

ARTICLE HISTORY

Received May 17, 2022

Accepted October 13, 2022

Published Online December 27, 2022

CORRESPONDENCE

Tuncay Yavuz Ozdemir

tyozdemir@firat.edu.tr

Faculty of Education, Firat
University, Elazığ, Turkey.

AUTHORS DETAILS

Additional information about the authors is available at the end of the article.

How to cite: Ozdemir, T.Y., & Cakalci, N. (2022). How School Climate Affects Teachers' Individual Innovativeness: The Mediating Role of Teacher Autonomy. *Educational Process: International Journal*, 11(4): 69-91.



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RESEARCH ARTICLE

How School Climate Affects Teachers' Individual Innovativeness: The Mediating Role of Teacher Autonomy

Tuncay Yavuz Ozdemir · Neslihan Cakalci

ABSTRACT

Background/purpose – The continuity of society is ensured through schools where educational activities are formally conducted. There exists a wide range of tasks that are assigned to educational systems and schools, and three concepts play a critical role for the successful completion of those tasks: school climate, individual innovativeness, and teacher autonomy. The aim of this study was to investigate whether teacher autonomy had a mediating role in the relationship between school climate and teachers' individual innovativeness.

Materials/methods – The relational survey model was used in the study, with 617 elementary school teachers selected using simple random sampling. Data were collected using three scales: the School climate scale, the Teacher autonomy scale, and the Individual innovativeness scale. The collected data were analyzed using regression and correlation analyses. In addition, Bootstrap analysis was performed through IBM SPSS v.24.0 (Hayes, 2013) with PROCESS Macro 3 and “Simple Mediation Model 4” used to examine the significance of the mediation effect.

Results – The findings revealed that a positive, moderate, and significant relationship exists between school climate, individual innovativeness, and teacher autonomy. Bootstrap analysis showed that teacher autonomy had a significant mediating effect in the relationship between school climate and individual innovativeness. Furthermore, the Sobel test proved the significant mediating effect of teacher autonomy since the Z value was at the desired level.

Conclusion – It was found that teacher autonomy had a mediating role in the relationship between school climate and teacher innovativeness. Since this is the first study to examine the mediation effect of teacher autonomy on the relationship between teacher innovativeness and school climate, further research is needed with different samples to verify the findings.

Keywords – School climate, individual innovation, teacher autonomy, mediator variable, education and training.

To link to this article– <https://dx.doi.org/10.22521/edupij.2022.114.4>

1. INTRODUCTION

National governments focus on educating future generations on the basis of the official ideological system of the country through their educational system. In addition, the continuity of society is ensured through schools where educational activities are formally conducted. Through socialization, educational organizations thereby aim to increase the level of awareness of individuals that they are members of the society in which they live (Özer, 2019). Technically, there are a wide range of tasks that are assigned to educational systems and schools, and three concepts play a critical role in the successful completion of those tasks: school climate, individual innovativeness, and teacher autonomy.

2. LITERATURE REVIEW

School Climate

The concept of school climate has recently attracted researchers' attention in the field of education. One possible reason for this increased attention may be that the positive or negative climate of schools, as organizations, may affect the teaching and learning process (Tepe & Yılmaz, 2020). Although the definition of organizational climate was first introduced to the literature by Levin, White, and Lippett in 1939 (as cited in Ashkanasy et al., 2000), it was not until the 1960s that it began to be used as a concept which attracted researchers' attention (Yılmaz & Altinkurt, 2013). According to Katz and Kahn (1978), organizational climate is an organizational term that can be defined psychologically and which expresses the quality of the relationships of its individual members. In addition, Paknadel Çetinkanat (1988) depicted organizational climate as like air in a room, which cannot be touched or seen, but affects individuals both psychologically and physiologically, and therefore the organizational climate impacts upon everything within the organization and is likewise influenced by everything. Organizational climate includes the characteristics that help organizations to each form their own identity, determining the behavior of its employees, and is perceived by those within the organization and dominates the organization in general (Doğan, 2010; Karaköse, Yirci, Basyigit, Kucukcakir, 2021). In other words, it is the sum of the conditions provided to individuals by the working environment (Eren & Gündüz Çekmecelioğlu, 2002). From a different perspective, Lafollette and Sims (1975) provided a broader view of the concept of organizational climate, stating that organizational climate covers environmental, individual, and outcome variables. Considering these three variables, the concept of organizational climate emerges as a common concept between environmental and individual variables (Baykal, 2007). As in other organizations, organizational climate is an important concept for schools; however, in order to create a positive climate in schools, it is necessary for the staff to feel safe and to be able to resolve problems within a short period of time as and when they occur.

