



Student perceptions of teaching practice and school climate in catholic secondary schools in Bolivia

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ABSTRACT

Article History

Received: 7 January 2026

Revised: 24 April 2026

Accepted: 29 June 2026

Published: 27 July 2026

Keywords

Educational evaluation

School climate

Secondary education

Student perception

Teaching practice.

Teaching practices and school climate are two central elements in the educational experience of students, especially in Latin American contexts characterized by social inequality and cultural diversity. Specifically, in Bolivia, there are Catholic-inspired institutions that operate under the Socio-Community Productive Educational Model, which is a focus of attention to understand students' perceptions of these elements. However, empirical evidence on this topic is limited. This study examined perceptions of teaching practices and school climate in seven educational units of the Josefina Bálsamo Educational Project in Santa Cruz de la Sierra. A mixed-methods, non-experimental, cross-sectional design was used, employing a structured questionnaire consisting of ten closed-ended items and one open-ended question. In total, 14,611 evaluations were collected from 2,192 students who evaluated 111 teachers. Quantitative analyses included internal reliability tests and non-parametric statistical procedures to examine the dimensions of school climate and teaching practice. The results showed mostly positive evaluations, although with notable differences between institutions. Additionally, students from vulnerable contexts reported slightly more favorable perceptions than those from privileged contexts. Qualitative analysis identified five categories, clarity in teaching, interpersonal treatment, disciplinary management, motivation, and academic support, that aligned with quantitative patterns in group motivation and conflict management. Taken together, this study provides updated empirical evidence on student perceptions within Bolivian Catholic secondary education and highlights the relevance of participatory pedagogical approaches and favorable school climates for educational improvement.

Contribution/Originality: This manuscript provides empirical evidence for researchers seeking to deepen their studies of students' perceptions of teaching practices and school climate. By integrating mixed-methods analysis with artificial intelligence (AI)-assisted qualitative support, it not only highlights its originality but also provides a replicable methodology for educational assessment.

1. INTRODUCTION

Quality education is a global challenge considered by UNESCO as a strategic objective for the sustainable development of society (SDG 4) (Albert et al., 2023; Badugela, 2025; Kalla, 2025; Sunthonkanokpong & Murphy,

2019; UNESCO, 2024) that requires rethinking pedagogy and prioritizing students' emotional and skill development to achieve it. A contribution to this can focus on analyzing how students experience educational quality on a daily basis, based on the teaching practices and school climate they encounter, laying the foundation for further studies across various educational settings.

Recent research has shown that educational quality is increasingly measured by teacher performance and by the integration of student opinions into educational policies that improve teaching and learning processes (Canut-Montalva, Rizo-Maestre, & Navarro-Soria, 2025; Krasniqi & Ismajli, 2022; Kyaruzi, Strijbos, Ufer, & Brown, 2019; Stobaugh, Mittelberg, & Huang, 2020). These student opinions have been linked to knowledge management, academic satisfaction, and skill development (Snilstveit et al., 2017), reinforcing the importance of incorporating student input into curriculum design rather than treating it as mere satisfaction ratings. For example, experiences during the COVID-19 pandemic illustrated this dynamic, as students, while recognizing teachers' efforts, identified ongoing challenges in the quality and adaptability of classes (Cramarenco, Burcă-Voicu, & Dabija, 2023), prompting substantive and structural changes in academia. Similarly, positive classroom environments, effective teaching strategies, and the ability to foster a pleasant group dynamic are highly valued by students (Tan, Chan, & Mohd Said, 2021). This scenario shows the importance of focusing on teaching practices and the school climate to understand students' prior educational experiences.

Social inequality and cultural diversity in Latin America have driven education systems to continually seek innovative pedagogical approaches that reinforce the emphasis on inclusion and quality in education. One result of this reality is the promotion of practices adapted to local needs and the concerns of each specific community (Gómez-Hurtado, Valdés, González-Falcón, & Jiménez Vargas, 2021; Ochoa Suárez, Marín Castaño, Rengifo Tobar, & Cedeño Ruiz, 2025; Tite López, Pérez Villarroel, & Salavarría Melo, 2025). However, in a globalized world undergoing constant change, evaluating student perceptions to analyze teacher performance using mixed methods approaches, such as surveys, questionnaires, and qualitative analysis, can be a practical strategy for educational improvement (Bayani, Rokhmat, Hakim, & Sukarso, 2025; Gödek, Polat, & Kaya, 2025). In particular, considering both the school climate and teaching practice as cross-cutting dimensions underscores the importance of examining how these aspects manifest themselves in national contexts, such as Bolivia.

In Bolivia, educational transformation is framed by the Productive Socio-Community Educational Model (MESCP), established by the Avelino Siñani-Elizardo Pérez Education Act (Law No. 070) and official documents from the Ministry of Education (Ministry of Education, 2017, 2023; Plurinational Legislative Assembly of Bolivia, 2010). This model conceives of comprehensive student education by linking knowledge, action, decision-making, and being. It promotes meaningful learning linked to the community and productive reality. From this point of view, the school is a space for collective construction oriented towards 'living well,' a harmonious relationship between the individual, the community, and the environment. This objective implies overcoming fragmented and competitive approaches and prioritizing complementarity, interculturality, and participation in education. The MESCP provides a practical framework for examining teachers' practices and students' experiences regarding school climate.

Within the Plurinational Education System, a significant part of secondary education is provided by Catholic-inspired institutions that integrate their own pedagogical projects with the official guidelines of the MESCP. Several international studies indicate that these centers tend to promote approaches focused on individual and community development, active participation, and values education (Bryk, Lee, & Holland, 1993; Grace, 2002; Sultana, 2018). In Bolivia, one example is the Obra Educativa Josefina Bálamo (OEJB), a network of Catholic schools located in Santa Cruz de la Sierra that combines academic education with socio-emotional support and the experience of Christian values, in line with the national curriculum and the principles of comprehensiveness and participation established by Law No. 070. This context provides an appropriate environment for analyzing how teaching practices and school climate are expressed in institutions that combine an educational-pastoral project with the socio-community guidelines of the Bolivian education system.

