



## **Pedagogical Considerations of Prototypical Schools: Analysis of four Cases**

**Olga Rosalba Rodríguez-Jiménez**

Department of psychology, Nacional University of Colombia, Colombia,  
orrodriquezj@unal.edu.co

Studies on prototypical schools are framed within the school effectiveness framework, enabling the examination of educational process variables in relation to student academic performance. From this perspective, the present research focuses on identifying process variables that differentiate between "positive" and "negative" prototypical educational institutions, those whose academic performance deviates from what would be expected given their socioeconomic context. A two-phase research design was employed. In the first phase, a multilevel model based on the results of the national Saber 11 competency test for 1,152 Colombian institutions was used to identify prototypical schools. The second phase involved classroom observation in two institutions of each type. Data collection instruments included a classroom observation protocol, that focuses on classroom management strategies and teacher-student interactions, and the Learning Strategies Questionnaire (CEA, by its Spanish acronym). The results indicate significant differences between the two types of institutions. Positive schools foster an environment of trust, respect, and cordiality, showing a significant difference in classroom climate. In terms of classroom management, teachers in positive schools employ effective strategies to maintain a calm and orderly environment while demonstrating a receptive and supportive attitude. Furthermore, they encourage more egalitarian and active student participation that transcends mere response to prompts. Regarding metacognitive regulation strategies, statistically significant differences were found ( $p = 0.049$ ), along with a greater diversity in the use of learning strategies. These findings constitute vital evidence for academic effectiveness rooted in daily classroom practice. Ensuring a calm classroom climate, fostering equitable interactions, providing continuous feedback, and promoting student self-monitoring are key characteristics that allow schools to overcome barriers inherent in disadvantaged contexts.

Keywords: educational evaluation, educational quality, educational efficiency, educational environment, learning

### **INTRODUCTION**

The School Effectiveness movement focuses on improving education quality through the enhancement of schools, aiming to identify what makes an educational institution successful and how it can be further improved (Murillo Torrecilla, 2004). Within this

**Citation:** Rodríguez-Jiménez, O. R. (2026). Pedagogical considerations of prototypical schools: Analysis of four cases. *International Journal of Instruction*, 19(3), 575-592.

line of research, studies on prototypical schools have emerged. Prototypical schools are those that, despite having all the necessary conditions to achieve good academic results, fail to meet expectations, as well as those that succeed even in the absence of such conditions. The identification of such schools is conducted through school-effect studies using multilevel models; specifically, repeated-measures models are utilized to assess the stability of the school effect (Goldstein, 2011). These institutions are of great interest and require in-depth research to understand the variables or factors that make them effective or ineffective, thereby producing outcomes that are unexpected given their contextual variables (Murillo Torrecilla, 2005; Carreño, 2020). For emerging countries, such insights are crucial for formulating school improvement proposals, generating the evidence base necessary to guide education praxis toward effectiveness and public policies aimed at enhancing educational quality (Bayona-Rodríguez & López, 2021).

Consistent with this approach, the identification of variables related to better academic performance is highly relevant. The most influential contextual variable is the socioeconomic and cultural index of the family, as reported in the systematic study by Delgado-Galindo et al. (2021). This finding has been consistent since the beginning of this line of research, as evidenced by López-González et al. (2021), and more specifically by Murillo and Belavi (2021), who point out that school segregation occurs due to this factor, along with students' immigrant or native status. In Colombia, studies by the Organization for Economic Co-operation and Development (OECD, 2019), Jorge-Moreno et al. (2018), Morales-Piñero (2019), and Rodríguez-Jiménez (2013) yield similar results.

However, despite its recognized importance, there is limited information regarding the process variables that promote academic performance. In this sense, studies on classroom dynamics, particularly in prototypical institutions, provide information to guide educational practice toward effectiveness. Some of the process-related variables that have been identified and related to effective results include teacher qualifications (Podolsky et al., 2019) and teacher evaluation (Şahin & Kılıç, 2018), expectations on students' performance (Luzarraga et al., 2018), family involvement (Aierbe-Barandiaran et al., 2023), time devoted to tasks (García-Jiménez et al., 2022), and, undoubtedly, effective teaching (Atchia & Chinapah, 2023; Panigrahi, 2014).

