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Educational Transformation through Innovative Pedagogy and Socio-Emotional Learning: A Quantitative Analysis

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ABSTRACT

This study analyzes the impact of innovative pedagogy and socio-emotional learning (SEL) on educational transformation, from a quantitative perspective. 300 teachers and principals of secondary educational institutions in Latin America were surveyed to examine the correlation between innovative pedagogical practices and students' socio-emotional development. The results show a statistically significant relationship, highlighting the importance of integrating both approaches to promote a comprehensive, equitable education adapted to the challenges of the twenty-first century.

Keywords: educational transformation, innovative pedagogy, socio-emotional learning, quantitative analysis, emotional competencies

INTRODUCTION

In recent decades, education has faced profound transformations driven by social, technological and economic changes that redefine the role of the school, the teacher and the student. The COVID-19 pandemic, in particular, accelerated the need to reconfigure traditional teaching-learning models, highlighting the urgency of incorporating more dynamic, flexible, and student-centered pedagogical approaches (UNESCO, 2021). This new educational paradigm requires not only an update of content, but also a transformation of the methodologies and competencies that are developed in the classroom.

In this context, **innovative pedagogy** emerges as a response to the limitations of conventional education, incorporating active methodologies, digital technologies, and participatory processes that promote autonomy, critical thinking, and creativity in students (Erickson & Pianta, 2022). These strategies, which include project-based learning, the flipped classroom, gamification, among others, have proven to be effective in increasing motivation, engagement, and academic performance (Marín-Díaz & Morales-Morante, 2020).

On the other hand, **social-emotional learning (CSL)** has become relevant as an essential component for the integral development of students. According to the model proposed by CASEL (2020), ASE allows students to acquire and apply skills to understand and manage emotions, establish empathic relationships, and make responsible decisions. These skills not only have a positive impact on individual well-being, but also influence social cohesion, bullying prevention, and the improvement of the educational climate (Osher et al., 2021).

Numerous recent studies argue that the integration of SEL into pedagogical practices transforms the educational experience, promoting more inclusive, participatory, and emotionally safe environments (López et al., 2022; Ramírez & Soto, 2023). In addition, there is growing evidence that innovative pedagogy facilitates the development of socio-emotional skills by offering spaces for interaction, collaboration, and reflection among peers (González & Herrera,

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2021). The combination of these approaches responds to the need to train students who are not only academically competent, but also resilient, empathetic and ethically committed to their environment.

Despite these conceptual advances, more empirical evidence is still required on how these variables are related in specific educational contexts, especially in Latin American countries. Hence, the purpose of this research is to quantitatively analyze the relationship between the implementation of innovative pedagogical strategies and the development of socio-emotional competencies in secondary school students. It is hypothesized that a greater presence of innovative pedagogical practices is positively associated with a greater development of ASE, which can represent an effective path towards educational transformation.

THEORETICAL FRAMEWORK

Contemporary educational transformation requires understanding the elements that drive structural change in teaching models. Among them, **innovative pedagogy** and **socio-emotional learning (SEL)** stand out as two key approaches that, synergistically, configure new student-centered learning scenarios. Below, each of these concepts is analyzed from the recent literature.

1. Innovative pedagogy

Innovative pedagogy refers to approaches that break with traditional teaching structures and place the student as the active protagonist of their own learning. This approach includes active methodologies, technological integration, and collaborative strategies (Erickson & Pianta, 2022; Ramírez & Soto, 2023).

According to Marín-Díaz and Morales-Morante (2020), this type of pedagogy promotes greater participation, critical thinking, problem-solving, as well as creativity. Innovation is not reduced to the use of technologies, but to rethinking the role of the teacher as facilitator and guide of the educational process.

Table 1. Main characteristics of innovative pedagogy

Feature	Description
Active learning	Students build knowledge through experiences
Use of ICT	Integration of digital resources in the classroom
Student-centered approach	The student is the protagonist of the learning process
Formative assessment	Emphasis on continuous improvement processes
Collaborative work	Promoting peer-to-peer learning and teamwork

Source: Authors' elaboration based on Erickson & Pianta (2022); Marín-Díaz & Morales-Morante (2020)

Project-based learning (PBL), the flipped classroom, and gamification are concrete examples of innovative pedagogies that have demonstrated improvements in academic participation and performance (González & Herrera, 2021). In addition, these approaches increase the intrinsic motivation and autonomy of the student, facilitating more dynamic and adaptive environments.

