

# Teaching strategies to improve academic performance in high school students: study at Unidad Educativa “Juan Jacobo Rosseau”, Cayambe

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## Abstract

This study proposes teaching strategies aimed at improving the low academic performance of high school students at Unidad Educativa “Juan Jacobo Rousseau” in Cayambe, Ecuador. The research was conducted using a descriptive and field approach, which allowed for the analysis of institutional, pedagogical, psychosocial, and sociodemographic factors that affect the academic performance of adolescents between the ages of 14 and 16. To collect information, a survey was applied to high school students, and it revealed deficiencies in institutional infrastructure, teaching methodologies, and parental support, as well as the presence of bullying. The results indicated that 91% of students perceive the need for institutional improvements, 85% consider that educational tools are insufficient, and 33% report having been bullied. In this context, the implementation of the teaching strategies manual—including adapted methodologies—the innovative use of technologies, social dynamics, and the strengthening of the relationship between teachers and students has proven to be an effective strategy. This has contributed to the optimization of the teaching-learning process and has made it possible to reduce low academic performance and prevent student dropouts. This research represents a valuable contribution to the education field, providing tools for teachers and highlighting the importance of implementing comprehensive interventions in educational contexts with similar challenges.

**Keywords:** academic performance, teaching strategies, high school education, bullying



Research article

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# Estrategias docentes para mejorar el rendimiento académico en estudiantes de secundaria: estudio en la Unidad Educativa “Juan Jacobo Rousseau”, Cayambe

## Resumen

En este estudio se proponen estrategias docentes destinadas a mejorar el bajo rendimiento académico de estudiantes de educación secundaria en la Unidad Educativa “Juan Jacobo Rousseau”, en Cayambe, Ecuador. La investigación se desarrolló mediante un enfoque descriptivo y de campo, que permitió analizar los factores institucionales, pedagógicos, psicosociales y sociodemográficos que inciden en el desempeño académico de adolescentes en edades entre 14 y 16 años. Para la recolección de información, se aplicó una encuesta a estudiantes de bachillerato, la cual reveló deficiencias en la infraestructura institucional, en las metodologías docentes y en apoyo parental, además de la presencia de acoso escolar. Los resultados señalaron que el 91 % de los estudiantes percibe la necesidad de mejoras institucionales, el 85 % considera insuficientes las herramientas educativas y el 33 % reporta haber sufrido acoso. En este contexto, la implementación del manual de estrategias docentes —que abarca metodologías adaptadas— el uso innovador de tecnologías, las dinámicas sociales y el fortalecimiento del vínculo docente-alumno han demostrado ser estrategias efectivas. Esto ha contribuido a la optimización del proceso de enseñanza-aprendizaje y ha permitido reducir el bajo rendimiento académico y prevenir la deserción estudiantil. Este trabajo representa un aporte valioso al ámbito educativo, ya que ofrece herramientas para los docentes y subraya la importancia de aplicar intervenciones integrales en contextos educativos con desafíos similares.

*Palabras clave:* rendimiento académico, estrategias docentes, educación secundaria, acoso escolar

# Estratégias pedagógicas para melhorar o desempenho académico em alunos do ensino secundário: estudo na Unidade Educativa “Juan Jacobo Rousseau”, Cayambe

## Resumo

Este estudo propõe estratégias pedagógicas destinadas a melhorar o baixo desempenho académico dos alunos do ensino secundário na Unidade Educativa “Juan Jacobo Rousseau”, em Cayambe, Equador. A investigação foi desenvolvida através de uma abordagem descritiva e de campo, que permitiu analisar os fatores institucionais, pedagógicos, psicosociais e sociodemográficos que afetam o desempenho académico de adolescentes entre 14 e 16 anos. Para a recolha de informações, foi aplicado um inquérito a alunos do ensino secundário, que revelou deficiências na infraestrutur institucional, nas metodologias de ensino e no apoio parental, além da presença de bullying escolar. Os resultados indicaram que 91% dos estudantes percebem a necessidade de melhorias institucionais, 85% consideram insuficientes as ferramentas educativas e 33% relatam ter sofrido bullying. Neste contexto, a implementação do manual de estratégias pedagógicas —que abrange metodologias adaptadas—, o uso inovador de tecnologias, as dinâmicas sociais e o fortalecimento do vínculo

professor-aluno têm se mostrado estratégias eficazes. Isso contribuiu para a otimização do processo de ensino-aprendizagem e permitiu reduzir o baixo desempenho acadêmico e prevenir a evasão escolar. Este trabalho representa uma contribuição valiosa para o âmbito educativo, pois oferece ferramentas para os professores e ressalta a importância de aplicar intervenções integrais em contextos educativos com desafios semelhantes.

