

Original article



Challenges of training in relation to local development from educational institutions in Peru

Desafíos de la formación en función del desarrollo local desde las instituciones educativas en Perú

Desafios da formação em relação ao desenvolvimento local a partir de instituições de ensino no Peru

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ABSTRACT

This article critically analyzes the challenges Peruvian educational institutions face in linking education with local development. Through a qualitative study conducted in six schools located on the coast, in the highlands, and in the rainforest, structural, pedagogical, and managerial obstacles were identified. The results reveal a rigid curriculum that relegates ancestral knowledge to folkloric

expressions without pedagogical recognition. Intersectoral collaboration is fragmented: some institutions manage to coordinate with local businesses, but most development initiatives promoted by local governments do not include schools. Profound material gaps persist, such as the lack of access to reliable internet and the absence of equipped workshops in rural areas, exacerbated by socioeconomic factors like seasonal school dropout rates in the high Andean regions. Teacher training is also insufficient, as many teachers lack the skills to conduct territorial assessments, and systematic linguistic discrimination is observed. These findings reveal a contradiction between the political discourse on local development and the centralist practices of the education system, which tend to reproduce inequalities rather than overcome them. It is concluded that closing this gap requires systemic policies that include binding curriculum adaptation, territorial coordination with budget allocation, contextualized teacher training, and priority investment in rural infrastructure, recognizing Peruvian diversity as a pedagogical foundation.

Keywords: local development; training; curriculum policy; intersectoral coordination.

RESUMEN

El artículo analiza críticamente los desafíos que enfrentan las instituciones educativas peruanas para vincular la formación con el desarrollo local. A través de un estudio cualitativo realizado en seis escuelas ubicadas en la costa, la sierra y la selva, se identificaron obstáculos de tipo estructural, pedagógico y de gestión. Los resultados evidencian una rigidez curricular que relega los saberes ancestrales a expresiones folclóricas sin reconocimiento pedagógico. La articulación entre sectores es fragmentada: algunas instituciones logran coordinar con empresas locales, pero la mayoría de las iniciativas de desarrollo impulsadas por los gobiernos locales no incluyen a las escuelas. Persisten brechas materiales profundas, como la falta de acceso a internet funcional y la ausencia de talleres equipados en zonas rurales, agravadas por factores socioeconómicos como la deserción escolar estacional en regiones altoandinas. La formación docente también resulta insuficiente, ya que muchos maestros no cuentan con preparación para realizar diagnósticos territoriales, y se observa una discriminación lingüística sistemática. Estos hallazgos revelan una contradicción entre el discurso político sobre desarrollo local y las prácticas centralistas del sistema educativo, que tienden a reproducir desigualdades en lugar de superarlas. Se concluye que cerrar esta brecha requiere políticas sistémicas que incluyan una adaptación curricular vinculante, articulación territorial con

asignación presupuestaria, formación docente contextualizada e inversión prioritaria en infraestructura rural, reconociendo la diversidad peruana como base pedagógica.

Palabras clave: desarrollo local; formación; política curricular; articulación intersectorial.

RESUMO

Este artigo analisa criticamente os desafios enfrentados pelas instituições educacionais peruanas na articulação entre educação e desenvolvimento local. Por meio de um estudo qualitativo realizado em seis escolas localizadas no litoral, na região serrana e na floresta tropical, foram identificados obstáculos estruturais, pedagógicos e de gestão. Os resultados revelam um currículo rígido que relega o conhecimento ancestral a expressões folclóricas sem reconhecimento pedagógico. A colaboração intersectorial é fragmentada: algumas instituições conseguem coordenar ações com empresas locais, mas a maioria das iniciativas de desenvolvimento promovidas pelos governos locais não inclui as escolas. Persistem profundas lacunas materiais, como a falta de acesso à internet confiável e a ausência de oficinas equipadas em áreas rurais, agravadas por fatores socioeconômicos como as altas taxas de evasão escolar nas regiões andinas. A formação docente também é insuficiente, visto que muitos professores não possuem as habilidades necessárias para realizar avaliações territoriais, e observa-se discriminação linguística sistemática. Essas constatações revelam uma contradição entre o discurso político sobre desenvolvimento local e as práticas centralizadoras do sistema educacional, que tendem a reproduzir as desigualdades em vez de superá-las. Conclui-se que superar essa lacuna exige políticas sistêmicas que incluam adaptação curricular vinculativa, coordenação territorial com alocação orçamentária, formação docente contextualizada e investimento prioritário em infraestrutura rural, reconhecendo a diversidade peruana como fundamento pedagógico.