Despite regulatory and pedagogical advances in Bolivia, the link between MESCP and Catholic-inspired educational projects remains understudied from the students' perspective. Most of the existing literature focuses on normative, historical, or institutional analyses. Currently, there is little evidence on teaching practices and school climate in contexts where socio-community and educational-pastoral priorities coexist (Bayani et al., 2025; Gómez-Hurtado et al., 2021; Ochoa Suárez et al., 2025). Studies on Catholic institutions in Bolivia are scarce or outdated (Reimers & Villegas-Reimers, 2005), highlighting a gap in this field that justifies conducting studies that analyze the educational experience from students' perspectives and provide empirical data on teaching and climate in religious schools.

The objective was to analyze students' perceptions of teaching practices and school climate across seven units of the Josefina Bálsamo Educational Foundation in Santa Cruz de la Sierra, Bolivia, and to understand how students evaluate teacher performance along two dimensions: teaching practices and school climate. The aim is to provide up-to-date empirical evidence to support educational improvement and encourage dialogue with the MESCP guidelines and the academic approach of Catholic institutions. The results will help guide educational policies and promote participatory school environments that respond to the needs of the Bolivian educational community.

2. MATERIALS AND METHODS

2.1. Study Approach and Design

The study adopted a mixed-methods, non-experimental, cross-sectional design with a descriptive scope (for the quantitative phase) and an interpretative scope (for the qualitative phase) (Arias, 2012; Hernández, Fernández, & Baptista, 2014; Romero-Carazas, Mayta-Huiza, Ancaya-Martínez, Tasayco-Barrios, & Berrio-Quispe, 2024). Figure 1 details the process used to analyze the data.

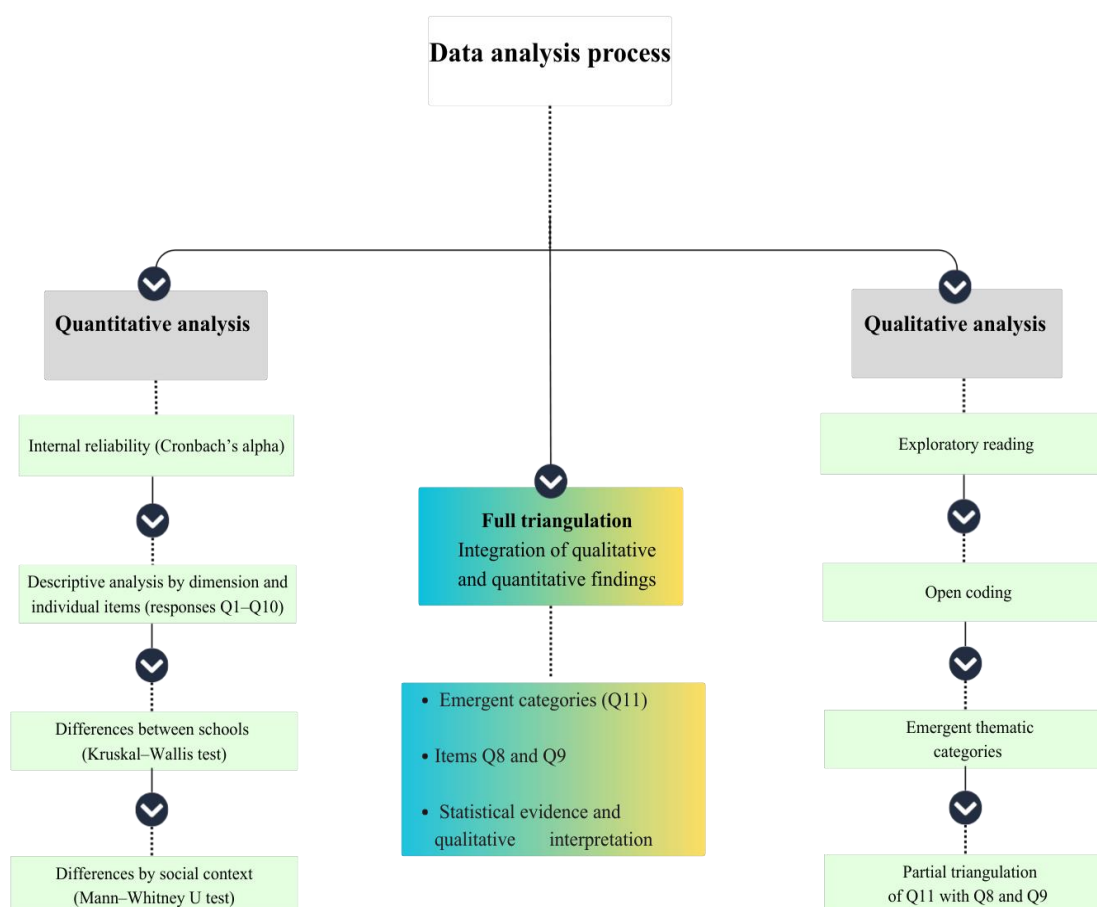


Figure 1. Flowchart of the mixed-methods data analysis process and qualitative-quantitative triangulation.

The sample was non-probabilistic for convenience, consisting of students who voluntarily responded to a structured survey (Arias, 2012; Hernández et al., 2014). Students and teachers from the first to sixth grades of secondary school participated, distributed across seven educational units belonging to the Josefina Bálsamo Educational Foundation, under the regulatory framework of the Plurinational Education System of Bolivia (Plurinational Legislative Assembly of Bolivia, 2010). The study population comprised 2,192 students and 111 teachers across the seven institutions, distributed as shown in Table 1.

Table 1. Distribution of teachers and students by educational unit.

Educational Unit	Abbreviated Code	No. Teachers	No. Students
JB Los Tusequis	JB-LT	19	374
JB Cordecruz	JB-CZ	12	255
JB Cordecruz B	JB-CZB	12	206
JB Mariscal Sucre F	JB-MSF	21	360
JB Señor de los Milagros	JB-SM	19	504
JB Los Pinos	JB-LP	12	233
JB Santa María de los Ángeles	JB-SMA	16	260
Total	—	111	2192

Note: Codes correspond to the institutional abbreviations used within this work.