*Palavras-chave:* desempenho acadêmico, estratégias de ensino, ensino secundário, bullying escolar

## Introduction

Academic performance is an indicator of educational success, influenced by multiple factors that interact in the teaching-learning process (Ariza et al., 2018). In the context of high school education, low academic performance represents a challenge associated with deficiencies in the educational system, and it is related to psychosocial and sociodemographic conditions that affect students (Estrada et al., 2024); this is also the case in Ecuadorian secondary education. According to the Ministry of Education of Ecuador (2023), nearly 28% of high school students in rural and semi-urban areas, such as Cayambe, exhibit significant difficulties in basic skills, with dropout rates exceeding 12%. In Cayambe, this problem is evident in institutions such as the Unidad Educativa Particular "Juan Jacobo Rousseau", where limitations are perceived in infrastructure, teaching methodologies, and family support, in addition to issues such as bullying.

Although there are studies related to factors contributing to low academic performance in urban contexts (López, 2022; Rosales-Castro et al., 2023), research is scarce in private institutions in intercultural areas such as Cayambe. Where specific sociodemographic conditions converge (low parental educational level, limited access to technology, and the presence of undocumented bullying). This, combined with a gap in local knowledge, motivated the present study.

High school education is a critical stage in the development of teenagers aged 14 to 16, who experience physical, psychological, and social changes that impact their academic performance (Agila, 2019). According to Paredes-Robles et al. (2023), teachers play a fundamental role in this process because they become fundamental agents in implementing strategies that motivate students and improve their academic

performance. However, traditional teaching practices do not adapt to the specific needs of this population, which contributes to low performance and, in extreme cases, to school dropout (García et al., 2024).

This study focuses on teaching strategies aimed at optimizing the academic performance of high school students at this institution. Through an analysis of the factors that contribute to low performance, the study seeks to develop a practical manual that provides methodological and didactic tools for teachers. The research is based on the premise that a comprehensive approach that considers both the individual characteristics of students and institutional conditions can lead to significant improvements in academic performance.

The general objective of this study is to propose teaching strategies that improve the conditions of low academic performance in high school students at the Unidad Educativa Particular "Juan Jacobo Rousseau". The specific objectives include analyzing the factors that affect the performance, describing the characteristics of the teenagers, evaluating educational conditions, proposing teaching strategies, and developing a manual for their implementation.

This study addresses an invisible problem: in small private institutions—often considered 'better' than public ones—low performance persists, but without diagnosis or intervention. The Unidad Educativa "Juan Jacobo Rousseau" illustrates how combined factors (poor infrastructure, rigid methodologies, limited parental support and unaddressed bullying) erode learning, even in settings with basic resources.

The proposed strategies not only benefit this institution but also offer a replicable model for hundreds of rural and semi-urban schools in Ecuador that face similar challenges but lack

the technical capacity to design comprehensive pedagogical responses.

## Materials and methods

The study was guided by the following objectives: (1) to analyze the institutional, pedagogical, psychosocial, and sociodemographic factors that influence low academic performance; (2) describe the characteristics of the adolescent participants; (3) evaluate perceived educational conditions; (4) propose teaching strategies based on the findings; and (5) develop an implementation manual.

### Research design

The study adopted a descriptive and field-based approach, with a prospective design aimed at identifying the factors contributing to low academic performance and proposing teaching strategies for improvement. According to Arias (2012), the descriptive approach allows the analysis of phenomena in their natural context, while fieldwork facilitates the collection of data directly from the people involved.

### Population and sample

The study population consisted of high school students aged 14 to 16 from the Unidad Educativa Particular "Juan Jacobo Rousseau", in Cayambe, Ecuador. Given the exploratory and contextual nature of the study, a non-probabilistic purposive sampling method was chosen. Therefore, 47 first and second-year high school students were selected, whose grades were below the institutional average (less than 7/10) in at least two subjects during the first semester of 2024. This strategy responds to the need to focus the intervention on the most vulnerable group, as suggested by Hernández et al. (2014) in institutional diagnostic research.

### Study limitations

This study has limitations inherent to its methodological design. First, the sample consists of 47 students from a single private educational institution in Cayambe, who were intentionally selected because of their low academic performance. This non-probabilistic approach, while useful for exploratory and context-specific studies, limits the generalizability of the results to other educational contexts in Ecuador.

