SCIENTIFIC CULTURE
www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 10, No. 2, (2024), pp. 1-11
Open Access. Online & Print

DOI: 10.5281/zenodo.15346406

TEACHING DIFFERENTLY: AN INTERDISCIPLINARY ALLIANCE FOR COGNITIVE DIVERSITY

Maldis Liani Iguarán Magdaniel[1]*, Orlando De Jesús Cárcamo Berrío[2], Malbis Mileth Iguarán Magdaniel[3]

[1,2,3] ***Universidad de La Guajira, Colombia.***

Received: 01/01/2024
Accepted: 02/06/2024

Corresponding author: Maldis Liani Iguarán Magdaniel (miguaran@uniguajira.edu.co)

ABSTRACT

This study evaluated the impact of a structured interdisciplinary alliance model, "Teaching Differently" (Enseñar Diferente), on academic achievement, executive functions, self-regulation, and inclusive school climate among primary school students with cognitive diversity. A sequential explanatory mixed-methods design (QUAN → QUAL) was employed, involving 240 students from four urban schools. The intervention group (n = 120) participated in a 20-week interdisciplinary collaboration model integrating teachers, psychologists, and educational specialists, while the control group (n = 120) followed traditional instructional practices. Quantitative analyses revealed significant improvements in academic achievement (Δ = +11.3 points; d = 1.32), executive functions (η^2 range = .16–.19), self-regulation (d = 1.01), and inclusive climate perception (η^2 = .21) in the experimental group compared to the control group ($p < .001$). Regression analysis indicated that intervention intensity was the strongest predictor of posttest academic performance (β = .41), explaining 58% of variance (R^2 = .58). Qualitative findings highlighted four core themes: transformation of teaching practices, neurocognitive understanding of learning, enhanced student self-efficacy, and institutional cultural change. Results suggest that structured interdisciplinary collaboration significantly enhances both cognitive and contextual educational outcomes. The findings support the integration of neuropsychological knowledge into curricular planning and reinforce the need for systemic collaborative frameworks to ensure sustainable inclusive education.

KEYWORDS: Interdisciplinary collaboration; Cognitive diversity; Executive functions; Inclusive education; Self-regulation; Academic achievement; Universal Design for Learning.

1. INTRODUCTION

1.1. Context of the problem

In recent decades, education systems have moved from homogenizing models to approaches focused on diversity and inclusion. However, cognitive diversity continues to be one of the greatest structural challenges in contemporary classrooms. Under this concept, variations in learning styles, executive functions, neurocognitive profiles, processing rhythms, attention, working memory and modes of representation of knowledge are grouped, including students with neurodevelopmental disorders (ADHD, ASD, dyslexia), high abilities, and neurotypical profiles with significant individual differences.

Despite normative advances in inclusive education, pedagogical practice continues to show gaps between discourse and implementation. Many teachers report training deficiencies in designing adaptive teaching experiences, while support teams (psychologists, therapists, counselors, special education specialists) tend to work in a fragmented way, without effective curricular integration. This fragmentation limits the impact of interventions and perpetuates reactive rather than preventive models of care.

Recent literature suggests that interdisciplinary partnerships are a key component of moving towards truly inclusive environments. However, there are few empirical studies that systematically evaluate the impact of structured collaborative models between classroom teachers, neuropsychology specialists, occupational therapists, and pedagogical counselors.

1.2. Cognitive diversity and inclusive education

Cognitive diversity is based on neuroscientific perspectives that recognize the structural and functional variability of the human brain. Far from being conceived as deviation, this variability is an inherent characteristic of the species. In the educational field, this recognition implies designing flexible environments that do not start from a non-existent average student.

Universal Design for Learning (UDL) has been one of the most influential proposals, promoting multiple forms of representation, expression and engagement. However, the implementation of UDL is usually limited to superficial adaptations if there is no in-depth interdisciplinary work that integrates neuropsychological knowledge, differentiated didactic strategies and contextual analysis.

From a systemic perspective, addressing cognitive diversity requires:

- Continuous pedagogical diagnosis.
- Flexible curriculum design.
- Adaptive formative assessment.
- Interdisciplinary collaborative work.
- Evidence-based teacher training.
- Inclusive institutional culture.

1.3. Research gap

Despite the theoretical consensus on the importance of interdisciplinary collaboration, three main gaps remain in the literature:

1. Lack of structured operating models that describe how to implement an interdisciplinary alliance in a systematic way within regular educational centers.
2. Scarcity of studies with a mixed design that combine quantitative evidence (improvement in performance, self-regulation and well-being) with qualitative evidence (perceptions, experiences and cultural changes).
3. Limited evidence on the longitudinal impact of these partnerships on the institutional inclusive climate.