Regarding process variables in ineffective schools, the qualitative study by Hernández-Castilla et al. (2014) aligns with these findings, highlighting factors such as a negative classroom environment, difficulties in maintaining order and discipline in the classroom, lack of teacher involvement and commitment, low expectations towards students, conventional teaching methods that are not centered on learning, and deficient time management within the classroom.

The most comprehensive study about school effectiveness in Latin America, including prototypical schools, was carried out in 2007 (Murillo Torrecilla, et al., 2007). Its conclusions reflect several factors of interest regarding effective schools, including classroom and school environment, characterized by affectionate and respectful interaction among members of the educational community; and the involvement, commitment and sense of belonging of teachers and school principals. The former is

reflected through lesson methodologies and planning, as well as the use of structured activities and cooperative work, while the latter is demonstrated through the promotion of an adequate learning environment, encouragement of community participation, and a high pedagogical sense.

In Colombia different studies have identified variables that affect, both positively and negatively, the students' academic performance, providing insights to address the main challenge of the educational system: improving levels of academic quality (Valencia 2008). To achieve this, various education policies and programs have been implemented at both institutional and governmental levels, among other efforts to help students attain better academic results; however, both equality and the overall academic performance remain low (Gómez, 2011; OECD, 2016, 2019). In addition to economic factors, quantitative studies have identified other key determinants of academic performance, including the school environment (Sánchez, 2015), the administrative sector, whether public, private or subsidized private schools (Díaz-Ríos & Urbano-Canal, 2021), and classroom climate or family composition (Jorge-Moreno, et al., 2018) as key determinants of academic performance.

It is important to note the scarcity of research in Latin America, and specifically in Colombia, that integrates classroom observation with the measurement of student variables-factors essential for ensuring content comprehension, fostering social cohesion (Guzmán, 2025), and enhancing academic outcomes. Qualitative studies based on classroom observation and the assessment of learning strategies emerge as a necessary response to quantitative inquiries that emphasize the need for deeper pedagogical analysis (Daza-Chaves & Arrieta-Prieto, 2025; ICFES, 2021). Such approaches enable educational institutions to reduce inequalities and mitigate contextual effects (Parra Heredia, 2017), thereby promoting school effectiveness. Consequently, the study of prototypical schools may yield significant insights into why existing public policies have failed to improve national educational quality. Identifying the specific conditions under which successful outcomes occur is fundamental for optimizing resource allocation and guiding the strategic direction of educational interventions.

In light of the above, this study aims to characterize classroom interactions and student learning strategies in four prototypical Colombian schools, two positive and two negative, in order to identify process variables associated with unexpected academic outcomes, in accordance with the Context, Input, Process, and Product (CIPP) model.

## **METHOD**

This study is classified as a retrospective *ex post facto* design with secondary data analysis in its first stage, and as a multiple-case study in its second stage (Montero and León, 2007).

### **Participants**

An average of 1,552 educational institutions participated in the first stage, which allowed for the identification of prototypical schools. In the second stage, we focused on four educational institutions, two with higher-than-expected achievement (positive institutions - p) and two with opposite results (negative institutions - n). In total, 205

students from high school grades 9 and 11 participated in this second stage as illustrated in Table 1. The research was conducted according to the deontological code of Colegio Colombiano de Psicología (COLPSIC, 2019) with consent obtained from parents and teachers and assent from the students. Ethical approval for this study was granted by the Faculty of Human Sciences Ethics Committee of the Universidad Nacional de Colombia.

Table 1  
Information of educational institutions

Identification	Characteristics	Calendar*	N° of Students
1 (Negative - n1)	Private, all-male, full-day	A	55
2 (Positive - p1)	Public, mixed-sex, full-day	A	72
3 (Positive - p2)	Public, mixed-sex, full-day	A	45
4 (Negative - n2)	Private, mixed-sex, full-day	B	33

\*Calendar depends on the beginning of the academic year. Calendar-A schools normally start between January or February, whereas Calendar-B institutions begin between August-September.