Palavras-chave: desenvolvimento local; formação; política curricular; articulação intersectorial.

INTRODUCTION

In the intricate map of human development, educational institutions emerge as fundamental social actors with the unique potential to shape the future of their immediate territories. This role takes on a critical and particularly complex dimension in realities such as Peru's, characterized by a geographical, cultural, economic, and social diversity as vast as it is profound (López et al., 2012).

The concept of local development here transcends the simple notion of economic growth; it implies an endogenous, participatory, and sustainable process that seeks to improve the quality of life of communities by leveraging their specific resources, respecting their identity, and strengthening their capacity for self-determination. In this context, the education provided within these communities, from basic to higher education, including technical training, emerges as an essential strategic axis. However, the effective integration of this education with the concrete demands, potential, and challenges of local development in Peru is far from being a consolidated reality (Mendioca et al., 2021). On the contrary, it faces a complex web of structural, pedagogical, and management challenges that demand in-depth analysis and concerted action.

Peru is a country of stark contrasts. While some urban regions are experiencing rapid modernization, vast rural areas in the Andean highlands, the Amazon rainforest, and numerous urban peripheries face persistent gaps in access to basic services, infrastructure, economic opportunities, and, crucially, quality education. This heterogeneity is not only geographical; it is also cultural and linguistic, with more than 50 recognized indigenous languages and a wealth of ancestral knowledge that has often been marginalized by formal knowledge systems.

Educational institutions, especially public ones, operate within this multifaceted context, often with insufficient resources, precarious infrastructure, and teachers facing challenging working conditions (Gallegos et al., 2021). The traditional educational model, inherited from centralist and homogenizing approaches, has shown its limitations in responding flexibly and relevantly to the specific needs of each locality.

The core of the challenge lies in overcoming the frequent disconnect between what is taught in classrooms and the realities, aspirations, and productive and social potential of the local environment (Espinoza Flores et al., 2023). Often, curricula, designed at the national level with a generalist approach, lack the necessary flexibility and contextualization.

Therefore, the research aimed to answer a series of essential questions: How can agricultural technical training be linked to the ancestral crops and sustainable techniques of a specific Andean community? How can knowledge about biodiversity and forest management from Amazonian communities be integrated into science programs? How can young people from coastal areas be prepared for an economy that no longer depends solely on artisanal fishing, but also on sustainable tourism and technological innovation?

Relevance ceases to be an abstract concept and becomes a practical requirement: training must equip individuals not only with generic skills, but also with specific tools -technical, social, business, environmental- to be active agents of progress in their own community.

This imperative of relevance is contradictory and faces multiple obstacles. On the one hand, bureaucratic inertia and resistance to change persist within the education system itself, hindering curricular and pedagogical innovation at the local level. Teacher training, crucial in this process, does not always include the development of skills for community diagnosis, curricular contextualization, or engagement with local stakeholders (Baig et al., 2023).

On the other hand, weak intersectoral coordination is a persistent barrier. Educational institutions often operate in relative isolation from policies related to productive development, the environment, health, or territorial planning promoted by regional and local governments, or by the local private sector. This lack of dialogue and coordination prevents aligning educational offerings with territorial development strategies and the real demands of the local labor market, leading to frustration and a brain drain.

The available infrastructure and resources, especially in rural and impoverished areas, are clearly insufficient for quality education that is relevant to the environment. The lack of laboratories, equipped workshops, internet connectivity, and up-to-date libraries severely limits the possibilities for practical and applied learning. Likewise, the socioeconomic situation of many students and their families, marked by poverty, malnutrition, or the need for child and adolescent labor, constitutes a fundamental challenge that transcends the purely pedagogical but directly impacts the capacity of the education system to fulfill its formative role.

The purpose of this article is precisely to delve into a critical analysis of the complex challenges facing the education provided by Peruvian educational institutions in their aspiration to become a genuine conductor of local development. It examines the tensions between curriculum standardization and

the necessary contextualization; the difficulties of intersectoral coordination and local educational governance; the gaps in teacher training and infrastructure; and the impact of profound socioeconomic inequalities.

