



## Relationship between organizational culture and school performance. A study in elementary, middle and high school institutions

### Relación entre la cultura organizacional y el rendimiento escolar. Un estudio en instituciones de primaria, media y bachillerato

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#### Abstract

**Purpose:** This study aims to analyze the impact of organizational culture, cultural types, and cultural strength on school effectiveness, as the literature has demonstrated that social processes within schools influence academic outcomes. Prior research highlights the significance of culture in school effectiveness. However, this topic has not been extensively explored, necessitating a closer examination of various organizational cultures and the strength of these cultures. **Method:** These relationships were investigated using the population of schools in the Colombian coffee region. A total of 698 instructors, along with school boards from 25 educational institutions at the primary, middle, and high school levels, were involved. A regression analysis was conducted to test the hypotheses. **Results:** The findings suggest that organizational culture and cultural strength have a significant influence on school effectiveness, with the levels of cultural strength corresponding to the levels of school effectiveness. However, no evidence was found of differences in impact based on cultural typology. Clan and hierarchical cultures, which have an internal orientation and are the most prevalent in Colombian organizations, exhibited a greater number of positive and significant relationships. **Conclusions:** School boards should familiarize themselves with the norms, values, and customs prevalent in educational institutions, particularly those that align most closely with their objectives. This can lead to improvements in school effectiveness and, consequently, educational quality.

**Keywords:** Cultural strength; Cultural typologies; Organizational culture; School culture; School effectiveness.

**JEL classification:** M14

#### Resumen

**Propósito:** Este estudio tiene como objetivo analizar el impacto de la cultura organizacional, los tipos culturales y la fuerza cultural en la efectividad escolar, ya que la literatura ha demostrado que los procesos sociales dentro de las escuelas influyen en los resultados académicos. La investigación previa destaca la importancia de la cultura en la efectividad escolar. Sin embargo, este tema no ha sido explorado en profundidad y requiere un examen más detenido de diversas culturas organizacionales y la fortaleza de estas culturas. **Método:** Estas relaciones se investigaron utilizando la población de escuelas en la región cafetera de Colombia. Un total de 698 instructores, junto con los consejos escolares de 25 instituciones educativas en los niveles de primaria, secundaria y bachillerato, participaron en el estudio. Se llevó a cabo un análisis de regresión para probar las hipótesis. **Resultados:** Los hallazgos sugieren que la cultura organizacional y la fuerza cultural tienen un impacto significativo en la efectividad escolar, y los niveles de fuerza cultural se corresponden con los niveles de efectividad escolar. Sin embargo, no se encontró evidencia de diferencias en el impacto según el tipo cultural. Las culturas de clan y jerárquicas, que tienen una orientación interna y son las más predominantes en las organizaciones colombianas, presentaron un mayor número de relaciones positivas y significativas. **Conclusiones:** Los consejos escolares deben familiarizarse con las normas, valores y costumbres predominantes en las instituciones educativas, especialmente aquellos que se alinean más estrechamente con sus objetivos. Esto puede llevar a mejoras en la efectividad escolar y, en consecuencia, en la calidad educativa.

**Palabras clave:** Fuerza cultural; Tipologías culturales; Cultura organizacional; Cultura escolar; Efectividad escolar.

**Clasificación JEL:** M14

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## Introduction

According to the [McKinsey report \(2007\)](#) a country's ability to develop in the global economy increasingly depends on confronting the growing demand for high levels of knowledge, which simultaneously require significant improvements in school results and a more equitable distribution of learning opportunities ([Barber & Mourshed, 2007](#)). For this, school effectiveness must be addressed, along with the factors that determine it. The literature on organizational effectiveness has studied different determining factors, one of which is organizational culture ([Lee & Louis, 2019](#)). In accordance with [Denison et al. \(2014\)](#), when evaluating organizational culture, one may visualize ways to empower and engage people, facilitate coordinated actions, and promote behavior consistent with central values, triggering a clear sense of purpose and direction, which characterizes the importance of culture and its impact on organizational effectiveness. According to [Hopson et al. \(2014\)](#), social processes within the school influence academic outcomes. Thus, organizational culture may or may not favor school effectiveness, depending on the values it promotes.

While the study of culture as a determining factor for effectiveness in the context of educational institutions has been addressed in other investigations, it has been undertaken within the framework of institutions of higher education ([Cameron & Freeman, 1985](#); [Smart & St. John, 1996](#)), and the few that have focused on primary and secondary school study the relationship from other perspectives. Some studies study culture based on one of its components, e.g., leadership ([De Faría, 2011](#)); others have studied culture as a measure of the relationship between leadership and school performance ([Gong & Subramanian 2020](#); [Tonich, 2021](#)). For their part, [Nehez & Blossing \(2022\)](#) and [Ekosusilo \(2020\)](#) have focused, among other aspects, on the impact of school culture on the principal's performance. Finally, works such as [Trigo & Del Buey \(2003\)](#) base their study on the Construction and Validity Process of an Inventory of Organizational Culture in Education (ICOE). In general, these investigations do not approach it from the analysis of cultural typologies. Additionally, previous research has been performed mainly in the United States and Europe, and there is a dearth of studies that consider the relationship between culture and school effectiveness in Latin American countries.

