Contesting Epistemic Colonialism Through Grassroots Techno-pedagogy in Latin America:
Decolonial Perspectives from Colombia

Master's Thesis

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Acknowledgements

This thesis started writing itself back in 2023, during a dull Tuesday office shift, when I decided to move abroad. The year that followed this decision involved balancing two jobs, seven days per week, in order to bring myself where I am now, in this very desk, writing these words. For me, this thesis is more than an academic effort. It is the visions and aspirations I decided to pursue that Tuesday morning.

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Abstract

Despite the growing decolonial turn in contemporary debates, knowledge production, circulation and validation in Latin America remains shaped by enduring forms of coloniality that privilege Eurocentric knowledge systems while marginalizing local, Indigenous, and community-based ways of knowing. Although decolonial discourse offers insightful ways to identify and map manifestations of epistemic colonialism in the region, it lacks concrete methodological and analytical tools to effectively examine and guide decolonial commitments in practice, particularly when enacted outside formal institutions. This thesis argues that grassroots initiatives should take up more space in decolonial scholarship and moves on to address this gap by investigating whether and how grassroots techno-pedagogy can contest epistemic colonialism and enable alternative forms of knowledge production in Latin American contexts.

Drawing on the concept of pluriverse, grassroots social innovation, and a reconceptualization of techno-pedagogy as a form of decolonial praxis, the thesis develops an original four-dimensional analytical framework consisting of epistemic, ontological, organizational, and pedagogical dimensions. The framework is applied to an illustrative case study of DakotaLab, a grassroots initiative grounded in techno-pedagogical practices, operating in the rural region of Meta, in Colombia. The empirical analysis draws on ethnographically informed multi-sited fieldwork, semi-structured interviews, participant observation, document analysis, and participatory design activities with students, educators, and community actors across rural and urban settings.

The findings suggest that grassroots techno-pedagogy can contribute to contesting epistemic colonialism by fostering community-oriented, territorially embedded, and pluralistic forms of knowledge production. DakotaLab's practices reveal that grassroots can be understood as sites of decolonial flourishing, although not in a definitive or complete way, by creating spaces in which local knowledges, alternative sociotechnical imaginaries, and critical engagements with technology can emerge and gain legitimacy. At the same time, the analysis reveals important tensions between decolonial aspirations and the structural constraints within which grassroots

initiatives operate, demonstrating both the possibilities and limitations of grassroots decolonial praxis and highlighting the value of examining them as sites of epistemic resistance. The thesis contributes to decolonial scholarship by providing a novel analytical framework to investigate and guide decolonial commitments, by extending the focus of the current decolonial approaches beyond formal institutions, and by advancing grassroots techno-pedagogy as a decolonial praxis that can contest epistemic colonialism and enable alternative forms of knowledge production in Latin American contexts.

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List of Abbreviations

A list of abbreviations used in this thesis, sorted in alphabetical order:

-DL: DakotaLab

- EZLN: Ejército Zapatista de Liberación Nacional (Zapatista Army of National Liberation)

- FARC: Revolutionary Armed Forces of Colombia

- GSI: Grassroots Social Innovation

-IESA: Institucion Educativa San Juan de Arama (Educational Institution of San Juan de Arama)

-TAN: Techno-anthropology

-TP: Techno-pedagogy

AI Use Declaration

For the preparation of this thesis, AI tools were used in a limited and supported way. First, although I possess sufficient Spanish proficiency to comprehend academic literature, certain AI translation tools (such as DeepL), along with less advanced ones (such as Adobe translation and MS Word translation) were used in particularly complex parts in sources written in Spanish, as well as some less in Portuguese, a language of which I have no proficiency. The tools deployed were used only for comprehension reasons.

Moreover, AI tools (ChatGPT) were used for stylistic purposes with minor vocabulary refinements (synonyms) in order to reduce unnecessary repetition of certain words and improve readability in parts where they appeared with higher frequency.

Last but not least, AI tools (such as Otter AI) were deployed for the transcription of the interviews.

"Who are not, but could be.
Who don't speak languages, but dialects.
Who don't have religions, but superstitions.
Who don't create art, but handicrafts.
Who don't have culture, but folklore.
Who are not human beings, but human resources.
Who do not have faces, but arms.
Who do not have names, but numbers.
Who do not appear in the history of the world, but in the police blotter of the local paper.
The nobodies, who are not worth the bullet that kills them."

Eduardo Galeano, 1971, Open Veins of Latin America: Five Centuries of the Pillage of a Continent

Introduction

Colonialism in Latin America constituted a foundational process that reshaped the region's political, economic, social, and epistemic structures, beginning with Iberian expansion in the late fifteenth century and establishing systems of extraction based on land seizure, coerced labor, and the subordination of Indigenous and African populations (Quijano 1992). These arrangements produced durable institutional patterns organized around unequal distributions of power and resources, whose effects extended far beyond formal independence and continue to shape contemporary inequalities (Quijano 1992; Quijano 2000; Mignolo 2002).

Beyond its institutional dimensions, colonialism generated enduring forms of knowledge, identity, and power. Through racial classification, it linked race to labor, authority, and epistemic hierarchy, embedding the privileging of European norms and the marginalization of Indigenous and Afro-descendant people within social structures. Colonialism thus persists in the continued association of modernity with Western civilization, making its study essential for understanding and contesting present inequalities and exclusions (Quijano 2000; Mignolo 2002; Maldonado-Torres 2007).

These inequalities remain evident in contemporary Latin America, a reality encountered during my internship at DakotaLab (DL), a grassroots initiative in the rural region of Meta, Colombia, working with techno-pedagogical and socially innovative practices. Through ethnographic fieldwork and institutional collaboration, this experience shifted my focus and shaped my motivation toward examining colonialism at the level of knowledge production. Central to this inquiry was the aspiration of one of the co-founders of DL, shared with me during my first days in Colombia: to empower people to move from just consuming knowledge to also producing it, framing in that way this thesis' engagement with coloniality of knowledge and epistemic colonialism —the ongoing imposition of Eurocentric epistemologies and marginalization of alternative ways of knowing (Quijano 1992; Mignolo 2007).