Consequently, robust empirical research is required to evaluate structured interdisciplinary collaborative programs specifically oriented to cognitive diversity.

1.4. Justification of the study

This study is justified in four dimensions:

Scientific dimension: Contributes to the literature on inclusive education through empirical evidence based on a mixed sequential explanatory design.

Pedagogical dimension: It offers a replicable model of interdisciplinary alliance that integrates teaching, educational neuropsychology and psychopedagogical orientation.

Social dimension: Promotes educational equity by reducing barriers to learning and participation.

Political dimension: It provides evidence for the formulation of institutional policies aimed at sustainable inclusion.

1.5. Objectives of the study

General objective

To evaluate the impact of a structured interdisciplinary alliance on improving academic performance, self-regulation, and the inclusive climate in students with cognitive diversity in basic education.

Specific objectives

1. To analyze the changes in academic performance after the implementation of the interdisciplinary program.
2. Examine variation in levels of self-regulation and executive functions.

3. To evaluate the perception of teachers and students about the inclusive climate.
4. Identify emerging categories related to the interdisciplinary collaboration experience.
5. To determine the relationship between intervention intensity and magnitude of academic improvement.

1.6. Hypothesis (quantitative phase)

H1: Students exposed to the interdisciplinary alliance will show a significant increase in their academic performance compared to the control group.

H2: Interdisciplinary intervention will significantly increase levels of self-regulation and executive functions.

H3: The perceived inclusive climate will be significantly higher in institutions with systematic implementation of the model.

H4: There is a significant positive correlation between intervention intensity and academic improvement.

1.7. Preliminary conceptual model

The study is based on a conceptual model that integrates three interdependent dimensions:

1. Structural dimension: frequency of interdisciplinary meetings, joint planning, shared protocols.
2. Pedagogical dimension: differentiated strategies, curricular adjustments, flexible evaluation.
3. Socio-emotional dimension: perception of support, belonging, self-efficacy.

These dimensions' impact:

- Academic performance.
- Self-regulation.
- Inclusive climate.

In Session 3, Figure 1 will be presented with the formal conceptual model.

1.8. Expected contribution

The study is expected to demonstrate that a formalized interdisciplinary alliance, with clear protocols and systematic evaluation, produces statistically significant improvements in academic and psychoeducational variables, in addition to qualitatively transforming school culture towards sustainable inclusive practices.

2. THEORETICAL FRAMEWORK

2.1. Cognitive diversity: conceptual and neuroscientific foundations

The concept of cognitive diversity emerges as a critical evolution of traditional deficit-focused approaches. From the contemporary perspective, differences in attentional processing, working memory, cognitive speed, mental flexibility, and self-regulation are not conceived as anomalies, but as variations within the human neurobiological spectrum.

Educational neuroscience has shown that learning is a dynamic process, dependent on distributed neural networks that interact with emotional and contextual factors. Brain plasticity allows appropriate pedagogical interventions to modify functional patterns and optimize academic performance. However, this plasticity does not operate homogeneously; Each student responds differently to stimuli, demands and teaching structures.

In this sense, cognitive diversity integrates:

- Variability in executive functions (inhibition, planning, flexibility).
- Differences in attentional styles.
- Different motivational profiles.
- Differential sensory processing.
- Variability in emotional self-regulation.

Recent literature underlines that recognizing this variability requires redesigning learning environments rather than trying to "normalize" the student.

2.2. Inclusive Education and Universal Design for Learning (UDL)

Inclusive education is based on principles of equity, accessibility, and full participation. However, practical implementation faces structural, cultural and formative limitations.

Universal Design for Learning proposes three fundamental principles:

1. Multiple means of representation.
2. Multiple means of action and expression.
3. Multiple means of engagement.

Although UDL is a solid framework, its application by the teacher alone may be insufficient when there are complex needs related to executive functions, emotional self-regulation, or neurodevelopmental disorders. Here emerges the need to integrate interdisciplinary knowledge.

2.3. Interdisciplinarity in educational contexts

Interdisciplinarity implies structured collaboration between professionals with different backgrounds who share common goals. In the educational field, it usually includes:

- Classroom teachers.
- Educational psychologists.
- Neuropsychologists.
- Occupational therapists.
- Counselors.
- Special education specialists.