The school climate, which includes teachers' perceptions about the environment in which they work (Taşkıran, 2008), consists of all the unwritten beliefs, values, and attitudes that direct interactions between students, teachers, and the school principal (Ağaoğlu, Altinkurt, Yılmaz, Karaköse, 2012; Korkmaz, 2008; Welsh, 2000). In a sense, the school climate constitutes the core characteristics of a school, and is therefore the whole of the features that differentiate one school from the others and is a structure that is considered unique to each school (Aydın, 2019). While the concept of school climate affects the attitudes and behaviors of the individuals within the school (Çalık & Kurt, 2010), it consists of various concepts including atmosphere, culture, character, organizational ideology, climate, as well as

the health, norms, beliefs, expectations, attitudes, and behaviors of individuals within a school (Çolak, 2016; Karataş, 2008). School climate can be said to be structured multidimensionally, in that it is both affected by the components of the school as well as affecting them (Altuntaş et al., 2020). The climate in schools directs the behavior of its administrators, teachers, and students, thereby making each school individually different from other schools (Bakkal, 2019). The commonality among the definitions to be found for school climate is that the climate emerges as a result of a school's operation and thereby gives the school its identity (Çolak & Altinkurt, 2017). In this sense, school climate can be defined as a feature based on the collective perception of behaviors exhibited within a school (Bakkal, 2020).

In recent years, researchers have investigated the issue of what constitutes the concept of school climate and exactly what it covers. Although there has been a wide variety of studies conducted on the different elements of school climate, researchers have mainly focused on four main dimensions: security, teaching and learning, environment, and relations (Şenel, 2015). The security dimension refers to individuals' feelings regarding security, whilst the teaching and learning dimension defines the quality of instruction and learning opportunities provided to a school's students. The environment dimension defines a school's physical features and the activities held within a school, whilst the relations dimension refers to the respect, cooperation, learning-centered instruction, willingness for teaching, and motivation of a school's employees (Özdemir et al., 2020). In their research to determine the organizational climate in primary education institutions, Hoy et al. (1991) identified four types of climate: open climate, dependent climate, free climate, and closed climate. While cooperation, respect, and transparency prevail within an open school climate (Çalık & Kurt, 2010), a closed school climate is one in which the school principal is tough, oppressive, and restrictive, and therefore can be considered as the polar opposite to that of an open school climate (Özdemir et al., 2020). Despite any lack of or weakness of a school principal's understanding of leadership, an environment in which teachers perform with a high degree of professionalism and where employees have a strong team spirit can be said to prevail within the dependent school climate (Tavşanlı et al., 2016). On the other hand, in a free school climate, a school principal supports their teachers and affords them a certain degree of freedom in their work environment; however, teachers can be reluctant to work and have a preventive attitude towards the school principal's leadership behaviors (Tavşanlı et al., 2016).

A positive school climate consists of a regular environment in which school employees feel valued and devote themselves to achieving the goals of the school without being affected by problems that exist within the school (Tableman, 2004). In schools with a positive climate, there is participation, cooperation, discipline and rules, harmony amongst its teachers, and a fair distribution of tasks (Price, 2012; Şam, 2017). Collaboration and group working also prevails amongst school teachers and a mutual respect exists among teachers who value each other (Bakkal & Radmard, 2020). A positive school climate paves the way for schools to configure its unique system and to achieve the determined goals of the organization (Altuntaş et al., 2020). In other words, a positive climate fosters an inspiring effect on the mission of an organization (Işık, 2020). It also encourages principals, teachers, and other school employees to love their school and to develop a positive perception about the school in which they work (Atik & Güneri, 2016), which, in turn, strengthens the communication among school teachers, principals, students, and students' families (Acarbay, 2006). Moreover, a positive school climate enables schools to be more open to change and innovation (Bodur & Argon, 2019). The contribution of teachers in the formation of a positive school climate is undeniable. Since

the concept of school climate positively affects teachers' motivation, it has a significant impact on their work performance (Şahin & Atbaşı, 2020). A positive school climate is thought to be effective in terms of teachers' satisfaction, sense of trust, expectation, satisfaction, willingness to work, motivation, performance, and productivity. Teachers working in schools with a healthy climate are therefore said to be affected positively, whereas teachers working in schools with an unhealthy climate are affected negatively and as a result their moods are reflected directly in the classroom (Jones, 2011; Karademir & Ören, 2020).