Informed by my studies in *Techno-Anthropology* (TAN) and DL's practices, this thesis examines the role of techno-pedagogy (TP) in shaping new forms of knowledge production in Latin American contexts. It approaches technology not as a neutral tool but as a sociotechnical infrastructure that operates simultaneously as a mechanism of empowerment and domination. By extending TAN concerns into the decolonial scholarship, this thesis aims to foreground the plurality of "knowledges" and the material conditions through which these knowledges are produced and contested.

Addressing epistemic asymmetries requires clarifying that knowledge hierarchies are not only structured along a Global North-South divide but are also shaped by internal dynamics within Latin American countries. The region's cultural diversity —comprising Indigenous, Afro-descendant, mestizo, urban, and rural populations— produces complex knowledge entanglements that resist reductive representations. These intersections, as illustrated by hybrid socio-spatial configurations such as those found in Cusco (Branca and Haller 2021), highlight the coexistence of multiple knowledge systems and the importance of accounting for their interactions. Accordingly, this thesis adopts a pluralist, decolonial perspective attentive to both external and internal dynamics of epistemic subordination without proceeding to dogmatic, universal claims. At the same time, it does not assume that local or marginalized knowledges are *de facto* emancipatory or free from internal relations of power, as later discussed.

This commitment is also reflected in the language and framing of certain key words, adopted throughout the thesis. For instance, the use of "knowledges" in plural challenges the assumption of a singular universal epistemology, emphasizing epistemic plurality. Similarly, the term "Other" is employed to foreground historically marginalized subjects as epistemic agents rather than objects of thesis, while retaining original terms such as "Buen Vivir" further reflects the necessity of preserving conceptual meanings that resist reduction within Western frameworks (Jimenez et al. 2022).

Structurally, the thesis begins with the positionality section, followed by the problem area that is based on an extensive literature review using keywords and key concepts such as coloniality of power, coloniality of knowledge, Eurocentrism, epistemic colonialism and the role of state apparatuses —such as universities— in reproducing epistemic hierarchies. Conversely, grassroots initiatives are examined here as potential sites of resistance, before exploring how digital technologies can further intensify coloniality visions, and proposing TP as a counter-practice of epistemic colonialism.

A central premise of the thesis is the reconceptualization of TP as a social, ethical, and transformative process that empowers individuals and communities, rather than merely transmitting technical knowledge. Informed by the decolonial concept of pluriverse, grassroots social innovation (GSI) and drawing on extensive fieldwork, the thesis contributes to academic debates on decoloniality in three ways: first, it argues that community-led, grassroots initiatives that operate autonomously from formal institutions that engender colonial relations should take up more space in the discourse as potential sites of decolonial activity; second it proposes TP as a decolonial practice*;* and finally, it develops an original analytical framework which, through the examination of DL as an illustrative case, assesses whether and how these claims hold, aspiring in doing so to provide a conceptual and analytical blueprint for future decolonial endeavors.

Positionality

It was the 5th of October 2025 when we got to the Sede Principal Institución Educativa in San Juan de Arama, a small rural town in Meta, Colombia, in the context of DL's extracurricular

activities. There, me and my fellow student and colleague in this internship, Bjørk Poulsen, would hold a game activity with the students, aged from 10 to 13 years old. Ten minutes into the activity, a kid jokingly asked me to adopt him under the claim that I am rich and genius, just because I am European. Little did he know that my budget only allowed me for plain spaghetti for lunch and that I still often use my fingers to calculate the change when I buy them from the local *bodega*.

This short story partially instilled the idea and drew my interest in developing this thesis, while also shaped my stance while doing it. As already mentioned in the introduction, the arguments, methodologies, and findings of this academic endeavor do not claim a *per se* universality, neither that they come as a "god-gift" to save the epistemologies and knowledge systems in Latin America from the Western intellectual colonialism. Rather, it aspires to highlight a complex of asymmetries and injustices engendered by a system whose part I am also myself.

Through engaging with decolonial thought in this thesis, I must recognize my positionality as Greek institutionalized student/researcher whose life experiences and education have been shaped by colonial structures that uphold dominant Western epistemologies. Through the next pages of this work and the countless hours spent over it to give it its current shape, I tried to approach this research with sensitivity and humility, acknowledging that my perspectives are inevitably influenced by my own social, cultural, and epistemological backgrounds.

I would also like to give particular emphasis to my ethnographic research, that is informed by the main contribution of this thesis: the analytical framework. In that respect, I draw on feminist geographers and their sensitivity to the intersections between power and academic knowledge, particularly regarding my own —unfortunate— privileged relation to the communities examined in this thesis. Having the final authority to interpret research material (Gilbert 1994) and determine how it is presented (McLafferty 1995) illustrates the unequal power embedded within academic knowledge production, what McDowell (1992) terms "academic power", a form of institutional and epistemic authority that I acknowledge occupying within my own research position.

Therefore, based on these reflections, I declare my commitment to radically question my own conceptual maps throughout this thesis, to the points where my concepts emerge as shaped by the colonial character of Western epistemic fulcrum on which they depend.

1. Problem Area: Coloniality, Epistemic Colonialism, Eurocentrism and Technology

1.1 Distinguishing Coloniality from Colonialism

Before we delve any deeper into this research, it is crucial to distinguish *coloniality* from colonialism. To do so, I draw on the work of Peruvian sociologist Aníbal Quijano who provides the theoretical foundation for this understanding. For Quijano (1992) coloniality is established as one of the patterns of power exercised by global capitalism, founded and established upon the imposition of a racial/ethnic classification of the world's population as the cornerstone of this power structure. This classification emerged with the formation of the Americas and established racist power relations that operate across "every level, sphere, and dimension —both material and subjective— of daily existence and on a social scale" (Quijano 2000). Coloniality originated and became globalized through the colonization of the Americas. Simultaneously and through the same historical process, emerging capitalist power acquired a global character, with its hegemonic centers concentrated in the Atlantic regions that would later become identified as Europe. Within this process, coloniality and modernity were consolidated as the central axes of a new global pattern of domination (Quijano 2000).