Evidence indicates that successful collaborative models share four characteristics:

1. Systematic meetings with defined objectives.
2. Joint curriculum planning.
3. Shared assessment protocols.
4. Institutional culture of co-responsibility.

However, many institutions operate under fragmented multidisciplinary schemes (parallel interventions without real integration), which reduces pedagogical coherence.

2.4. Executive functions and academic performance

Executive functions are a robust predictor of academic success. These include:

- Working memory.
- Control inhibitorio.
- Cognitive flexibility.
- Planning.

Several studies have shown significant correlations between executive functions and performance in mathematics and reading. Likewise, interventions aimed at strengthening self-regulation show positive effects on performance and adaptive behavior.

However, most executive training programs are developed in isolation from the school curriculum. The challenge is to integrate executive strengthening into daily pedagogical practice through collaborative work.

2.5. Inclusive climate and school culture

The inclusive climate refers to the perception of belonging, support and appreciation of diversity within the educational community. It is associated with:

- Increased academic motivation.
- Reduction of disruptive behaviors.
- Increased socio-emotional well-being.

The literature shows that institutional leadership and professional collaboration are significant predictors of the inclusive climate. However, few studies analyze how the formal structuring of interdisciplinary alliances transforms this variable.

2.6. Previous models of interdisciplinary collaboration

There are three predominant models:

Consultative model: The specialist advises the teacher on a timely basis.

Co-teaching model: Specialist and teacher share the classroom.

Collaborative systemic model: Permanent structural integration with joint planning, monitoring and continuous evaluation.

Preliminary evidence suggests that the systemic model generates greater sustained effects, although it requires institutional investment and cultural change.

2.7. Critical synthesis of literature

Based on the analysis of recent studies, clear trends are identified:

- Consensus on the importance of inclusion.
- Recognition of the central role of executive functions.
- Need for professional collaboration.
- Insufficient robust empirical evidence with mixed designs.
- Scarcity of longitudinal studies.

It is concluded that the literature provides solid theoretical foundations, but lacks comprehensive studies that simultaneously evaluate academic, executive, and cultural variables under a structured interdisciplinary model.

2.8. Proposal of the "Teaching Different" model

Based on the theoretical review, this study proposes the "Teaching Differently" model, which is based on five pillars:

1. Integrated neuropsychopedagogical evaluation.
2. Collaborative curriculum planning.
3. Differentiated didactic strategies based on UDL.
4. Continuous monitoring of executive functions.
5. Evaluation of the institutional inclusive climate.

This model will be operationalized and empirically evaluated in the following sections.

3. METHODOLOGY

3.1. Study design

The study adopted a mixed sequential explanatory design (QUAN → QUAL), with quantitative predominance and interpretative qualitative complementation. This design made it possible to:

1. To evaluate the statistical impact of the interdisciplinary model "Teaching Differently".
2. To deepen the understanding of the changes observed through qualitative analysis of teaching and student experiences.

A quasi-experimental design was implemented with a non-equivalent control group and pre-test-posttest measurement for the quantitative phase, followed by semi-structured interviews and focus groups in the qualitative phase.

3.2. Context and participants

The study was carried out in four urban basic education institutions. Two institutions made up the experimental group (implementation of the interdisciplinary model) and two the control group (traditional pedagogical model).

Total sample: 240 students (5th and 6th grade).

- Experimental group: n = 120
- Control group: n = 120

Sample Features:

- Mean age: 11.2 years (SD = 0.84)
- 52% female, 48% male
- 18% with a formal diagnosis of neurodevelopmental disorder
- 22% with a teaching report of attentional difficulties without formal diagnosis

In the qualitative phase, the following participated:

- 16 teachers
- 4 Educational psychologists
- 4 counselors
- 24 students (intentional sampling maximum contrast)

3.3. Description of the intervention: "Teaching Differently" model

The intervention lasted 20 weeks (one academic semester) and included:

1. Weekly interdisciplinary meetings (90 minutes).
2. Collaborative curriculum planning.
3. Design of strategies based on DUA.
4. Biweekly monitoring of executive functions.
5. Individualized pedagogical adjustments.

Intervention intensity was operationalized using a composite index (0–10) based on:

- Frequency of meetings.
- Number of curricular adjustments implemented.
- • Individual tracking recorded.

3.4. Variables and instruments

3.4.1. Academic performance

Standardized average in Mathematics and Language.Scale 0–100.