Individual Innovativeness

Innovation can be regarded among the primary skills of the modern age, and can lead to all kinds of development and thereby contribute to the progress of society. As such, innovative individuals are an important facet of any organization (Karakose, 2014; Yaşar, 2020; Yenice & Alpak Tunç, 2019). The concept of individual innovation can be defined as its acceptance, development, and implementation (Yuan & Woodman, 2010), and which emphasizes individuals as being at the core of innovation (Tabak et al., 2010). The association between individuals and innovation depends on their attitude towards innovation. Tuna (2021) stated that individuals are not just observers of innovation, but are also the leaders of innovation, supporting the idea that social renewal depends entirely upon individuals (Gardner, 1990). Individual innovativeness refers to the differences that individuals reflect in terms of innovation, as not all individuals are equally innovative (Kırkiç & Topal, 2019). In this sense, individual innovativeness can be described as an initiative that offers a way of better life to the individual, as well as the change and development of any given situation (Atalay, 2021). Since many developments and changes in today's world affect most if not all areas of an individual's social life, the human profile required in all areas of society is constantly changing. Therefore, there is a need for individuals to both keep up with these changes and innovations, as well as to contribute to them (Kılıç, 2015). Individual innovativeness refers to the situation in which an individual experiences and adopts innovation earlier than others in the society in which they live (Gündüz, 2021). As a whole, the concept of individual innovativeness is defined as the state of individuals' taking risks against all things new, and in their adapting, adopting, being tolerant and being open to the experiences that innovation affords (Yapıcı & Kaya, 2020).

Teachers, who are the cornerstones of the education system, play an important role in the creation, adoption, and implementation of innovation. UNESCO (1996) stated that no reform in education can be successful without the will and active participation of teachers. Therefore, it may be concluded that education is the basis of innovation, and that educated people adopt innovation in a shorter time compared to others. Teachers and students being open to innovation makes it easier for a society to be innovative (Atalay, 2021), and it may be said that innovation in education starts with teachers. Therefore, teachers' individual innovative behaviors are of crucial importance in both education and society in general (Akdeniz, 2020). Teachers' adoption of innovation, their attitudes towards innovation, as well as their abilities, willingness to develop new educational methods and use of educational technologies are essential for innovation to prosper in education (Erden & Erden, 2020). In this context, Fullan and Pomfret (1977) argued that the professional development of teachers and innovation are correlated. The professional development of teachers is very important for innovation in order to realize positive changes in schools (Suharyati, 2017). Also, teachers need to be able to recognize the changes and innovation happening around them and should not be indifferent to those who are sensitive to what is happening. Therefore, one of the most important features of teachers should be their innovation, being open to change and

being able to constantly renew themselves (Çelikten et al., 2005). Since modern education aims to raise qualified individuals who are open to innovation, teachers who carry out this responsibility should also themselves be open to innovation (Yapıcı & Kaya, 2019). Innovative teachers are those who can develop themselves professionally, organize appropriate activities in educational programs, employ new ways and approaches to support active student participation, and implement new skills through habitual change (Messmann & Mulder, 2015; Ritchhart, 2004). In addition, autonomous behaviors can be listed among the characteristics that enable individuals to exhibit innovative behaviors (Othman, 2016).

In short, teachers should possess innovative characteristics in order to increase the quality of the education that they provide. Additionally, it can be said that teachers' innovative characteristics also influence their students as well (Pugahan & Roble, 2018; Yenice & Yavaşoğlu, 2018). A global demand for teacher-led innovation is emerging, and as a result an understanding that supports innovative practices in teacher education is becoming increasingly important (Kahraman, 2020). Accordingly, teachers need to be innovative as part of their key professional roles and competencies. For instance, the use of digital learning environments and the increasing value of distance education activities were highlighted by the COVID-19 pandemic, and which revealed the relationship between teachers' innovative characteristics and their roles and competencies in delivering education within the online environment (Nayci, 2021).

Teacher Autonomy

The concept of teacher autonomy, which is defined as the basic competence and freedom of teachers in the professional field, has been frequently mentioned in recent studies. Professional autonomy refers to individuals' power to make a decision whilst keeping themselves clear of the pressure or control of others. While decision-making in professional matters is usually achieved through professional organizations, this allows its members to control their own work and behavior to a certain extent in the absence of external controlling factors and, thus, achieve a certain degree of autonomy (Buyruk & Akbaş, 2021). Teacher autonomy also includes the expansion of responsibility and continuity of their professional development (Ayril et al., 2014). The concept of teacher autonomy began to attract attention in the 1950s, and has been frequently developed through reforms that have increased teachers' autonomy in England, Belgium, and the Netherlands since the 1960s (Eurydice, 2008). Although teacher autonomy was initially defined in the literature in terms of control, influence, and authority, it has been more recently emphasized as the transformation of school rules into rules determined by the teachers themselves in the classroom according to the teachers' own initiative (Üzüm & Karşlı, 2013). Canbolat (2020) stated that teacher autonomy refers to the situation in which teachers have a certain authority and freedom in issues related to their profession. Teacher autonomy refers to teachers' control in the planning, decision-making, and implementation processes of their professional activities, and in being free to act in these processes (Öztürk, 2012; Sehwat, 2014). However, autonomy does not necessarily mean that they act independently. In contrast, teachers are required to work cooperatively with their students, other teachers, and with the school's administrators, and to make decisions and also take on responsibilities (Bütün, 2020). It can be said that teacher autonomy indicates teachers' having a say in issues such as educational practices, policies, reforms and initiatives, expanding their own powers and responsibilities, and in their active participation in decision-making (Karatay et al., 2020).

