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Article

School environments and educational performance: Challenges and opportunities in Secondary Education

Entornos escolares y desempeño educativo: Desafíos y oportunidades en la Educación Secundaria

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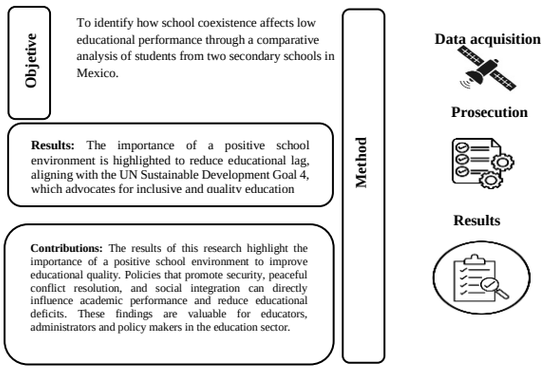
Abstract

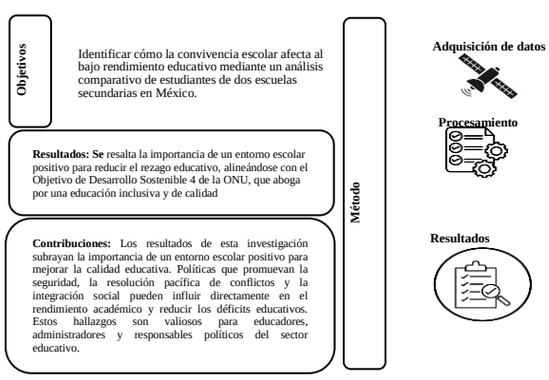
This research analyzes how school coexistence influences low educational performance in two secondary education institutions in a post-pandemic context. The importance of a constructive school environment to mitigate educational lag is highlighted, in line with the UN's Sustainable Development Goal 4, which promotes inclusive and high-quality education. Its main objective is to investigate how school coexistence affects low educational performance through a comparative analysis of students from two secondary schools in Mexico. The methodology implemented is that of a research approach with comparative and correlational designs. A sample of 150 students was used. A specific research instrument was carried out and as for the statistical analysis, it was characterization, correlations and comparisons of means. The main conclusions indicate that school coexistence is crucial for quality education. Constructive environments facilitate integration and academic performance, while hostility and insecurity contribute to poor performance. It is recommended to develop initiatives to improve school coexistence and comply with SDG 4.



Education, educational lag, school coexistence

Resumen

Esta investigación analiza cómo la convivencia escolar influye en el bajo rendimiento educativo en dos instituciones de educación secundaria en un contexto pospandémico. Se destaca la importancia de un entorno escolar constructivo para mitigar el rezago educativo, en línea con el Objetivo de Desarrollo Sostenible 4 de la ONU, que promueve una educación inclusiva y de alta calidad. Su objetivo principal es indagar cómo la convivencia escolar afecta al bajo rendimiento educativo mediante un análisis comparativo de estudiantes de dos escuelas secundarias en México. La Metodología implementada es el de un enfoque de investigación con diseños comparativos y correlacionales. Se utilizo una muestra de 150 estudiantes. Se realizo un instrumento de investigación específico y en cuanto al análisis estadístico este fue de caracterización, correlaciones y comparaciones de medias. Las principales conclusiones indican que la convivencia escolar es crucial para una educación de calidad. Entornos constructivos facilitan la integración y el rendimiento académico, mientras que la hostilidad y la inseguridad contribuyen al bajo rendimiento. Se recomienda desarrollar iniciativas para mejorar la convivencia escolar y cumplir con el ODS 4.



Educación de calidad, rezago educativo, convivencia escolar

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Introduction

Educational quality is a key academic and policy concern on a global scale, particularly in a post-pandemic environment, where the dynamics of educational institutions have undergone considerable transformations. In this context, the concept of school coexistence has become a key determinant of students' academic achievement.

As postulated by UNESCO (2018), a conducive school environment not only facilitates the learning process, but also improves the overall well-being of students, thus contributing to the achievement of Sustainable Development Goal 4 (SDG 4), which promotes inclusive and equitable quality education.