Data collection took place between August 22 and September 13, 2024, during which students voluntarily participated in the survey. During the application process, each student had the opportunity to respond to the study considering their perception of more than one teacher. The form was completed independently for each teacher with whom the student had classes. This means the total number of surveys completed is considerably higher than the number of unique students. In total, 14,611 surveys were collected across different interactions between students and teachers within the seven participating educational units. Thus, each record in the database represents a student's perception of a specific teacher in a given subject, meaning that the dataset consists of 14,611 student–teacher evaluations rather than 14,611 unique students.

2.2. Data Cleaning and Preparation Process

Prior to data processing, a rigorous cleaning procedure was implemented; students' names were standardized by correcting capitalization, removing accents, and resolving typographical inconsistencies; duplicate records were eliminated by matching full names and educational institutions; and each student was verified to be associated with only one educational unit (Hernández et al., 2014; Tarrillo Saldaña et al., 2024).

Surveys with over 20% incomplete fields or significant inconsistencies in sociodemographic data were excluded. In instances of homonymy or minor variations, individual reviews were conducted using supplementary information from the records.

It treated teachers as unique persons for each educational unit, even if they were teaching in several institutions. In so doing, it allowed analysis of differences in student perceptions that could be traced solely to the institutional and contextual features of each institute.

2.3. Questionnaire Design and Validation

A structured questionnaire was developed to gather data (Hernández et al., 2014; Tarrillo Saldaña et al., 2024) with the specific objective of assessing students' perceptions of teacher performance and school climate in Catholic secondary schools that foster a humanizing, evangelizing, comprehensive, scientific, technological, participatory, and community-based education (Josefina Bálsamo Educational Work, 2025).

A pilot test was conducted at the Josefina Bálsamo Cordecruz Educational Unit to identify potential comprehension difficulties, ambiguities, or wording errors in the instrument's items (Hernández et al., 2014; Tarrillo

Saldaña et al., 2024). This process revealed several communication issues, particularly regarding linguistic clarity and conceptual consistency, which were corrected prior to expert evaluation.

This new version of the questionnaire was validated by a panel of experts (Arias, 2012; Hernández et al., 2014; Romero-Carazas et al., 2024; Tarrillo Saldaña et al., 2024) made up of two professionals in the field of education with more than 20 years of experience in teaching, assessment, and pedagogical management. They evaluated the instrument's relevance, clarity, coherence, and overall adequacy to the country's sociocultural and educational context, and their observations and suggestions were incorporated into the final version of the questionnaire. Finally, the students participating in the study responded to the questionnaire voluntarily and anonymously (Arias, 2012; Hernández et al., 2014; Romero-Carazas et al., 2024; Tarrillo Saldaña et al., 2024).

The instrument consisted of three main sections, designed to collect both quantitative and qualitative data on students' perceptions of teachers' teaching practices and the school environment. The first block collected sociodemographic and contextual data on the respondent (D1), the educational unit (D2), the students' social context (advantaged or disadvantaged) (D3), the grade (D4), and the teacher being evaluated (D5).

The subject or subjects taught (D6) allowed the sample to be characterized and for each student's perception to be linked to specific contextual variables. Initially, students were identified by name, but to preserve anonymity, they were assigned numerical codes during the analysis phase. Teachers were also anonymized by assigning them a specific code to avoid direct identification in the results and their presentation (Hernández et al., 2014; Romero-Carazas et al., 2024).

The second block of the questionnaire consisted of closed-ended questions designed to assess students' perceptions of teachers' pedagogical practices and the school climate. These questions were initially organized into three dimensions: (1) School climate (Q1, Q6, Q7, and Q10); (2) Teachers' pedagogical practice (Q2, Q3, Q4, and Q5); and (3) Management of group dynamics, related to conflict management and group interest (Q8 and Q9). However, after applying internal reliability tests, it was found that the items corresponding to the third dimension were not consistent enough to be considered a statistically valid scale (Arias, 2012; Tarrillo Saldaña et al., 2024). Therefore, it was decided to maintain only two dimensions analyzed as composite scales: *School climate* and *teachers' pedagogical practice*.

The "*School climate*" dimension included three items (Q1, Q6, and Q7) with a five-point Likert scale (Never, Rarely, Sometimes, Often, Always) and one question (Q10) with alternative options to identify students' confidence in participating in the classroom, also identifying the confidence the teacher gave the student to participate. The "*Teaching practice*" dimension included four Likert-scale questions evaluating teachers' active listening (Q2), clarity in explaining content (Q3), methodological diversity (Q4), and motivation to participate in class (Q5).

To assess the internal consistency of the instrument, Cronbach's alpha was calculated, grouping the items into two dimensions: school climate and teacher practice (Hernández et al., 2014; Romero-Carazas et al., 2024; Tarrillo Saldaña et al., 2024). Items Q8 (conflict management) and Q9 (group interest), belonging to the discarded dimension, were analyzed individually using descriptive statistics and complementary qualitative interpretation (Hernández et al., 2014; Romero-Carazas et al., 2024; Tarrillo Saldaña et al., 2024).

The response options for the closed items were coded numerically for subsequent statistical analysis (Hernández et al., 2014; Romero-Carazas et al., 2024).

The last block focused on the qualitative analysis of this study, with an open-ended question (Q11) designed to collect students' suggestions for possible improvements in the teacher's teaching strategies, thereby complementing the quantitative data collected to that point (Hernández et al., 2014; Romero-Carazas et al., 2024). Table 2 presents the structure of the questionnaire used.

Table 2. Structure of the applied questionnaire: blocks, dimensions, items, and response options.