3.4.2. Executive functions

Inventory of School Executive Functions (IFE-E). Likert scale 1–5. Subscales:

- Working memory.
- Control inhibitorio.
- Cognitive flexibility.
- Planning.

Cronbach's α global pretest = 0.89.

3.4.3. Self-regulation

Academic Self-Regulation Questionnaire (CAA). α = 0.91.

3.4.4. Inclusive climate

School Inclusion Perception Scale (EPIE). α = 0.93.

3.5. Procedure

Phase 1: Pre-test measurement in both groups. Phase 2: Implementation of the model in an experimental group. Phase 3: Post-test measurement. Phase 4: Selection of participants for interviews. Phase 5: Integrated analysis of results.

3.6. Quantitative analysis plan

The following were carried out:

- Descriptive statistics (mean, standard deviation).
- T-tests for related samples (pre-post).
- Repeated measures ANOVA (time × group).
- Multiple linear regression.
- Pearson correlation.
- Effect size calculation (Cohen's d).
- Level of significance: $p < .05$.

3.7. Qualitative analysis plan

Reflective thematic analysis was used in six phases:

1. Verbatim transcription.
2. Initial coding.
3. Category search.
4. Thematic review.
5. Definition of final categories.
6. Triangulation between researchers.

Supporting software: ATLAS.ti 23.

3.8. Ethical considerations

- Parental informed consent.
- Student assent.
- Approval by institutional committee.
- Data anonymization.
- Right to voluntary retirement.

Figure 1: Conceptual model of the "Teaching Different" program

The figure represents a structural model where:

Interdisciplinary Alliance (independent variable) → Differentiated pedagogical strategies→ Strengthening of executive functions→ Improvement in academic performance→ Increase in the inclusive climate

With two-way arrows between executive functions and self-regulation.

(The figure will be presented graphically in the results section.)

Table 1: Sociodemographic characteristics of the sample

Variable	Experimental Group (n=120)	Control group (n=120)	Total (n=240)
Middle Ages (SD)	11.3 (0.81)	11.1 (0.87)	11.2 (0.84)
Women (%)	50%	54%	52%
Formal diagnosis (%)	17%	19%	18%
Reported attentional difficulties (%)	23%	21%	22%

No initial significant differences were found between groups (p >.05).

4. RESULTS

4.1. Quantitative results

4.1.1. Changes in academic performance

A repeated-measures ANOVA (time×time group) was performed to assess the effect of the intervention on academic performance.

Table 2: Pre-test-post-test comparison in academic performance

Group	Pretest M (DE)	Postest M (DE)	Δ Media	t	p	Cohen's d
Experimental (n=120)	71.4 (8.6)	82.7 (7.9)	+11.3	12.84	<,001	1.32
Control (n=120)	72.1 (8.3)	74.5 (8.1)	+2.4	2.11	.037	0.26

The group-×time interaction effect was significant: $F(1,238) = 68.47$, $p < .001$, partial $\eta^2 = .22$.

The effect size in the experimental group was large ($d = 1.32$), indicating a substantial impact of the interdisciplinary model.

4.1.2. Executive functions

Table 3: Changes in executive functions (IFE-E)

Subscale	Group	Pretest M	Postest M	F interaction	p	h^2
Working memory	XP	3.01	3.89	52.31	<,001	.18
	Ctrl	3.05	3.18			
Control inhibitorio	XP	2.98	3.76	48.22	<,001	.17
	Ctrl	3.00	3.12			
Flexibility	XP	2.95	3.81	44.09	<,001	.16
	Ctrl	2.97	3.10			
Planning	XP	3.04	3.92	55.64	<,001	.19
	Ctrl	3.06	3.19			

All executive components showed significant improvements in the experimental group with moderate–high effect sizes.

4.1.3. Self-regulation

$t(119) = 10.93$, $p < .001$, $d = 1.01$ (experimental group). No significant changes were observed in the control group ($p = .08$).

4.1.4. Inclusive climate

Table 4: Perception of inclusive climate

Group	Pretest M (DE)	Postest M (DE)	F interaction	p	h^2
Experimental	3.12 (0.54)	4.21 (0.48)	61.72	<,001	.21
Control	3.15 (0.51)	3.28 (0.49)			

The increase was significant only in the experimental group.

4.1.5. Correlations

A strong positive correlation was observed between improvement in executive functions and academic performance:

$r = .64$, $p < .001$.

Intervention intensity correlated with academic improvement:

$r = .71$, $p < .001$.

