.527	4.892	
					14.067	
					0.67	
Eastern Anatolia	6	0.238	0.121	0.349		
Southeastern Anatolia	16	0.366	0.203	0.509		
Marmara	61	0.281	0.204	0.354		
Unknown	4	0.099	-0.283	0.454		

\*P<0.05

Table 4 data reveals that the highest effect size (r=0.465) within the level of education of the school where the research is conducted pertains to higher education while the lowest effect size (r=0.209) pertains to secondary school. The difference in the effect size between the groups (the statistical value of (Q<sub>B</sub>) [Q<sub>B</sub> = 7.963, p<0.05] was higher than the critical value of the χ<sup>2</sup> distribution [χ<sup>2</sup>(0.95)=7.815] at the 95% significance level with three degrees of freedom, therefore this result was found to be statistically significant. For this reason, it is possible to argue that the level of education of the school where the research is conducted does play a moderator role on the school climate. Furthermore, the effect size

of primary and secondary schools on the factors affecting school climate were found to be low whereas other levels of education on the factors affecting school climate were concluded to be moderate.

The highest effect size ( $r=0.383$ ) within the type of publication sub-dimension pertains to PhD Thesis while the lowest effect size ( $r=0.256$ ) pertains to master's degree thesis. The value of QB [3.767;  $p>0.05$ ], the difference in the effect size between the groups (the statistical value of QB) [QB = 5.991] was below the critical value of the  $\chi^2$  distribution [ $\chi^2(0.95)=5.991$ ] at the 95% significance level with two degrees of freedom, therefore this result was not found to be statistically significant. Furthermore, the effect size of master's degree thesis on the factors affecting school climate were found to be low whereas the effect size of PhD thesis and articles on the factors affecting school climate were concluded to be moderate.

The highest effect size ( $r=0.376$ ) within the region where the research is conducted sub-dimension pertains to Central Anatolia while the lowest effect size ( $r=0.099$ ) pertains to the studies in which the region is not specified. The difference in the effect size between the groups (the statistical value of QB) [QB = 4.892,  $p>0.05$ ] was below the critical value of the  $\chi^2$  distribution [ $\chi^2(0.95)=14.067$ ] at the 95% significance level with seven degrees of freedom, therefore this result was not found to be statistically significant. For this reason, it is possible to argue that the region where the research is conducted does not play a moderator role on the school climate. The perceptions towards school climate were determined to be very low in studies in which the region is not specified, low in studies carried out in the Aegean, Eastern Anatolia, Mediterranean and Marmara regions and it was determined to be moderate in studies carried out in the Black Sea, Central Anatolia and Southeastern Anatolia regions.

#### 4. Discussion and Conclusions

For the purposes of the research, the effect sizes of the factors affecting the school climate were categorized as school-based factors, educator-based factors, student-based factors and family-based factors. The findings herein indicated that the effect size of student- and family-based factors are lower while the effect size of school- and educator-based factors are relatively moderate. For this reason, it is possible to conclude that school climate is highly affected by school and educator-based factors.

For the purposes of this research, analyzes were performed with the educator, student and school-based variables nominated because of their high frequency along with the variables with the highest frequency in each main factor. In this context, leadership was nominated representing educator-based variables (instructional, technological, shared, creative and ethical leadership, academic intellectual leadership, leadership style and leadership behavior, teacher leadership), school commitment was nominated representing school-based variables (organizational commitment-school commitment) and aggression and violence were nominated representing student-based variables. Among the factors affecting the school climate, the effect size of leadership was found out to be positive and moderate and close to strong whereas the effect size of the school/organization commitment was found out to be positive and moderate and the effect size of aggression was found out to be negative and low.