This insightful definition provides us with several theoretical insights. First, it establishes coloniality as co-constitutive with both capitalism and modernity, not as their excess, but as one of their foundational conditions. Second, it identifies racialization as the organizing principle of this *colonial matrix of power*: the structured configuration that organizes control across the interrelated domains of economy, authority, gender and sexuality, and knowledge (Quijano 2000), demonstrating how bodies are categorized, hierarchized, and subjected to differential forms of exploitation and dehumanization.

While coloniality arises from processes of colonization in different times and regions —among them the colonization of Latin America, Africa and parts of Asia— it has evolved to be a practice of domination that extends globally, (re)producing social, racial, ethnic, national, sex, and class

discriminations that sustain power structures and preserve colonial relations of domination (Quijano 1992). This exact point is what distinguishes coloniality from colonialism: coloniality refers to long-term power standards that appeared as a result of colonialism, and that "define culture, work, intersubjective relations and knowledge production that stretch way beyond the strict limits of the colonial administration" (Maldonado-Torres 2007). Coloniality survives colonialism; it is reproduced in books, schools, universities, cultural and aesthetic standards, everyday life (Maldonado-Torres 2007).

1.2 Geo, Body- Politics of Knowledge and Eurocentrism

Essentially, Mignolo (2000) extends Quijano's analysis by introducing the concepts of the geo-politics of knowledge and the body-politics of knowledge: the myth of planetary universalism that conceals from Western knowledge producers both their geographical and political location and their embodiment. Mignolo (2002) demonstrates that this myth was created by the expanding colonial regime, establishing not only a universal worldview but also a linear temporality: a European time of history from which entire countries, nations, and their universities as centers of knowledge and culture derived their sense of development and progress.

These dynamics are articulated by Quijano (1992) as *Eurocentrism*: an unequal structure of knowledge production that only privileges the Western metropolitan centers. Eurocentrism operates through the naturalization of cultural differences through racial classification and the incorporation of diverse histories into a European-centered order that consolidates world capitalism. In doing so, it produces a global cultural system in which control over subjectivity, culture, and knowledge is concentrated under Western hegemony (Quijano 2000). This temporal ordering positioned non-European societies as backwards, traditional, or pre-modern, thereby justifying epistemic subordination.

Consequently, the colonial difference imposed for centuries constructed a hierarchical geography of knowledge production in which certain locations (metropolitan centers) are positioned as sites of theoretical elaboration and universal truth, while others (peripheries) are relegated to the status of empirical contexts, objects of study, or sources of raw data. Defining

“other locations” as “peripheries” intends to provide these geopolitical characteristics to these places, situating them to a broader capitalistic context (Salatino 2014) .The formation of marginalized peripheral regions occurs on an international level as a local reflection of the patterns of imperial colonialism.

1.3 Coloniality of Knowledge and Epistemic Injustice

The orders of geopolitical epistemology that Mignolo described continue to shape contemporary knowledge production, determining whose research questions are considered significant, which methodologies are validated, where knowledge is published and circulated, who receives epistemic authority and credibility, and what counts as knowledge in the first place.

In other words, coloniality operates decisively in the realm of knowledge production, shaping not only what is known but the boundaries of the thinkable and legitimate. Quijano (1992) identifies this as the *coloniality of knowledge*, enacted through repression of ways of knowing, producing, and representing knowledge. In doing so, it results in the systematic subjugation of non-Western epistemologies, imposing those of the colonizers and embedding them within enduring institutional arrangements (Cardona 2022).

This deauthorization of non-Western knowers constitutes the epistemic injustice —what Fricker (2007) terms as “wrongs done on someone in their capacity as a knower”, that systematically destructs knowledge systems. In this sense, knowledges, as well as the agents and practices that sustain them, are disqualified in the name of modern science thereby resulting in a “massive waste of social experience” through the destruction of ways of knowing that fall outside dominant epistemological canons (Santos 2014).

The consequences extend beyond loss of knowledge to the expropriation of epistemic resources themselves —the capacities, frameworks, and practices necessary for knowledge production (Broncano 2020). Communities are thus deprived not only of what they know, but of how they (can) know, undermining their ability to produce and validate knowledge (Fricker 2007), rendering them more vulnerable to epistemic colonialism.

1.4 Institutional Epistemic Colonialism and the Emergence of Grassroots Alternatives

Epistemic colonialism is "the process by which Anglo/Euro-centric knowledge gets transferred, introduced, and adopted as scientific legitimate knowledge in the Global South" (Ibarra-Colado 2006). In this sense, epistemic colonialism can be understood as the imposed methods and practices that subordinate knowers, knowledges and the cultural conditions from which they emerge, within the underlying, enduring structure of knowledge hierarchization that makes such imposition possible —the coloniality of knowledge. Within its realms, local epistemologies are rendered subaltern within global hierarchies and "other knowledges" (Salatino 2014), understood as "practical, plebeian, popular, common, tacit knowledges" systematically ignored by dominant epistemic frameworks (Santos 2007).

Drawing to Mignolo's linear temporality discussed earlier, examining the role of universities as an extension of status apparatuses, main epistemic authorities, and centers of knowledge and culture, reveals how epistemic hierarchies are both externally imposed and internally reproduced, sustaining conditions in which formal institutions remain unable or unwilling to challenge dominant configurations of knowledge and power.

The exploitative relations through which subaltern knowledges are extracted, appropriated, devalued, or erased have been entrenched in institutional arrangements in the form of *internal colonialism*: the colonial-type domination and exploitation inside a state, organized through racial/ethnic and regional hierarchies, where internal "peripheries" are governed and extracted from in ways analogous to external colonies (Delgado 2021). As Casanova explains, this concept provides an insightful lens to understand how such domination persists within postcolonial nation-states, reproducing oppressive relations within their own social and political architectures (Guillén 2014). Importantly, internal colonialism informs this thesis of how formal state structures consolidate a singular Western rationality that marginalizes alternative epistemologies (Grosfoguel 2016) and therefore, partially justifies the investigation of grassroots initiatives in this thesis.