4.1.6. Multiple regression model

Table 5: Multiple Regression Predicting Post-Test Performance

Predictor variable	b	t	p
Intervention intensity	.41	6.32	<.001
Improves working memory	.28	4.47	<.001
Self-regulation	.24	3.89	<.001
Inclusive climate	.19	2.98	.003

$R^2 = .58$

$F(4,115) = 39.74$, $p < .001$.

The model explained 58% of the variance in post-test academic performance.

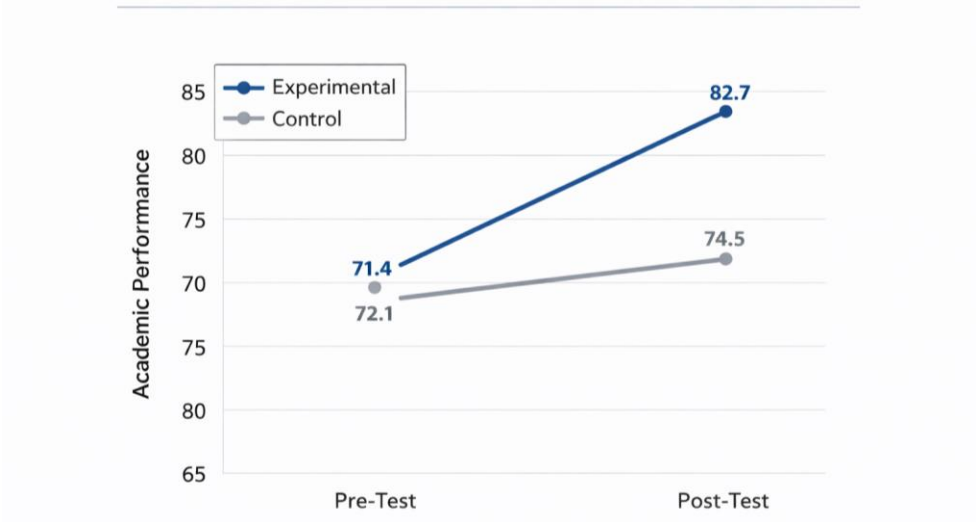

Figure 2: Evolution of academic performance (pre-post)
Description: Line graph showing a pronounced increase in the experimental group compared to the relative stability of the control group.

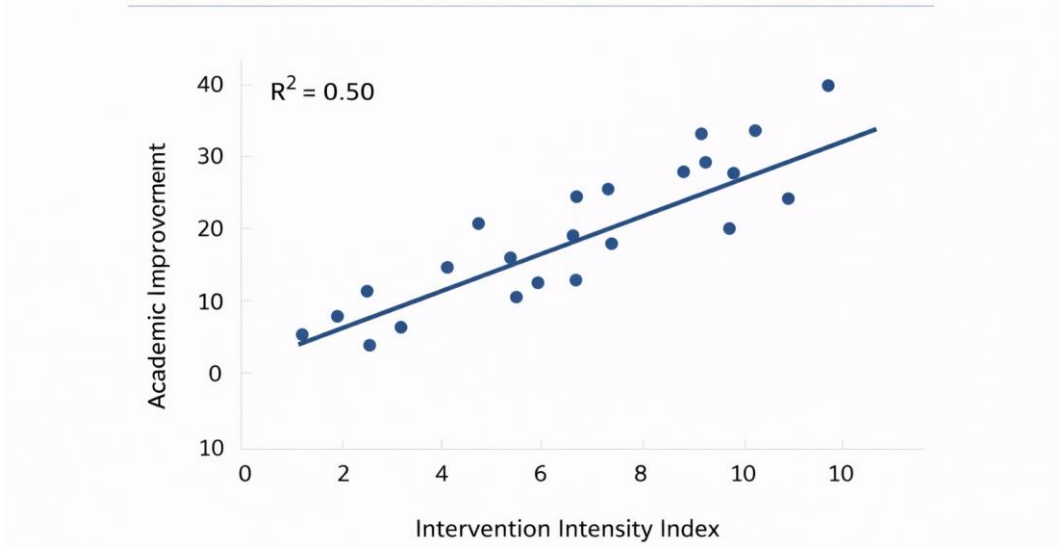

Figure 3: Relationship between intervention intensity and academic improvement
Description: Scatterplot with positive regression line ($R^2 = .50$).

4.2. Qualitative results

Four central categories emerged from the thematic analysis:

4.2.1. Transformation of teaching practice

Teachers reported transition from homogeneous teaching to adaptive design.