This investigation is framed within the above context. Its objective is to look more deeply into the relationship between culture and school effectiveness, identifying the ways in which culture, its different forms, and cultural strength influence school effectiveness. Accordingly, this study is structured as follows: firstly, the theoretical and empirical literature which studies the relationship between school culture and school effectiveness is reviewed, and investigative hypotheses are formulated based on said review. These hypotheses are contrasted in a population of 25 educational institutions from an intermediate Colombian city, by way of a regression analysis. Finally, research conclusions are presented.

## Theoretical framework

### Culture and organizational effectiveness: global context

The complexity of culture and the subsequent tensions generated due to it have been considered in previous investigations (Torres, 1997, 2004, 2007), which describe two antagonistic but complementary movements. On the one hand, culture has been considered based on its results, including effectiveness, leadership and competitiveness. On the other hand, there is a trend aimed at understanding the processes for building organizational cultures.

In this present research, the first perspective is adopted. This investigation employs Schein (2004) definition of organizational culture as "a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." (p.17). Organizational culture determines, among many other aspects, the way in which organizations differentiate themselves, orient conduct toward achieving goals, develop a sense of identity, adapt to the environment, develop processes for innovation, address learning processes and change, and unite their internal social system, thus determining the nature of the organization itself and the way in which those within it interact (Hofstede, 1983).

Culture has been studied in relation to diverse variables and organizational categories. Authors such as Naranjo et al. (2017) demonstrate that different cultural typologies present different effects which favor or affect innovation; Calderón & Serna (2009) highlight relationships between culture and human resource practices; Espin et al., (2014) relate culture to quality; Shengnan et al. (2021) to leadership; Lau et al. (2017) to organizational learning; Zheng et al. (2010) with knowledge management, and Zeb et al. (2021) to performance. The topic of this article, the relationship between culture and organizational effectiveness, which has been studied by researchers in diverse contexts (Quinn & Rohrbaugh, 1983; Calderón et al., 2010; Naranjo et al., 2016; Mousavi et al., 2015; Nikpour, 2017; Beno, 2021; Duan et al., 2018), is of special interest.

### School culture

Research on school culture has been developed from various perspectives (Leithwood & Sun, 2018). For example, there is evidence of a trend focused on school effectiveness (Teddlie & Stringfield, 2007), another focused on its contribution to collaborative work standards, and one more, on its role in building safe school environments. This study focuses on the first trend and is approached using the criterion of school effectiveness, which is the term used by the Ministry of Education.

Culture in educational institutions can be defined as a persistent pattern of norms, values, practices, beliefs, and assumptions that shape the behavior of individuals and groups in a college or university and provide a frame of reference within which to interpret the meaning of events and actions both on and off campus (Roffeei et al., 2016).

The concept of school culture, especially after the 1980s, has been adapted to define the comprehensive character of the concept of organizational culture in educational institutions (Walker-Wied, 2005; Kalkan et al., 2020). School culture is simultaneously a consequence and a manifestation of the interactions between individuals and internal groups and their external environment (Susan & Ruth, 2015; Sobri et al., 2019), like the open social system that is school. It is modeled through interaction with parents, the local community, and the educational system (Hampden-Thompson & Galindo, 2017). Likewise, on a classroom level, students interact among themselves, with the class and with the teacher, to produce a culture of learning. This group of interactions and their perceptions, together with beliefs, attitudes, and values, govern behavioral norms, and consequently, members of the educational community (Cavanagh, 1998; Lee et al., 2017).

School culture is a very important factor that determines the perception of the school and the behavior patterns of all partners, especially teachers and students, in which shared leadership style comes into play. Therefore, school culture is a phenomenon that affects the quality of human relationships in educational organizations and is also affected by the quality of these relationships (Kalkan et al., 2020). Culture identifies students and parents with the school. They feel a connection between their behavior, institutional values, objectives, goals, and processes, which if continually strengthened, generates benefits for students and their families as well as for collaborators, instructors, administrators, and directors in general. Culture in schools makes the achievement of institutional processes possible and clarifies understanding of the direction in which it is headed, what its long-term objectives are, development of strategic approaches that clarify the teaching-learning concept, what teaching and learning involve, and how to implement this process.

Schools, which are of interest in this investigation, have personalities, which may be shown to be rigid or flexible, innovative, or conservative, participatory or individual, depending on the case, thus outlining a specific personality, which is often reflected in institutional philosophies. These philosophies, as well as the values, beliefs, and assumptions that form the basis of culture, tend to be expressed in each institutional objective, which also guide the actions of the entire educational community in the attainment of goals, achievements, and in this case, in its relationship to school effectiveness. School culture influences teacher productivity and satisfaction (Maranto et al., 2010; Balkar, 2015). Having employees who relate to practices and behaviors seen at school improves working conditions, and thus professional performance, helping to

better understand the needs of the educational institution itself. Cavanagh (1998) affirms that the shared beliefs, attitudes, and values that characterize school culture are also responsible for the development and maintenance thereof, a factor which determines the performance achieved by schools.