### Variables and Instruments

**Classroom Observation Protocol.** This instrument records classroom events that disrupt normal class development. It captures the control strategies employed by teachers to maintain the normal development of the session, provides a qualitative register of behavior and participation of both students and teachers, a quantitative register of behaviors of both students and teachers and the type of resources used (Annex 1). At the end of the protocol, a Likert-scale format with 43 items addresses six aspects: classroom atmosphere, high expectations, teaching curriculum/strategies quality, reinforcement and feedback, attention to diversity and classroom organization (Annex 1). Total scores range from 43 to 172 and are completed after the classroom observations are done. Reliability is reported for each aspect, with Cronbach's Alpha values ranging from 0.31 for classroom organization to 0.855 for classroom atmosphere. The protocol was designed and validated by Cote (2019), and the variables reported by Murillo, et al. (2007), Hernández-Castilla et al. (2014) and UNESCO (2002) were considered in the included categories.

**Learning Strategies Questionnaire (CEA for its abbreviation in Spanish),** developed by Beltrán et al. (2006). to assess students' Sensibilization, Elaboration, Personalization and Metacognitive strategies. Reliability, measured through parallel forms and internal consistency, ranges from 0.77 for metacognition to 0.87 for personalization. Validity was confirmed through internal structure analyses of each subscale, supporting the intended factors (Beltrán et al., 2006). The test is distributed in Colombia by PSEA.

**SABER 11 Test.** This mandatory national examination is administered by the Colombian Institute of Evaluation of Education (ICFES) to all students completing grade 11 in Colombia. It assesses critical reading, mathematics, natural sciences, social sciences, citizenship skills and English language. Psychometric properties are guaranteed by ICFES, as this official exam reports the quality of the education system and related processes. The data are confidential in nature (<https://www2.icfes.gov.co/web/guest/acerca-del-examen-saber-11%C2%B0>).

## Procedure

This research was carried out in two stages. First, the school effect and its stability were identified based on a secondary analysis of the SABER 11 results from 2015 to 2018. Multilevel models were fitted for each year, using student-level input variables such as sex, ethnicity, and socioeconomic and sociocultural status. At the institutional level, variables included gender composition, school type (public/private), academic calendar, bilingualism, and school shift. To ensure comparability over time, the stability of the school effect was estimated by examining the temporal consistency of school-level residuals derived from the adjusted multilevel models. Stability was assessed using both the intertemporal correlation of school effects and the persistence of outlier status across consecutive years. Additionally, a longitudinal multilevel model was estimated to separate stable school effects from period-specific fluctuations. From this first phase, 32 prototypical institutions were identified; of these, 10 expressed interest in participating in the study, and ultimately, four allowed for classroom observations and student measurements to be conducted.

Second, once the institutions agreed to participate, the prototypical schools were characterized in terms of classroom interactions and student learning strategies using the Classroom Observation Protocol and the CEA test. This instrument was administered to students in each grade after all observations were completed. Classroom observation was conducted over two or three sessions in mathematics and Spanish for grades 9 and 11 over a two-month period in 2019 across the four institutions. These grade levels were chosen because they were taught by the same teacher, to account for differences due to student grade, and because these subjects allocate the highest number of instructional hours within the curriculum.

Observations were conducted by a single trained researcher, who was instructed on the application of the protocol, observation categories, and coding procedures, and received ongoing supervision throughout the observation period. The researcher was not informed of the institutions' classifications. Considering that only one observer was permitted access to each classroom, the consistency of records across the two or three observed sessions was used as a validation strategy, in addition to the prior validation of the protocol in previous research.

## Data Analysis

Stage one utilized multilevel models implemented in the MLwiN program, while data from stage two were analyzed using SPSS 25.

The information recorded in the Classroom Observation Protocol made it possible to determine the frequency of occurrence for each category. For variables such as "control strategies", a new variable called "strategy effectiveness" was created to indicate whether the strategy fulfilled its intended purpose. This same variable considered a qualitative register that allowed a greater description of the dynamics of the class. The descriptive register was additionally applied to the types of resources (material, human, or technological) used during the sessions and the purpose of their use.

Statistical procedures were chosen according to the type of data and the fulfillment of the normality assumptions. Nonparametric tests were used for the data derived from the observation protocol, with the exception of Section D, designated as the final scale. The Mann Whitney U test was used to compare the institutions by type (positive vs negative), and the Kruskal Wallis test was used to compare all four educational institutions; where significant differences were detected, pairwise comparisons were conducted with the Mann Whitney U test.

