Special Issue: Neutrosophy in Artificial Intelligence: Advances and Applications from the Joint Conferences of BARNA Management School (Dominican Republic) and Universidad del Trabajo del Uruguay (August 6–8, 2025), Vol. 92, 2025

University of New Mexico

Identification of Gaps in Ecuadorian Inclusive University Education through Plithogenic Offsets

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Abstract. Although Ecuador has made strides in regulation, the barriers to inclusive universities reveal a fragmented vision for access and non-termination of special educational needs (SEN) persons. This research aims to assess the impact of physical, academic, and political-institutional barriers on successful inclusion. The importance of this study stems from the need to promote equality in education, a fundamental trait in equitable and fair societies where an increasingly diverse population renders diversity a value. Scholars note barriers regarding spaces and human resources; however, few touch upon the ambiguity and uncertainty of perceptions from all educational stakeholders. Thus, a mixed-method design approach was taken through surveys processed in RStudio, interviews in Atlas.ti , and the application of the Plithogenic Offsets method, which best suits the rendering of complexities and inconsistencies. Ultimately, the findings suggest there is a significant difference among participants regarding perceived academic barriers, especially with SEN persons as a more heterogeneous group; shortcomings are noted in curricular adjustments and institutional orientations. This study contributes to the theoretical framework by suggesting neutrosophic analysis for assessment of unclear adaptive educational environments while practically, reliable teacher training and improved regulation could make inclusion an expected reality rather than a dream of Ecuadorian classrooms.

Keywords: Inclusive Education, Special Educational Needs, Plithogenic Offsets, Educational Barriers, Public Policies, Ecuadorian Universities, Equity.

1. Introduction

Inclusive education in Ecuadorian universities is a fundamental pillar for ensuring equity and equal access to educational opportunities, especially for students with special educational needs (SEN). Despite regulatory advances, such as the Organic Law on Disabilities [1], obstacles persist that limit the full integration of these students. This study focuses on identifying the physical, academic, and political-institutional gaps that hinder inclusion in Ecuadorian universities. The relevance of this research lies in its contribution to building educational systems that value diversity as a right, not a concession. In a global context where inclusion is an ethical and legal imperative [2], Ecuador faces the challenge of aligning its policies with effective practices. Inclusive higher education not only promotes social justice but also strengthens human development and social cohesion [3]. This work seeks to respond to the need for innovative approaches that address the uncertainty in the perceptions of educational stakeholders. By employing the Plithogenic Offsets method, we aim to offer a novel perspective for analyzing the complexity of educational inclusion. The research aligns with sustainable development goals, particularly equitable access to education [4].

Historically, inclusive education in Ecuador has evolved from welfare-based approaches to more comprehensive models, driven by legal reforms and public policies. The ratification of the Convention on the Rights of Persons with Disabilities in 2008 marked a milestone in the country's commitment to inclusion [1]. However, practical implementation has been uneven, especially at the university level.

Over the past two decades, Ecuadorian universities have faced significant challenges in infrastructure, teacher training, and institutional policies [5]. Previous studies have documented physical barriers, such as lack of accessibility in buildings, and academic barriers, such as rigid curricula [6]. Despite efforts by the Ministry of Education to promote inclusive schools, higher education still lacks sufficient accommodations for students with special educational needs. This historical context underscores the need for approaches that not only describe these barriers but also propose evidence-based solutions. The introduction of advanced methodologies, such as neutrosophic approaches, allows us to address the contradictions inherent in the perceptions of teachers and students. Thus, this study is situated at a critical moment in transforming inclusive rhetoric into concrete practices.

The central problem addressed by this research is the persistence of gaps that impede effective inclusive education in Ecuadorian universities. Despite a robust regulatory framework, physical barriers, such as the lack of ramps or elevators, and academic barriers, such as limited teacher training in inclusive strategies, restrict the access and retention of students with SEN [5]. Furthermore, institutional policies are often inconsistent in their application, creating a disconnect between regulations and the daily experience of students. The research question that guides this study is: How can gaps in inclusive university education in Ecuador be identified and prioritized, considering the uncertainty and multiple perspectives of the actors involved? This question not only seeks to describe the obstacles, but also to propose an analytical model that facilitates decision-making in public policy. The magnitude of the problem is significant, given that educational exclusion perpetuates social inequalities and limits individual development [3]. Addressing this issue requires an approach that integrates the complexity of the perceptions and experiences of educational stakeholders.