In the literature, diverse school culture models were found (Maxwell & Thomas, 1991; Hargreaves, 1995; Cavanagh, 1997; Schoen, 2008). However, in this research paper, Cameron & Quinn's (2011) cultural model was used. Although it is a general model for any type of organization, it uses nearly all the aspects found in other cultural models. Additionally, it lends reliability and validity to the study, given its extensive use by investigators for different types of organizations.

### **School effectiveness**

School effectiveness may be considered from various perspectives. Internationally, the most widely recognized program is the PISA (Programme for International Student Assessment) test, from the Organization for Economic Cooperation and Development (OECD) (Barber & Mourshed, 2007). Other works refer to it as a school ranking that allows comparative international evaluations (Torres, 2019; Torres, 2023).

In the colombian context in which this study was carried out, the entity responsible for education (Ministry of Education) constructed the Synthetic Index of Educational Quality (abbreviated ISCE in Spanish). This is an annual report on the performance of public and private Colombian schools, on a scale of one to ten, with ten being the highest attainable value.

The index involves four components that, when added together, reveal the total index score: progress—school improvement, as compared to the prior year; achievement—students' average score on the mathematics and language portions of the Saber test; efficiency—the proportion of students who pass their current grade; and educational environment—conditions appropriate for classroom learning. This index was utilized as a measurement of school effectiveness in the present study. The first two components are based on the SABER TEST, exams which are given to students in third and fifth grades in primary school, in ninth grade in middle school, and in eleventh grade in high school. The third component is obtained from SIMAT (Integrated Enrollment System), and the final component comes from a questionnaire about context.

### **Culture and School effectiveness**

School organizational culture, according to Peterson & Deal (1998), is evident in the customs, rituals, symbols, stories, and artifacts which are seen in the way in which people interact on joint projects. Process management, the influence of the physical environment, and the student learning and educational community focus in general, strengthen effective cultures, which, in turn, greatly affect school performance.

Cavanagh & Dellar (1997) identify nine factors that reflect school culture values and norms, influencing school effectiveness. These include high expectations, a strong academic emphasis, a shared vision/goal, clear leadership, a team with significant management capacity, consistency of approach, quality instruction, a student-centered focus, and parent participation and support. Similarly, for Stoll (1998), an in-depth understanding of school culture and the different meanings and interpretations of the work performed at school is required, in order to determine the shared values, backed by norms, that promote sustainable school performance. For Cavanagh (2003), school effectiveness and sustainable improvement require study of a culture, its beliefs, values, attitudes, and behavior in relation to student learning, so as to then be able to identify the cultural aspects which lead to better results, in addition to school improvement.

Creemmers (2002) relates school effectiveness to school culture, as an important factor that should not be overlooked. Schools, according to this author, should share objectives and feel responsible for the performance achieved, show cohesion, risk assumption, mutual respect, support, openness, and a continuous learning attitude. On an organizational level, a consistent and constant culture that generates cohesion and determines rules, policies, and agreements should be formed. This should be supervised and controlled at that level, to integrate a model for school performance.

School culture is considered to have positive impacts on students, teachers, principals, and in turn the school's system in general. Previous literature indicates that school culture is among the most important factors in explaining students' academic achievements (Karadag et al., 2014; Bektas, 2015; Leitwood & Sun, 2018). For their part, Ismail et al. (2022) indicate that when people in an organization work together, sharing common values and traditions, it affects how they work together, i.e., the quality of school culture directly affects how teachers and administrators work in providing students with learning opportunities. With respect to principals, Nehez & Blossing (2022) state that practices in school culture have an important impact on the outcome of school principals' improvement efforts and also note that school cultures and their adherent practices are identified as playing a decisive role in teachers' professional learning and teaching patterns. Additionally, Dimmock et al. (2021) point out that the effective implementation of education reforms requires, among other conditions, a collaborative school culture that is underpinned by shared goals, mutual trust, and an academic focus.

Similarly, Derwoska (2017) indicates that building a positive school climate means creating conditions in which both teachers and students can work and learn effectively, or in other words, feel supported, safe, motivated, satisfied with their outcomes, and ready to contribute to school improvement. Likewise, United Nations Educational, Scientific and Cultural Organization (UNESCO, 2013) points out that positive school climate is key for the promotion of student learning, as well as for the obtention of high performance on external tests.

According to Atorresi (2006), it is affirmed that internal school conditions that reveal a positive school environment influence student performance.

This prompts the formulation of this study's first hypothesis:

**H1:** Organizational culture influences school effectiveness

The specialized literature allows us to establish relationships between cultural typologies and school effectiveness. Clan culture promotes teamwork, participation, cohesion, morale, commitment, and loyalty (Cameron & Quinn, 2011). Peterson & Deal (1998) relate positive school cultures to personnel who share a sense of belonging and commitment, where informal work provides a network of social information that lends importance to helping with student learning. According to Cheng (1993), the difference in organizational culture is reflected on at least three clear levels: the organizational level, in terms of school board leadership behavior, organizational formalization and participation, and teachers' social norms. On the attitudinal level, this is reflected in teachers with organizational commitment, social job satisfaction, intrinsic job satisfaction and influence job satisfaction. Finally, on the level of school effectiveness, this is seen in the general perception of the organization and academic achievements. All of these values are present in clan culture.