Spearman's correlation coefficient was calculated to address the association between the situations presented and the control strategies used in the session, as well as between teacher and student behaviors. Pearson's correlation was used to assess the relationship between the final scale scores and teacher and student behaviors, summing the occurrences of behaviors considered positive by both agents.

Results obtained from the CEA test scales were analyzed using Student's *t*-test, considering the data type and the satisfaction of the normality assumption. These comparisons were conducted between positive and negative institutions. Additionally, a one-way ANOVA was performed to compare all four institutions, with Tukey's HSD post hoc test used for pairwise comparison.

## **FINDINGS**

Only statistically significant differences are presented.

### *Observation Protocol*

Situations occurring during the development of the session.

In the results of the comparison amongst all institutions, there were differences in variables "someone knocks the door or a loudspeaker" ( $p = 0.020$ ) between  $n_2$  and  $p_2$  ( $p = 0.039$ ), with a greater range and, therefore, greater class interruptions for  $p_2$  and "entry of a third party to the class" ( $p = 0.036$ )  $p_1$  and  $p_2$  ( $p = 0.034$ ) with a greater range for  $p_2$ .

### *Control Strategies*

There are differences between the institutions in the "warning signs" ( $p = 0.009$ ), specifically between  $n_1$  and  $n_2$  ( $p = 0.008$ ), with a greater range for the latter.

In the negative institutions, it is found that the strategies aimed at men (this sex is present in all four institutions, while women only in three) with differences are "Warning Signs" ( $p = 0.044$ ), "Insults" and "Time" ( $p = 0.046$  for both). There were greater ranges for the negative schools, in particular for  $n_1$ , which also showed a difference in "Use Swearing Words with Women." "Other Strategies" also evidenced differences between  $p_1$  and  $n_2$ , and  $p_1$  and  $0_2$  with greater ranges for  $p_1$  always ( $p = 0.033$ ;  $p = 0.0024$  respectively). At a descriptive level, the common strategies of negative institutions are to be authoritative, with a firm and strong tone of voice with the objective of requesting respect, silence or attention, and they are not effective. On the other hand, strategies applied in positive institutions tend to use kind and soft tones of voice. In addition, they tend to maintain a calm and orderly work atmosphere, with strategies that are effective. Tables 2 and 3 present the information.

Table 2  
Description of Control Strategies in all Four Institutions

Institution	Strategy	Description	Objective	Effectiveness
n1	Ask	It is presented repeatedly and is done through third parties.	To achieve silence in class and have students' attention	No
	Wake-up call	Done with a firm and strong voice.		
	Other Strategies: dialogue, confiscating a cellphone.	It takes 30 seconds to catch the student's attention.		
p1	Calling the student's attention	It has a short duration, performed with kindness and a soft and firm voice.	To continue with the task.	Yes
	Showing questions and images, and guiding the task	It is seeked to have an active work atmosphere.	To focus students' attention.	
p2	Dialogue and repetition of instructions	It is done in a respectful manner, takes place in a calm atmosphere, and shows flexibility in interactions.	To maintain an orderly atmosphere.	Yes
	Calling the student's attention	Calm and firm voice.		
n2	Calling the student's attention	A rising tone of voice.	To focus students' attention.	No
	Questions	The atmosphere is authoritative.	To stop interruptions.	
	Emphasis of the importance of the session		To ask for respect and attention.	
	Dialogue			

Table 3  
Correlations between Control Strategies and situations in class

	Interrupt the Teacher	Calls for Attention
1. Positive reinforcement	0.684 (0.020)	0.688 (0.019)
2. Warning signs	0.694 (0.018)	0.736 (0.010)
3. Commitments	0.602 (0.050)	--
4. Active pauses	0.680 (0.021)	0.692 (0.018)
5. Traffic light	0.692 (0.018)	0.724 (0.012)
6. Yelling	0.684 (0.020)	0.688 (0.019)
7. Orders	--	0.796 (0.006)

Upper value correlation coefficient; value p in parentheses

#### *Participation of Students and Teachers During the Session*

The description allows us to point out that, in the negative schools, participation is initiated by students, being men who participate by means of opinions, interventions and expressing questions; all these strategies are spontaneous and voluntary. Women tend to participate addressing the teacher, both voluntarily and when being asked. In these schools, it was observed that when participation is equal for both sexes, it is because the teacher asked a question to the whole class.