Only by understanding the multifaceted nature of these obstacles can we envision paths toward an education that, rooted in local realities and sensitive to their diversity, effectively contributes to building a more equitable, prosper, and sustainable Peru from its very foundations within communities. The task is monumental, but the transformative potential of an education truly at the service of local development fully justifies its exploration and urgency.

MATERIALS AND METHODS

To address the objective of critically analyzing the challenges facing education in Peruvian educational institutions in its connection to local development, a qualitative, exploratory-descriptive methodology was adopted. This approach proved ideal for capturing the multidimensional complexity of the phenomenon, prioritizing interpretive depth over statistical generalization.

The study was structured as a multiple case study, selecting six representative institutions from three Peruvian macro-regions: the Coast (one urban and one rural), the Highlands (one urban-Andean and one high-altitude rural), and the Jungle (one urban riverine and one Amazonian rural). This intentional diversification allowed for a comparison of socioeconomic, cultural, and geographical realities, recognizing that challenges operate differently depending on the territory.

Data collection was carried out using methodological triangulation to ensure analytical robustness. Forty-two semi-structured interviews were conducted with teachers (24), administrators (12), and managers (6), focusing on perceptions of curriculum relevance and institutional articulation. In addition, eight focus groups were organized: four with secondary and technical education students, and four with community leaders and representatives of local productive organizations.

Additionally, a documentary analysis of Institutional Educational Projects (PEI), Regional Curricular Designs (RCD) and reports from local governments was carried out, along with 32 non-participant observation sessions in classrooms, workshops and community activities.

The sampling, which was intentional, applied inclusion criteria based on:

1. Documented experiences in public educational institutions, with local development projects,
2. Diversity of educational levels.
3. Cultural representativeness.

Private educational institutions or those in contexts of high social conflict were excluded. Inductive-deductive thematic analysis was used for data processing. After open coding of emerging challenges, axial coding was performed to relate key categories (curriculum, management, resources, intersectoral articulation), using NVivo 14 software. Documentary analysis contrasted discourses on local development in PEI/DCR with observed practices, while analytical triangulation cross-referenced findings between techniques and was validated by three external researchers.

Regarding ethics and rigor, informed consent was obtained with participant anonymization. Validity was ensured through credibility, transferability, and reliability. Potential biases were recorded using reflective journals. Limitations included difficulties accessing remote rural areas, potential social desirability bias among public managers, and the inherent complexity of generalizing findings.

RESULTS

The analysis of the data obtained from the applied instruments revealed a complex landscape where the aspirations to link educational training with local development face multifaceted obstacles. Regarding curricular relevance, a marked rigidity in educational designs was identified. 83% of the institutions (5 out of 6 cases) replicate national models with minimal adjustments, limiting adaptation to local realities.

This disconnect was particularly critical in Andean and Amazonian regions, where 92% of community leaders indicated that ancestral knowledge was treated as folklore rather than applicable knowledge. Only two institutions (one rural coastal and one urban jungle) achieved significant integration, linking their programs to local economic activities such as aquaculture and ecotourism. Intersectoral coordination revealed serious institutional weaknesses. As table 1 illustrates, coordination among key actors is sporadic and superficial.

Table 1. Levels of intersectoral articulation in local development projects

Institutional actor	% of IE with effective coordination	Main type of link
Local governments	33% (2/6)	Material donations
Companies/cooperatives	17% (1/6)	Unpaid internships
Community organizations	50% (3/6)	Isolated cultural activities
UGEL/DRE	67% (4/6)	Information meetings

This fragmentation creates significant gaps between education and labor market demands. In one emblematic case, graduates of technical training programs required six months of additional training to operate local industrial looms, due to outdated curricula that did not incorporate updated technologies. An even more serious scenario was the identification of 14 municipal development initiatives that systematically excluded educational institutions as strategic partners.

Teacher training revealed profound contradictions. While 79% of teachers acknowledged a lack of training in diagnosing local needs, continuing education programs focused on generic digital skills, ignoring key abilities such as curriculum contextualization. Resistance to change was observed, especially among teachers with more than twenty years of service, who cited excessive workloads to justify pedagogical inertia. Exceptional innovative experiences, such as a module designed with Shipibo elders on worldview and applied mathematics, emerged from individual initiatives without institutional support. Material insecurity showed stark contrasts, summarized in table 2.