Cameron and Freeman (1985) conclude, from their study carried out in institutions of higher education, that the effectiveness of these institutions is closely related to an internal approach and the existing clan culture. Stoll & Fink (1996) relate school effectiveness to shared goals, collaborative learning, teamwork, support, and celebration. These are closely related to clan-type cultures. Adhocracy culture in an organization is focused on flexible interaction with the external environment. Such an organization is characterized as a dynamic, creative workplace, in which the entrepreneurial spirit and individual results are especially encouraged. Employees tend to take initiative and risks, and independence and freedom are highly valued. Leaders are innovators and pioneers and are respected for their creativity (Cameron & Quinn, 2011). In Bosker & Scheerens (1994) contribution on the subject of school effectiveness, on an organizational level, the following are considered to be important criteria: the capacity for adaptation to external circumstances or changes, addressing factors like organizational continuity in regard to stability and resource acquisition, and commitment and satisfaction of organizational members, interpreted as favorable conditions for school effectiveness.

The adaptability and continuity of the school organization, commitment, and member satisfaction are factors which, according to the authors, stimulate the organization and its members, and as such, possess a cultural profile that favors school effectiveness. Elements such as autonomy, innovation, and visionary

and idealistic leadership are components of school culture related to adhocracy culture, which favors performance (Peterson & Deal, 1998). For Cavanagh (1997), transformational leadership, in which leaders share power and facilitate process implementation, with instructors empowered in their professional performance by way of their own methodologies, and which is focused on professional growth and student performance improvement, is related to adhocracy culture, in which independence, creativity, and external focus—in this case directed toward student learning—are related to improved school performance. Stoll & Flink (1998) relate certain norms, such as openness and risk taking, to factors which favor school performance.

Market culture emphasizes efficiency and goal achievement. It is principally concerned with the external environment, as it focuses on transactions with providers, clients, contractors, dealers, syndicates, regulators, etc. Management of quality work is prioritized, and the goal is to succeed, given that a positive image and success are its principal interests (Cameron & Quinn, 2011).

Hierarchy culture may be identified by its adherence to rules, the system, and procedures. It is defined by a stable environment, in which duties and functions may be integrated and coordinated, uniformity in products and services is maintained, and workers and workstations are under control (Cameron & Quinn, 2011). Hierarchy culture in the school environment does not provide enough flexibility, which makes the advancement of institutional processes difficult. One must adhere to a series of special programs, guidelines, and instructions that require a certain amount of autonomy for all members of the organization, including teachers in the classroom. For Hargreaves (1995), the traditional school of hierarchy, with high levels of social control, pressure, and isolation, demonstrates the cultural profile of ineffective schools. According to Cheong (2000), some school cultural profiles may be characterized as quite strong in terms of professional orientation, social relationships, team responsibility, and universalism, but quite weak in terms of innovation and flexibility.

As a consequence of this evidence, a second hypothesis is proposed:

**H2:** The influence of different cultural typologies on effectiveness varies, in accordance with cultural typology. Specifically:

**H2.1** Clan, adhocracy, and market cultures positively influence school effectiveness.

**H2.1** Hierarchy culture negatively influences school effectiveness.

Cultural strength, in investigations carried out by various authors (Cameron & Freeman, 1991; Calderón & Serna, 2009; Lee & Louis, 2019), reveals that strong cultures are coherently associated, thus defining a clear focus and high performance levels in environments where unity and a common vision are crucial factors in the challenges that the organizations tend to face. Additionally, diverse empirical studies maintain the importance of cultural strength for organizational effectiveness. Denison (1990) and Gordon & DiTomaso