In their study analyzing the effect of organizational climate on motivation and behavior, Litwin and Stringer (1968) revealed the relationship between organizational climate, leadership behavior perceived by employees and employee performance. It is possible to argue that the relationship between leadership and school climate, the significance of which has been emphasized by giving place to the sub-dimensions affecting school climate (Cohen et al., 2009), has been supported by many studies in our country since the date of the afore mentioned research (Ayık & Şayir, 2014; Baş, 2012; Boyraz, 2018; Cantürk, 2017; Eranıl et al., 2017; Gültekin, 2012; Kılınç, 2014; Küçük, 2008; Öztürk, 2014; Sarıççek, 2014; Şentürk, 2010; Taşdemirci, 2009; Varlı, 2015). Furthermore; based on Likert's four systems theory, Aydın (2013, p. 61) stated that the main factors that cause organizational effectiveness or ineffectiveness are organizational climate and leadership behaviors, thus attributed a key role to the concepts of organizational climate and leadership in reaching effective organizations.

As a result of the literature review we encountered studies from abroad that examined the relationships between school climate and leadership, commitment and bullying. The findings of these studies indicated that there is a positive relationship between transformational leadership and school climate (Allen et al., 2015), that the leadership behaviors of the school administrators have had a determining effect on the organizational climate (Lewin et al., 1939; Litwin & Stinger, 1968), that schools with high organizational commitment have a positive organizational climate (Riehl & Sipple, 1996). Furthermore, there were other researches which concluded that the sub-dimensions affecting school climate have significantly predicted bullying behavior (Konishi et al., 2017), there is an inverse relationship between positive school climate and students' substance abuse and psychiatric problems (LaRusso et al., 2008) and that the frequency of encountering security problems such as violence, aggression and victimization is rather high at schools with a negative school climate (Booren et al., 2011). Moreover, it was found that the problems experienced with regard to the school climate have caused negative consequences such as dropping out of school or putting an end to education after graduation, particularly for students who fall into the risk group (Barth, 2002, p. 10). Considering all these reasons, it is concluded that school climate is a significant factor that can be referred to provide character training and to reduce bullying/conflicts at school (Best Practice Briefs, 2004).

Furthermore factors related to educators such as leadership, job satisfaction, burnout, performance, communication, conflict management, value system, reliability, student control, professional learning, managerial skills and factors related to students such as violence, success, problematic internet use, life satisfaction, human value have been determined to play a moderator role on school climate. In addition; the level of education was determined to have a moderator role on the school climate. This finding helps us to draw attention to the necessity to pay attention to the enlisted variables in order to ensure a positive school climate and to take the necessary preventive measures.

Educators and parents have multiple options in terms of improving the school climate and students' overall educational experience. Accordingly, we suggest that parent and community involvement should be encouraged, character training programs should be implemented, core moral values should be promoted, subjects on preventing violence and conflict resolution should be included in the curriculum, peer mediation and bullying actions should be prevented (Peterson & Skiba, 2000), teachers and principals should be

ensured to treat students fairly, equally and respectfully and a safe environment should be provided for staff and students (Harris & Lowery, 2002) in order to improve the school climate.

Findings indicating that school climate is a significant issue and that the school climate is affected by the factors originating from the school and educators have placed more responsibility on educators, administrators and policy makers. Vail (2005, p. 9) summarized the requirements to create a positive school climate. Accordingly: new members of the organization should be supported, they should be welcome as members of the organization and they should be assisted in providing orientation; all stakeholders of the school should be informed about the school climate, the authority at school should not be delegated exclusively to the school administrator, participation in decisions should be ensured and responsibilities should be distributed in line with competencies; individuals should feel that they are important for the organization of which they are a member and that their contribution in the organization is valuable; efforts should be shared and appreciated, students should be given a sense of achievement and participation in decisions, all stakeholders should interact and collaborate with each other, the physical environment should be improved and the students should be supported not only academically but also socially and emotionally. In addition, school administrators should create the appropriate climate, act as a role model and exhibit a teacher-oriented attitude by exhibiting leadership behaviors (Noonan et al., 2008).

This research was carried out based on the existing study data in which the relevant subject was investigated. However, the inclusion of correlational studies only may have brought problems in the context of method bias. In addition, meta-analysis may have caused a limitation in terms of failure to access to restricted studies, studies that have not been published in certain databases and studies published in languages other than the specified languages. One other limitation is attributed to the fact that school climate is a subject whose measurement is still a subject of debate (Dunn & Harris, 1998), therefore qualitative methods are preferred instead of quantitative methods for the measurement.

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