Teacher autonomy is a broad concept that extends the jurisdiction of teachers, increases their participation in management and decision-making processes, and increases their role as teachers in determining the nature and structure of education (Eurydice, 2008; Friedman, 1999). In general, teacher autonomy relates to the curricula, teaching methods and techniques, measurement and evaluation processes of student success and behavior, student discipline, classroom environment and the organization of time spent on activities, and the professional development of teachers (Akçay & Sevinç, 2021). In studies on teacher autonomy, different functions of teacher autonomy have been discussed, including, but not limited to, the development of teaching and learning activities, achievement in education, teachers' contributions to the school, use of various teaching methods, and teachers' professional development (Dude, 2012; Karakose, 2021; Şentürken, 2018). Autonomous teachers increase their commitment to the organization in which they work, in addition to revealing their potential (Koçak, 2011; Sparks, 2012). Autonomous teachers are those who are aware of what, why, and how they do things, and are able to transfer this understanding to their colleagues (Castle, 2004). Although teacher autonomy is extremely important in terms of quality in the outcomes of educational systems, i.e., student achievement (Ayril et al., 2014), it may also be positively or negatively affected by teachers' professional competence levels, the structure of the school environment, and also local or national educational policies.

Teacher autonomy has important contributions in the school setup. In schools with limited teacher autonomy, there exists chaos, disorder, and disagreement amongst teachers, students, and administrators. On the other hand, positive student behaviors, employees' commitment to their profession, cooperation, communication, and a sense of solidarity are among the characteristics of good schools in which teacher autonomy is observed. Also, when teachers have higher autonomy in terms of decision-making related to teaching and learning, less problematic behaviors are observed in the student body. Where there is autonomy, cooperation exists between administrators, teachers, and students alike (Bütün, 2020). In addition, in such schools, teachers present greater commitment to their profession and therefore their absence from school is minimized (Ertürk, 2020).

Although some studies in the literature have investigated the relationship between school climate, individual innovativeness, and teacher autonomy, there has been no research published that has examined the effect of teacher autonomy on the relationship between school climate and individual innovativeness. In order to fill this gap in the literature, the current study aimed to investigate whether or not the concept of teacher autonomy has a mediating role in the relationship between the concepts of school climate and individual innovativeness.

3. METHODOLOGY

This quantitative study utilized a relational survey model. Survey model aims to reveal the nature and characteristics of societies, organizations, or events (McMillan & Schumacher, 2014), providing greater understanding of the unique personality of the universe (Johnson & Christensen, 2008). The relational survey model, on the other hand, is used to examine existing relationships between two or more variables, and to obtain clues about these relationships (Büyüköztürk, 2012). In order to generalize the findings of research studies to the wider universe, the relational survey model examines the existence of changes among variables obtained from a sample of the universe. Where a relationship exists among the variables, the degree of the relationship is determined accordingly (Karasar, 2004). Research

conducted using this model provides important contributions to both theorists and practitioners with regards to increasing and understanding knowledge associated with a certain phenomenon (Balci, 2013).

The research model used in the current study is presented as shown in Figure 1. Based on the research model applied, school climate was the independent variable, whilst individual innovation was determined as the dependent variable. In addition, while teacher autonomy was considered as a dependent variable for the testing of Hypothesis 2, it was considered as the independent variable for Hypothesis 3. In the study, each path in the model reveals the cause-effect relationship between the variables.

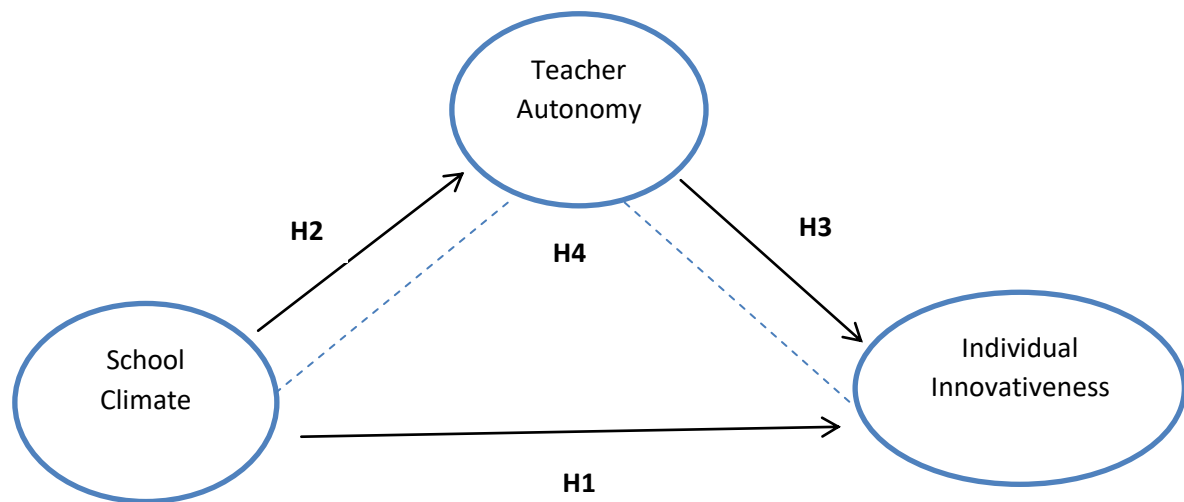


Figure 1. Research model

H1: The school climate level significantly and positively predicts the level of individual innovation.