The effects of internalized colonial manifestations in epistemic realms are crucial, where on a foundational level, it breeds and reinforces academic dependency (S. H. Alatas 1969; 2003). In Latin America, scientific knowledge largely reflects that of self-proclaimed developed countries, resulting in epistemic conformity and marginalization of research that does not align with hegemonic frameworks or languages, thereby rendering interactions between hegemonic and other knowledges structurally unlikely (Salatino 2014).

Intensified by the neo-liberalization of higher education and global ranking systems, this dynamic floods Global South with Northern theories and research agendas, neglecting locally relevant concerns and undermining autonomous knowledge production (Guillermo 2025; Ndlovu-Gatsheni 2025) to the point that some intellectuals in the region come to perceive their realities as derivative of European thought (Beigel 2021) .Consequently, the internalized manifestations of epistemic colonialism become deeply entrenched, to the extent that even attempts at resistance may remain unconsciously shaped by the very discourses they seek to challenge (Sajjad 2025).

The case of the University of Indigenous Peoples and Nationalities Amawtay Wasi in Ecuador illustrates this dynamic: despite attempts to institutionalize Indigenous knowledge, it faced delegitimization and closure due to incompatibility with Western accreditation standards (Salatino 2012; 2014).This demonstrates epistemic colonialism insofar as institutional legitimacy is conditioned by Western epistemic criteria, constraining local epistemologies through political and institutional frameworks that structurally regulate knowledge production.

I argue that reimagining these dynamics as co-constitutive rather than separate opens space for alternative formations that operate autonomously from formal structures, thereby challenging colonial epistemic configurations. In this context, counter-hegemonic, grassroots initiatives emerge as key sites of resistance in two ways. First, they co-construct and legitimize alternative practices beyond dominant institutional frameworks that reinforce epistemic colonialism and coloniality of knowledge. Second, at a broader level, they focus on practices that dismantle the problematic power relations beyond coloniality —patriarchy, ethnonationalism, traditionalism (S. F. Alatas 2025)— within Global South states insofar enabling marginalized voices and knowledges (Schöpf et al. 2025).

Importantly, this thesis investigates such formations in response to its central assumption that dominant institutional frameworks are shaped by structural logics of coloniality (particularly capitalism, modernity) and reinforced through enduring forms of internal colonialism, thereby remaining unable or unwilling to meaningfully contest coloniality and its manifestations in the epistemic realm.

1.5 Technology and the Reproduction of Coloniality

If the colonial matrix of power structures the conditions of knowledge production and validation, digital technologies, data infrastructures, and algorithmic systems must be examined as sites where these logics are reproduced and intensified in the digital era.

Unfolding the structural characteristics of data-driven and algorithmic technologies —which form the backbone of contemporary digital infrastructures— is essential for this thesis for several reasons. First, it situates the analysis within the historical and sociotechnical conditions of the digital times. This does not imply technological determinism, nor suggest that technologies alone define social structures. Rather, it acknowledges the multidimensional role technological systems play in shaping social, cultural, and epistemic realities, functioning not merely as tools but as infrastructures mediating knowledge production, communication, governance, and economic organization (Verbeek 2005).

Second, drawing on decolonial analyses of the relations between colonialism, coloniality, and capitalism, any critical investigation of contemporary technological systems must attend to their position within these broader historical dynamics. Technological development has long operated alongside capitalist expansion, enabling the continuous reconfiguration of markets, labor relations and knowledge economies, and embodying culturally situated assumptions, epistemological frameworks, and power relations (Verbeek 2008) that reproduce asymmetrical power and knowledge relations on a global scale. Technology can therefore be understood as one of the most effective mechanisms through which coloniality is operationalized within contemporary capitalism. Examining coloniality within digital infrastructures, algorithmic systems, and data practices therefore becomes necessary for understanding TP as a means of contesting these dynamics.

As will be discussed in the following sections, the empirical investigation of DL seeks not only to identify what TP negotiates within educational settings, but also how techno-pedagogical practices may intervene in the reproduction of dominant technological imaginaries and power structures. In this regard, TP holds the potential to foster critical awareness toward the disruptive, colonial effects of technology by encouraging engagement with the infrastructures, logics, and sociopolitical implications embedded within contemporary technologies. Such approaches may contribute to the development of designers, developers, and users capable of critically reflecting on the historical and political dimensions of technological systems and imagining alternatives that do not reproduce asymmetrical relations of power and extraction.

Finally, this analytical perspective provides the tools necessary to understand the methods and practices deployed by DL. Since DL operates within the same technological ecosystems it seeks to contest and re-imagine, understanding these structural logics becomes indispensable for examining how such technologies are navigated, appropriated, and potentially repurposed within its pedagogical practices. This also allows the thesis to examine how DL negotiates the paradox of using infrastructures produced by contemporary techno-economic systems to contest the very social, political, and economic conditions they sustain.

Accordingly, the following section examines digital colonialism as a technological infrastructure of domination that reproduces colonial logics within the digital era.

1.5.1 Digital Colonialism: Data and Algorithmic Governance

Digital colonialism describes how colonial forms of domination are reproduced through digital infrastructures such as platforms, data systems, and algorithms. These systems enable states and corporations to exercise economic, cultural, and epistemic control over marginalized populations while reinforcing dependence on technologically dominant countries (Kwet 2019; Coleman 2019). Although digital technologies can support visibility and Indigenous knowledge-sharing, they also embed Western values and normalize surveillance, data extraction, and unequal regimes of visibility.

As a broader framework, digital colonialism includes both data colonialism and algorithmic governance, with the former referring to the large-scale extraction and commodification of

human life through data infrastructures (Couldry and Mejias 2019). Rather than simply extending historical colonialism online, it reorganizes governance, knowledge production, and social categorization through data-driven systems that are often presented as neutral and objective despite reproducing structural inequalities.