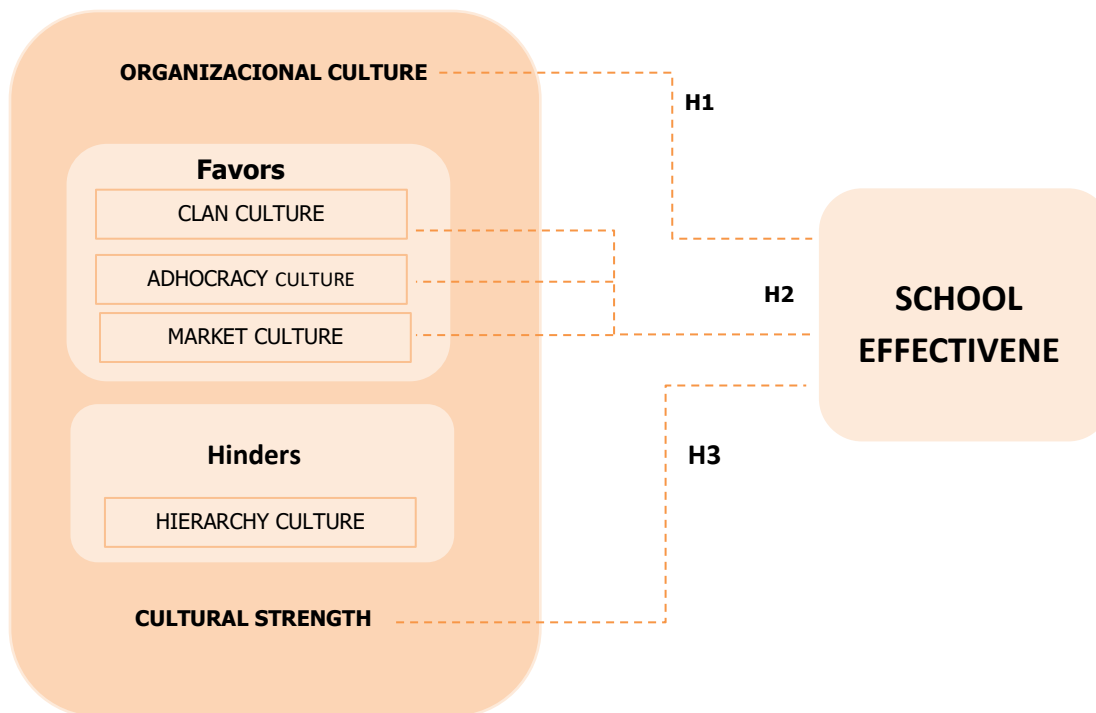


(1992) obtain positive relationships between strength and effectiveness. Much popular and scholarly attention has been focused on the hypothesis that strong cultures enhance school effectiveness (Bipath & Adeyemo, 2014; Lee & Louis, 2019; Lubis & Hanun, 2019). A strong culture could support high ethical standards (Wahyuningsih, 2019) and also to be related to performance due to its ability to adapt to changing environmental conditions (Lubis & Hanun, 2019). For Cheng (1993), the organizational profile of schools with strong, effective cultures contrasts with and is distinct from schools with cultures that are perceived to be weak and ineffective.

The third and final hypothesis is formulated upon this basis:

**H3:** School effectiveness varies significantly, based on its level of cultural strength

Figure 1. *Theoretical Model*



## Method

### Population and sample

The target population is the educational institutions of the Colombian coffee region, a region located in the center-west of the Colombian Andes and made up of three provinces: Armenia, Manizales and Pereira. The study was carried out in Pereira Province. This province is the most populated in the coffee region, and

its central location within the coffee region situates it within the national and international economic panorama, being linked by road with the three most important urban centers in the country.

According to government information sources, there are 25 institutions including primary, middle, and high school educational levels, and these were selected. Of these, 19 are public and 6 are private; 19 are in the urban area, and 6 are in rural areas. To identify their culture, a survey was administered to school boards and teachers. All 25 institutions returned the completed forms with over 60% of directors and teachers surveyed. A total of 732 questionnaires was received, 34 of which were incorrectly filled out, leaving 698 valid questionnaires. The data collection period was three months.

### Measurement of variables

**Organizational culture.** The measure of organizational culture is based on the Organizational Culture Assessment Instrument (OCAI) developed by Cameron & Quinn (1999; 2011). This model was adopted because it integrates six dimensions that are key within the organizational culture: prevailing organizational values, associated strategic priorities in each type of culture, capturing the atmosphere in the organization, leadership style, criteria of success, and strategic emphases of the organization. This fact is probably related to the fact that the model was formulated in relation to the search for the conditions of organizational effectiveness (Mikušová et al., 2023).

Following the OCAI methodology, we include 24 items in the questionnaire organized into six parts (corresponding to the six dimensions used) with four descriptions in each part. The four descriptions matched the definitions for each of the four culture types of the Cameron & Quinn model: adhocracy, clan, market and hierarchy.

This measure has been used in multiples research studies on organizational culture (Quinn & Spreitzer, 1991; Büschgens et al., 2013; Naranjo et al., 2019; Gong et al., 2022) and in recent works that evaluate school culture in high school (Mikušová et al., 2023), in higher education (Dębski et al., 2020; Cieciora et al., 2021) or in vocational school (Voprosy, 2020).

**Cultural strength.** Criteria from previous investigations (Calderón & Serna, 2009; Cameron & Fremman, 1991) that express the sum of different cultural typologies as follows were used: cultural strength = clan culture + adhocracy culture + market culture + hierarchy culture.

**School effectiveness.** The Synthetic Index for Educational Quality (previously described) was used as the school effectiveness variable. This index provides a performance report for institutions at the primary, middle, and high school levels, evaluating results from 2016. This index uses a scale from 1 to 10, with 10 being the highest obtainable value.

## Statistical analysis

The processing and analysis of the data was carried out using a hierarchical regression analysis. To establish whether the hypotheses are met, the change in the explained variance is examined when moving from the model that contains only the control variables to the complete model. Significant changes in the adjusted R2 provide support for the hypotheses when the regression coefficient (b) of the independent variables is significant and has the predicted sign. SPSS software version 22 was used.