The quality of education systems is a topic of global discussion, crucial for the development of policies and programmes that seek to improve the educational experience. Bianchetti (2017) highlights the importance of understanding 'quality' as a multifaceted and central concept in education, emphasising that its relative definition does not diminish its relevance in the implementation of educational actions.

Manriquez and Vazquez (2019) address specific challenges in Mexico, such as dropout and failure, and highlight the motivational role of teacher-tutors in supporting students with diverse difficulties.

In relation to the factors that promote an environment that promotes education, Medina *et al*. (2023) mention school coexistence, understood as the construction of relationships based on respect and solidarity, which are essential for an educational community without violence.

López-Pérez *et al*. (2022) point out the importance of methodological skills as tools for teachers, enabling them to maximise students' potential in the face of learning challenges. Valencia-Aguirre *et al*. (2021) emphasise the promotion of peaceful coexistence as a pillar of educational quality. These studies collectively underline the complexity of educational quality and the need to address it from multiple perspectives in order to foster an effective and enriching learning environment.

Likewise, the Delors Report (1996), widely cited in the educational literature, highlights the relevance of 'learning to live together' as one of the essential foundations of learning. This perspective highlights that educational environments must be endowed with conditions and environments conducive to effective academic development. In this context, Reyes-Jaimes and Velázquez-Reyes (2022) stress the need to create educational climates that enable students not only to acquire knowledge, but also to develop social and emotional skills that are crucial for life in society.

On the other hand, Navarrete-Cazales and Ocaña-Pérez (2022) analyse educational backwardness as a manifestation of social inequality that restricts the personal and professional growth of individuals, limiting their opportunities to achieve a fulfilling life and fairly remunerated employment. This view of educational backwardness as an obstacle to social equity highlights the importance of inclusive and effective educational policies that address the needs of all students.

Finally, Carro-Olvera and Lima-Gutiérrez (2022) offer an interpretation of educational backwardness that goes beyond the mere accumulation of knowledge. They argue that school success should be assessed within a broader framework that considers the diverse realities faced by students, both in the classroom and in their daily lives. This holistic approach suggests that educational success cannot be measured solely by academic outcomes, but must include students' ability to navigate and adapt to the complex social and personal challenges they encounter outside of school.

Likewise, the study by Coque-Méndez *et al*. (2025) highlights the influence of learning styles on the effectiveness of pedagogical strategies in primary and secondary education, highlighting the need to adapt teaching methodologies and the importance of continuous training for teachers.

In summary, these studies converge on the idea that education should be seen as an integral process that not only imparts knowledge, but also fosters human development in all its dimensions. Education, therefore, should be designed to prepare individuals for life in an increasingly interconnected society and to meet the challenges of a changing world.

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The main objective of this study is to examine the interrelationship between school coexistence and educational backwardness in two secondary schools in Mexico. The research seeks to identify how the interactions that occur within educational environments affect students' academic performance and retention, which are vital components for the establishment of quality education.

In a scenario where the pandemic has intensified individual differences, it is imperative to assess the potential of school coexistence as a mechanism to improve academic outcomes and mitigate educational setbacks. School coexistence, defined as the fostering of positive relationships among students and between students and teachers, is fundamental to creating an environment conducive to learning and personal growth. This research responds to the pressing need to adapt educational methodologies to contemporary challenges in order to enable students to participate in quality education that promotes holistic development.

Methodology

This research is comparative and differential, concentrating on correlating the established objectives in order to obtain a comprehensive view of the relationship between school coexistence and educational backwardness. A methodological design was formulated that encompasses a comparative analysis of two populations of secondary schools in the Mexican Educational System.

The study is composed of 100 variables aligned with the research axes, using a centesimal scale ranging from 0 (absence of the attribute) to 100 (maximum presence of the attribute). In addition, 8 variables were incorporated to characterise the study population. These variables facilitated a meticulous comparison between the two educational institutions.