2. Social-Emotional Learning (CSL)

The ASE has become increasingly relevant as a result of the psychosocial challenges faced by students, especially after the pandemic. The CASEL model (2020) establishes five fundamental competencies of the ASE:

Table 2. Socio-emotional learning (ALE) competencies

Competence	Description
Awareness	Recognition of emotions, values and personal strengths
Self-regulation	Proper management of emotions, impulse control and perseverance
Social Awareness	Empathy and respect for others
Relational skills	Effective communication, cooperation, and conflict management
Responsible decision-making	Ethical and reflective evaluation of personal and social decisions

Source: CASEL (2020)

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Recent studies show that systematically implemented ASE programs contribute to improving the school climate, reducing bullying, and strengthening student identity (Osher et al., 2021; López et al., 2022). These skills are essential for the student's holistic well-being and preparedness for contemporary societal challenges.

3. Convergence between innovative pedagogy and ASE

The literature shows that the implementation of active methodologies facilitates the development of socio-emotional competencies. For example, collaborative learning promotes empathy, respect, and cooperation; while PBL encourages responsibility, leadership, and decision-making (González & Herrera, 2021; Ramírez & Soto, 2023).

Table 3. Relationship between pedagogical strategies and ASE competencies

Pedagogical strategy	Associated socio-emotional competencies
Project-based learning	Self-regulation, responsible decision-making
Collaborative learning	Social awareness, relational skills
Gamification	Self-awareness, perseverance, frustration management
Flipped classroom	Autonomy, self-regulation, reflective thinking

Source: Adapted from López et al. (2022); Ramírez & Soto (2023)

Effective integration between innovative pedagogy and ASE can lead to a **profound educational transformation**, where emotional development and academic learning are not treated as separate processes, but as interdependent. According to Osher et al. (2021), an emotionally informed education improves academic performance, reduces stress, and strengthens students' self-esteem.

4. Need for empirical evidence in Latin American contexts

Although international research broadly supports this convergence, there is still a paucity of empirical studies in the Latin American context that quantitatively analyze this relationship. Hence the importance of studies such as the present one, which seek to contribute with objective data to academic discussion and the formulation of relevant educational policies (González & Herrera, 2021).

METHODOLOGY

The methodological approach adopted in this research responds to the need to examine with statistical rigor the relationship between the implementation of innovative pedagogical strategies and the development of socio-emotional learning (CSL) in secondary school students. The study is part of a quantitative paradigm, allowing the variables involved to be objectively measured and correlational relationships to be established between them (Creswell & Creswell, 2023).

Research Design

A non-experimental, cross-sectional and correlational design **was used**, because the study variables were not manipulated, but were observed as they occur in their natural context. This type of design is suitable for exploring statistical relationships between two or more variables at a given time (Hernández et al., 2021).

Table 1. Methodological design

Element	Feature
Type of study	Quantitative, non-experimental
Design	Correlational, cross-sectional
Approach	Deductive
Temporality	Data collection between January and March 2025
Analysis	Descriptive and inferential statistics

Source: Authors' elaboration based on Creswell & Creswell (2023) and Hernández et al. (2021)

Participants

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The sample was made up of **300 teachers and directors** of secondary educational institutions, both public and private, located in urban areas of Colombia, Mexico and Peru. Stratified **random sampling was used**, with the aim of guaranteeing representativeness by country and type of institution.

The inclusion criteria were: (a) have at least two years of teaching experience, (b) have implemented an innovative pedagogical strategy in the last year, and (c) be actively linked to an institution during the data collection period.

Table 2. Sample Features

Variable	Categories	Frequency	Percentage (%)
Country	Colombia	120	40.0
	Mexico	90	30.0
	Peru	90	30.0
Type of institution	Public	180	60.0
	Private	120	40.0
Role	Teacher	240	80.0
	Managerial	60	20.0

Source: Own elaboration

Data collection instrument

A **structured questionnaire** was designed consisting of 40 Likert-type items (scale from 1 to 5), distributed in two sections:

- **Section A**: Measurement of the frequency and type of innovative pedagogical strategies used by the teacher (20 items).
- **Section B**: Perception of the development of socio-emotional competencies in students (20 items), following the dimensions of the CASEL model (2020).