## Findings

Prior to conducting hypothesis tests, a bivariate correlation analysis was carried out between each dependent and independent variable. Correlation coefficients between the different cultural typologies and school effectiveness at the primary, middle, and high school levels present values between 0.447 and 0.654. It should be noted that the highest correlations on the different levels occur in the presence of cultural typologies Clan and Adhocracy, for the level of high school education.

Concerning the hypothesis tests, in the first, the influence of organizational culture on school effectiveness on the primary, middle, and high school levels was studied. Linear regression models were estimated, and the Synthetic Index for Educational Quality was used as a dependent variable. The independent variable was organizational culture, which was approached by adding all cultural typologies. The location of the institution was used as a control variable. The regressions estimated at the three educational levels (primary, middle, and high school) show that the coefficients of organizational culture are statistically significant at 1%. The beta sign indicates a positive relationship: the greater the cultural strength, the better the effectiveness. These results support Hypothesis H1, that organizational culture influences school effectiveness (Table 1).

Table 1. *Impact of culture on school effectiveness*

	Primary			Middle			High		
	B	Sig	FIV	B	Sig	FIV	B	Sig	FIV
<b>Constant</b>	-0.21			-1.84			-1.99		
<b>Location</b>	1.652	0.006	1.006	1.791	0.004	1.006	1.853	0.001	1.006
<b>Culture</b>	0.402	0.002	1.006	0.478	0.001	1.006	0.558	0.000	1.006
<b>R2</b>	48.70%			52.20%			64.40%		
<b>F test</b>	0.001			0.000			0.000		
<b>Normality test (Shapiro-Wilk)</b>	0.283			0.897			0.144		
<b>Condition index</b>	15.502			15.784			15.784		
<b>Homoscedasticity test (White)</b>	0.789			0.056			0.338		

Note. These results derive from the master's thesis de Gonzales (2016).

Regarding the statistical validity of the estimations made, F tests suggest that the construction of the models makes sense. In the three cases, errors were distributed normally and with homoscedasticity (equal variance), and the co-linearity of independent variables was quite moderate. In relation to the determination coefficient R2 and keeping in mind that educational institution performance is multi-causal, the values are satisfactory, especially on the middle school level (64%).

To contrast hypothesis H2, the four cultural typologies defined in the theory (clan, adhocracy, hierarchy, and market culture) were individually evaluated. Results are shown in Table 2. This investigation’s empirical analysis does not support acceptance of the second proposed hypothesis, as the correlation coefficients for each of the cultures with respect to effectiveness are positive and have very similar values. This means that, in the present case, a cultural indicator increase is positively related to effectiveness, regardless of typology (clan, adhocracy, market, or hierarchy).

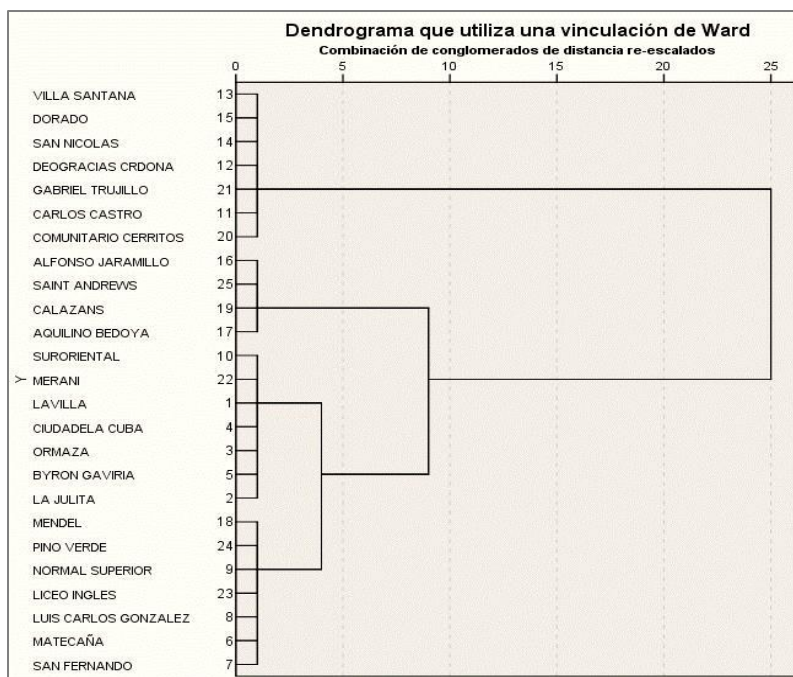
Table 2. *Impact of cultural typology on school effectiveness*

	Primary			Middle			High		
	B	Sig	FIV	B	Sig	FIV	B	Sig	FIV
<b>Constant</b>	-0.325			-1.334			-1.807		
<b>Location</b>	1.708	0.004	1.026	1.792	0.006	1.022	1.914	0.001	1.022
<b>Clan culture</b>	3.365	0.019	10.290	1.983	0.197	10.270	2.127	0.111	10.270
<b>Adhocracy culture</b>	-1.124	0.599	27.996	0.916	0.677	23.133	0.596	0.752	23.133
<b>Market culture</b>	0.940	0.682	24.834	-0.071	0.976	20.704	-0.449	0.825	20.704
<b>Hierarchy culture</b>	-1.599	0.220	8.455	-1.089	0.455	8.473	-0.183	0.883	8.473
<b>R2</b>	60.16%			55.93%			67.99%		
<b>F test</b>	0.003			0.005			0.000		

Note. These results derive from the master's thesis de [Gonzales \(2016\)](#).