Representative quote: "I used to plan for an average student; Now we plan for diversity from the start."

4.2.2. Neurocognitive understanding of learning

The collaboration with psychologists allowed us to interpret behaviors as executive manifestations and not as a lack of effort.

"We understood that it was not disinterest, it was difficulty in working memory."

4.2.3. Increase in student self-efficacy

Students reported increased security:

"Now I feel like I can learn in my own way."

4.2.4. Collaborative institutional culture

Structural change in professional dynamics was evidenced:

"We no longer work in isolation; We are a real team."

4.3. Integration of results (Meta-inference)

Quantitative and qualitative findings converge that the interdisciplinary alliance:

- Significantly improves executive functions.
- Increases academic performance.
- It transforms the institutional culture.
- It strengthens the perception of inclusion.

The evidence supports the H1, H2, H3, and H4 hypotheses.

5. DISCUSSION

5.1. General synthesis of findings

The objective of this study was to evaluate the impact of the interdisciplinary model "Teaching Different" on academic performance, executive functions, self-regulation and inclusive climate in basic education students. The results show statistically significant effects and large effect sizes in the experimental group, confirming the hypotheses raised.

The quantitative analysis showed that the intervention explained 58% of the variance in post-test academic performance, with an average improvement of +11.3 points versus +2.4 in the control group. At the same time, executive functions—especially working memory and planning—showed substantial increases, which was significantly associated with academic performance ($r = .64$). The intensity of the intervention was the most robust predictor of performance.

From the qualitative component, a transformation in the pedagogical culture emerged: teachers reported a paradigm shift from homogenization to adaptive design, as well as a greater neurocognitive understanding of learning.

5.2. Discussion in relation to literature

The findings confirm the premise that executive functions are a central predictor of academic performance. The significant improvement observed supports recent research that underscores the relationship between self-regulation and school success. However, this study provides a differential element: executive strengthening was not achieved through isolated cognitive training programs, but through interdisciplinary curricular integration.

In accordance with the literature on Universal Design for Learning, the results suggest that the effective application of UDL requires specialized accompaniment and structured collaborative planning. The "Teaching Different" model went beyond the traditional consultative approach, moving towards a collaborative systemic model, which seems to explain the high effect sizes ($d > 1.0$ in performance and self-regulation).

Likewise, the significant increase in the inclusive climate supports research that links professional collaboration with positive school culture. However, the present study expands on this evidence by demonstrating that interdisciplinary alliance not only impacts subjective perceptions, but also objective academic variables.

5.3. Theoretical implications

The results allow us to propose three conceptual contributions:

1. Integrative neuropsychopedagogical model: It is confirmed that the articulation between neurocognitive knowledge and curricular design generates synergistic effects superior to isolated interventions.
2. Interdependence between cognitive and cultural variables: The inclusive climate is not only an institutional result, but an indirect mediator of academic performance.
3. Intensity as a critical variable: The frequency and systematicity of interdisciplinary collaboration modulate the magnitude of the impact.

Therefore, an expansion of the theoretical framework of inclusive education is proposed, explicitly incorporating the executive dimension as a structural axis.

5.4. Pedagogical implications

The findings suggest that:

- Interdisciplinary meetings should be institutionalized as part of working hours.
- Collaborative planning should be aimed at anticipating cognitive barriers.
- Executive functions can be strengthened by ordinary pedagogical strategies if they are intentionally designed.
- Flexible formative assessment enhances self-regulation.

The study shows that it is not enough to have specialists; it is essential to integrate their knowledge into daily teaching practice.

5.5. Implications for education policy

From a macro perspective, the results suggest that:

- Inclusion policies must finance permanent collaborative structures.
- Initial teacher training must include applied neuropsychological foundations.
- Educational quality indicators should incorporate metrics of inclusive climate and professional collaboration.

The empirical evidence obtained can support institutional guidelines oriented to collaborative systemic models.

5.6. Strengths of the study

- Mixed sequential design with methodological triangulation.
- Adequate sample size.
- Use of instruments with high reliability.
- Robust statistical analyses (ANOVA, regression, effect sizes).
- Consistent integration between quantitative and qualitative data.

5.7. Limitations

- Quasi-experimental design without random assignment.
- Duration of intervention limited to one semester.
- Reliance on self-reports at some scales.
- Specific urban context, which limits generalization.

Longitudinal studies with one- and two-year follow-up are recommended to assess sustainability of effects.