Table 2. Infrastructure and resource gaps by geographic location

Critical resource	Urban IE (% available)	Rural IE (% available)	Most critical situation observed
Functional Internet	100% (3/3)	0% (0/3)	Rural mountains: non-existent connection
Equipped workshops/laboratories	67% (2/3)	0% (0/3)	Rural Amazon: carpentry tools from 1998
Materials in indigenous languages	33% (1/3)	0% (0/3)	83% of IE without bibliography in Quechua/Awajún
Texts with local history	33% (1/3)	0% (0/3)	They omitted indigenous resistance in the Sierra

This structural situation is exacerbated by underlying socioeconomic factors. In the high Andean regions, 40% of students were regularly absent during harvest or grazing seasons, with no flexible scheduling mechanisms in place. Chronic malnutrition in the Amazon undermines students' ability to concentrate after recess, while on the rural coast, adolescent fishermen are penalized for arriving late after helping with family chores during high tide.

A recurring finding was the treatment of cultural diversity. Students of Indigenous languages reported systemic discrimination: "When I speak in my language, they tell me I can't be understood. But if I bring up topics from my community, the professors call them 'Indian stuff'" (Focus Group 2, Rural Highlands). This paradox exposes a fundamental disconnect while policies rhetorically promote local development, educational institutions operate under logics that render territorial voices invisible and reproduce centralist models. The consequence is an education that, instead of driving endogenous development, ends up reinforcing the very gaps it seeks to overcome.

DISCUSSION

The findings revealed a fundamental inconsistency in the Peruvian education system: while national policies rhetorically promote the link between education and local development (Minedu, 2021), educational institutions operate under structural logics that prevent its realization. This contradiction manifests itself in critical dimensions that resonate with specialized literature.

The observed curricular rigidity, where 83% of institutions replicate national models with minimal adaptations, coincides with what was documented by Cepeda et al. (2019) in Andean contexts, who identifies the phenomenon of the desk curriculum.

The marginalization of ancestral knowledge as a folkloric element replicates findings by Scaletzky (2012) and Torres-Bernal et al. (2024) in the Peruvian Amazon, evidencing a persistent divorce between training and local economies that Ansión (2007) already pointed out five years ago.

The detected institutional fragmentation, with only 17% of higher education institutions (HEIs) linked to local businesses, confirms the institutional archipelago described by Díaz (2022), where educational, productive, and territorial policies operate in silos. This figure is even lower than that reported in rural areas of Ecuador (Pincheira and López, 2024; Padilla, 2024), notes Aguilar (2021), which often train students for economies that no longer exist, highlighting the temporal disconnect between curriculum and productive demands.

In the teaching field, the training deficit in contextualization corroborates the analysis by Lamus and Lamus (2021), who include competencies for community diagnosis. Resistance to change among veteran teachers reflects the entrenched pedagogical inertia described by Cuenca and Carrillo (2018). However, innovative experiences such as that of Rivera et al. (2020) also reveal their fragility in the absence of systemic institutional support.

The urban-rural infrastructure gap (with 100% differences in connectivity and contextualized educational resources) is more severe than in neighboring countries. While Bolivia reduced its rural digital divide from 78% to 62% through targeted policies (UNESCO, 2023), Peru maintains critical imbalances that exacerbate the pedagogy of scarcity identified by De la Cruz (2017) as a barrier to meaningful learning. This asymmetry is compounded by socioeconomic factors such as seasonal dropout rates (40% in high Andean areas) and a lack of understanding of family economies, which Rodríguez (2020) links to urban-centric curricula.

The documented linguistic discrimination demonstrates that the intercultural approach remains declarative, aligning with Tubino's (2019) critique of interculturality without decoloniality. These findings confirm Reimers' (2020) hypothesis regarding the structural incompatibility between centralized educational systems and endogenous development models.

The practical implications require a shift from pilot projects to systemic policies with:

1. binding mechanisms for curriculum adaptation.
2. territorial articulation tables with their own budget.
3. teacher training situated in territories.
4. priority investment in rural infrastructure.

It is necessary to acknowledge limitations, particularly the inability to access other areas, which restricts the understanding of critical realities. Future research should include longitudinal studies on graduates of contextualized educational institutions, cost-benefit analyses of investment in rural infrastructure, and action research in teacher training.

Closing the gap between education and local development requires overcoming the centralist bureaucratic culture through policies that recognize Peruvian diversity not as an obstacle, but as an epistemological and pedagogical foundation.

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Conflict of interest

Authors declare no conflict of interests.

Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.



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