H2: The school climate level significantly and positively predicts the level of teacher autonomy.

H3: The teacher autonomy level significantly and positively predicts the level of individual innovativeness.

H4: Teacher autonomy mediates the association between school climate and individual innovativeness.

Study Group

The participants of the study consisted of 667 elementary school teachers selected randomly from state schools located in the eastern part of Turkey. Due to missing data, 50 cases were dropped from the analysis, leaving 617 in total that were subjected to analysis. Of the 617 participant teachers, 239 were female and 378 were male, and the vast majority of the participants were married (86.7%). Most of the participants were teachers, whilst 11 served as school principals and three as deputy school principals.

Data Collection Tools

In order to collect the study's data, a demographic information form was designed by the researchers to obtain data with regards to the participants' gender, marital status, age, teaching experience, and work status. In addition, three different scales were administered to the participants; the School climate scale, the Teacher autonomy scale, and the Individual innovativeness scale.

School Climate Scale

The 5-point, Likert-type School climate scale (SCS) was developed by Bilir (2005) and the validity-reliability study of the scale was conducted by Memduhoğlu and Şeker (2010). The SCS has no reverse-coded items and consists of six factors; self-employment (six items, $\alpha = .867$), team spirit and supporting climate (13 items, $\alpha = .948$), stress (five items, $\alpha = .947$), hierarchical and bureaucratic climate (four items, $\alpha = .831$), negative communication and interaction (four items, $\alpha = .854$), and innovative climate (seven items, $\alpha = .864$). The internal consistency coefficient of the whole scale was calculated as .941.

Teacher Autonomy Scale

The Teacher autonomy scale (TAS) was developed by Çolak and Altinkurt (2017) as a 5-point, Likert-type scale consisting of 17 items, and with no reverse-coded items. A higher score from the TAS refers to a higher level of a teacher’s autonomy. The TAS has four factors; teaching process autonomy (six items), curriculum autonomy (five items), professional development autonomy (three items), and vocational communication (three items). The internal consistency coefficient values for the factors were calculated as .82, .82 .85, and .78, respectively. The internal consistency coefficient of the whole scale was calculated as .89. The TAS explains 63.84% of the total variance.

Individual Innovativeness Scale

The Individual innovativeness scale (IIS) was developed by Hurt et al. (1977), and later adapted to the Turkish context by Kılıçer and Odabaşı (2010). In the 5-point, Likert-type IIS, eight items are reverse-coded. The IIS consists of four factors; resistance to change (eight items), opinion leadership (five items), openness to experience (five items), and risk taking (two items). The internal consistency coefficient values for the factors were calculated as .81, .73 .77, and .62, respectively. The internal consistency coefficient of the whole scale was calculated as .89. The IIS explains 52.52% of the total variance.

Data Analysis

The collected data were examined in order to determine whether or not it was appropriate for analysis, with normality tests then conducted to test assumptions of the analysis. In the case of normal distribution, parametric tests were applied, else, non-parametric tests were employed (Tabachnick & Fidell, 2013). In order to determine normal distribution of the data, the central tendency measurements (mean and median), and the skewness and kurtosis values of the total scores obtained from each scale were examined and the values are presented in Table 1.

Table 1. Descriptive Statistics and Normality Test Results of Scales

Scale	N	\bar{X}	Ss	Skewness	Kurtosis
SCS	617	150.47	23.29	-.298	-.610
TAS	617	67.26	10.31	-.380	-.401
IIS	617	73.18	9.22	.194	-.473

Table 1 shows that the skewness and kurtosis coefficients of all three scales used in the current study did not exceed the range of +1 to -1, which is deemed acceptable for parametric testing (George & Mallery, 2010; Tabachnick & Fidell, 2013). In order to address the research questions of the study, simple linear regression analysis was conducted as a parametric test. One of the important assumptions in simple linear regression analysis is to find and remove outliers from the dataset (Pallant, 2015). According to the Mahalanobis

value, there were no outliers found in the dataset of the current study. The correlation results among the three scales are presented in Table 2. The correlations among variables were found to be significant and positive at a moderate level.