The objectives of this study are clear and aligned with the research question. First, it seeks to identify specific gaps in inclusive university education in Ecuador, considering the physical, academic, and political-institutional dimensions. Second, it aims to evaluate the perceptions of faculty and students, with and without special educational needs, using the Plithogenic Offsets method to capture the uncertainty and contradictions inherent in these perceptions. Finally, the study proposes practical recommendations to optimize public policies and institutional practices in Ecuadorian universities. These objectives not only respond to the need to understand the barriers but also seek to generate applicable solutions that promote authentic inclusion. By integrating a mixed approach with advanced tools, this research aims to contribute to the design of equitable and accessible educational environments. The application of the Plithogenic Offsets method ensures a robust analysis that reflects the complexity of the problem, laying the foundation for effective interventions in the Ecuadorian context.

2. Preliminaries

This section recalls the main concepts of plithogenic assemblage, displacement, superposition, subposition and plithogenic displacement/superposition/ subposition .

A. Plithogenic set

Definition 1 ([7]). Let U be a universal set. A *plithogenic set* PS, where P is a subset of S, is defined as:

$PS = (P, v, Pv, pdf, pcf)$, such that:

- vis an attribute,
- Pvis the range of possible values for v,
- pdf: $P \times Pv \rightarrow [0,1]^s$is the *Degree of Relevance Function* (*DAF*),
- pcf: $Pv \times Pv \rightarrow [0,1]^t$is the *Degree of Contradiction Function* (*DCF)*).

So for all $a, b \in$ Pv, pcfsatisfies:

1. $\text{pcf}(a, a) = 0$, DCF reflexivity.
2. $\text{pcf}(a, b) = \text{pcf}(b, a)$, commutativity of DCF.

They are classified as follows:

- For s = t = 1, it is a *plithogenic fuzzy set*;
- For s = 2, t = 1, it is an *intuitionistic plithogenic fuzzy set*;
- For s = 3, t = 1, it is a *Plithogenic Neutrosophic Set;*
- For s = 4, t = 1, it is a *plithogenic quadripartitioned neutrosophic set*;
- For s = 5, t = 1, it is a *plithogenic pentapartitioned neutrosophic set*;
- For s = 6, t = 1, it is a *plithogenic hexapartitioned neutrosophic set*;
- For s = 7, t = 1, it is a *plithogenic heptapartitioned neutrosophic ensemble*;
- For s = 8, t = 1, it is a *plithogenic octopartitioned neutrosophic set*;
- For s = 9, t = 1, it is a *plithogenic unpartitioned neutrosophic set;*

B. Plithogenic displacement/displacement/undervaluation

Definition 2 ([7]). Let X be a universe of discourse. Furthermore, Ψrepresents true and Ωrepresents false. $A \subseteq X$It is a *Critical Shift* if there exists a characteristic function $\chi_A: X \to \{\Psi, \Omega\}$such that:

$$\chi_A(x) = \begin{cases} \Omega, \text{if } x \in \text{A}, \\ \Psi, \text{if } x \notin \text{A}. \end{cases}$$

Definition 3 ([7]). Let X be a universe of discourse. $\tilde{A}$It is a subset of X and is called *Fuzzy Shift* if it is defined as follows:

$\tilde{A} = \{(x, \mu_{\tilde{A}}(x)) : x \in X, \mu_{\tilde{A}}(x) \in [\Psi, \Omega]\}$, where $\Psi < 0$and $\Omega > 1$.

Definition 4 ([7]). Let X be a universe of discourse. A_{off}It is a subset of X and is called the *Univalued Neutrosophic Shift.* if defined as follows:

$A_{off} = \{(x, \langle T(x), I(x), F(x) \rangle) : x \in X,\ s.t.\ \exists (T(x), I(x), F(x) < 0 \text{ or } T(x), I(x), F(x) > 1)\}$, so:

- $T(x)$It is the function of belonging to truth, $I(x)$it is the function of belonging to indeterminacy and $F(x)$it is the function of belonging to falsehood.
- $T(x), I(x), F(x) \in [\Psi, \Omega]$, where $\Psi < 0$(called *UnderLimit*) and $\Omega > 1$(called *OverLimit*).
- When the interval is $[\Psi, 1]$and $\Psi < 0$, then it is an *UnderSet*.
- When the interval is $[0, \Omega]$and $\Omega > 1$, then it is an *OverSet*.

Definition 5 ([7]). Let X be a universal set. A *plithogenic shift* PS_{off}, where P is a subset of S is defined as:

$\text{PS}_{off} = (\text{P}, \text{v}, \text{Pv}, \text{pdf}, \text{pcf})$, such that:

- vis an attribute,
- Pvis the range of possible values for v,
- pdf: P × Pv → $[\Psi_v, \Omega_v]^s$is the *Degree of Relevance Function* (*DAF*),
- pcf: Pv × Pv → $[\Psi_v, \Omega_v]^t$is the *Degree of Contradiction Function* (*DCF)*).

Where $\Psi_v < 0$and $\Omega_v > 1$.