1. Frequencies and percentages: these were used to delineate the distribution of variables and to understand the prevalence of specific phenomena within the populations under study.
2. Characterisation: This analytical level focused on defining the unique characteristics of the two school populations, in terms of the variables examined. Correlation: This technique was used to determine the relationship between several variables, elucidating how certain aspects of school coexistence influence educational delay. Comparison: This method was applied to identify significant disparities between the two institutions, revealing patterns and variations in students' educational experiences.

This methodological approach allowed for a comprehensive and nuanced understanding of how school coexistence affects academic performance and educational delay in various educational contexts, ultimately influencing the quality of education.

Results and Discussion

The comparative analysis between secondary education institutions indicated significant differences in the correlation between school coexistence and educational backwardness. A total of 100 variables related to educational experience were analysed using a centesimal scale, as well as 8 variables characterising the research population.

Frequencies and percentages In the comparison by gender, an almost equal distribution was identified in both educational establishments, with 50.66% of female students and 49.33% of male students. This balance facilitated the exclusion of gender as a possible confounding variable in the evaluation of school coexistence.

Gender Frequency Percentage
Female 76 50.66% Male
Male 74 49.33% Total 150
Total 150 100% Source.

Table 1 Gender
Source: Own elaboration

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Correlation

In the correlational analysis it is observed that the variable tolerance shows a positive correlation with the different opinions of their environment, they have the ability to use emotional tools (r=0.36) to adapt (r=0.38) to the changes that occur every day in the classroom, this leads them to develop a sense of belonging to the institution (r=0.37), which promotes integration between peers (r=0.41) as well as teamwork (r=0.35). However, students who are tolerant do not get upset (r=-0.37) when faced with circumstances that arise with their peers. It is inferred that tolerance is the backbone of educational quality within the spaces in which healthy coexistence permeates the school community, which implies that students who effectively regulate their emotions are more likely to be successfully incorporated into their educational environment.

Variable r-value
Sense of belonging 0.37
Peer integration 0.41
Adaptability 0.38
Teamwork 0.35
Ability not to get upset 0.37
Use of emotional tools 0.36

Table 2 Capacity for Tolerance
Source: Own Elaboration

Comparison

In the comparative analysis of the two educational institutions, it was determined that Technical Secondary School 'A' faces more significant learning impediments, as evidenced by a higher level of perceived insecurity (54.39% compared to 30.16% in General Secondary School 'B') and a higher prevalence of conflict (81.01% compared to 55.01%). These variables correlate with a more significant educational deficit in Technical Secondary School 'A', where students showed reduced participation in extracurricular activities and deteriorated health status.

Variable Sec. Tec. 'A' Sec. Gr. 'B' t-value p-value
Conflicts 81.01 55.01 5.29 0.000000
Perceived insecurity 54.39 30.16 3.99 0.000103
Extracurricular activities 46.13 66.94 -3.17 0.001843
Health Status 62.96 46.54 2.91 0.004212

Table 3 Comparison between institutions
Source: Own Elaboration

Discussion

The results of this research corroborate the fundamental importance of school coexistence in improving educational quality, in line with the principles of the United Nations Sustainable Development Goal 4 (SDG 4), which calls for inclusive and high quality education for all people. Empirical evidence indicates that a safe and affirming school environment is indispensable for students to reach their full academic potential, corroborating the assertions of Manriquez and Vazquez (2019), who clarify that educational quality is susceptible to influences such as dropout rates and academic disapproval, which are shaped by the dynamics of school coexistence.

In the context of the school called Secundaria Técnica 'A', high levels of perceived insecurity and the prevalence of conflict obstruct the holistic development of students, as evidenced by their decreased participation in extracurricular activities and increased educational lag. These observations are consistent with the findings of Navarrete-Cazales and Ocaña-Pérez (2022), who argue that educational backwardness is intrinsically related to social inequality, which manifests itself in conflictive school environments.

The high amount of conflict in this institution indicates the inadequacy of effective methodologies to manage student behaviour and resolve disputes, which negatively affects their academic achievement.

Furthermore, research by Medina *et al*. (2023) on school coexistence as a key element in cultivating respectful and supportive relationships within the educational community underlines the need for an environment conducive to learning. Students in the so-called Secundaria. General 'B' students who are in a safer environment characterised by a lower incidence of conflict show greater integration and participation in extracurricular activities, which fosters their academic and personal growth.