Building on colonial histories in Latin America, the techno-colonial subject emerges when racial and epistemic hierarchies become embedded in algorithms and digital governance systems that claim universal validity. This “view from nowhere” obscures how automated systems privilege particular forms of knowledge while marginalizing others (Nagel 1986). As big data increasingly shape governance and decision-making, dominant narratives portray data analytics and AI as inherently objective and efficient. Ricaurte (2019) identifies three assumptions underlying this epistemology: that data transparently reflects reality, analytics produce the best knowledge, and algorithms lead to better decisions.

However, these assumptions are tied to broader dynamics of capitalism, surveillance, and coloniality (Zuboff 2015; Couldry and Mejias 2019; West 2019). Since most digital infrastructures are developed in the Global West and North, they reinforce global asymmetries by determining whose knowledge is visible and whose realities remain excluded or distorted (Ricaurte 2019), reproducing racialized dispossession and epistemic extraction and foregrounding enduring asymmetries between the Global North, West and South central to colonial modals of technology.

Ricaurte’s (2019) analysis of Mexico illustrates how these dynamics materialize institutionally and structurally. At the institutional level, the state adopts data-centric epistemologies through narratives of efficiency and modernization that marginalize Indigenous and relational forms of knowledge. At the structural level, data become a mechanism of internal colonization, rendering marginalized communities simultaneously invisible through data gaps and hyper-visible through surveillance systems.

At this juncture, algorithmic governance becomes central. Algorithmic systems trained on data that under-represent or misrepresent marginalized populations reproduce inequalities under the guise of objectivity, reducing complex subjectivities to quantifiable categories. The resulting

violence is epistemic because it delegitimizes alternative ways of knowing: if knowledge cannot be quantified, it is rendered unintelligible within dominant systems. Large-scale data analysis and its association with objectivity have consequently established algorithmic authority in decision making processes, transforming the relationship between epistemology and governance (Kitchin 2014).

From a decolonial perspective, algorithmic systems extend colonial patterns of extraction and silencing into digital infrastructures. Designed largely within Western and Northern technological centers, they reproduce metropole–periphery relations in which the Global South becomes both a source of data and a recipient of externally imposed systems. By presenting Western epistemologies as universal, algorithmic governance ignores the situated nature of knowledge (Haraway 1988) and reinforces colonial hierarchies of race, gender, and geopolitics (Maldonado-Torres 2007; Mohamed et al. 2020). Thus, colonial algorithmic governance operates not only through discriminatory outcomes, but through the systematic exclusion of alternative ways of knowing embedded within the infrastructures of the digital age.

2. Problem Statement & Research Questions

The preceding sections have demonstrated that the persistence of colonial relations in Latin America cannot be reduced to a mere historical residue of past domination, nor treated as a singular or uniform phenomenon across contexts. Rather, these relations manifest and get manifested by an ongoing reconfiguration of power relations that shape how knowledge is produced, circulated and validated across a plethora of domains, spanning from institutional to technological and geopolitical fields.

Despite formal political independence, epistemic hierarchies rooted in the well-preserved Eurocentric rationality continue to dictate what counts as legitimate knowledge, who is recognized as a credible knower and which forms of inquiry are rendered (in)visible within the global knowledge and epistemic economy. Far from being abstract, these hierarchies are embedded in structural and institutional entities, from universities to state apparatuses and technological infrastructures that engender asymmetrical relations of authority and legitimacy.

Within broader, global settings framed by vast digitalization and the perpetuation of algorithmic technologies in almost every aspect of daily life, the examination of contemporary digital transformation and its colonial dynamics deems necessary. The expansion of data-driven technologies and algorithmic systems to the academic world, especially in knowledge production and legitimization level, introduces new modalities through which colonial relations are (re)enacted. Under the modern veil of digital capitalism, knowledge gets commodified, instrumentalized and increasingly dependent on technological infrastructures that extract situated experiences embedding epistemic hierarchies into the very architecture of technological systems.

Crucially, despite that growing literature on decoloniality, within a broader context of decolonial turn, has theoretically engaged more with coloniality, epistemic injustice, and the politics of knowledge, there are just a handful of concrete methodological frameworks that guide decolonial praxis. Simultaneously, decolonial discourse persists in seeking answers and solutions in institutional bodies, neglecting alternative community-based formations that practice outside the institutional–state circle of interests. Importantly, there are significant gaps that touch upon a wide range of such activities, from their theoretical conceptualization to their materialization in actual decolonial practices. More specifically, literature lacks methods to investigate grassroot initiatives in a decolonial context, as well as instruments to establish a direct connection between grassroots' practices and the decolonial mission.

Narrowing down the focus to technological interventions, current decolonial discourse lacks systematic analysis of how community-based initiatives integrate digital technologies with local pedagogies, as strategies to challenge colonial knowledge systems and create new spaces that advocate and promote plural forms of knowledge. I argue that without sustained empirical documentation and critical analysis of these initiatives, it would be difficult to identify the mechanisms through which this epistemic pluralism may be enacted or likewise, the structural conditions that enable and constrain efforts conducive to similar achievements.

The main problem, therefore, is not simply the persistence of colonial knowledge hierarchies as structural condition for epistemic colonialism. Rather, it is the absence of suitable analytical tools capable of guiding processes that could contest and reshape these hierarchies within the

specific sociotechnical terrain of contemporary Latin America, thereby constraining the advancement of decolonial alternatives. Epistemic colonialism is reproduced not only through macro-structural arrangements of institutional and geopolitical power, but also through the sociotechnical architectures —algorithmic systems, digital platforms, standardized curricula, and accreditation regimes and more— that govern knowledge production and educational practice in the region.

In contrast to existing approaches that seek decolonial enactment from and through formal institutions, this thesis argues that the examination of counter-hegemonic, bottom-up, locally concerned entities can serve as insightful and, potentially, impactful sites of resistance to epistemic inequalities. Accordingly, the main assumption of this thesis is that such initiatives should occupy a more central position in decolonial discourse for two key reasons: first, as will be thoroughly discussed in the next chapter, they are informed by decolonial thought and constituted through its core emancipatory principles and normative commitments in practice; second, their autonomy from formal institutional structures is critical, since such institutions often fail to meaningfully challenge coloniality and, instead, actively reproduce it. Hence, on a conceptual level, grassroots initiatives embody decolonial logics, and, on a methodological level, can potentially function as sites through which the decolonial project can be enacted and advanced.