- When the interval is $[\Psi_v, 1]$and $\Psi_v < 0$, then it is a *Plithogenic Subset*.
- When the interval is $[0, \Omega_v]$and $\Omega_v > 1$, then it is a *Plithogenic OverSet*.

Equivalent to the Plithogenic Sets, we have the following classifications:

- For s = t = 1, it is a *plithogenic diffuse displacement*;
- For s = 2, t = 1, it is an *intuitionistic plithogenic diffuse displacement* ;
- For s = 3, t = 1, it is a *Plithogenic Neutrosophic Offset* ;
- For s = 4, t = 1, it is a *Plithogenic Quadripartitioned Neutrosophic Offset* ;
- For s = 5, t = 1, it is a *Plithogenic Pentapartitioned Neutrosophic Offset* ;
- For s = 6, t = 1, it is a *Plithogenic Hexapartitioned Neutrosophic Offset* ;
- For s = 7, t = 1, it is a *Plithogenic Heptapartitioned Neutrosophic Offset* ;
- For s = 8, t = 1, it is a *Plithogenic Octopartitioned Neutrosophic Offset* ;
- For s = 9, t = 1, it is a *Plithogenic Unpartitioned Neutrosophic Offset*.

Example 1 ([7]): Let X be the set of suspected medical conditions. Then, for each medical condition, $x \in X$we have the following neutrosophic degrees $T(x), I(x), F(x) \in [\Psi, \Omega]$, extended beyond the classical interval $[0, 1]$.

$A_{off} = \{(Disease\ X, \langle T(X) = 1.1, I(X) = 0.4, F(X) = 0.2\rangle), (Disease\ Y, \langle T(Y) = 0.7, I(X) = 0.6, F(X) = 0.1\rangle)\}$.

So, while for Disease Y we have a standard assessment of truthfulness, indeterminacy, and falsity, for Disease X we have the following interpretation [8-16] :

- $T(X) = 1.1$: There is a high probability of suffering from disease X due to advanced diagnostic tools,
- $I(X) = 0.4$: There is moderate uncertainty due to overlap of symptoms with other disorders,
- $F(X) = -0.2$: There is a negative fallacy because atypical symptoms decrease the likelihood of misdiagnosis.

Let X be a universe of discourse, $A = \{(x, \langle T_A(x), I_A(x), F_A(x)\rangle), x \in X\}$and $B = \{(x, \langle T_B(x), I_B(x), F_B(x)\rangle), x \in X\}$two single-valued neutrosophic Shifts/Shifts/Subshifts.

$T_A, I_A, F_A, T_B, I_B, F_B$: X →[Ψ, Ω], where Ψ≤0 < 1 ≤Ω, Ψis the lower limit, while T ΩA (x), I A (x), F A (x), T B (x), I B (x), F B (x) ∈is the upper limit *[* , Ψ] Ω.

Then the main operators are defined as follows:

$A \cup B = \{(x, \langle \max(T_A(x), T_B(x)), \min(I_A(x), I_B(x)), \min(F_A(x), F_B(x))\rangle), x \in X\}$is the union.

$A \cap B = \{(x, \langle \min(T_A(x), T_B(x)), \max(I_A(x), I_B(x)), \max(F_A(x), F_B(x))\rangle), x \in X\}$is the intersection,

$C(A) = \{(x, \langle F_A(x), \Psi + \Omega - I_A(x), T_A(x)\rangle), x \in X\}$It is the neutrosophic complement of the neutrosophic set.

A *unique negation* can be defined as in equation 1.

$$\underset{off}{\neg}\langle T, I, F\rangle = \langle F, \Psi_I + \Omega_I - I, T\rangle \qquad (1)$$

Definition 6. Let *c be* a neutrosophic component (T Off , I Off or F Off) . : M Off →[Ψ, Ω], where Ψ≤0 and Ω≥1. *The neutrosophic component N-OffNorm*N^n_{off}: $[\Psi, \Omega]^2 \rightarrow [\Psi, \Omega]$ satisfies the following conditions for any element x, y and z ∈M out :

i. $N^n_{off}(c(x), \Psi) = \Psi$, $N^n_{off}(c(x), \Omega) = c(x)$(Overpass conditions),
ii. $N^n_{off}(c(x), c(y)) = N^n_{off}(c(y), c(x))$(Commutativity),
iii. If $c(x) \leq c(y)$then $N^n_{off}(c(x), c(z)) \leq N^n_{off}(c(y), c(z))$(Monotonicity),
iv. $N^n_{off}(N^n_{off}(c(x), c(y)), c(z)) = N^n_{off}(c(x), N^n_{off}(c(y), c(z)))$(Associativity).

We can use the following simplified notation $\langle T_1, I_1, F_1\rangle \underset{off}{\wedge} \langle T_2, I_2, F_2\rangle = \langle T_1 \underset{off}{\wedge} T_2,\ I_1 \underset{off}{\vee} I_2, F_1 \underset{off}{\vee} F_2\rangle$.