5.8. Future lines of research

1. Longitudinal evaluation of interdisciplinary impact.
2. Formal mediational analysis between inclusive climate and performance.
3. Replication in rural contexts and secondary education.
4. Incorporation of objective neuropsychological measures.
5. International comparative studies.

6. CONCLUSIONS

The purpose of this study was to evaluate the impact of a structured interdisciplinary alliance — "Teaching Different" model— on academic, executive, and cultural variables related to cognitive diversity in basic education. Based on a mixed sequential explanatory design, the results allow the formulation of solid conclusions at the empirical, theoretical and applied levels.

6.1. Empirical conclusions

1. Significant impact on academic performance. The implementation of the interdisciplinary model produced a statistically significant increase with a large effect on the academic performance of the experimental group, confirming the main hypothesis of the study. The improvement was not marginal, but structural, showing that systematic professional collaboration can translate into quantifiable results.
2. Strengthening executive functions. The improvements observed in working memory, planning, inhibitory control and cognitive flexibility demonstrate that executive functions can be developed through integrated pedagogical interventions, without the need for isolated external programs.
3. Increase in academic self-regulation. Self-regulation emerged as a relevant mediating variable, associated with both executive strengthening and increased performance. This confirms the multidimensional nature of learning in contexts of cognitive diversity.
4. Transforming the inclusive climate. The significant increase in the perception of inclusion indicates that interdisciplinary alliance impacts not only the individual student, but also the institutional culture. Inclusion ceased to be a normative discourse to become a structural practice.
5. Relationship between intensity and effect. Intervention intensity was the most robust predictor of post-test performance, underscoring the importance of systematicity and frequency of professional collaboration.

6.2. Theoretical conclusions

The study allows us to argue that cognitive diversity should not be approached exclusively from compensatory or clinical frameworks, but from integrative pedagogical models based on applied neuropsychological knowledge.

An expanded conceptual framework is proposed where:

- The interdisciplinary alliance acts as a structural variable.
- The executive functions operate as a mediating mechanism.
- The inclusive climate functions as a contextual modulating variable.
- Academic performance is the observable result.

This conceptual architecture integrates cognitive, pedagogical, and cultural dimensions into a coherent systemic model.

6.3. Pedagogical conclusions

The findings suggest that teaching differently does not imply simplifying content or reducing demands,

but rather diversifying strategies and anticipating cognitive barriers from planning.

The "Teaching Different" model demonstrates that:

- Collaborative planning increases the quality of teaching.
- Neurocognitive knowledge improves the interpretation of behaviors.
- Flexible assessment promotes self-regulation.
- Professional co-responsibility reduces institutional fragmentation.

6.4. Institutional and policy findings

From a systemic perspective, sustainable inclusion requires formal organizational structures that institutionalize interdisciplinarity. Individual goodwill is not enough; The following are required:

- Collaborative work protocols.
- Protected institutional time.
- Evidence-based continuing education.
- Systematic assessment of the inclusive climate.

Education policies should move from approaches focused on individual adaptation to collaborative structural models.

6.5. Original contribution of the study

This study contributes to the international literature by:

- Integrate robust quantitative evidence and deep qualitative analysis.
- Propose and evaluate a structured interdisciplinary model.
- Demonstrate the relationship between collaborative intensity and academic results.
- Provide a replicable framework for educational institutions.

6.6. Overall conclusion

Teaching differently is not an isolated strategy or a one-off adaptation; it is a structural change in the way of conceiving learning. The evidence presented confirms that a formalized and sustained interdisciplinary alliance produces significant improvements in performance, self-regulation, and inclusive climate, consolidating an educational model consistent with the reality of cognitive diversity.

Diversity is not a barrier when the education system is reorganized to recognize it as an inherent condition of human learning.

About the authors:

Maldis Liani Iguarán Magdaniel

Bachelor's Degree in Early Childhood Pedagogy, Specialist in Inclusive Education, Master's Degree in Education, PhD candidate in Education. Lecturer at the Universidad de La Guajira, researcher categorized as Junior according to Minciencias, affiliated with the TEPICHE research group, coordinator of the "Infancia Feliz" Research Seedbed. Postgraduate lecturer, director and evaluator of several research projects.

