

Resilience, Teacher Allostatic Load and its Neuroemotional Repercussions: A Critical Analysis of the 2022 Educational Reform in Intercultural Contexts

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Abstract

This research analyzes the configuration of teacher occupational stress as a multi-causal phenomenon stemming from the transition toward the New Mexican School (NEM) and the 2022 Educational Reform. Within a complexity paradigm, the study examines the impact of regulatory uncertainty and epistemic vacuum on the mental health of 12 bilingual primary school teachers in School Zone 303 of Copainalá, Chiapas, Mexico. Using a sequential mixed-methods design (DEXPLIS), the dimensions of allostatic load and critical resilience are explored as mediators of pedagogical praxis. The findings reveal a significant correlation between neuro-emotional instability and the reduction of didactic plasticity; 65% of the sample exhibits moderate-to-high stress levels linked to the demands of curricular co-design lacking institutional scaffolding. It is concluded that resilience should not be a trait of passive adaptation but a biosocial construct necessary for the sustainability of the educational system. The study suggests that teacher mental health is the most potent invisible barrier against the success of educational transformation in high-vulnerability areas.

Keywords: *Allostasis, Teacher Stress, 2022 Educational Reform, Critical Resilience, Interculturality, Collective Mental Health.*

1. Introduction and Epistemological Approach

The architecture of contemporary education systems is undergoing a sustainability crisis that transcends the pedagogical and enters the biological realm. In Mexico, the implementation of the 2022 Education Reform and the New Mexican School (NEM) model represent an unprecedented paradigm shift: the transition from a standardized curriculum to professional autonomy and situated co-design. However, this transition is not occurring in a vacuum; it is unfolding within a teaching staff already grappling with the neurocognitive consequences of a global pandemic and decades of structural insecurity.

In the context of the state of Chiapas, specifically in School Zone 303 of Copainalá, the demands of the New Mexican Education Model (NEM) take on a highly complex dimension. Here, the bilingual intercultural teacher must act not only as a mediator of knowledge but also as a translator of public policies that often lack a clear technical and scientific framework. This constant pressure to "fill the epistemic void" in School Technical Councils generates what neuroscience literature defines as allostatic load: the systemic wear and tear resulting from chronic adaptation to environmental and normative stressors.

1.1. The Problem of Pedagogical Delocalization

The core of the problem lies in the fact that current educational policy has delegated the responsibility for social transformation to the individual resilience of teachers, ignoring the neuro-emotional repercussions of this burden. The concept of "curricular autonomy," while liberating in Dussel's theory, manifests in practice as a "pedagogical isolation" that undermines collective mental health.

This research is based on the premise that the effectiveness of any educational reform depends on the integrity of the teaching-learning dyad, which is inherently dependent on the stability of the teacher's hypothalamic-pituitary-adrenal axis. Teachers with a critical allostatic load exhibit a significant reduction in their pedagogical plasticity, limiting their capacity for innovation and cultural mediation in bilingual indigenous contexts.

1.2. Research Question and Justification

Under this scenario, the question arises: *How does the allostatic load derived from the implementation of the 2022 Reform condition the effectiveness of the teaching-learning binomial in contexts of intercultural bilingual education?*

The relevance of this study lies in its transdisciplinary approach. By integrating the neuroscience of stress with Vygotsky's critical pedagogy and Dussel's philosophy of liberation, it seeks to transcend the mere description of workplace stress and propose an "ethics of public policy." It is impossible to speak of a "New School" if it is built on the foundations of a neuro-emotionally exhausted teaching profession.

2. Theoretical-Conceptual Framework

2.1. Allostatic Load: The Biological Wear and Tear of Adaptation

From a contemporary neuroscience perspective, teacher stress is not defined merely as psychological fatigue, but as a process of allostatic loading. According to McEwen (2017) [1], allostasis is the process by which the body regains stability through change. However, when the demand for adaptation is chronic—as is the case with the regulatory uncertainty of the 2022 Reform—the system fails to return to its baseline state.

This state of constant alertness sustainably activates the hypothalamic-pituitary-adrenal (HPA) axis, releasing glucocorticoids that, in the long term, produce remodeling in the prefrontal cortex and the amygdala. In the teacher from Zone 303 of Copainalá, this translates into "cognitive rigidity": the brain, saturated by excess cortisol, prioritizes automatic and defensive behaviors, which explains the paralysis in the face of the curriculum co-design proposed by the NEM (New Mexican Education Model).