On the other hand, in positive schools, women ask questions openly and voluntarily. Equal sex participation is not limited to answering questions, but students also express opinions voluntarily. Men tend to participate by asking questions and intervening. Nonetheless, greater male participation was also observed.

*Teachers' Behavior*

We found differences between positive and negative schools for the variable “Clarity when answering students’ questions” ( $p = 0.035$ ) being the greatest value for the category “Yes” in positive institutions. Comparing all four institutions, there are differences for “Verification of students’ understanding of the topic” ( $p = 0.011$ ) and “A positive attitude during the session” ( $p = 0.043$ ) with greater values for the category “No” in n1 and for the category “Yes” in p1.

*Students' Behavior*

We found differences between the four institutions in the variable “They participate voluntarily through questions and opinions” ( $p = 0.011$ ) with greater percentages for option “No” in school p2. The variable “They complain when being given homework or class tasks” also shows differences ( $p = 0.007$ ) with greater percentage for category “Yes” in schools p1 and n1.

Table 4 shows the correlations between these two behaviors.

Table 4  
Correlations between teachers’ and students’ behavior

	Lecture	Checking homework or class tasks	Feedback on homework or class tasks	Clarity to answer students’ questions	Evidence of commitment and personal interest toward the students	Frequent need to call for order in the classroom	A positive and receptive attitude during the session	Direct environment
They show liking for the session	<i>0.667</i> (0.035)	<i>-0.76</i> (0.010)	--	--	-1	--	--	<b>-0.690</b> (0.019)
They develop the class tasks	<i>-0.667</i> (0.035)	<i>0.764</i> (0.010)	--	--	<b>0.671</b> (0.024)	--	--	--
Desire to finish the session quickly	--	--	<b>0.624</b> (0.040)	--	-1	--	--	--
They follow the teacher’s orders	--	--	<i>0.667</i> (0.035)	--	<b>0.671</b> (0.024)	--	<i>0.667</i> (0.035)	--
Receptive attitude during the session	--	--	--	<i>0.802</i> (0.005)	--	--	--	--
They respect their classmates	--	--	--	--	--	<i>-0.82</i> (0.005)	--	--
They respect the teacher when a topic is being explained	--	--	--	--	<b>0.671</b> (0.024)	--	--	--
They participate voluntarily	--	--	--	--	--	--	<b>0.770</b> (0.006)	--
They think highly of the teacher	--	--	--	--	<b>0.770</b> (0.006)	--	1	--

Main values correspond to Correlation coefficient; value p in parentheses, Bold= Positive I, the italics= Negative I

### *Resources*

In both types of institutions, the same resources are frequently used with the same purposes. In the case of material resources, they are used to introduce, exemplify and deepen in the session topic. The difference between the two types of institutions is that negative schools use these resources for assignments, while positive ones use them for in-class task development. In addition, the latter institutions also use them to guide the class and captivate students' interest. Technological resources were not used during the observation period at any institution; however, when they were used, they served the purpose of exemplifying.

### *Scale*

For all scales, except "Classroom Organization", we found significant differences per type of school, Environment  $p = 0.010$ , High Expectations  $p = 0.008$ , Curriculum Quality / Teaching Strategies  $p = 0.028$ , Reinforcement and Feedback  $p = 0.008$ , Attention to Diversity  $p = 0.043$ . The values in positive instructions were greater for all.

Between educational institutions, there were significant differences in "Environment" ( $p = 0.20$ ), "High Expectations" ( $p = 0.009$ ), "Curriculum Quality / Teaching Strategies" ( $p = 0.009$ ), "Reinforcement and Feedback" ( $p = 0.003$ ). Differences are between n1 and p1 with greater scores for the latter and p values 0.016; 0.007; 0.006 and 0.002. Moreover, the variable "Classroom Organization" ( $p = 0.032$ ) showed differences between institutions p2 and p1 with greater scores for the former and  $p = 0.023$ .

Regarding correlations between the final scale and teachers' (TB) and students' behavior (SB) in negative schools, we found correlations between Environment and SB ( $r = 0.715$ ,  $p = 0.020$ ), Curriculum Quality and SB ( $r = 0.655$ ,  $p = 0.040$ ), Reinforcement and Feedback and Attention to Diversity ( $r = 0.643$ ,  $p = 0.045$ ).