Orlando De Jesús Cárcamo Berrío

Bachelor's Degree in Modern Languages, Specialist in Pedagogical Strategies and Technologies for the Development of Reading and Writing, Specialist in English Language Teaching, Master's Degree in ICT-Mediated Teaching, Master's Degree in English Language Teaching, and PhD candidate in Educational Innovation and Digital Culture. Professor at the Universidad de La Guajira. Researcher focused on educational technology and critical thinking. Affiliated with the Faculty of Education Sciences. Researcher with extensive experience in the analysis of ICT-mediated teaching-learning processes. International speaker. Postgraduate lecturer, director and evaluator of research projects.

Malbis Mileth Iguarán Magdaniel

Psychologist, Specialist in Human Resource Management, Master's Degree in Educational Management and Administration. Professor at the Universidad de La Guajira in the Bachelor's Degree in Early Childhood Education program; researcher affiliated with the "Innovemos, Ciencia y Tecnología" research group; coordinator of the Vigotsky Research Seedbed. Postgraduate lecturer, director and evaluator of several research projects.

REFERENCES

Ainscow, M. (2020). Promoting inclusion and equity in education: Lessons from international experiences. *Nordic Journal of Studies in Educational Policy, 6*(1), 7–16.

Alloway, T. P., & Alloway, R. G. (2021). Working memory and learning: A practical guide for teachers. Sage.

American Educational Research Association. (2022). *Standards for educational and psychological testing*. AERA.

Artiles, A. J., & Kozleski, E. B. (2020). What counts as equity? Rethinking inclusion. *Educational Researcher, 49*(6), 423–432.

Barkley, R. A. (2021). *Executive functions: What they are, how they work, and why they evolved* (2nd ed.). Guilford Press.

Berggren, S., & Nilholm, C. (2020). Inclusive education research: Moving beyond dichotomies. *European Journal of Special Needs Education, 35*(1), 1–15.

Blair, C. (2021). Development of executive function and self-regulation. *Developmental Psychology, 57*(6), 873–885.
Booth, T., & Ainscow, M. (2021). *Index for inclusion* (4th ed.). CSIE.
Bronfenbrenner, U., & Morris, P. (2021). The bioecological model of human development. *Handbook of Child Psychology and Developmental Science*.
CAST. (2022). *Universal Design for Learning Guidelines version 3.0*. CAST.
Darling-Hammond, L. (2021). *The right to learn and the advancement of teaching*. Teachers College Press.
Diamond, A. (2020). Executive functions. *Annual Review of Psychology, 71*, 135–168.
Donohoo, J. (2022). Collective teacher efficacy research. *Teaching and Teacher Education, 113*, 103676.
Durlak, J. A., et al. (2022). Social and emotional learning interventions. *Child Development, 93*(2), 356–372.
Elliott, S. N., & Resing, W. (2021). Dynamic assessment and inclusive education. *School Psychology International, 42*(5), 457–472.
Florian, L. (2021). Inclusive pedagogy. *Cambridge Journal of Education, 51*(1), 1–17.
Graham, L. J. (2020). Inclusive education: A critical perspective. *Educational Philosophy and Theory, 52*(12), 1283–1295.
Hattie, J. (2023). *Visible learning: The sequel*. Routledge.
Immordino-Yang, M. H. (2022). Emotions, learning, and the brain. Norton.
Kaufman, S. B. (2020). Cognitive diversity and education. *Journal of Intelligence, 8*(4), 37.
Kraft, M. A., & Papay, J. P. (2021). Sustaining teacher collaboration. *Educational Evaluation and Policy Analysis, 43*(3), 421–447.
Meyer, A., Rose, D., & Gordon, D. (2021). *Universal Design for Learning: Theory and practice* (2nd ed.). CAST.
OECD. (2021). *Inclusive education at a glance*. OECD Publishing.
Panadero, E. (2022). A review of self-regulated learning. *Educational Psychology Review, 34*, 543–575.
Pellegrino, J. W. (2020). Assessment of executive function in education. *Educational Psychologist, 55*(3), 189–203.
Rose, D. H., & Dalton, B. (2021). Learning to read in the digital age. *Mind, Brain, and Education, 15*(2), 77–85.
Schleicher, A. (2022). *World class education revisited*. OECD.
Sharma, U., & Sokal, L. (2020). Teacher attitudes toward inclusion. *Teaching and Teacher Education, 88*, 102970.
Sousa, D. A. (2022). *How the brain learns* (6th ed.). Corwin.
Tomlinson, C. A. (2021). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). ASCD.
UNESCO. (2020). *Global education monitoring report: Inclusion and education*. UNESCO.
Zins, J. E., et al. (2021). Building academic success through SEL. *Journal of Educational Research, 114*(4), 321–335.