Furthermore, the instrument used—a dichotomous survey—while allowing for rapid collection of perceptions, does not capture the depth or variability of individual experiences (e.g., intensity of bullying, quality of parental support, or specific motivations). Future research could be complemented by qualitative approaches (interviews, focus groups) or mixed-methods designs that allow for data triangulation and greater internal validity.

### Data collection tools

The questionnaire was adapted from Marcano's (2023) model and tailored to the Ecuadorian context and the teenage stage. It was validated by three experts in educational methodology and psychopedagogy (two from the Universidad de Otavalo and one from the Ministry of Education), who assessed the clarity, relevance, and consistency of the questions using the content validity index (CVI > 0.80). After two rounds of feedback, two ambiguous items were reworded, and an additional question regarding the frequency of bullying was included (although it was not included in the final analysis, as this was an initial study).

### Procedure

Data collection took place in November 2024, following a set schedule. Students completed the survey in a controlled environment, with clear instructions to ensure they understood the questions. The data were tabulated and analyzed using descriptive statistics, including frequencies and percentages, which were presented in tables and figures to facilitate interpretation (Guevara et al., 2020)

### Data analysis

The analysis focused on identifying patterns in students' responses. Then, linking them to factors that affect academic performance. Frequency tables were used to summarize perceptions regarding infrastructure, teaching quality, family support, and bullying. The results were compared with the existing literature to support the conclusions and the proposed teaching strategies (Guevara et al., 2020). Univariate descriptive statistics and calculations of absolute and relative frequencies were applied. No inferential analysis was performed due to the exploratory nature of the study and the small sample size. The results are

presented in comparative tables organized by thematic dimensions (institutional, pedagogical, sociodemographic, and psychosocial)

## Results

The survey results revealed multiple factors contributing to low academic performance at the Unidad Educativa "Juan Jacobo Rosseau". The main findings are presented below, organized according to the dimensions assessed.

The 40% of students answered No to the question: Do you consider the quality of the teachers to be good? This percentage appears to contradict the percentages in Table 2, because 85% of students stated that they had 'good teachers'. This discrepancy suggests a bias in the wording of the questions or a nuanced perception: students value the teachers' personal approach but criticize their teaching methods. This reinforces the need to design instruments using Likert scales in future studies and highlights that dissatisfaction does not stem from the teacher as a person, but rather from a lack of pedagogical innovation. This aligns with the findings of the study by [Martín et al. \(2018\)](#).

**Table 1**

*Institutional factors*

Question	Percentage (%)	Answer
Need for infrastructure improvements	91	Sí
Appropriate classroom materials	85	No
Need to improve classes	77	Sí
Quality of teachers (negative)	40	No

*Note.* Institutional elements to be considered.

The percentages in Table 2 show a predominantly positive result regarding students' self-perception, their appreciation for faculty, and the adequacy of institutional resources. These factors contribute to a good learning environment. However, the strong feeling regarding the need for improvements in classes stands out as an area requiring attention. Although the fundamental elements (students, faculty, and basic resources) are strong, there is a clear desire for evolution and refinement in how classes are conducted or what they entail. This points to the need to explore new teaching methods, update course content, or provide more interactive learning experiences. Addressing these aspects through feedback could further improve student satisfaction and academic outcomes.

**Table 2**

*Pedagogical factors*

Question	Frequency		Percentage (%)	
	Yes	No	Yes	No
Do you consider yourself a good student?	42	5	89	11
Do you think you have good teachers?	40	7	85	15
Do you think the institution has the right tools to teach the courses?	38	9	81	19
Do you think improvements need to be made to the courses?	19	28	40	60

*Note.* Pedagogical elements.

The data in Table 3 indicate that 96% of students reported having access to good nutrition and the resources and materials needed for their studies; financial constraints were ruled out as a major factor. Only 38% receive academic support from their parents, a finding that correlates with their educational attainment: 48% completed elementary school; 32%, middle school, and 20%, college.

**Table 3**

*Sociodemographic factors*

Question	Percentage (%)	Answer
Good nutrition and material resources	96	Sí
Academic support from parents	38	Sí
Parents' educational level: elementary school	48	-
Parents' educational level: high school	32	-
Parents' educational level: college	20	-

*Note.* Sociodemographic factors analyzed in students

The percentages in Table 4 indicate that 89% of students get along well with their classmates and teachers, but 33% reported having experienced bullying—a significant percentage that can negatively impact their academic performance. Only 11% identified specific factors that prevent them from studying, suggesting that psychosocial barriers are less common but significant when they do occur.

**Table 4**

*Psychological factors*

Question	Percentage (%)	Answer
Good relationships with classmates/teachers	<b>89</b>	<b>Sí</b>
Experienced bullying	<b>33</b>	<b>Sí</b>
Factors that interfere with studying	<b>11</b>	<b>Sí</b>

*Note.* Institutional elements to be considered.