For positive institutions, there were correlations between Environment and Attention to Diversity ( $r = 0.768$ ,  $p = 0.016$ ), Environment and TB ( $r = 0.705$ ,  $p = 0.034$ ), High Expectations and Classroom Organization ( $r = 0.791$ ,  $p = 0.011$ ), Curriculum Quality and TB ( $r = 0.847$ ,  $p = 0.004$ ), Reinforcement and Feedback and Classroom Organization ( $r = 0.777$ ,  $p = 0.014$ ).

### *Learning Strategies of the Students (CEA)*

The comparison between positive and negative institutions points out differences in metacognitive regulation strategies ( $t = 2.006$ ,  $p = 0.046$ ) with greater values for the positive ones. The differences in the scales between institutions were found in the subscale "Motivation" ( $F = 6.070$ ,  $p = 0.001$ ), between institutions n1 and n2 with greater values for the former and  $p = 0.039$  in the post hoc test; institutions p1 and 02, p1 and n2 also showed differences in this variable ( $p = 0.045$ ;  $p = 0.022$  respectively) and greater values for p1 in both cases.

Subscale "Attitude" also had significant results ( $F = 9.407$ ;  $p = 0.000$ ), with differences between institutions n1 and p2 ( $p = 0.009$ ) with greater values in the variable for the former. In addition, institution p1 had differences with p2 and n2 with p values of 0.000 and 0.005 respectively, and greater values in the variable for n1. "Recovery" was

another subscale with differences ( $F=3.45$ ;  $p = 0.018$ ); in this variable, we found differences between n1 and p2 ( $p = 0.039$ ) with greater values for n1. “Regulation” also showed significant values ( $F=2.792$ ;  $p = 0.042$ ) between n1 and p1 ( $p = 0.027$ ) with greater scores for p1 in this variable.

## **DISCUSSION AND CONCLUSIONS**

The research conducted allows us to affirm that there are notable differences between positive and negative institutions in the process variables examined.

The findings reveal a clear distinction between positive and negative institutions regarding classroom climate. Positive institutions are characterized by their ability to establish a calm and orderly working environment, supported by proactive strategies and the use of pedagogical resources that ensure the completion of classroom activities, feedback, monitoring, and dialogue. This represents a clear association with academic performance and, consequently, with academic quality. Efficient classroom management has been shown to be associated with academic performance (Marder, et al., 2023), as it promotes greater student engagement, effort, involvement, and participation (Patall et al., 2010; Villanueva, 2020), while also generating significant effects on socio-emotional development and well-being (Tinco Melchor, 2025; Khuntia & Sahoo, 2025). In Colombia, the results of the Estudio Regional Comparativo y Explicativo -ERCE 2019-, similarly identifies these characteristics as typical of institutions with outstanding outcomes (UNESCO, 2021).

Regarding teacher–student interactions, positive schools exhibit high levels of teacher receptivity and interest in students, which fosters positive attitudes toward the class (Fierro-Suero et al., 2021), particularly when students are allowed to co-construct classroom management practices (Patall et al., 2010). This contrasts with negative schools, where students complete classroom activities but without evident enjoyment, and where lecture-based instruction predominates. In such contexts, interaction is primarily aimed at maintaining order rather than promoting learning, which negatively affects classroom climate (Villanueva, 2020). In Colombia, findings reported by UNESCO (2021) similarly emphasize the importance of positive interactions in fostering higher levels of student learning.

A particularly noteworthy finding concerns gender disparities. In negative institutions, male students predominate in classroom participation and in the formulation of complex questions, in contrast to the practices observed in positive institutions. This persistence of gender bias has negative effects on academic achievement, self-esteem, and disruptive behaviors among students (Jony, 2025; Yu, 2023), and calls for reflections and actions to address these inequities. Such efforts are essential to ensure inclusive pedagogy in the country and to highlight the role of educational institutions as agents of change.

Additionally, the results related to students’ learning strategies demonstrate that prototypical positive institutions facilitate metacognitive processes, incorporating elements that support learning to learn and self-regulation. In doing so, they equip

students with personal tools that enable them to successfully cope with difficulties arising from limited resources (Tinco Melchor, 2025).