Item	Variable/Question	Response Options / Coding
Sociodemographic and Context Data		
D1	Respondent	Student code
D2	Educational Unit	Name of the institution
D3	Social Context	Favoured / Vulnerable
D4	Grade	1st, 2nd, 3rd, 4th, 5th, 6th
D5	Teacher	Teacher code
D6	Subject	Name of the subject
Closed-ended Questions		
1. School Climate		
Q1	Do you feel respected by the teacher during classes?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q6	Is the teacher available to help you when you have questions?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q7	Is there an atmosphere of respect and collaboration among your classmates?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q10	How confident do you feel when participating in the learning activities proposed by the teacher?	1 = Very insecure; 2 = Insecure; 3 = Neutral; 4 = Confident; 5 = Very confident
2. Teaching Practice		
Q2	Does the teacher listen to and value your opinions and questions?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q3	In your opinion, does the teacher explain the subject content clearly?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q4	Does the teacher use different methods and resources to teach (e.g., technology, school platform, projects, group activities)?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Q5	Do you perceive that the teacher encourages you to learn and participate in class?	1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; 5 = Always
Individually Analyzed Items		
Q8	How does the teacher handle classroom conflict or indiscipline?	1 = Excessively punitive; 2 = With understanding and patience; 3 = Strict but fair; 4 = Fair and equitable; 5 = Ignores conflicts
Q9	How do you perceive the group's interest in classes?	1 = Most show no interest; 2 = Many show interest but do not engage; 3 = Moderate interest; 4 = Most are interested; 5 = All are interested
Open-ended Question		
Q11	What would you like the teacher to do differently to improve your learning experience?	Free/open-ended response

Note: Items Q1–Q10 use a five-point Likert-type scale. Open-ended responses correspond to item Q11.

2.4. Data Analysis

To meet the objective of evaluating students' perceptions of teaching practices and the school environment at the secondary education level at the Josefina Bálsamo Educational Foundation, the data were analyzed quantitatively and qualitatively.

2.5. Quantitative Analysis

The processing and analysis of quantitative data were performed using SPSS version 26, a software widely recognized for its ability to manage large data volumes and apply robust statistical techniques in educational research and social sciences (Field, 2017; Hernández et al., 2014; Tarrillo Saldaña et al., 2024). The use of this tool ensured rigor and reliability in interpreting results. A statistical approach organized into five stages was employed for this purpose.

First, an internal reliability analysis was applied using Cronbach's alpha coefficient to evaluate the internal consistency of two of the theoretically proposed dimensions (Field, 2017; Hernández et al., 2014), confirming that the proposed initially dimensions "school climate" and "teacher pedagogical practice" had adequate levels of internal

reliability, with α values close to or above 0.70 (Field, 2017; Hernández et al., 2014; Romero-Carazas et al., 2024). In contrast, the third dimension, corresponding to "group dynamics management", showed a reliability value well below the acceptable threshold ($\alpha = 0.061$), indicating a weak correlation between items Q8 and Q9 (Field, 2017; Hernández et al., 2014). For this reason, it was decided to exclude this dimension from the composite scale and, instead, to retain items Q8 and Q9 for independent analysis.

Secondly, a descriptive analysis was performed on all the responses obtained for each question (Q1-Q10), using measures of central tendency (mean, median), dispersion (standard deviation), and relative frequencies, allowing the students' perceptions to be characterized and evaluation profiles to be established by dimension (Arias, 2012; Hernández et al., 2014).

Third, to explore possible significant differences in perception between subgroups of the sample, nonparametric statistical tests were applied. In particular, the Kruskal–Wallis test was used to compare the mean scores of the seven participating educational units for each dimension, and the effect sizes were estimated using η_H^2 , which allowed identifying significant differences between institutions in the validated dimensions. When the Kruskal–Wallis test showed statistically significant differences, post hoc analyses with Bonferroni correction were used to identify which institutions were responsible for these differences (Eiselen & van Huyssteen, 2023; Field, 2017).

The fourth stage aimed to examine differences in student perceptions across social contexts, for which the nonparametric Mann–Whitney U test was applied (Field, 2017; Tarrillo Saldaña et al., 2024), allowing comparison of the average scores for the dimensions "School climate" and "Teacher's pedagogical practice" between two groups: students from privileged and vulnerable contexts. Given the ordinal nature of the data and the independence of the samples, this test was appropriate for evaluating significant differences in the distribution of responses across reported socioeconomic status.

In a fifth stage, mixed linear models with random intercepts (multilevel) were estimated for each of the two validated dimensions (school climate and teaching practice), accounting for the nested structure of the data (students nested within teachers and educational units). These models were adjusted using the *MIXED* procedure in SPSS (version 26), decomposing the total score variance into components attributable to each level and calculating the intraclass correlation coefficient (ICC). The purpose of this stage was to assess the extent to which the differences observed in perceptions could be attributed to the teaching and institutional context rather than individual variation, and to control for potential bias arising from the large number of responses per student and teacher.

2.6. Qualitative Analysis

Qualitative analysis was conducted using inductive thematic analysis (Field, 2017; Hernández et al., 2014) adapted to the volume and characteristics of the collected data. The intention was to identify, from the students' perspective, aspects of teaching practice and school climate that they believed needed improvement (Arias, 2012; Romero-Carazas et al., 2024).

The 14,611 responses were processed by the researchers with the assistance of artificial intelligence (Fokoué, 2025). ChatGPT 5.1 (OpenAI, 2025) was used to organize the textual material preliminarily, without delegating final interpretive decisions to the model. All data were processed according to the following scheme: (a) unnecessary line breaks, isolated non-alphabetic characters, and obvious duplicates were removed; (b) local Spanish colloquial words and expressions were retained in their entirety; and (c) the students' original spelling was maintained so as not to alter the semantic content.

The responses to question 11 (Q11) were divided into batches to facilitate processing. The prompt used throughout the process was: *"Read the high school students' responses to the question 'What would you like the teacher to do differently to improve your learning experience? Group the responses by topic, assign each group a short name, indicate the approximate frequency of each topic, and provide 2-3 representative examples of responses per group.'*" For each batch, the model returned a list of topics with their labels, an estimate of relative frequency, and literal examples of responses. With

this preliminary classification, the research team conducted a thematic analysis, combining the information generated by the AI with direct readings of the responses.