To address H3, a cluster analysis was performed for the study variables, based on the scores for each cultural typology. Through use of Ward’s hierarchal agglomerative clustering method, three (3) clusters were obtained: one which grouped educational institutions into clusters with low levels of cultural strength, a second group with medium levels of cultural strength, and a third cluster with high levels of cultural strength. The cluster analysis dendrogram is shown below.

Figure 2. Dendrogram\*



\*Dendrogram using Ward's linkage, Combination of re-scaled cluster distances

Once the clusters were constructed, the magnitude of the effectiveness characterizing each one was evaluated. It was found that the group of institutions with a medium-low level of cultural strength corresponded to medium-low effectiveness. The same occurred at the other two levels, in which the cluster formed by medium cultural strength levels had medium-level effectiveness, and those with high levels had high effectiveness. This relationship may be observed in Table 3.

Table 3. *Descriptive cluster analysis*

Variable average	Clusters		
	Low level of organizational culture (n=7)	Medium level of organizational culture (n=14)	High level of organizational culture (n=4)
Primary school effectiveness	5.2	6.1	6.9
Middle school effectiveness	4.4	5.7	6.4
High school effectiveness	5.1	6.7	7.7
Clan culture	3.0	3.8	4.5
Adhocracy culture	2.8	3.6	4.3
Market culture	2.8	3.5	4.2
Hierarchy culture	3.0	3.8	4.5
<b>Total culture</b>	<b>11.7</b>	<b>14.7</b>	<b>17.4</b>

Note. These results derive from the master's thesis de Gonzales (2016).

These findings motivated the construction of regression models that include categorizations generated from the cluster analysis. The objective of this analysis was to consider the possibility of grouping educational institutions in accordance with their cultural characteristics, to propose that this cultural configuration impacts effectiveness.

The results indicate that cultural categorization impacts the effectiveness of primary and middle schools at statistically significant levels of 5% and 1%, respectively (see Table 4). However, errors in the high school education model do not have a normal distribution at 5% significance.

Table 4. *Regression clusters*

	Primary school			Middle school			High school		
	B	Sig	FIV	B	Sig	FIV	B	Sig	FIV
<b>Constant</b>	4.717			3.869			4.595		
<b>Location</b>	1.560	0.020	1.003	1.712	0.015	1.005	1.762	0.006	1.005
<b>Medium level of culture</b>	0.992	0.121	1.314	1.469	0.032	1.327	1.769	0.006	1.327
<b>High level of culture</b>	1.840	0.036	1.310	2.065	0.026	1.321	2.687	0.002	1.321
<b>R2</b>	36.30%			39.30%			51.80%		
<b>F test</b>	0.026			0.013			0.001		
<b>Normality test (Shapiro-Wilk)</b>	0.293			0.249			0.018		
<b>Condition index</b>	3.820			3.903			3.903		
<b>Homoscedasticity test (White)</b>	0.934			0.460			0.093		

Note. These results derive from the master's thesis de Gonzales (2016).

As a consequence, these results constitute evidence for the acceptance of H1 and H3, and for the rejection of H2.

## Discussion

The purpose of this study was to investigate the relationship between organizational culture and school effectiveness. These relationships were studied in 25 educational institutions of the colombian coffee region. The results show that organizational culture influences school effectiveness and that this effectiveness varies significantly according to the level of cultural strength. But it was not possible to prove the impact of different cultural typologies on school effectiveness.

### Contributions to literature

The results or findings of the present study offer empirical evidence supporting the existence of a relationship between organizational culture and school effectiveness. Significant, positive relationships were found, as confirmed in other studies performed by authors including Cheng (1997), Schoen (2008) and Smart & St. John (1996). In these studies, organizational culture is either totally or partially related to the organization's effectiveness. Study of the cultural typology relationships revealed that these relationships were more complex than initially expected.

Although the hypothesis regarding differences between cultural typologies and their impact on effectiveness could not be proven, interesting results were revealed. When clan culture was correlated with effectiveness, the greatest number of positive and significant relationships were found. This is consistent with results found by Cheng (1993), Peterson & Deal (1998), Cameron & Freeman (1991), Stoll & Fink (1996), and Smart & St. John (1996). Hierarchy culture is the second most evident cultural typology in the present study. This coincides with Cameron and Quinn (2011) results. In their cultural studies, performed in institutions of higher education, they also found this typology to be the second most dominant. In regard to the hierarchy culture–effectiveness relationship, Hargreaves (1995), Cheong (2000), and Smart and St. John (1996) describe hierarchy cultures as the most traditional and least effective, insofar as the dimensions evaluated are perceived to be continuously ineffective.