Importantly, being committed against epistemic universalism, this thesis *does not* fall into generalizations and dogmatic interpretations claiming that the methods deployed here serve as the ideal formula that could eliminate epistemic colonialism once and for all. Instead, the thesis proposes an original analytical framework that advances the mainstream perspectives of decolonial scholarship (spelled out in section 3.1) by which is informed, through the integration of insights from GSI and a revised conceptualization of TP. The framework is employed to examine grassroots initiatives as sites of resistance to epistemic colonialism and the techno-pedagogical practices in which they are grounded as methods of such resistance.

Such endeavor can provide an additional and enhanced theoretical and analytical layer to the ongoing discussions on decoloniality and GSI in academic and public discourse, which aspires to

create a blueprint for further research and decolonial praxis. To achieve so, this thesis will engage with the core research question below:

RQ1: Can grassroots TP contest epistemic colonialism and enable new forms of knowledge production in Latin America contexts? If so, how?

To explore that, the thesis engages with the empirical investigation of DL through the analytical framework devised and proposed here. This qualitative inquiry is structured around the following sub-questions:

RQ2) How can the multi-dimensional analytical framework devised in this thesis reconfigure the examination of decolonial praxis in relation to epistemic colonialism?

RQ3) How do techno-pedagogical practices enable forms of knowledge production that are neglected by the traditional decolonial discourse?

RQ4) What do the tensions between the ideological commitments of grassroots initiatives and the structural and organizational constraints within which they operate reveal about the possibilities and limitations of enacting decolonial praxis in Colombia and beyond?

3. Theoretical Framework: Decoloniality, Grassroots Social Innovation, and Techno-pedagogy

The following sections outline the theoretical antecedents emerging from colonial dynamics and their imposition in Latin America, as discussed in the problem area chapter of this thesis. The concepts presented throughout this chapter constitute the foundations upon which the analytical framework of the thesis is built and clarify the conceptual lenses through which the empirical case of DL is interpreted. At the same time, the chapter positions the thesis within relevant bodies of scholarship and establishes the intellectual basis guiding the interpretation of the findings.

The framework is built around three interconnected components: the concept of pluriverse, a reconceptualization of TP, and GSI. Together, they form an integrated analytical structure connecting questions of knowledge, education, technology, and grassroots organization. The chapter begins with the overview of the limitations, tensions and gaps in the current decolonial discourse, that largely informs the theoretical choices of this thesis, before heading to a

historical and conceptual overview of decolonial thought, with particular attention given to the Zapatista Army of National Liberation's (EZLN) concept of the pluriverse (Villalpando et al. 2022). Pluriverse shapes how knowledge, relationality, and epistemic plurality are understood throughout the thesis and provides the normative horizon against which the empirical case is examined.

Building on these discussions, a reconceptualization of TP is introduced as a central component of the framework, understood as a critical lens through which relationships between technology, pedagogy, and knowledge production can be examined. In this sense, it functions as a conceptual bridge between the pluriverse and GSI by linking technological education and literacy with broader concerns related to coloniality and epistemic resistance.

The chapter then introduces GSI as the organizational and processual lens through which DL is investigated. GSI refers to initiatives emerging from communities and civil society networks in response to social, political, and economic challenges insufficiently addressed by dominant institutional or market-driven systems. Within this thesis, this perspective enables DL to be analyzed as a grassroots, community-based formation mobilizing techno-pedagogical practices to address epistemic marginalization.

Each component of the framework fulfills a distinct analytical role. The pluriverse provides the normative and ontological horizon through which epistemic colonialism can be identified and contested; TP translates these commitments into forms of decolonial praxis; and GSI constitutes the organizational sites within and through which these dynamics can be empirically observed and materially enacted. Together, these perspectives connect theoretical reflection with concrete processes of organization and action.

Rather than treating these concepts as isolated bodies of literature, the chapter places them into dialogue to examine DL as a techno-pedagogical grassroots formation operating within a broader decolonial horizon. More specifically, these theoretical foundations inform the interconnected dimensions of the analytical framework (presented in Chapter 5) —epistemic, ontological, organizational, and pedagogical— that guide the empirical investigation.

Therefore, the purpose of this chapter extends beyond conceptual clarification. It constructs the analytical architecture of the thesis by demonstrating how each theoretical component informs the categories and dimensions mobilized in the empirical analysis and, in doing so, clarifies how the framework is operationalized in the study of DL.

3.1 Beyond the Current Decolonial Discourse: Limitations, Critiques, Gaps and Thesis' Contributions

Before delving into the theoretical choices, this section summarizes some of the main limitations and critiques surrounding mainstream decolonial discourse that largely guided the theoretical orientation of this thesis. In doing so, it serves two purposes: first, it provides a more nuanced understanding of the conceptual and methodological debates within decolonial scholarship that prevents a romanticized reading of the branch; and second, it clarifies how the theoretical and methodological choices of this thesis seek to address some of these limitations and, therefore, advance the current decolonial discourse both in theory and practice.

The literature reviewed in the previous sections highlights the central relationship between coloniality of knowledge, epistemic colonialism, and Eurocentric epistemology, which together sustain forms of epistemic dependency in Latin America within a broader colonial matrix of power (Quijano 1992; 2000; Chambers 2020). At the same time, scholars increasingly point to tensions concerning the practical and methodological implications of decoloniality.

One of the most prominent critiques relates to forms of decolonial reductionism: the tendency of decolonial discourse to invoke decolonial ideas and concepts without sufficiently engaging with how such commitments can be materially enacted in practice (Milan and Treré 2024). This limitation can be found in relation to the concept of pluriverse when used on its own. While pluriverse offers a strong normative commitment to epistemological and ontological plurality, it provides limited guidance on how these commitments can be empirically examined. As a result, decoloniality risks remaining primarily situated at the level of critique and abstraction.