First, the original responses were reviewed and compared with the AI's groupings to corroborate consistency with the study (Arias, 2012; Romero-Carazas et al., 2024). Purely evaluative or neutral responses (e.g., “Nothing,” “It's okay,” “It's excellent”) were also identified and recorded as indications of satisfaction, but were not used to construct thematic categories. The responses were then manually coded based on the AI's results, and, when deemed necessary, labels were adjusted to ensure conceptual accuracy (Hernández et al., 2014; Romero-Carazas et al., 2024). Discrepancies between researchers were resolved through discussion until consensus was reached, keeping a transparent record of the decisions made. The codes obtained were grouped into higher-level thematic categories to balance comprehensiveness and conceptual parsimony (Arias, 2012; Hernández et al., 2014). Finally, partial triangulation was performed between the categories resulting from the open-ended question (Q11) and the distributions of responses for items Q8 (conflict management) and Q9 (group interest).

On this basis, a complete triangulation of qualitative and quantitative findings was performed (Creswell, 2013; Hernández et al., 2014), enabling the research purpose to be addressed.

3. RESULTS

3.1. Results of Internal Reliability Analysis

The results indicated that the *School Climate* (items Q1, Q6, Q7, and Q10) and *Teaching Practice* (items Q2, Q3, Q4, and Q5) dimensions achieved a good level of internal consistency (Table 3). In contrast, the dimension *Group dynamics management* (items Q8 and Q9) had a value well below the reference threshold ($\alpha \geq 0.70$). Table 3 summarizes the values obtained.

Table 3. Internal reliability of the questionnaire dimensions (Cronbach's alpha).

Dimension	Items	Cronbach's α
School climate	Q1, Q6, Q7, Q10	0.778
Teaching practice	Q2, Q3, Q4, Q5	0.834
Group dynamics management*	Q8, Q9	0.061

Note: *Group dynamics management showed low reliability ($\alpha = 0.061$).

3.2. Descriptive Results by Dimension and Individual Items

For the interpretation of the descriptive results, mean values above four (4) on the response scale (1 = Never, 5 = Always) were considered to reflect predominantly positive perceptions on the part of students. These values indicate that the behaviors or attitudes surveyed are experienced frequently. In contrast, values close to three (3) are interpreted as a more neutral or ambivalent assessment, as they represent an intermediate frequency (sometimes), and could indicate opportunities for improvement in specific aspects of the teacher's pedagogical practice or the school climate (Hernández et al., 2014; Romero-Carazas et al., 2024). This distinction facilitated the identification of relative strengths and weaknesses within the dimensions analyzed.

In general, students provided a positive assessment across the two dimensions studied (Table 4), reflecting a favorable perception of teacher performance, particularly in school climate and teaching practice.

On the other hand, items Q8 and Q9, analyzed independently (Table 4), showed more dispersed results. Item Q8, regarding teachers' conflict management, reflects an intermediate perception, with assessments split between comprehensive disciplinary strategies and less effective strategies. Likewise, the result for group interest during classes (Q9) suggests greater dispersion in responses and possible differences in group dynamics across institutions. This indicates that, although students perceive the school climate and teachers' pedagogical practices positively, subtle differences exist in classroom management and group participation.

Table 4 shows that the two validated dimensions have means above four (4). In contrast, the individual items show moderate averages near the midpoint of the scale, suggesting neutrality or less favorable perceptions.

Table 4. Descriptive statistics for dimensions and individual items.

Dimension / Item	Mean	Median	SD	Min.	Max.
School climate (Q1, Q6, Q7, Q10)	4.04	4.25	0.79	1.00	5.00
Teaching practice (Q2, Q3, Q4, Q5)	4.06	4.25	0.90	1.00	5.00
Q8 – Classroom conflict management	3.03	3.00	1.04	1.00	5.00
Q9 – Perceived group interest in class	3.27	3.00	1.15	1.00	5.00

3.3. Results of the Kruskal–Wallis Analysis by Dimension and Educational Unit

3.3.1. School Climate

The results showed statistically significant differences between schools in the dimension *School climate*, $\chi^2(6) = 233.25$, $p < 0.001$, indicating that the distributions of responses were not homogeneous. These differences can be seen in the box plots (Figure 2), where greater dispersion and a concentration of low responses can be observed in institutions such as *JB Cordecruz*, compared to more homogeneous distributions and high values in schools such as *JB Señor de los Milagros*. The overall mean for this dimension was $M = 4.04$, $SD = 0.79$, suggesting a generally positive perception, though with significant variation across school contexts. Post hoc analyses with Bonferroni correction confirmed these differences, highlighting JB Cordecruz as the institution with significantly lower ratings compared to most establishments, while JB Señor de los Milagros and JB Los Tusequis were among those with the highest average ratings. The effect size was small ($\eta_H^2 = 0.016$), indicating that between-school differences explained approximately 1.6% of the variability in school climate scores.