Although it was proposed in this study that said culture hinders effectiveness, evidence was not found to support a negative relationship between the two variables. That said, it can be observed that its correlation with effectiveness, although positive, is the lowest, as compared to the other three cultural typologies, on the three levels studied (primary, middle, and high school). Of these, the regression model intended to identify that relationship was not validated. The correlation between adhocracy culture and effectiveness was positive and achieved the highest representation on the basic level evaluated in educational institutions, which is in accordance with the hypothesis proposed for the relationship of this typology to effectiveness. Lastly, market culture correlated positively with effectiveness. Scant information was found regarding this variable in the academic context. Cameron and Quinn (2011) find that, statistically, not all dimensions of the different cultural typologies explain effectiveness in organizations. This may illustrate, to some extent, the contrast between the proposed hypotheses.

On analysis of the levels of cultural strength, it was found that the group of educational institutions with the medium-low level of strength correspond to medium-low effectiveness. The same occurred on the other two levels, where the clusters formed by educational institutions with medium levels of cultural strength

had medium-level effectiveness, and those with high levels of cultural strength had high levels of effectiveness.

It is important to consider that, as indicated by Connolly (2019), unlike a company, a school presents a multiscale mode of organization that goes beyond its physical and national borders and thus involves consideration of several levels in the process of cultural construction. Rather than a monolithic variable that can be manipulated, culture in a school context is procedural and dynamic, resulting from the combination of several internal and external factors.

Consequently, it would be expected that different cultural types responding to these various combinations would have dissimilar effects on school effectiveness. However, there is a possible explanation for why they do not occur in the context studied. The homogenizing effect in educational management has generated strong managerial couplings which have bureaucratized and streamlined educational institutions (Hautala et al., 2021), focusing them on producing results that pressure leaders focused on accountability (Torres, 2022), leaving few spaces for individual developments, restricting management to central government directives.

### **Contributions to school management**

Organizational culture will be an important tool and an integral part of the administrative process as a powerful regulator of change that provides a sense of direction for the priorities and objectives proposed in educational institutions. One of these aspects is the implementation of educational reforms or the application of new regulations, a frequent occurrence in countries such as Colombia. Managers could choose two paths, either adjusting formal aspects to respond to the demands of the national or local levels or committing to changes that involve cultural transformations, taking advantage of the strengths of their own organizational cultures (Dimmock et al., 2021).

Another aspect to consider in schools is the possibility of fostering participatory cultures—clan and adhocratic—which have greater effects on the teacher's commitment and students' identification with values, which may consolidate a more effective culture (Lubis & Hanun, 2019).

### **Conclusions**

These findings constitute evidence affirming that organizational culture significantly affects school effectiveness, and that cultural strength makes the difference in said effectiveness. This has implications for organizational practice: school boards must learn the norms, values, and customs which predominate in educational institutions, as well as which are most coherent with the search for strategies to improve effectiveness and thus educational quality.



Values and beliefs characteristic of clan and adhocracy culture, with an external orientation that includes characteristics of market culture, must be promoted in those institutions with orientations toward continuous improvement and achievement of high-level effectiveness. This consolidation of values and beliefs should be supported by a collection of organizational practices, with an external focus, human resource management, and adequate leadership in mind. Without doubt, organizational culture is a complex, intricate concept, whose management may generate strong opposition, especially to organizational changes, formation of new structures, and organizational models that necessitate institutional adaptation to cultures that strengthen and promote new conducts capable of supporting the desired change. These behaviors tend toward sustainability, continuous improvement, and institutional performance. The evidence found permits the conclusion that alignment with these conducts and values, on the road to a more appropriate orientation, will allow educational institutions to obtain higher scores on their synthetic index of educational quality.

The limiting features of this investigation include its transversal character, as it may create the need for a longitudinal study. Such a study would allow for the observation of events of interest through time and might provide compelling prospective conclusions. Further, variables that would allow for the identification of existent subcultures and their influence on effectiveness were not introduced. This study widens the spectrum for new investigations that include other measures of effectiveness. Recent literature, for example, has questioned the use of PISA tests as an indicator of effectiveness, pointing out that political contexts characterized by logics of competition and of standardized evaluation impose a technocratic and autocratic vision of education in the name of accountability, expressed through benchmarking approaches such as the PISA test (Normand et al., 2021 on Torres, 2022). Additionally, regional comparisons may be made, as well as contrasts between public and private institutions.

Finally, limitations of the present work should be considered. In the first place, its cross-sectional design, for which it is recommended to carry out longitudinal studies that allow observation of the phenomena over time. In addition, in educational institutions, subcultures are maintained, such as those evidenced at the different levels (primary, basic, secondary), sessions (morning, afternoon), and areas of knowledge (mathematics, language, science, etc.). This would lead to the coexistence of different cultural typologies within the same educational institution. Similar to other studies (Liu et al., 2020; Torres, 2022), the different levels of analysis are also a limitation. The fact that school culture has been studied based on school boards and teachers but not students means that the findings are presented with due consideration of these limitations.

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