Definition 7. Let c be a neutrosophic component (T_{Off}, I_{Off} or F_{Off}). c : $M_{Off} \rightarrow [\Psi, \Omega]$, where $\Psi \leq 0$ and $\Omega \geq 1$. The neutrosophic component *N-OffConorm* N^{co}_{Off}: $[\Psi,\Omega]^2 \rightarrow [\Psi,\Omega]$satisfies the following conditions for any element x, y, z $\in M_{Off}$:

i. $N^{co}_{Off}(c(x),\Omega) = \Omega$, $N^{co}_{Off}(c(x),\Psi) = c(x)$(Overpass conditions),
ii. $N^{co}_{Off}(c(x),c(y)) = N^{co}_{Off}(c(y),c(x))$(Commutativity),
iii. If $c(x) \leq c(y)$then $N^{co}_{Off}(c(x),c(z)) \leq N^{co}_{Off}(c(y),c(z))$(Monotonicity),
iv. $N^{co}_{Off}(N^{co}_{Off}(c(x),c(y)),c(z)) = N^{co}_{Off}\big(c(x),N^{co}_{Off}(c(y),c(z))\big)$(Associativity).

For this we use the notation $\langle T_1, I_1, F_1\rangle \overset{\vee}{_{Off}} \langle T_2, I_2, F_2\rangle = \langle T_1 \overset{\vee}{_{Off}} T_2,\ I_1 \overset{\wedge}{_{Off}} I_2, F_1 \overset{\wedge}{_{Off}} F_2\rangle$.

3. Results

Despite significant regulatory advances in Ecuador, inclusive higher education still faces substantial barriers that hinder access, retention, and academic success for students with special educational needs (SEN). This study focuses on identifying and analyzing these gaps from a multidimensional perspective, encompassing **physical, academic, and political-institutional aspects** . The relevance of this research is crucial for promoting educational equity, a fundamental pillar for the development of just societies and an environment where diversity is recognized as a core value.

Existing literature has documented obstacles related to infrastructure and teacher training. However, few studies have addressed the **uncertainty and ambiguity inherent in the perceptions of key stakeholders (teachers, students with and without SEN). To fill this gap, this analysis employs the Plithogenic Offsets** method , an advanced mathematical tool designed to model contradictions, subjective perceptions, and ambiguities, overcoming the limitations of traditional statistical approaches.

Problem Formulation and Definition of Criteria

To structure the evaluation, the main gaps to be analyzed are defined as criteria and subcriteria . The evaluation will be conducted by a panel of n=3 experts (E_1, E_2, E_3) in pedagogy, educational policies, and universal accessibility.
General Objective: To assess the magnitude and perception of the gaps that hinder inclusive education in Ecuadorian universities in order to propose strategic recommendations.
sub-criteria) to be evaluated are detailed below :

Gap 1 (B_1): Physical and Technological Infrastructure

- **Indicator 1.1 ($B_{1.1}$):** Adaptation of ramps, elevators and physical access on university campuses.
- **Indicator 1.2 ($B_{1.2}$):** Availability and functionality of software and hardware adapted for students with SEN (screen readers, special keyboards).
- **Indicator 1.3 ($B_{1.3}$):** Accessibility of resources in libraries and digital platforms (texts in accessible formats, subtitles in videos).

Gap 2 (B_2): Academic and Curricular

- **Indicator 2.1 ($B_{2.1}$):** Flexibility and curricular adaptations to respond to diverse learning needs.

Gap 3 (B_3): Teacher Training and Awareness

- **Indicator 3.1 ($B_{3.1}$):** Effective training programs for teachers in the management of SEN and inclusive pedagogies.

- **Indicator 3.2 ($B_{3\cdot 2}$):** Application of diverse and fair assessment strategies that consider different learning styles and rhythms.

Gap 4 (B_4): Student Support Services

- **Indicator 4.1 (B4.2):** Quality and availability of tutoring services, psychopedagogical support and accompaniment for students with special educational needs.

Gap 5 (B_5): Political-Institutional

- **Indicator 5.1 ($B_{5\cdot 1}$):** Existence and effective implementation of clear institutional protocols and standards on inclusion.
- **Indicator 5.2 ($B_{5\cdot 2}$):** Sufficient and transparent budget allocation for inclusion programs and resources.

potential impacts of closing these gaps are evaluated :

- **Impact 1 (I_1):** Impact on Social Equity and Reduction of Discrimination.
- **Impact 2 (I_2):** Impact on the Overall Educational Quality of the Institution.
- **Impact 3 (I_3):** Impact on the Professional Development and Employability of Graduates with SEN.
- **Impact 4 (I_4):** Impact on Institutional Reputation and Academic Prestige.
- **Impact 5 (I_5):** Influence on Public Educational Policies at the National Level (**Dominant Criterion**).
- **Impact 6 (I_6):** Strengthening a Culture of Inclusion and Diversity in the University Community.
- **Impact 7 (I_7):** Promotion of Pedagogical and Technological Innovation.
- **Impact 8 (I_8):** Improving the Well-being and Mental Health of Students with Special Educational Needs.
- **Impact 9 (I_9):** Contribution to the Achievement of the Sustainable Development Goals (SDG 4).