The instrument was validated by experts in pedagogy and educational psychology, and subjected to a pilot test with 30 teachers. The Cronbach's alpha coefficient obtained was **0.89**, indicating high internal reliability (Nunnally & Bernstein, 2019).

Procedure

1. Informed consent was obtained from participants through a digital form.
2. The questionnaire was distributed by email and institutional educational platforms.
3. Data collection was carried out between January and March 2025.
4. The data were exported to an SPSS v27 database for analysis.

The entire process was carried out following the ethical principles of confidentiality, voluntariness, and anonymity, in accordance with the guidelines of the Educational Ethics Committee of the National University of Education (UNE, 2022).

Data analysis

Descriptive **(mean, standard deviation, frequencies) and** correlational (Pearson's coefficient) **statistical analyses were applied** , as well as simple linear regression to predict the effect of innovative pedagogy on ASE.

Table 3. Statistical techniques used

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Type of analysis	Specific technique	Main purpose
Descriptive	Average, frequency, percentage	General characterization of the sample
Inferential	Pearson correlation	Determine the relationship between pedagogy and ASE
Predictive	Simple Linear Regression	Evaluate the influence of pedagogy on the ASE

Source: Own elaboration based on Field (2021)

Rationale for the quantitative approach

The quantitative approach is justified by its ability to generate generalizable empirical evidence, especially useful in educational contexts that require systematization of pedagogical practices and measurement of emotional competencies (Creswell & Creswell, 2023). Likewise, this approach allows establishing solid and objective correlations that guide future evidence-based pedagogical interventions.

RESULTS

This section presents the findings obtained from the analysis of the data collected through the questionnaire applied to 300 teachers and principals of secondary educational institutions in Colombia, Mexico and Peru. Descriptive and inferential results are included on the frequency of use of innovative pedagogies, the perception of the development of socio-emotional learning (CSL), and the statistical relationship between both variables.

1. Descriptive analysis of innovative pedagogy

The items related to the use of innovative pedagogies (section A of the questionnaire) reveal a **high frequency of implementation of** active methodologies and the use of digital technologies. 82% of the participants stated that they used at least three innovative strategies frequently (scores ≥ 4 on the Likert scale).

Table 1. Frequency of innovative pedagogical strategies used

Pedagogical strategy	Average (1–5)	Standard deviation	Percentage of frequent use (%)
Project-based learning	4.3	0.61	85.7
Flipped classroom	4.1	0.67	78.3
Gamification	3.9	0.72	74.5
Use of digital platforms	4.5	0.58	89.0
Formative assessment with ICT	4.2	0.60	80.2

Source: Authors' elaboration based on data collected (2025)

These results coincide with recent findings that show a growing adoption of student-centered methodologies in response to the demands of the post-pandemic context (Ramírez & Soto, 2023).

2. Descriptive analysis of social-emotional learning (CSL)

Regarding section B of the questionnaire, the teachers evaluated the development of socio-emotional competencies observed in their students. 76% of the participants reported a positive perception (≥4) in at least four of the five key competencies of the CASEL model.

Table 2. Perception of the development of socio-emotional learning in students

ASE Competition	Average (1–5)	Standard deviation	Percentage of perceived development (%)
Awareness	4.2	0.59	83.3
Self-regulation	4.1	0.66	80.0
Social Awareness	4.3	0.57	86.1
Relational skills	4.0	0.71	77.5

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Responsible decision-making	4.2	0.60	82.6

Source: Authors' elaboration based on data collected (2025)

These data are consistent with what was proposed by Osher et al. (2021), who highlight the impact of the socio-emotional approach on improving school climate, empathy, and communication in collaborative learning environments.

3. Correlation between innovative pedagogy and ASE

Pearson**'s correlation coefficient was applied** to examine the relationship between the two main variables. A **moderate-high and statistically significant positive correlation was found** between the use of innovative pedagogies and the perceived development of the ASE ($r = 0.64$, $p < 0.01$).

Table 3. Pearson's correlation between innovative pedagogy and ASE

Variables	r of Pearson	P-value (significance)
Innovative Pedagogy – ASE	0.64	0.000

Source: SPSS Analysis (2025)

This finding supports the study's hypothesis and coincides with similar studies in Latin America that show a relationship between active practices and emotional inclusion in the classroom (López et al., 2022).