When these findings are considered within the CIPP model, it becomes evident that the Process dimension—specifically classroom climate, teacher–student interactions and learning strategies—distinguishes prototypical positive schools. These institutions achieve outstanding academic success despite limited resources, reaffirming the conclusions of Hernández-Castilla et al., (2014) regarding the importance of time management and classroom organization for school effectiveness (Burgess, et al. (2023).

In summary, these results confirm the findings of Ismail et al. (2022), who identified a positive relationship between school effectiveness and a supportive, collaborative school culture. This relationship supports the assertion that understanding school culture is a critical component of effective schooling. Both institutional and classroom climate, characterized by trustful teacher-student relationships, respect, and cordiality, are defining features of institutions with outstanding results (UNESCO, 2002). Teachers who are committed to their work, who implement diverse strategies to ensure learning, and who guide and respond to students' questions and concerns within an organized environment serve as key contributors to improved academic outcomes (Hernández-Castilla et al., 2014).

Finally, the findings of this study have important implications for teacher education and school effectiveness in Colombia and Latin America. First, they underscore the need to train teachers in strategies that foster positive classroom climates, promote warm and respectful interactions grounded in secure relationships, and critically examine gender biases that lead to unequal treatment. Second, they highlight the importance of focusing public policy interventions on classroom-level processes, which, particularly in disadvantaged contexts, have the potential to enhance academic outcomes.

### LIMITATIONS

The primary limitation of this study is that the sample was intentional and limited in scope. Although it reflects the characteristics targeted by the research, this restricts the generalizability of the findings. Future research is encouraged to employ nationally representative samples and longitudinal designs that allow for the examination of how the variables under study evolve throughout the school year and the extent to which institutional effects operate across the continuum of basic education. Incorporating student interviews or focus groups could further enrich the findings by giving greater visibility to students' voices.

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## APPENDICES

### Classroom Observation Protocol A

#### SITUATIONS IN THE CLASSROOM

Mark with an 'X' every time one of the following situations occurs

Situation	Frequency									
	1	2	3	4	5	6	7	8	9	>10
Permission to go to the restroom										
Interruption of the teacher										
Leaving their seat to throw something away										
Teacher using their phone										
Student using their phone										
Someone knocks the doors or a loudspeaker										
Entry of a third party to the class										
Use of playful elements										
Reprimands										
Other. Which?										

General description of management of these situations and time spent by the teacher:

### CONTROL STRATEGIES

Select which control and discipline strategies the teacher used based on frequency and gender, and whether it was effective, considering the following:

F- INEFFECTIVE towards a woman

F+ EFFECTIVE towards a woman

M- INEFFECTIVE towards a man

M+ EFFECTIVE towards a man

Strategy	1	2	3	4	5	6	7	8	9	>10
<input type="checkbox"/> Dialogue										
<input type="checkbox"/> Positive reinforcement										
<input type="checkbox"/> Warning signs										
<input type="checkbox"/> Commitments										
<input type="checkbox"/> Relaxation										
<input type="checkbox"/> Active pauses										
<input type="checkbox"/> Traffic light										
<input type="checkbox"/> Shouting										
<input type="checkbox"/> Swearing										
<input type="checkbox"/> Orders										
<input type="checkbox"/> Ridicule										
<input type="checkbox"/> Expulsion										
<input type="checkbox"/> Asking the student to leave										
<input type="checkbox"/> Other. Which?										

### BEHAVIOR AND PARTICIPATION OF STUDENTS AND TEACHERS

Mention the frequency of participation of the students based on the following conventions:

Instruction: 1) whether the teacher is the one demanding the participation of a specific student or 2) the student participates voluntarily.

Sex: discriminating between men and women.

Location: whether the student is located at the front, in the middle, or at the back of the room.

Ethnicity: whether the student belongs to an ethnic group.

Participation: whether the participation is related to the session's context.

Select the way the teacher presented and expressed the session's content with the corresponding letter for Form and Resources. When more than one applies, mark all you consider.