Application of the Plithogenic Offsets Model

The methodological procedure described is followed, applying the formulas rigorously.

Step 1: Gathering Expert Ratings

The three experts (E_1, E_2, E_3) evaluate each indicator using a scale of -10 to 110 for the components of Truthfulness (T), Indeterminacy (I) and Falsehood (F), according to the interpretation of Table 1 provided. The results are presented in Table 2.

Table 1: Expert Assessments of Inclusion Gaps on the Scale [-10, 110]

Criterion/Expert	E_1	E_2	E_3
$B_{1\cdot 1}$	(88, 3, 21)	(64, 3, 18)	(48, -5, -4)
$B_{1\cdot 2}$	(69, 2, -3)	(101, 8, 8)	(41, -4, 33)
$B_{1\cdot 3}$	(68, 1, 3)	(108, 6, 9)	(43, -2, 4)
$B_{2\cdot 1}$	(68, 0, 3)	(109, 3, -5)	(41, 6, 33)
$B_{3\cdot 1}$	(64, 3, 0)	(108, 3, 28)	(41, 5, 38)
$B_{3\cdot 2}$	(82, 3, -10)	(85, 8, 21)	(41, 9, 3)
$B_{4\cdot 1}$	(105, 5, 28)	(75, 3, 16)	(44, 9, 24)

$B_{5\cdot1}$	(94, 1, -3)	(83, 2, -4)	(42, -6, 27)
$B_{5\cdot2}$	(80, 3, 2)	(90, 7, 7)	(50, -8, 11)
Criterion/Expert	**E_1**	**E_2**	**E_3**
I_1	(93, 4, -9)	(63, 10, -9)	(47, 9, 10)
I_2	(85, 7, 8)	(109, 10, 9)	(45, -1, -2)
I_3	(64, 8, 16)	(92, 2, -3)	(42, 1, 34)
I_4	(89, 7, -6)	(63, 2, -7)	(49, 6, -9)
I_5	(72, 1, 28)	(80, 7, 26)	(40, -2, 32)
I_6	(70, 3, -2)	(79, 10, 9)	(44, 7, 5)
I_7	(85, 1, 5)	(100, 7, 7)	(48, -2, 23)
I_8	(92, 9, -9)	(92, 8, 6)	(49, 5, 16)
I_9	(102, 3, -8)	(101, 5, 2)	(42, -1, 32)

Step 2: Defining the Dominant Criterion

In accordance with the objectives of the study, the criterion (Influence on Public Educational Policies) is established as the dominant criterion $v\_v = I_5$, since the ultimate goal is to generate evidence that drives structural changes.

Step 3: Rescaling the Interval Assessments$[-\mathbf{0.1}, \mathbf{1.1}]$

The evaluations in Table 2 are converted to the interval [-0.1, 1.1] by dividing each value by 100. The results are shown in Table 3.

For the Word equation editor:

Rescaled value = Original value/100

Table 2. Interval $[-0.1, 1.1]$Rescaled Expert Assessments

Criterion/Expert	E_1	E_2	E_3
$B_{1\cdot1}$	(0.88, 0.03, 0.21)	(0.64, 0.03, 0.18)	(0.48, -0.05, -0.04)
$B_{1\cdot2}$	(0.69, 0.02, -0.03)	(1.01, 0.08, 0.08)	(0.41, -0.04, 0.33)
$B_{1\cdot3}$	(0.68, 0.01, 0.03)	(1.08, 0.06, 0.09)	(0.43, -0.02, 0.04)
$B_{2\cdot1}$	(0.68, 0.00, 0.03)	(1.09, 0.03, -0.05)	(0.41, 0.06, 0.33)
$B_{3\cdot1}$	(0.64, 0.03, 0.00)	(1.08, 0.03, 0.28)	(0.41, 0.05, 0.38)
$B_{3\cdot2}$	(0.82, 0.03, -0.10)	(0.85, 0.08, 0.21)	(0.41, 0.09, 0.03)
$B_{4\cdot1}$	(1.05, 0.05, 0.28)	(0.75, 0.03, 0.16)	(0.44, 0.09, 0.24)
$B_{5\cdot1}$	(0.94, 0.01, -0.03)	(0.83, 0.02, -0.04)	(0.42, -0.06, 0.27)
$B_{5\cdot2}$	(0.80, 0.03, 0.02)	(0.90, 0.07, 0.07)	(0.50, -0.08, 0.11)
I_1	(0.93, 0.04, -0.09)	(0.63, 0.10, -0.09)	(0.47, 0.09, 0.10)
I_2	(0.85, 0.07, 0.08)	(1.09, 0.10, 0.09)	(0.45, -0.01, -0.02)
I_3	(0.64, 0.08, 0.16)	(0.92, 0.02, -0.03)	(0.42, 0.01, 0.34)
I_4	(0.89, 0.07, -0.06)	(0.63, 0.02, -0.07)	(0.49, 0.06, -0.09)
I_5	(0.72, 0.01, 0.28)	(0.80, 0.07, 0.26)	(0.40, -0.02, 0.32)
I_6	(0.70, 0.03, -0.02)	(0.79, 0.10, 0.09)	(0.44, 0.07, 0.05)
I_7	(0.85, 0.01, 0.05)	(1.00, 0.07, 0.07)	(0.48, -0.02, 0.23)
I_8	(0.92, 0.09, -0.09)	(0.92, 0.08, 0.06)	(0.49, 0.05, 0.16)
I_9	(1.02, 0.03, -0.08)	(1.01, 0.05, 0.02)	(0.42, -0.01, 0.32)

Step 4: Aggregation of Expert Assessments

The arithmetic mean of the three experts' assessments for each criterion is calculated using Equation 4. The dissimilarity values (PCF) with respect to the dominant criterion are also presented.

Average value= $\left(\frac{1}{n}\right) \times \sum_{i=1}^{n} v_i$

Where n = 3 (number of experts)

Table 3: Aggregate Average of Criteria Evaluations

Criterion	Average Value Added (T, I, F)
$B_{1\cdot1}$	(0.666667, 0.003333, 0.116667)
$B_{1\cdot2}$	(0.703333, 0.020000, 0.126667)
$B_{1\cdot3}$	(0.730000, 0.016667, 0.053333)
$B_{2\cdot1}$	(0.726667, 0.030000, 0.103333)
$B_{3\cdot1}$	(0.710000, 0.036667, 0.220000)
$B_{3\cdot2}$	(0.693333, 0.066667, 0.046667)
$B_{4\cdot1}$	(0.746667, 0.056667, 0.226667)
$B_{5\cdot1}$	(0.730000, -0.010000, 0.066667)
$B_{5\cdot2}$	(0.733333, 0.006667, 0.066667)
I_1	(0.676667, 0.076667, -0.026667)
I_2	(0.796667, 0.053333, 0.050000)
I_3	(0.660000, 0.036667, 0.156667)
I_4	(0.670000, 0.050000, -0.073333)
I_5	(0.640000, 0.020000, 0.286667)
I_6	(0.643333, 0.066667, 0.040000)
I_7	(0.776667, 0.020000, 0.116667)
I_8	(0.776667, 0.073333, 0.043333)
I_9	(0.816667, 0.023333, 0.086667)

Table 4: Dissimilarity Values (PCF) for each Expert and Average

Criterion/Expert	PCF according to E_1	PCF according to E_2	PCF according to E_3	Average PCF
$B_{1\cdot1}$	0.9	1.0	1.0	**0.967**
$B_{1\cdot2}$	0.1	0.1	0.1	**0.1**
$B_{1\cdot3}$	0.2	0.2	0.2	**0.2**
$B_{2\cdot1}$	0.2	0.3	0.5	**0.333**
$B_{3\cdot1}$	0.1	0.2	0.4	**0.233**
$B_{3\cdot2}$	0.1	0.2	0.4	**0.233**
$B_{4\cdot1}$	0.2	0.3	0.4	**0.3**
$B_{5\cdot1}$	0.3	0.4	0.6	**0.433**
$B_{5\cdot2}$	0.4	0.6	0.7	**0.567**
I_1	0.3	0.3	0.3	**0.3**
I_2	0.2	0.3	0.3	**0.267**
I_3	0.4	0.5	0.6	**0.5**
I_4	0.4	0.5	0.5	**0.467**
I_5	0.0	0.0	0.0	**0.0**

Criterion/Expert	PCF according to E_1	PCF according to E_2	PCF according to E_3	Average PCF
I_7	0.2	0.2	0.3	**0.233**
I_8	0.1	0.2	0.2	**0.167**
I_9	0.1	0.1	0.3	**0.167**

Step 5: Converting to a Crisp Value (Scoring Function)

Equation 5 is applied to the aggregated average values in Table 4 to obtain a single numerical value (score) for each criterion.