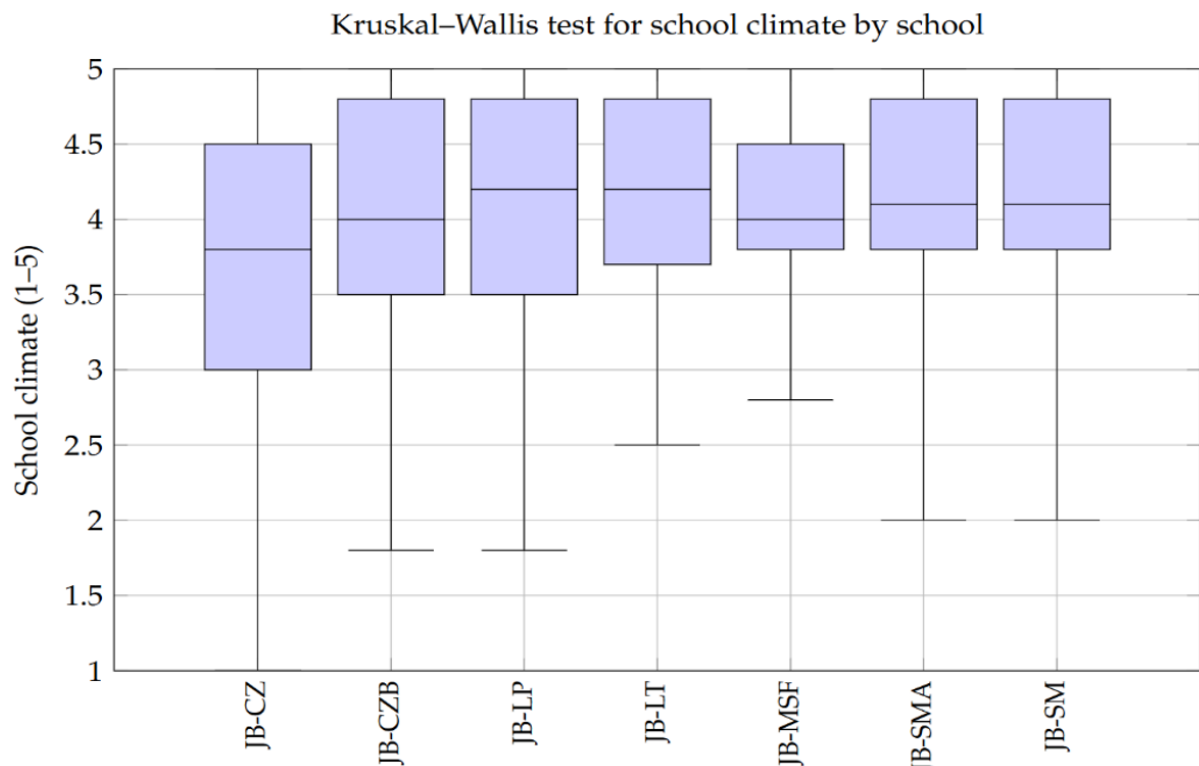


Figure 2. Boxplots of the school climate dimension by school.

Note: The boxplots display the distribution of school climate scores (on a 1–5 scale) across educational units. Boxes represent the interquartile range, horizontal lines indicate median values, and whiskers denote the minimum and maximum observed scores.

3.3.2. Teacher's Pedagogical Practice

Similarly, statistically significant differences were found in the dimension *Teacher's pedagogical practice*, $\chi^2(6) = 333.81$, $p < 0.001$. As shown in the box plots (Figure 3), the institutions *JB Los Tusequis*, *JB Santa María de los Ángeles*, and *JB Señor de los Milagros* had higher medians and a concentration of responses at the upper end of the scale, reflecting positive and homogeneous perceptions. In contrast, *JB Cordecruz* obtained the lowest central scores and greater dispersion in its responses, indicating more heterogeneous and less favorable assessments. Post hoc analyses with the Bonferroni correction confirmed these differences, highlighting *JB Cordecruz* as the institution with significantly lower results than the highest-rated schools. This pattern confirms that perceptions of teaching performance vary significantly across schools, complementing findings from the School Climate dimension.

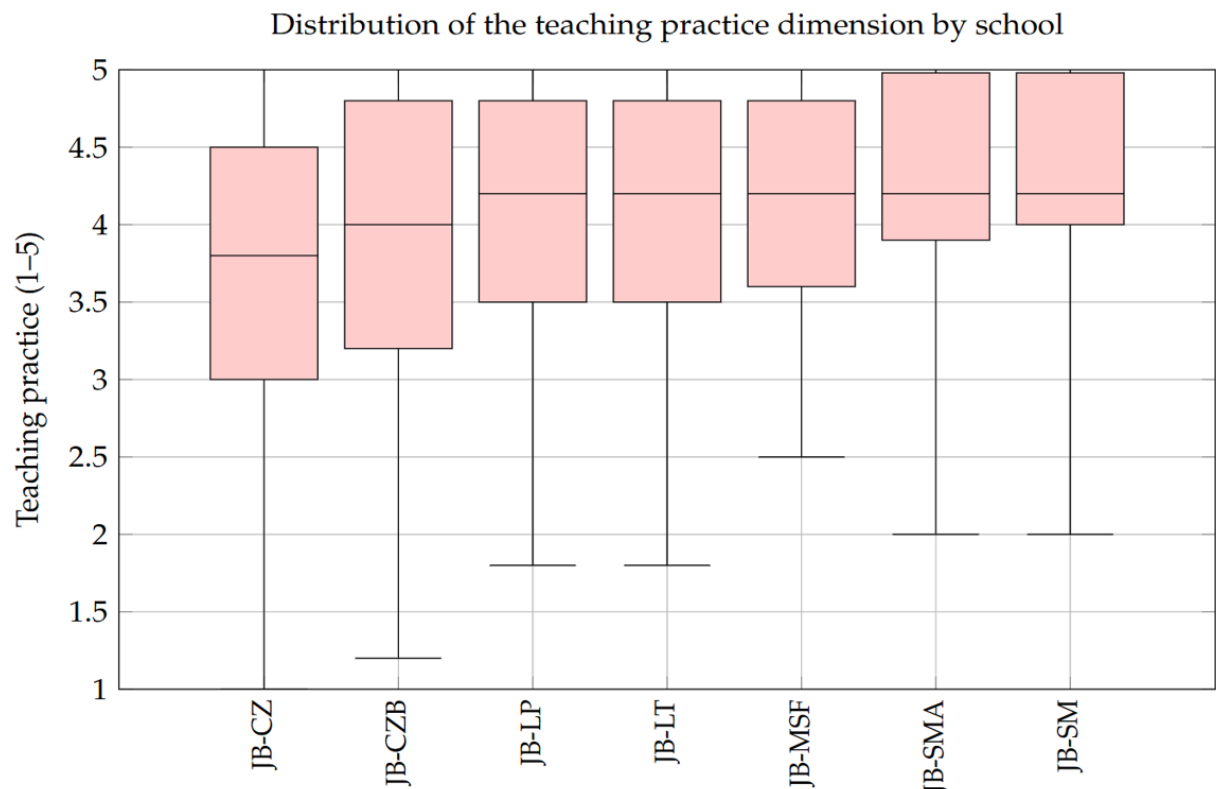


Figure 3. Boxplots of the teaching practice dimension by school.