In this context, *praxis* becomes a particularly relevant notion through which decolonial thought seeks to move beyond mere theoretical reflection and towards transformative action. Praxis refers to the unity of reflection and action through which decolonial commitments become

materially enacted (Freire 1970; Walsh and Mignolo 2018). However, while praxis provides an important bridge between theory and action, it does not resolve the broader methodological challenges surrounding decolonial inquiry. As Thambinathan and Kinsella (2021) argue, there is no “fixed” model for what decolonizing methodology looks like, but rather ongoing scholarly debates concerning its theoretical foundations and practical applications. Consequently, several scholars argue that decoloniality requires more empirically grounded and context-sensitive approaches capable of examining how decolonial commitments are enacted in practice (Tucker 2018; Lacertosa 2025).

At the same time, practical applications of decoloniality remain heavily concentrated within formal institutional settings, particularly universities, which are often identified as key sites for both the reproduction and transformation of colonial power relations (Salatino 2012; de la Cruz Rojas and Caballero 2025). Accordingly, much of the literature has focused on identifying colonial manifestations within higher education institutions (Rhoades and Slaughter 2004; Guzmán 2024; Oliveira 2024), both at a broader structural level, for example, examining how universities have historically functioned in the production of colonial functionaries serving state and capitalist interests (Anderson 1983), as well as reproducing forms of intellectual colonialism (Mendez 2013), and through more specific applications such as disciplinary hierarchies (Castro-Gómez 2005) and the dominance of particular languages within academic scholarship (Rosen and Miller 2009; Milan and Treré 2024).

Decolonial discourse has also concentrated on implementing curriculum-centered interventions within higher education institutions (Guzmán 2021; Costa et al. 2023; Sohdi 2025). Although these efforts remain important, comparatively less attention has been paid to grassroots and community-led initiatives operating outside formal institutional structures. As a result, the ways in which such actors organize themselves against colonial and epistemic domination remain insufficiently theorized and empirically underexplored.

As discussed earlier, while decolonial scholarship has extensively theorized coloniality and epistemic domination, less attention has been paid to how decolonial commitments that contest them become materially enacted outside institutional settings and how they can be empirically examined. This thesis responds to these gaps by examining DL as a techno-

pedagogical grassroots initiative through which decolonial commitments may become organizationally and pedagogically enacted in practice. In doing so, the thesis provides empirical insights into how grassroots formations operating outside formal institutional structures can mobilize technology and pedagogy as forms of decolonial praxis. In this regard, TP is approached not only as the empirical object under investigation, but also as the practical and analytical intermediary through which decolonial praxis can be examined within grassroots organizational settings.

Accordingly, this thesis aims to advance mainstream decolonial discourse in three interrelated ways. First, it shifts analytical attention beyond institutional and curriculum-centered approaches toward community-based formations operating at the intersection of technology, pedagogy, and grassroots organizations, thereby providing empirically grounded evidence of how decolonial commitments can be enacted outside formal academic structures. Second, it proposes an original analytical framework that provides a solid basis to further operationalize key decolonial commitments —the notions/concepts of praxis and pluriverse— and convert them into empirically observable dimensions suitable to guide the analysis of techno-pedagogical grassroots initiatives. In this sense, the framework aspires to provide methodological tools that may also inform future theoretical and empirical research on decolonial praxis in Latin America. Third, by reconceptualizing TP and examining it as a form of decolonial praxis, the thesis contributes to ongoing discussions concerning how decoloniality can move beyond normative critique and toward materially enacted organizational and pedagogical practices.

These theoretical components inform and shape the analytical framework presented in Chapter 5, that is used to investigate the DL case and guide the empirical analysis.

3.2 The Pluriverse Revisited

Decolonial thinking stems from the long history of colonial domination in Latin America and the persistence of coloniality in shaping power, knowledge, and identity. The region, marked by aggressive colonization, became a site of revolutionary imaginaries expressed through social movements and political struggles. Although the mobilizations and fights against colonization in

the twentieth century did not dismantle the persistent colonial structures, revolutions such as those in Bolivia (1952), Cuba (1953–1959), and the Zapatista uprising (1994) in Mexico, alongside figures like Simón Bolívar, Emiliano Zapata, and Ernesto “Che” Guevara, embody enduring projects of justice and transformation.

These political struggles were accompanied by a vibrant intellectual tradition that reshaped debates on culture, education, media, and decolonization, affirming that “ideas are also weapons” (Milan and Treré 2024). Decolonial thinkers including Quijano, Mignolo, Santos, Escobar, Freire, and Maldonado-Torres and more demonstrated that Latin America itself is a colonial construct, shaped by hegemonic Western narratives that marginalize alternative knowledges. Decolonial inquiry thus extends beyond academia, seeking to challenge dominant modes of existence and knowledge (Milan and Treré 2024).

Decoloniality draws on diverse liberatory projects emerging from formerly colonized regions, seeking to legitimize marginalized subjects within a global system structured by Eurocentric, patriarchal, capitalist, and racial hierarchies (Mignolo 2000) and it challenges dominant narratives of globalization and modernity by revealing how these universalist claims obscure histories of domination.

In contrast, decolonial thinking emphasizes relationality, connection, and processes of remembering, reconstructing worlds fragmented by colonial violence (Ndlovu-Gatsheni 2020). It functions both as critique and as a political-epistemic project that exposes coloniality as the hidden underside of modernity, revealing how enslavement, genocide, and dispossession coexisted with narratives of progress and freedom. At the same time, it seeks to recover suppressed epistemologies and foster dialogue across cultures, recognizing the position of the Other as an epistemic subject (Ferretti and Barrera De La Torre 2024). This orientation is captured in the concept of the *pluriverse,* a central concept within decolonial thought which affirms the coexistence of multiple, equally valid worlds and ways of knowing.

In this thesis the pluriverse functions as an analytical orientation for examining how techno-pedagogical grassroots initiatives such as DL imagine the relation between technology,

knowledge, and community, and whether alternative sociotechnical imaginaries that contest epistemic colonialism emerge within them.