Table 2. Intercorrelation Results

	SCS (mean)	IIS (mean)	TAS (mean)
SCS (mean)	-		
IIS (mean)	.31	-	
TAS (mean)	.40	.40	-

$p < .01, N = 617$

The results of the regression analysis showing whether school climate was a significant predictor of individual innovativeness are presented in Table 3. As can be seen, a positive and significant relationship was found to exist between the participants' scores for school climate and individual innovativeness ($R = .306, R^2 = .094, p < .05$). The School climate scale explained approximately 10% of the variance of individual innovativeness. Therefore, Hypothesis 1 was accepted.

Table 3. Regression Analysis of Prediction of Individual Innovativeness

Variable	B	Standard error B	β	t	p	Partial r	Part r
Constant	54.941	2.314	-	23.745	.000	-	-
SCS	.121	.015	.306	7.977	.000	.306	.306

$R = .306, R^2 = .094, F(3-616) = 63.638, p = .000$

Regression analysis was conducted in order to determine whether school climate was found to be a significant predictor of teacher autonomy. In the results presented in Table 4, a positive and significant relationship was revealed between school climate and teacher autonomy ($R = .399, R^2 = .159, p < .05$). The School climate scale predicted 16% of the variance of teachers' autonomy. Thus, Hypothesis 2 was accepted.

Table 4. Regression Analysis of Prediction of Teacher Autonomy

Variable	B	Standard error B	β	t	p	Partial r	Part r
Constant	40.670	2.491	-	16.325	.000	-	-
SCS	.177	.016	.399	10.801	.000	.399	.399

$R = .399, R^2 = .159, F(3-616) = 116.659, p = .000$

The results of the regression analysis to test whether teacher autonomy significantly predicted individual innovativeness is shown in Table 5. As can be seen, a positive and significant relationship was found between the scores for teacher autonomy and individual innovativeness ($R = .339, R^2 = .115, p < .05$). The Teacher autonomy scale predicted approximately 12% of the variance of individual innovativeness. Therefore, Hypothesis 3 was accepted.

Table 5. Regression Analysis of Prediction of Individual Innovativeness

Variable	B	Standard error B	β	t	p	Partial r	Part r
Constant	52.771	2.309	-	22.857	.000	-	-
TAS	.303	.034	.339	8.943	.000	.339	.339

$R = .339, R^2 = .115, F(3-616) = 79.984, p = .000$

Testing the Research Model

Mediation analysis was conducted in order to measure the direct effect of school climate on teachers’ individual innovativeness and the indirect and total effect of school climate on teachers’ autonomy. The mediating effect of the school climate and teacher autonomy variables was tested using PROCESS macro that is compatible with IBM’s SPSS and which was developed by Hayes (2013). The PROCESS macro tests the entire model and the indirect (mediation) effect of the mediating variable (Edwards & Lamberts, 2007). The reason for using the PROCESS macro in mediation analysis is that it simplifies the analysis by providing the coefficients of direct and indirect effects in a single process, without need for the three-step regression method proposed by Baron and Keny (1986). Figure 2 depicts the mediating role of teacher autonomy in the relationship between school climate and individual innovativeness, and the PROCESS regression results of the model are presented in Table 6.

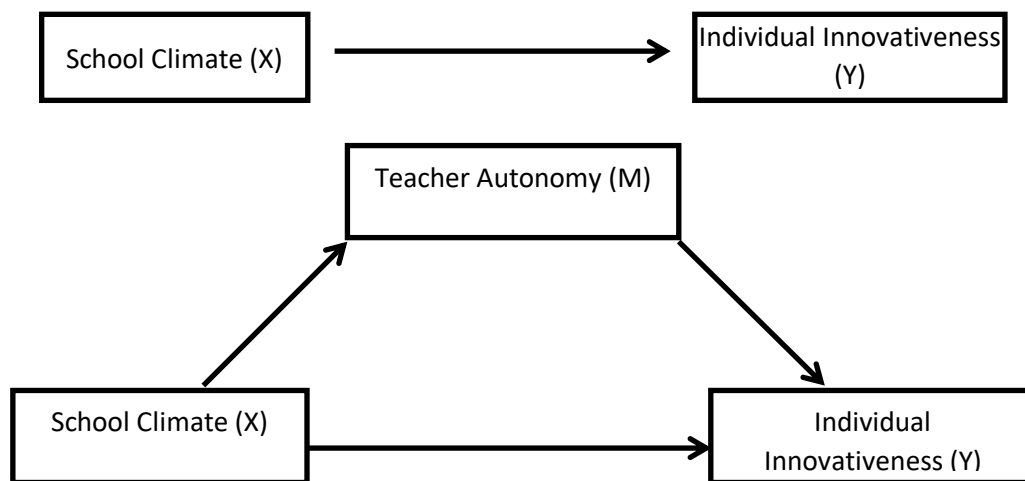


Figure 2. Mediation Model Diagram

Table 6. Results of PROCESS Regression Analysis

a	B = .18	t(615) = 10.80	p = .000
b	B = .23	t(614) = 6.36	p = .000
c'	B = .08	t(614) = 5.00	p = .000
c	B = .12	t(615) = 7.98	p = .000
Indirect effect	B = .04	SE = 0.02	95% CI [.026; .058]

The findings demonstrate that the coefficient (c), which belonged to the path from school climate to individual innovativeness, was calculated as .12 ($p < .001$). However, when the teacher autonomy variable was added to the model, the coefficient decreased to .08 ($p < .001$) (c'). Despite the decrease, the result was still significant which proved the mediating effect of teacher autonomy in the model in line with the statement of Baron and Keny (1986).