Note: Boxplots illustrate the distribution of teaching practice scores (1–5 scale) across educational units. Boxes represent the interquartile range, horizontal lines indicate median values, and whiskers denote the minimum and maximum observed scores.

Group differences were examined using the Kruskal–Wallis test. The effect size was small ($\eta_H^2 = 0.022$), indicating that between-school differences explained approximately 2.2% of the variability in teaching practice scores.

3.3.3. Comparison Between the Dimensions of School Climate and Teachers' Pedagogical Practice in Different Educational Units

Table 5 summarizes the average ranks obtained with the nonparametric Kruskal–Wallis test, applied separately to the dimensions *School climate* and *Teacher's pedagogical practice*, to evaluate differences in perception among students from the seven educational units. The lowest ranks (JB Cordecruz and JB Cordecruz B) indicate that students at these institutions perceive the school climate and teaching practice less favorably.

The highest ranks (JB Señor de los Milagros and JB Santa María de los Ángeles) reflect more positive perceptions among students. The similarity of the patterns in both columns suggests consistency between the dimensions, though with slight variations (for example, in Los Tusequis, the difference between the dimensions is greater).

This comparative approach not only allows us to observe the general distribution but also to identify institutions with greater needs for improvement or good practices that could be replicated.

Table 5. Comparison of student perceptions by school according to validated dimensions.

School	School climate (Mean rank)	Teaching practice (Mean rank)
JB Cordecruz	6233.63	5955.17
JB Cordecruz B	6482.00	6232.25
JB Los Pinos	7142.65	6928.55
JB Los Tusequis	7433.41	7361.42
JB Mariscal Sucre F	7553.24	7492.20
JB Santa María de los Ángeles	8268.38	8294.84
JB Señor de los Milagros	8600.82	8661.15

Note: Values correspond to mean ranks derived from the Kruskal–Wallis test. Since the total number of responses was 14,611, ranks are in the order of thousands and should not be interpreted as direct Likert scale scores.

3.4. Comparative Analysis by Context: Advantaged, Disadvantaged

3.4.1. Results for the School Climate Dimension

The Mann–Whitney U test yielded a value of $U = 27,934,858.50$, with a two-tailed significance of $p < 0.001$. The results show that students from vulnerable backgrounds obtained a slightly higher average rank ($M_{rank} = 7521.74$) than their peers from privileged backgrounds ($M_{rank} = 7124.04$). Although the difference between ranks may seem small relative to the total sample size (14,611 student–teacher evaluations), its consistency across the distribution yields a statistically significant result, suggesting that vulnerable students tend to rate the school climate more positively than their privileged peers.

In addition to statistical significance, the effect size of the Mann–Whitney U test was estimated using the coefficient $r = \frac{z}{\sqrt{N}}$. Based on the value of $U = 27,934,858.50$ and the total sample size ($N = 14,611$), an effect size of approximately $r = 0.047$ was obtained, which corresponds to a small effect. It indicates that, although the differences between students from privileged and disadvantaged backgrounds in the dimension of *School climate* are consistent and statistically significant, the magnitude of this difference is small in practical terms.

3.4.2. Results for the Teaching Practice Dimension

In this case, the Mann–Whitney U test yielded a value of $U = 29,465,915.00$, with a two-tailed p-value of $p < 0.001$, indicating a statistically significant difference between the groups. The average range was higher among students from vulnerable contexts ($M_{rank} = 7750.77$) than among those from privileged contexts ($M_{rank} = 6930.87$), indicating a more positive assessment of teaching practice in vulnerable contexts. This pattern could be linked to contextual factors, such as differentiated expectations or greater recognition of the pedagogical support received.

Similarly, the effect size associated with the Mann–Whitney U test was calculated for the dimension *Teacher's pedagogical practice*. With a value of $U = 29,465,915.00$ and $N = 14,611$, the coefficient obtained was $r \approx 0.097$, which is interpreted as a small effect, although close to the threshold between minor and moderate impact. Consequently, students from vulnerable contexts tend to value teachers' pedagogical practice more than their peers from privileged contexts; however, the practical magnitude of this difference remains limited globally.

3.5. Results of the Multilevel Analysis

Given that each student could evaluate more than one teacher and responses were nested within teachers and educational units, random-intercept mixed linear models were estimated for the two questionnaire dimensions. In both cases, a model with a random intercept for the teacher, nested within the educational unit, was specified, with the student level as the reference level.

In the *School climate* dimension, the multilevel model showed that differences between teachers and institutions explain part of the variance. The intraclass correlation coefficient (ICC) was approximately 0.22, indicating that around 22% of the variability in climate scores is attributed to the teacher/institution level, while the remaining 78% corresponds to individual differences between students.

In the dimension of *teachers' pedagogical practice*, the ICC was approximately 0.15, indicating that about 15% of the variance relates to the teacher/institutional context and 85% to intra-student variation. These results confirm a real contextual effect but suggest that most perception variation occurs at the individual level. Therefore, differences between schools and contexts observed in nonparametric analyses should be seen as statistically significant but small in magnitude, aligning with the effect sizes estimated for the Kruskal-Wallis and Mann-Whitney U tests.

3.6. Qualitative Results

In some cases, responses to question Q11 were very direct, such as “Nothing,” “It's fine,” or “It's excellent,” reflecting satisfaction with teaching practices. However, a significant portion included more elaborate comments, mainly related to the teacher's explanation, interpersonal communication, and disciplinary control. By grouping fragments with relevant meanings, preliminary labels were assigned, such as “speak more clearly,” “help with questions,” “be more patient,” “control classmates,” and “motivate the group.” These labels were used to establish five main thematic categories (Table 6).

Table 6. Emerging thematic categories.