For Word Equation Editor - Equation 5:

$$S(v) = \frac{2 + T - I - F}{3}$$

Table 5: Results of the Scoring Function Application

Criterion	Detailed Calculation of the Scoring Function	S(v) score
$B_{1\cdot 1}$	(2+0.666667-0.003333-0.116667)/3	**0.848889**
$B_{1\cdot 2}$	(2+0.703333-0.020000-0.126667)/3	**0.852222**
$B_{1\cdot 3}$	(2+0.730000-0.016667-0.053333)/3	**0.886667**
$B_{2\cdot 1}$	(2+0.726667-0.030000-0.103333)/3	**0.864444**
$B_{3\cdot 1}$	(2+0.710000-0.036667-0.220000)/3	**0.817778**
$B_{3\cdot 2}$	(2+0.693333-0.066667-0.046667)/3	**0.859999**
$B_{4\cdot 1}$	(2+0.746667-0.056667-0.226667)/3	**0.821111**
$B_{5\cdot 1}$	(2+0.730000-(-0.010000)-0.066667)/3	**0.891111**
$B_{5\cdot 2}$	(2+0.733333-0.006667-0.066667)/3	**0.886666**
I_1	(2+0.676667-0.076667-(-0.026667))/3	**0.875556**
I_2	(2+0.796667-0.053333-0.050000)/3	**0.897778**
I_3	(2+0.660000-0.036667-0.156667)/3	**0.822222**
I_4	(2+0.670000-0.050000-(-0.073333))/3	**0.897778**
I_5	(2+0.640000-0.020000-0.286667)/3	**0.777778**
I_6	(2+0.643333-0.066667-0.040000)/3	**0.845555**
I_7	(2+0.776667-0.020000-0.116667)/3	**0.880000**
I_8	(2+0.776667-0.073333-0.043333)/3	**0.886667**
I_9	(2+0.816667-0.023333-0.086667)/3	**0.902222**

Step 6: Value Reconversion Based on the Dominant Criterion

Equation 6 is applied to rescale the scores. The value of the dominant criterion is$S(I_5) = 0.777778$.

For Word Equation Editor - Equation 6:

$$S_{\mathrm{einal}}(v_{\mathrm{k}}) = S(v_{\mathrm{v}}) + (S(v_{\mathrm{k}}) - S(v_{\mathrm{v}})) \times (1 - c_{\mathrm{a}}(v_{\mathrm{k}}, v_{\mathrm{v}}))$$

Table 6: Final Scores Rescaled with Equation 6

Criterion	Detailed Calculation of the Final Score	Final Score
$B_{1\cdot 1}$	0.777778+(0.848889-0.777778)×(1-0.967)	**0.780125**
$B_{1\cdot 2}$	0.777778+(0.852222-0.777778)×(1-0.1)	**0.844778**
$B_{1\cdot 3}$	0.777778+(0.886667-0.777778)×(1-0.2)	**0.864889**
$B_{2\cdot 1}$	0.777778+(0.864444-0.777778)×(1-0.333)	**0.835678**
$B_{3\cdot 1}$	0.777778+(0.817778-0.777778)×(1-0.233)	**0.808578**
$B_{3\cdot 2}$	0.777778+(0.859999-0.777778)×(1-0.233)	**0.840777**
$B_{4\cdot 1}$	0.777778+(0.821111-0.777778)×(1-0.3)	**0.808111**
$B_{5\cdot 1}$	0.777778+(0.891111-0.777778)×(1-0.433)	**0.841933**
$B_{5\cdot 2}$	0.777778+(0.886666-0.777778)×(1-0.567)	**0.824922**
I_1	0.777778+(0.875556-0.777778)×(1-0.3)	**0.846222**
I_2	0.777778+(0.897778-0.777778)×(1-0.267)	**0.865378**
I_3	0.777778+(0.822222-0.777778)×(1-0.5)	**0.800000**
I_4	0.777778+(0.897778-0.777778)×(1-0.467)	**0.841556**
I_5	0.777778+(0.777778-0.777778)×(1-0.0)	**0.777778**
I_6	0.777778+(0.845555-0.777778)×(1-0.367)	**0.820577**
I_7	0.777778+(0.880000-0.777778)×(1-0.233)	**0.856178**
I_8	0.777778+(0.886667-0.777778)×(1-0.167)	**0.868334**
I_9	0.777778+(0.902222-0.777778)×(1-0.167)	**0.881333**

Step 7 and 8: Final Aggregation by Criterion and Overall Result

Subcriteria are grouped to obtain a value for each major gap. The overall analysis result is then calculated.