4. Linear Regression Analysis

To determine the predictive capacity of innovative pedagogy on socio-emotional learning, a simple linear regression was applied. The results show that innovative pedagogical strategies explain 41 **% of the variance of the ASE** ($R^2 = 0.41$), being a statistically significant model ($F(1,298) = 209.54$, $p < 0.001$).

Table 4. Simple linear regression analysis

Independent variable	B	Standard Error	Standardized Beta	t	Sig. (p)
Innovative pedagogy	0.63	0.044	0.64	14.47	0.000

$R^2 = 0.41$; $F = 209.54$; $p < 0.001$

Source: SPSS Analysis (2025)

These data allow us to affirm that a greater presence of innovative methodologies in teaching significantly predicts a greater perception of the development of socio-emotional competencies, in line with the findings of Erickson & Pianta (2022).

5. Additional analysis by country

Although not the main focus of the study, slight differences were observed in mean ASE scores by country. Peru reported slightly higher scores in relational skills, while Colombia led in the use of educational technologies.

Table 5. Average ASE by country

Country	ASE Average (1–5)
Colombia	4.21
Mexico	4.12
Peru	4.28

Source: Authors' elaboration based on data collected (2025)

Synthesis of key findings

1. Innovative methodologies are widely implemented in the classroom, especially those linked to the use of technology.

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2. There is a generalized positive perception of the development of socio-emotional competencies in students.
3. The positive and significant correlation between innovative pedagogy and ASE demonstrates a direct and relevant relationship.
4. Innovative pedagogy has a significant predictive capacity on ASE, explaining 41% of its variance.

CONCLUSIONS

The findings of this research provide significant evidence on the role of **innovative pedagogy** and **socio-emotional learning (SEL)** in the process of **educational transformation**. From the quantitative analysis carried out, the following key conclusions can be established:

1. Pedagogical innovation as a transformative pillar

The systematic implementation of active methodologies, supported by digital technologies and student-centred approaches, is a fundamental driver for the transformation of the traditional educational model. The widespread use of strategies such as project-based learning, the flipped classroom, and gamification makes it possible to diversify learning experiences, generate greater student autonomy, and foster critical thinking (Erickson & Pianta, 2022; Ramírez & Soto, 2023).

In line with what was reported by Marín-Díaz and Morales-Morante (2020), the high frequency with which teachers adopt these methodologies demonstrates a positive institutional disposition towards educational innovation, especially after the COVID-19 health emergency that accelerated processes of digitalization and pedagogical reconceptualization.

2. Social-emotional learning as a key component of educational quality

The ASE is positioned as an indispensable dimension of the integral development of students. Competencies such as emotional self-regulation, empathy, decision-making, and social awareness have become priority objectives of contemporary education policies (CASEL, 2020; Osher et al., 2021).

This study showed that teachers perceive significant advances in these competencies when their pedagogical practices are aligned with active and inclusive models. As López et al. (2022) point out, improving the school climate and strengthening the sense of belonging are closely linked to socio-emotional development in the classroom.

3. Positive and significant relationship between innovative pedagogy and ASE

The statistical results demonstrated a **positive and significant correlation** between the use of innovative pedagogies and the development of ASE, and in addition, it was found that pedagogical practices have a **predictive capacity of 41%** on these competencies. This finding supports recent research that advocates a more integrative educational approach, where academics and emotions are not conceived as isolated processes, but as interdependent (González & Herrera, 2021; Erickson & Pianta, 2022).

4. Implications for education policies and teacher training

A true educational transformation requires school systems to reformulate their priorities and direct efforts towards an effective integration of pedagogical innovation with structured ASE programs. This involves revising curricula, adapting initial and continuing teacher training, and redesigning assessment models that recognize the value of socio-emotional skills (UNESCO, 2021).

Educational institutions must provide **spaces for training, accompaniment and professional autonomy** for teachers to experiment, reflect and consolidate innovative pedagogical practices. As indicated by Osher et al. (2021), the most effective learning environments are those that simultaneously promote cognitive, emotional, and ethical development.

Overall conclusion

Innovative pedagogy and socio-emotional learning are not parallel paths, but converging paths towards a more humane, inclusive and transformative education. This quantitative research provides empirical evidence on the need

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to rethink the educational model from a comprehensive approach that recognizes the student not only as a subject of knowledge, but also as an emotional, social, and ethical being in constant construction.

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