2.2. Critical Resilience and Decolonization of Knowledge

For this study to be relevant in the bilingual context of Chiapas, resilience cannot be understood as "passive resistance" or "adaptation to the system." Following Dussel (2020) [2] and his Philosophy of Liberation, we propose the concept of Critical Resilience.

This dimension involves the teacher's capacity to transform structural adversity into a liberating practice. In bilingual communities, resilience is an act of epistemic sovereignty: it is the moment when the teacher, despite exhaustion, decides that the core of the curriculum is not the administrative format, but rather the Zoque or Tsotsil community knowledge. Critical resilience is, therefore, a protective mechanism not only for the individual, but also for the culture they represent in the classroom.

2.3. Teacher Subjectivity in the New Mexican School (NEM)

The NEM normative framework introduces the concept of professional autonomy. However, from Vygotsky's perspective (2021) [3], all higher mental functions first emerge on the social plane. If the institution does not provide the necessary "scaffolding" (technical training, conceptual clarity, emotional well-being), autonomy becomes a biopolitical stressor.

The epistemic gap identified in School Technical Councils (CTE) acts as a failed zone of proximal development. Teachers find themselves in a situation where the mediating tools (new textbooks and synthetic curricula) fail to take root in their operational reality, generating what we call "pedagogical flow dissonance," a gap between the demand for innovation and the biological capacity to respond.

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3. High Complexity Methodology

The research is based on a socio-educational complexity paradigm, using a mixed methods approach with a DEXPLIS design [4]. This design was implemented in two phases: an initial quantitative phase to map the prevalence of stress and a subsequent qualitative phase to delve deeper into the subjective meanings of resilience in bilingual contexts.

3.1. Population and Sample Location

A non-probability convenience sample was used, consisting of 12 teachers (n=12) from indigenous primary education assigned to School Zone 303 of Copainalá, Chiapas. The selection was based on the following inclusion criteria:

1. Be a classroom teacher during the 2023-2024 school year.
2. Actively participate in School Technical Council (CTE) sessions.

3. Possess bilingual proficiency (Spanish-Indigenous Language).

The sample was distributed across an age range of 23 to 48 years, with a gender balance (n=7 female; n=5 male), allowing observation of the influence of experience and gender on the management of neurocognitive stress.

3.2. Procedure and Instrumentation

The study was divided into three operational stages to ensure data traceability:

Stage 1: Perceived Psychophysiological Assessment (Quantitative) The Perceived Stress Scale (PSS-14), validated for the Mexican population, was applied to quantify subjective allostatic load. Simultaneously, the Connor-Davidson Resilience Inventory (CD-RISC) was used to establish a baseline of coping mechanisms.

Stage 2: Ethnographic and Phenomenological Immersion (Qualitative) Based on the results of Stage 1, in-depth interviews and focus groups were conducted. The objective was to explore the "epistemic void" of the 2022 Reform and how this manifest in daily practice. Participant observation was used in CTE sessions to record the dynamics of "pedagogical isolation."

Stage 3: Triangulation and Complexity Analysis. Quantitative data were processed using descriptive statistics, while qualitative data underwent Thematic Content Analysis assisted by NVivo software. The integration of both allowed for the construction of a taxonomy of teachers' responses to the NEM (National Education Reform).

3.3. Ethical Considerations

The research was conducted in accordance with the principles of the Declaration of Helsinki. Informed consent was obtained from each participant, guaranteeing anonymity and confidentiality of the data, which is essential given the sensitive nature of mental health in the SEP's institutional work environment.

4. Analysis of Results and Critical Discussion

4.1. Prevalence of Allostatic Load in Zone 303

The results obtained using the Perceived Stress Scale (PSS-14) indicate that 65% of the teachers in the sample in Copainalá fall within a "moderate-to-high" stress range (scores > 28). When these data are cross-referenced with the Resilience Inventory (CD-RISC), an inversely proportional correlation is observed: the greater the uncertainty regarding the content of the New Mexican Education System (NEM), the lower the neurocognitive recovery capacity after the workday.

This phenomenon is not an isolated event, but rather the manifestation of a cumulative allostatic load. When faced with the task of "co-designing" without curricular materials in their language and under the pressure of administrative deadlines, bilingual teachers enter a state of hypervigilance. Physiologically, this suggests a saturation of the HPA axis, which, as discussed in the theoretical framework, inhibits the plasticity necessary for pedagogical innovation.