The coefficient (a) of the path from school climate to teacher autonomy was found to be .18 ($p = .000$). In other words, a one-unit increase in school climate scores caused an increase of .18 units in terms of the teacher autonomy scores. In addition, the coefficient (b) of the

path from teacher autonomy to individual innovativeness was found to be .23, which indicated that a one-unit increase in teacher autonomy scores resulted in an increase of .23 in individual innovativeness scores. The multiplication of these two values, which may also be obtained directly from the PROCESS output, provided the indirect effect value. This value was calculated as .04 ($a*b$ or $c-c'$). Since the lower confidence interval (.026) and the upper confidence interval (.058) did not include the value of 0 (zero), the effect was considered as significant.

According to Reutter and Bigatti (2014), the Sobel test should be performed in order to measure the significance of the mediator variable's effect size. The Sobel test is calculated using the regression coefficient (β) and standard error values of the variables (Sobel, 1982). In the Sobel test, the significance Z score coefficient should be greater than 1.93, whilst the p value should be significant (Frazier et al., 2004). The Sobel test results presented in Table 7 reveal that the mediation effect of teacher autonomy was significant at the $p = .00$ level. Also, the Z value was 6.93998. Therefore, Hypothesis 4 was accepted.

Table 7. Sobel Test Results

Values of variables	Z value	Standard error	p
$a = 0.177$			
$b = 0.303$	6.93998	0.0077	.00
$S(a) = 0.016$			
$S(b) = 0.034$			

4. RESULTS

The current study investigated the mediation effect of teacher autonomy on the relationship between school climate and individual innovativeness. Correlation analysis was conducted to examine the relationships among the concepts of school climate, teacher autonomy, and individual innovativeness. The results revealed that positive, moderate, and significant relationships exist among the three variables. In other words, as the level of school climate and teacher autonomy increased, teachers' individual innovativeness level increased.

Simple linear regression analysis was then used to determine whether or not the school climate variable was a significant predictor of teacher autonomy. In the regression analysis, it was determined that a positive and significant relationship exists between the variables of school climate and teacher autonomy, and that school climate predicted 16% of the variance of teacher autonomy.

A significant and positive relationship was found to exist between teacher autonomy and individual innovativeness. Specifically, teacher autonomy was shown to predict 12% of variance for the individual innovativeness variable.

Finally, simple linear regression analysis was used to determine whether or not the school climate variable was a significant predictor of individual innovativeness. A positive and significant relationship was found to exist between the school climate and individual innovativeness variables, and that the school climate variable predicted 10% of individual innovation.

Mediation analysis was conducted in the study so as to measure the direct effect of school climate on teachers' individual innovativeness, as well as the indirect and total effect

of school climate on teachers' autonomy. The mediation effect was tested using the PROCESS macro. Accordingly, the coefficient of the independent variable of school climate on the dependent variable of individual innovativeness was determined. When teacher autonomy, as the mediating variable, was introduced to the model, it was observed that the effect coefficient of school climate on the concept of individual innovativeness decreased, although it remained statistically significant. Therefore, it can be argued that teacher autonomy has a mediating role in the relationship between school climate and individual innovativeness. In addition, the Sobel test was performed to measure the significance of the effect of the mediating variable, and it was concluded that the Z value, which was the mediator effect value in the test, was at the desired level and that it was significant.

5. DISCUSSION

In the literature, although there has been no prior research that has combined the three variables examined in the current study, prior research has reported having established a positive relationship between organizational climate and individual innovativeness (Amabile, 1988; Ekvall, 1996; Kanter, 1988), and between teacher autonomy and individual innovativeness (Day et al., 2008; Pratoom & Savatsomboon, 2012; Uras, 2000; Wu et al., 2011). As such, the relationship between school climate and individual innovativeness, and between individual innovativeness and teacher autonomy suggests that a relationship exists among these three variables.

Although many existing studies have focused on school climate and teacher autonomy, only one study has been conducted in Turkey to date. Overall, the findings of the current study parallel those found in the literature (Blömeke & Klein, 2013; Bogler, 2001; Çolak & Altinkurt, 2017; Garvin, 2007; Karakose, Yirci, Uygun, Özdemir, 2016; Sparks, 2012; Strong & Yoshida, 2014; Usma Wilches, 2007). Accordingly, it is concluded that a supportive and reassuring environment in schools positively affects teachers' autonomy, which thereby encourages teachers to find solutions to problems with their colleagues and to employ new ideas in their teaching practices. This positive school environment is only possible, however, through the joint efforts and cooperation of school principals and teachers.