Form: (O) Oral - (W) Written - (G) Graphically - (V) Visual - (A) Aural - (AV) Audiovisual

Resources: (T) Technological - (M) Material - (H) Human

Session Stage	Presentation		Expression	
	Form	Resources	Form	Resources
Greeting				
Activation				
Topic Presentation				
Topic Explanation				
Examples				
Class Activity				

Commitments
Homework
Control and discipline
Wrap up
Other. Which?

Mark whether the following behaviors were evidenced in the teacher during the session.

Teacher's Behavior	Yes	No
The whole session is a lecture		
Use of technological resources to present topics		
Use of clear and precise language		
Homework and class tasks review		
Feedback on homework and class tasks		
Group activities		
Use of logical and topic-related examples		
Logical and structured sequence of the session		
Use of pedagogical strategies to explain the topic		
Verification of student's understanding of the topic		
Evidence of commitment and personal interest toward the students		
Frequent need to call for order in the classroom		
Students' participation encouragement		
Interest in catch and maintain the students' attention and motivation		
Ease to manage the class and the topic		
Clarity to answer students' questions		
Generation of a competition environment among the students.		
A positive attitude during the session		
A receptive attitude during the session		
There is a controlling attitude from the teacher		

Mark whether the following behaviors were evidenced in the students during the session.

Students' Behavior	Yes	No
They only participate when the teacher demands it		
They participate voluntarily through questions or opinions		
Their voluntary participation is related to the topic		
They seem to pay attention to the teacher's explanation		
They develop the class tasks		
They show a positive attitude during the session		
They show a receptive attitude during the session		
They follow the teacher's orders		
They respect the teacher when a topic is being explained		
They respect their classmates when speaking		
They avoid using electronic devices unless they are asked to do it		
They show liking for the session		
They support classmates with difficulties		
They express desire to finish the session quickly		
They complain when being given homework or class tasks		
They seem to think highly of the teacher		

#### FINAL SCALE

Based on the class observation, mark each statement according to the rate of certainty by writing one of the following numbers:

- 4 - The statement is completely true
- 3 - The statement is partially true

- 2 - The statement is partially false  
 1 - The statement is completely false

Statement	Mark
<b>1. Environment</b>	
There is an atmosphere of calm and order in the classroom	
The physical environment of the room is tidy and pleasant	
There is discipline in the classroom	
The classroom environment focuses on work	
Students know the rules to be part of the class	
Students follow the rules to be part of the class	
The teacher succeeds in creating work harmony	
The teacher involves the students in the session	
The teacher promotes a fair discipline	
The teacher promotes the development of values in interpersonal relationships	
<b>2. High Expectations</b>	
The teacher tells the students what they are expected to do	
The teacher proposes challenging and feasible tasks	
The teacher tells the students their progress	
The teacher expects all students meet the objectives	
The teacher is interested in achievements of the students	
<b>3. Curriculum Quality / Teaching Strategies</b>	
The teacher explicitly shares the purpose of the lesson	
To start, the teacher reviews previous topics to have a transition to the new one.	
The teacher highlights the main ideas of the lesson at the end of the session	
The teacher asks questions to catch the students' attention	
The teacher's questions are addressed toward key elements of the lesson	
The teacher gives feedback when the students answer	
The students are independent and responsible while developing tasks in class	
The instructive process of the teacher is relaxed	
The students are attentive during the work session	
<b>4. Reinforcement and Feedback</b>	
The students are informed about their learning process	
The teacher offers assistance for corrections	
The teacher uses positive incentives	
The teacher publicly acknowledges when students succeed	
The teacher gives immediate feedback (praise, correction)	
The teacher gives positive and direct feedback for the students' behavior	
Praise and corrections are related to general school life	
<b>5. Attention to Diversity</b>	
The teacher is focused on developing one or two topics at the most	
The teacher takes into account previous knowledge and the level students have reached	
The teacher applies accurate methods for the characteristics and needs of the students (special education programs, grouping students based on capacities, appropriate work pace for each student)	
<b>6. Classroom Organization</b>	
The teacher makes sure the session starts and finishes on time	
The time invested on administrative or disciplinary routines is minimized	
The interaction time with students is maximized	
It is evident the teacher has planned the session, its content and objectives in advance	
The teacher mentions the topic of the session, its rationale, purposes, evaluation method and requirements	
Proper organization of chairs and seats based on the activity to be done in class	