**Discussion**

The results confirm that the low academic performance of students at the Unidad Educativa "Juan Jacobo Rousseau" School is a multifactorial phenomenon, which aligns with the findings of [Rosales-Castro et al. \(2023\)](#) and [López \(2022\)](#), who highlight the influence of institutional, pedagogical, psychosocial, and sociodemographic factors. The negative perception of the infrastructure and educational tools reflects the structural limitations of the education system; these conditions can lead to demotivation and apathy. These factors were also identified in the study by [Alama and Obaco \(2024\)](#) as determinants of low performance.

The negative evaluation of teachers by 40% of the students underscores the importance of the teacher's role in the teaching-learning process. According to [Cordero and León \(2020\)](#), the quality of teacher-student interactions and the teacher's enthusiasm are crucial for improving academic performance. The lack of methodologies adapted to the needs of adolescents, combined with a lack of interest in certain subjects, suggests the need for more dynamic pedagogical approaches, such as those proposed by [Martín et al. \(2018\)](#).

The fact that only 38% of students receive academic support at home, despite 96% having access to learning materials, reflects a cultural capital gap, but not an economic one. As [Borja et al. \(2021\)](#) point out, parents with only primary or secondary education often lack the tools to guide learning, especially in areas such as mathematics or science. For this reason, the teacher's manual proposes family-school engagement activities, such as visual guides for parents or school support sessions, inspired by the successful experiences of [Cedeño and Obaco \(2023\)](#).

Furthermore, the fact that 33% of students, that is, 1 in 3 students, have experienced bullying is alarming, especially when contrasted with the high rating of peer relationships (89%). This suggests that bullying may be invisible to the institutional system, occur in unsupervised contexts (restrooms, social media), or be normalized as 'teenage play'. [Alcivar-Morales and Roque-Herrera \(2025\)](#) report that, in 68% of bullying cases in Ecuadorian schools, teachers do not intervene because they are unaware of protocols. This highlights the urgency of including early detection modules and action protocols in the proposed manual, in addition to teacher training on school coexistence.

The proposal for a manual of teaching strategies addresses these issues, as it promotes adapted methodologies, the use of technology, social dynamics, and the strengthening of the teacher-student bond. These strategies align with the recommendations of [Tandazo \(2019\)](#) regarding the integration of technological tools, and [Muñoz \(2023\)](#) regarding the importance of a positive learning environment. The manual's comprehensive approach seeks to address students' individual needs and institutional shortcomings, with the aim of providing a practical tool for teachers.

### Conclusions

Low academic performance at the Unidad Educativa "Juan Jacobo Rousseau" is influenced by deficiencies in institutional infrastructure, inadequate teaching methodologies, limited parental support, and the presence of bullying. Students recognize the need for improvements

in facilities and classrooms, while only a minority receive academic support from their parents, despite having access to material resources. The 33% incidence of bullying stands out as a significant psychosocial factor requiring immediate attention.

The proposal for a teaching strategies manual offers a practical solution, as it focuses on promoting methodologies adapted to the characteristics of adolescents, the incorporation of technology, social dynamics, and a strengthened bond between teacher and student. These strategies aim to optimize the teaching-learning process, reduce underachievement, and prevent school dropout. The study underscores the importance of comprehensive interventions that address both institutional limitations and students' psychosocial needs.

It is recommended to continue similar research in other institutions in Cayambe and extend the analysis to the national level to understand educational needs in Ecuador. It is necessary to explore this issue further using qualitative approaches (student interviews, classroom observation) to explore the nature of bullying, the type of parental support received, and adolescents' expectations regarding the methodologies used by teachers. Likewise, it is suggested that institutions with adequate infrastructure be established and that specialized psychologists be incorporated to address problems such as bullying. This study is relevant in the educational field because it provides a theoretical and practical foundation for improving academic performance in similar contexts.

### Conflict of interest

The authors declare that they have no conflicts of interest: financial, personal, political, intellectual, racial, religious, or otherwise, that could compromise the reliability of this publication. Furthermore, they affirm their agreement with the journal's editorial policy.

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## Contribution

**Marco Xavier Freire Figueroa:** principal investigator. Data collection, field research, analysis and interpretation of results, statistical data processing, drafting of the Materials and Methods section, and presentation of the results.

**Darwin Patricio García Ayala:** writing of the introduction, methods, discussion, and conclusions.

The authors contributed to the preparation of the manuscript, reviewed it, and approved it.