The results of the current study are consistent with the findings of studies conducted by Zainal and Matore (2019) and Baharuddin et al. (2019). Teacher autonomy, which is a prerequisite for the proper fulfillment of the duties and responsibilities of teachers while providing sufficient authority and freedom in their professional activities, has been shown to have a positive effect on teachers' individual innovativeness, which is defined as being willing to adopt innovations and exhibit a positive attitude towards them. In order to increase their individual innovativeness levels, teachers should be provided with sufficient autonomy in their teaching and learning activities, which, in turn, increases the quality of the education that they provide.

The fact that the realization of educational objectives depends on the continuous professional development of teachers (Karakose, Kocabas, Yesilyurt, 2014; Murat et al., 2006; Özkan & Arslantaş, 2013; Yaylacı, 2013) increases the importance of teachers' innovativeness. Teachers' continuous professional development, the ability to quickly adapt to changes in the field of education (Fullan & Pomfret, 1977), and meeting the social needs of education (Hargreaves, 1999) are each closely related to individual innovativeness in teachers. Similarly, teachers' openness to learning (Banoğlu, 2009; Eryılmaz, 2013; Özdemir et al., 2010; Yirci et al., 2016), continuing their professional development (Çolak & Altinkurt, 2017; Korkmaz,

2008), and being open to innovation (Ayık & Ada, 2009; Özan et al., 2015) are each important determinants of the school climate. A positive and moderate relationship between school climate and individual innovativeness, as revealed in the current study, also supports the findings of the research conducted by Amabile et al. (1996).

6. CONCLUSION

The aim of the current study was to examine the mediation role of teacher autonomy in the relationship between school climate and individual innovativeness on the basis of primary school teachers' perceptions. In total, 617 teachers (239 female, 378 male) took part in the study. The data were collected through the application of three different scales; the School climate scale, the Teacher autonomy scale, and the Individual innovativeness scale. To analyze the collected data, regression and correlation analyses were conducted. In addition, Bootstrap analysis was performed using IBM's SPSS v.24.0 (Hayes, 2013), with PROCESS Macro 3 and "Simple Mediation Model 4" used to investigate the significance of the mediation effect. The findings of the current study revealed a positive, moderate, and significant relationship among school climate, individual innovativeness, and teacher autonomy. Bootstrap analysis showed that teacher autonomy had a significant mediating effect in the relationship between school climate and individual innovativeness. Lastly, the Sobel test proved the significant mediating effect of teacher autonomy in that the obtained Z value was found to be at the desired level. Since this was the first study to examine the mediation effect of teacher autonomy in the relationship between teacher innovativeness and school climate, further research is now also needed with different samples in order to verify the findings of the current study.

7. SUGGESTIONS

Based on the findings of the current study, certain recommendations can be put forward for both policymakers and researchers. First, arrangements should be made to integrate the concept of teacher autonomy, which is necessary for the provision of quality education, into the Turkish national education system. Second, educational policies, in which the concepts of teacher autonomy and individual innovation are prioritized, should be based on a participatory approach. Third, the concept of school climate has been shown to affect and be affected by the relationship between teachers and school administrators. Such an important concept should be developed in line with the objectives set in education. Fourth, the current study focused on the mediating role of teacher autonomy in the relationship between school climate and individual innovativeness. The mediating role should also be examined using other variables that may affect this relationship. Fifth, a multiple mediation analysis could be conducted by adding different mediating variables to the current research model. Finally, the current study was designed as a quantitative form of research; thus, a more detailed examination could be conducted with the addition of qualitative research techniques.

DECLARATIONS

Author contributions: N.Ç. and T.Y.Ö. contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the manuscript. Both of the authors read and approved the final published version of the article.

Conflicts of interest: The author declares no conflict of interest.

Funding: None.

Ethical approval: The study was conducted in accordance with the ethical guidelines for research. Required permissions were obtained from the relevant Social and Human Sciences Research Ethics Committee (dated 04/07/2018; number 271525).

Data availability statement: Informed consent was obtained from the study's participants.

Acknowledgments: None.

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ABOUT THE CONTRIBUTORS

Tuncay Yavuz Ozdemir, PhD, is Associate Professor of Educational Administration in Firat University: Elazığ, TR. His main research interests include educational administration, leadership, educational leadership, and mentoring and research methods. He has published extensively in leading international journals and also authored books and chapters.

Email: tyozdemir@firat.edu.tr

ORCID ID: <https://orcid.org/0000-0002-5361-7261>

Neslihan Çakalci is a PhD student in educational administration. At the same time, as a teacher, she serves as a classroom teacher in a primary school affiliated to the Turkish Ministry of National Education.

Email: nesli007_@hotmail.com

ORCID ID: <https://orcid.org/0000-0003-3498-7651>

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