4.2. The Epistemic Void as a Biopolitical Stressor

During the focus groups, the concept of an "epistemic void" in School Technical Councils (CTE) emerged repeatedly. Teachers reported that the guidelines for the New Mexican School lack an explicit scientific-pedagogical foundation, forcing them to "fill in" project-based planning with improvised resources.

From Dussel's perspective on Critical Resilience, this void is a form of institutional violence. Teachers are asked to be "autonomous" in a context of precarity. The discussion reveals that the teachers with the greatest critical resilience are not those who simply accept the reform, but rather those who achieve "organic hybridization": they integrate Zoque and Tsotsil community knowledge not as a bureaucratic requirement, but as an act of cultural resistance. This process, although exhausting,

acts as a protective factor that gives meaning to teaching, partially mitigating the neurotoxicity of chronic stress.

4.3. Taxonomy of the Teacher Response to the 2022 Reform

Based on data triangulation, the following taxonomy is proposed that describes the position of the teaching profession in Copainalá in the face of the paradigm shift:

Segment	Prevalence	Neuro-Pedagogical Profile	Impact in the Classroom
Saturated / Not Resilient	25%	Critical allostatic load. Cognitive paralysis and executive fatigue.	Return to mechanical and behaviorist traditionalism as a defense.
In Transition / Adaptive	45%	Moderate stress. Attempt to comply with the norm without real assimilation.	Fragmented application of the NEM; surface projects.
Critical Resilient	30%	Allostatic equilibrium through a sense of community and linguistic mastery.	Successful hybridization of local knowledge and real autonomy.

4.4. Discussion: Pedagogical Loneliness and Health Ethics

The discussion of these findings suggests that the 2022 Reform is operating on a teaching staff with decimated "cognitive reserve." The pedagogical isolation mentioned in the qualitative results is the outcome of a policy that assumes resilience is an infinite resource of the individual.

Following Vygotsky, if learning is a social process, then teachers' mental health must also be social. The lack of clinical-pedagogical support in Zone 303 makes the New Mexican Education Model (NEM) a high-risk experiment for teachers' neuroemotional well-being. It is imperative to move from a "pedagogy of high demands" to a "pedagogy of care," where teachers' allostatic load is as relevant an indicator as students' academic performance.

5. Conclusions and Prospective Recommendations

5.1. Conclusions: The Invisible Barrier of Reform

The research allows us to conclude that the implementation of the 2022 Educational Reform in School Zone 303 of Copainalá is not only a challenge of didactic transposition, but a challenge of public health and social neurobiology.

1. **Allostatic Determinism:** It is confirmed that the allostatic load derived from normative uncertainty and the epistemic void in the CTEs (Technical Councils of Education) acts as an inhibitor of didactic plasticity. A teacher with critical levels of cortisol cannot exercise the professional autonomy that the New Mexican School demands; the biology of survival prevails over pedagogical creativity.
2. **Resilience as a Political Act:** Resilience in bilingual intercultural contexts transcends individual recovery capacity. It manifests as a critical resilience where mastery of the native language and a sense of community belonging act as neurocognitive buffers against institutional precarity.
3. **Failure in the Institutional Framework:** The transition to co-design, from a Vygotskian perspective, has lacked the necessary social mediators. "Pedagogical isolation" is symptomatic of a public policy that has confused autonomy with neglect, delegating mental health to the voluntary efforts of teachers.

5.2. Prospective Recommendations

To ensure the sustainability of educational transformation in highly vulnerable contexts, the following lines of action are proposed:

- **Institutionalization of Teacher Mental Health:** It is imperative that the Ministry of Public Education (SEP) integrate permanent "Neuroemotional Support Clinics." The assessment of allostatic load should be a preventative indicator within School Technical Councils, transforming these spaces into hubs of collective care and not just administrative management.
- **Situated Epistemic Scaffolding:** Curriculum co-design must be supported by the production of scientific and pedagogical materials in native languages that reduce the cultural translation effort required of teachers. Reducing this "emotional burden" is key to decreasing chronic stress.
- **Training in Critical Neuroeducation:** Continuing education programs must go beyond the purely technical and pedagogical. Teachers need emotional management tools based on neuroscience to understand their own stress processes and develop self-regulation strategies that protect their biosocial well-being.

6. Final Conclusion

The success of the New Mexican School in Chiapas hinges on a fundamental ethical premise: emancipatory education cannot exist on the back of an exhausted teaching profession. Only through allostatic equilibrium, where the State assumes its responsibility for teachers' mental well-being, will it be possible to achieve true social transformation and the decolonization of knowledge in Mexico's bilingual territories.

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