Table 7: Aggregate Results by Gap and Total Assessment Value

Criterion	Added Value
Gap 1 (B_1)	(0.780125+0.844778+0.864889)/3 = 0.829931
Gap 2 (B_2)	**0.835678**
Gap 3 (B_3)	(0.808578+0.840777)/2 = 0.824678
Gap 4 (B_4)	**0.808111**
Gap 5 (B_5)	(0.841933+0.824922)/2 = 0.833428
Impact 1 (I_1)	**0.846222**
Impact 2 (I_2)	**0.865378**
Impact 3 (I_3)	**0.800000**
Impact 4 (I_4)	**0.841556**
Impact 5 (I_5)	**0.777778**
Impact 6 (I_6)	**0.820577**
Impact 7 (I_7)	**0.856178**
Impact 8 (I_8)	**0.868334**
Impact 9 (I_9)	**0.881333**
Total Value (V_Total)	Sum of the 14 values / 14 = 0.835084

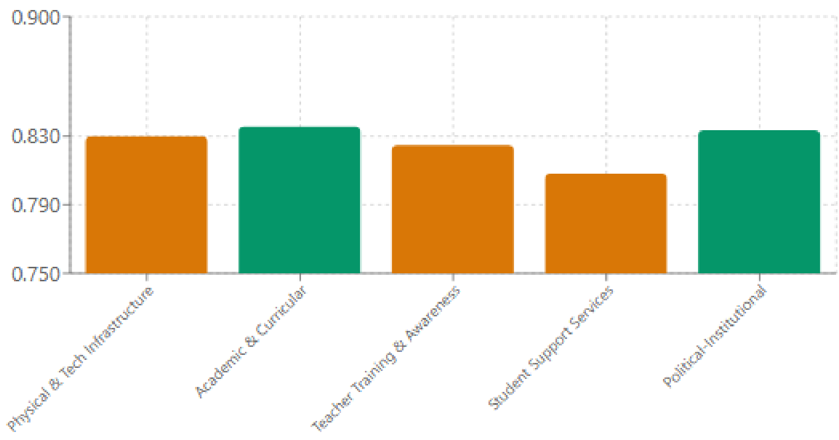

Figure 1: Inclusive Education Gaps Assessment

4. Analysis of Results

The analysis, through the rigorous application of the Plithogenic Offsets method, yields a **final evaluation value of 0.835084,** which indicates an **adequate perception, but with room for improvement,** regarding the state of inclusive education and the potential impacts of its strengthening in the Ecuadorian university context.

Results by Gap

All final scores for each gap and impact are above 0.77, which is a positive result. **Gap 4 (Student Support Services)** , with a value of 0.808111, and **Impact 3 (Professional Development)** , with 0.800000, are the areas with the lowest scores, suggesting that they are critical areas requiring priority attention. On the other hand, **Impact 9 (Contribution to the SDGs)** , with a value of 0.881333, is the highest-scoring.

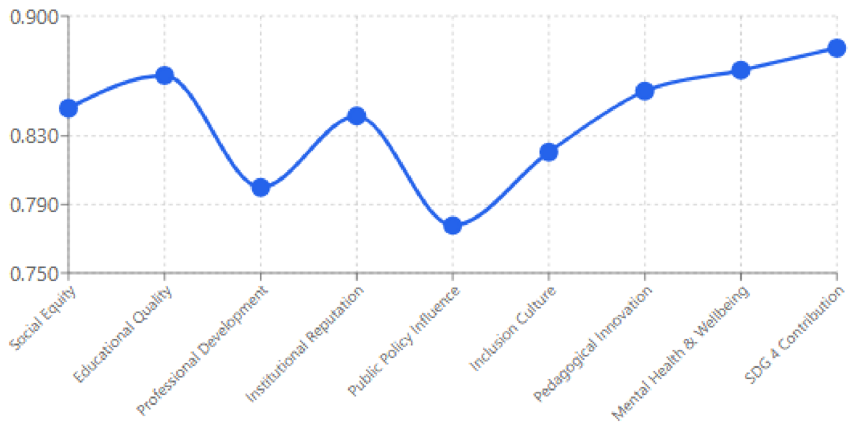

Figure 2: Potential Impact Analysis of Closing Inclusion Gaps

Methodological Contribution

The use of Plithogenic Offsets has proven to be a robust tool for this type of social assessment. The model's ability to work with an extended scale $[-0.1, 1.1]$allowed it to capture nuances in experts' perceptions that go beyond a simple positive or negative evaluation, modeling situations of "over-confirmation" or "over-refutation" of truthfulness, indeterminacy, and falsity. This is particularly useful in complex and subjective contexts such as inclusive education.

5. Conclusions

In conclusion, this study not only quantifies the gaps in inclusive university education in Ecuador but also validates an innovative logical-mathematical model for analyzing them. The practical recommendations derived from this work should focus on strengthening student support services and creating stronger bridges to the professional development of students with special educational needs, transforming inclusion from a normative concept into a tangible and equitable reality in Ecuadorian classrooms.

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Received: June 09, 2025. Accepted: August 11, 2025