This observation is consistent with the perspective of López-Pérez *et al*. (2022), who assert that methodological competencies allow educators to discern opportunities to foster students' potential, particularly in a positive school environment.

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In contrast, Valencia-Aguirre *et al*. (2021) emphasise that promoting peaceful coexistence within educational institutions involves fostering respect, tolerance and peaceful conflict resolution. As well as the observed evidence that students who cultivate competencies such as tolerance have a greater capacity to adapt to change and contribute to an inclusive school environment, which reinforces the importance of these skills in fostering a healthy school experience. The comparison of the two educational institutions underlines the importance of educational interventions aimed at improving school coexistence as a strategy to mitigate educational backwardness.

Educational policies should prioritise the establishment of a safe and supportive environment in which students can fully cultivate their emotional and social competencies. This view is consistent with the Delors Report (1996), which recognises the need to 'learn to live together' as a fundamental pillar of education, and emphasises that academic success depends on a school climate that promotes mutual respect and collaboration.

Conclusions and Recommendations

This research shows evidence that the dynamics of school coexistence are fundamental to improving educational quality and mitigating educational deficits. A comparative analysis of the so-called General Secondary 'A' school and the Technical Secondary 'B' school shows that a supportive school environment, defined by a minimum of conflict and a greater sense of security, is strongly associated with better academic results and greater participation in extracurricular activities.

The main objective of this work, which was to examine the correlation between school coexistence and educational lag, has been successfully achieved. The data collected and analysed indicated that students in conflictual environments with severe learning barriers, such as those attending the Technical High School 'B', face greater obstacles to academic success. In contrast, students at General Secondary School 'A', who benefit from a safer and more collaborative environment, demonstrate better academic performance and greater integration into the educational community.

The results of this research can contribute to the work of educators, administrators and policy makers in the education sector, as they underline the importance of fostering a positive school environment to raise educational quality; where policies that advocate for safety, peaceful conflict resolution and social integration within educational institutions can have a direct influence on academic performance and the alleviation of educational deficits.

In terms of recommendations, it is important to:

1. Foster school coexistence initiatives with the establishment of programmes that facilitate peaceful school coexistence, such as conflict resolution workshops, emotional intelligence education and activities designed to promote integration and mutual respect among students.

2. Improve school safety: Educational institutions should strive to strengthen safety both on and off campus. This includes the implementation of strategies aimed at decreasing students' perception of insecurity, which can improve their overall well-being and academic performance.

3. Equip teachers with social-emotional competencies through training courses and workshops to identify and address conflict effectively, as well as to cultivate a classroom environment that fosters collaborative and respectful learning.

4. Integrating cross-curricular subjects or topics that foster social and emotional skills into the curriculum such as the inclusion of social-emotional education programmes in the academic curriculum could facilitate the development of essential skills for peaceful and productive coexistence, thus contributing to students' academic and personal success.

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5. Further research on the relationship between school life and academic performance in various contexts and educational levels is advisable. This will enable the formulation of more effective strategies adapted to different school realities.

6. Formulate inclusive education policies that prioritise the establishment of an inclusive environment that accommodates all students, particularly those who face greater barriers to learning, such as those from contexts characterised by significant insecurity or conflict.

In short, improving school coexistence is crucial to reducing educational deficits and achieving quality education aligned with the Sustainable Development Goals (SDGs).

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that could have influenced the article reported in this paper.

Author contribution

Rodríguez-Aguilar, Jessica Sabrinaa: Conceptualisation, research, data curation,

Espericueta-Medina, Marta Nieves: formal analysis. Supervision, methodology,

Sanchez-Rivera, Lilia: project management, validation.

Villareal-Soto, Blanca Margarita: visualisation, drafting, revision and editing

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Availability of data and materials

The data and materials used in this study are available upon request to the corresponding author. The data include treatments, surveys, etc. To access these data, please contact the author at mnieves@uadec.edu.mx.

Abbreviations

UNESCO United Nations Educational, Scientific and Cultural Organization
SDG 4 Sustainable Development Goal on Education
ONU United Nations United Nations

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