Thematic category	Examples of student responses
Clarity in teaching	"Speak louder and make explanations easier to understand." "Explain better the parts we do not understand."
Interpersonal treatment and attitude	"Have more patience." "Not shout so much."
Classroom management and discipline	"Control those who interrupt." "Be fairer with those who misbehave."
Participation and group motivation	"Encourage more participation." "Do activities where everyone can take part."
Academic support and availability	"Help students with their questions." "Listen more to the students."

When comparing the emerging categories with responses to questions Q8 (conflict management) and Q9 (group motivation), a clear consistency was observed: the weaknesses students mentioned regarding discipline and participation align with the moderate average values obtained in these questions ($Q8 = 3.03$; $Q9 = 3.27$).

The convergence of both methodological approaches led to the conclusion that, although teaching practice was well regarded, there are still areas for improvement in discipline, clarity of teaching, and student motivation. This provides an answer to the study's overall objective, offering a more comprehensive and enriched view of student perceptions and opportunities for pedagogical strengthening.

4. DISCUSSION

The patterns observed in this study reflect an emphasis on comprehensive formation, participatory learning, and democratic coexistence as articulated at the policy level (Cramarenco et al., 2023; Gómez-Hurtado et al., 2021; Josefina Bálsamo Educational Work, 2025; La Salle-Finley, Yang, Espelage, & Jimerson, 2024; Tan et al., 2021). Rather than merely confirming previous findings, the results suggest that students' perceptions of classroom climate and pedagogical practice depend on how these principles are enacted in everyday school life. Comparable patterns have been reported in other Latin American settings, where the relational dimension of teaching shapes how students experience educational quality (Krasniqi & Ismajli, 2022; Kyaruzi et al., 2019; Snilstveit et al., 2017; Stobaugh et al., 2020).

One of the most striking results was the slightly more favorable evaluation reported by students from vulnerable backgrounds compared with those from more privileged contexts. The difference in mean scores was modest, but it appears consistently across the dataset, which suggests that it is not simply noise. At first glance, this pattern diverges from La Salle-Finley et al. (2024), who report weaker perceptions of school connection and emotional well-being in marginalized settings. Their discussion, however, also emphasizes that school climate is culturally situated and may vary with the social role schools play within each community.

It is possible that in specific vulnerable contexts, school functions as a space for emotional support and daily stability, which would explain the positive evaluations even under material constraints. However, the effect sizes associated with these comparisons (coefficients close to 0.05 and 0.10) are also in the range of minor effects, so these results should be interpreted with caution and within the framework of a cross-sectional analysis that does not allow for causal inferences.

The categories identified in question 11 (Q11) reflect student demands that coincide with previous research, which highlights the importance of school climate and teacher-student relationships in educational quality (Krasniqi & Ismajli, 2022; Kyaruzi et al., 2019; La Salle-Finley et al., 2024; Snilstveit et al., 2017; Stobaugh et al., 2020). In particular, the insistence on more participatory and motivating classes supports the findings of authors who argue that disengagement from school can be mitigated through inclusive, active, and emotionally engaging teaching practices (Canut-Montalva et al., 2025; La Salle-Finley et al., 2024; Snilstveit et al., 2017). At the same time, criticism of discipline suggests the need to move toward more dialogical models of authority, in line with regional trends that promote restorative and community-based approaches (Hibbin, 2024).

The complete triangulation, which integrated both perspectives, reinforces this conclusion by showing that, although teachers' overall perception is positive, there are still weaknesses that need to be addressed. In addition, the similarities identified offer practical guidance for pedagogical improvement, especially for strengthening group motivation and formative conflict management. These conclusions are consistent with the principles of the MESCP, which prioritize community learning, critical participation, and the construction of democratic coexistence in Bolivian classrooms (Creswell, 2013; Johnson, Onwuegbuzie, & Turner, 2007; Josefina Bálsamo Educational Work, 2025; Ministry of Education, 2023).

The findings suggest that educational institutions should support ongoing professional development processes that respond to students' expressed demands, for example, through training programs in active strategies, community projects, or social-emotional mentoring that reinforce the pedagogical relationship in the classroom.

4.1. Study Limitations

Despite its methodological soundness, the study has limitations. On the one hand, the use of self-reported questionnaires may introduce biases associated with social desirability or students' prior expectations. Furthermore, although a large sample size improves statistical accuracy, it should be recognized that the same student may have evaluated several teachers, so the observations are not completely independent. Although the multilevel model allowed for partial control of the hierarchical structure of the data, the nonparametric tests used (Kruskal–Wallis and Mann–Whitney) assume independence between observations, which may increase the sensitivity of p-values and overestimate statistical significance. Therefore, the contrasts should be interpreted with caution, emphasizing that multilevel analysis is the most appropriate analytical approach to reduce this structural dependence.

The research opens up several possibilities for future investigations, such as longitudinal studies that not only allow for the observation of the evolution of student perceptions but also explore in greater depth possible causal relationships derived from specific pedagogical interventions. Furthermore, incorporating the perspectives of other educational stakeholders, such as teachers and families, could offer a broader view of the school climate.

5. CONCLUSIONS

The research concluded that student perceptions were positive in both dimensions (school climate and teaching practice), although there were certain differences between institutions, with a generally stable pattern, indicating that the majority of students perceive a favorable school environment. Five areas for improvement in the educational experience were identified: clarity, interpersonal treatment, classroom management (discipline), motivation (student participation), and academic support, of which discipline and student participation motivation stand out as needing the most attention.

Funding: This research received no external funding.

Institutional Review Board Statement: The study involved minimal risk and followed ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the institutional policies applicable to this type of minimal-risk educational research at the Salesian Polytechnic University, Ecuador. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Disclosure of AI Use: Artificial intelligence tools were used exclusively to support specific stages of the research process. ChatGPT (OpenAI) was used solely to organize qualitative data preliminarily by grouping open-ended responses by topic. The research team made all analytical decisions, conducted coding validation, interpreted results, and drew conclusions. In addition, Grammarly was used to assist with language editing and grammatical refinement of the English-language manuscript. Neither tool generated scientific content, influenced analytical decisions, nor replaced human academic judgment at any stage of the study.

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