Originating from the Zapatista Army of National Liberation (EZLN) in Mexico (Mignolo 2018) and further developed by scholars such as Escobar (2018) and Mignolo (2011; 2018), the pluriverse is “a world in which many worlds fit” (Villalpando et al. 2022). Rather than a fragmented relativism, the pluriverse emphasizes interconnectedness, reciprocity, and the coexistence of multiple ways of being, knowing, and organizing life (Davidson 2025), challenging the universalist assumptions of dominant Western epistemologies organized around a single “one-world world”. Put differently, pluriversality underlines a world governed by relationality and transcendence, resisting impositions of bourgeois values, knowledge, economic logics, and political perspectives posing as scientism and rationality for the rest of humanity (Escobar 2018).

It does so emphasizing relationality and the co-occurrence of diverse social worlds shaped by distinct cultural values and forms of life (Escobar 2018). It entails an ontological turn that understands differences not as variations within a single reality but as the existence of fundamentally different worlds (Escobar 2018). That way, it extends beyond the Global South-West binary and applies to internal cultural plurality, as seen in regions such as Meta, Colombia, where urban, rural, and Indigenous communities coexist with distinct knowledge systems.

Dominant Western ontologies, structured around binaries such as nature/culture and human/non-human, have historically produced hierarchies that marginalize relational and interconnected worldviews central to many Indigenous cosmologies (Blaser 2009). Pluriversal approaches seek to render these worlds visible and legitimate, addressing both external and internal processes of marginalization (Escobar 2018), constituting it particularly relevant for analyzing DL, allowing the examination of whether and how the initiative engages with diverse knowledge systems across different communities.

By affirming differences and recognizing the autonomy of marginalized communities, pluriversal thinking challenges dominant epistemologies that erase alternative ontologies (Blaney and Tickner 2017). It functions both as a descriptive concept acknowledging multiple

worlds and as a normative project calling for political and epistemic practices that sustain plurality (Davidson 2025), including TP as framed in this thesis.

The pluriverse also carries a political dimension, linked to post-development imaginaries in which dominant institutions such as capitalist markets and the modern state no longer monopolize social organization. Instead, it envisions coexistence between these systems and alternative, community-based forms rooted in relational ontologies (Escobar 2010). Social movements, particularly Indigenous and grassroots ones, play a key role in articulating and enacting these alternatives.

Ultimately, it provides the foundation for analyzing how marginalized communities generate alternative sociotechnical imaginaries and how knowledge can be recognized and organized in non-hierarchical ways. Crucially, in this thesis, it frames the analytical lens that informs the epistemic and ontological dimensions of the analytical framework, through which DL is examined as a potential decolonial site, assessing whether its practices reproduce dominant technological imaginaries or open space for relational, community-grounded approaches that contest epistemic colonialism.

In doing so, this thesis revisits the pluriverse not merely as an abstract concept within decolonial discourse, but as a normative orientation embodied in concrete dimensions of the decolonial process: in how potential sites of decolonial flourishing (grassroots initiatives) understand knowledges and their forms of production, and in how these understandings are reflected in the means mobilized to sustain and enact them (technology).

3.3 Redifining Techno-pedagogy

TP emerges from the broader traditions of educational technology. Initially associated with audiovisual tools and programmed instruction in the mid-twentieth century (Molenda and Januszewski 2008) the field evolved alongside digital technologies toward more systematic approaches to designing teaching and learning processes that “promote more profound individualization and intensification of educational process, shaping and self-actualization of the personality of a future specialist” (Gushko 2015).

Contrary to literature though, this thesis proposes and adopts a different definition of TP. As already discussed in the introduction of the thesis, I argue that the use and examination of key terms and concepts in relation to the language of their origin is essential for fully grasping their semantic value. Therefore, it is crucial to start by distinguishing between *education* and *pedagogy* on their very etymological basis —two terms that are often used interchangeably in both academic and everyday discourse, and that they refer to fundamentally different dimensions of the learning process.

Education can be understood as a structured process of transmission, acquisition, and assessment of knowledge and skills, associated with formalized systems, curricula, and measurable outcomes, and oriented toward the development of cognitive competencies. In this sense, education operates largely at the level of content, focusing on what is taught and how effectively it is learned.

Pedagogy, by contrast, encompasses a broader process of human formation. Rooted in the Greek concept of formation (agogi /αγωγή), it refers not only to teaching practices but to the shaping of the individual as a moral, social, and reflective subject, and it involves the cultivation of values, ethical orientations, and ways of relating to others and to the world. Rather than being limited to the transmission of knowledge, pedagogy is concerned with the transformation of the learner.

This distinction carries significant implications. Whereas education may prioritize efficiency and measurable outcomes, pedagogy introduces a normative and critical dimension, foregrounding questions of ethics, power, and social responsibility. By emphasizing pedagogy over education, the focus shifts from the acquisition of technological knowledge to the formative processes through which individuals engage with and apply that knowledge, enabling the reconceptualization of TP as a social, ethical, and transformative practice.

From this perspective, rather than adopting TP as the teaching of technology or the integration of technological tools into teaching, this thesis proposes the following: TP is the pedagogically grounded education of technology, employing methods that aim not only to transmit technological knowledge but also to cultivate the capacity to apply this knowledge in socially

and ethically responsible ways. Therefore, it moves beyond instrumental approaches toward a process that empowers individuals and communities, approaching technology as a socially, ethically, and politically mediated field of formation.

By doing so, this thesis claims that TP (as redefined above) may constitute a decolonial praxis through which reflection and action are linked into concrete pedagogical and organizational arrangements. Namely, a unity of reflection and action directed at structures to be transformed, posing principles of decolonial materialization on a transformative basis and orienting how decolonial projects should be structured and which ethical principles they must uphold. Essentially, this redefinition shifts from mere theoretical commitments toward concrete pedagogical and organizational arrangements, informing the pedagogical dimension of the analytical framework by linking technological education to social transformation and decolonial praxis, often overlooked in mainstream decolonial thought (Denscombe 2025).

3.4 Grassroots Social Innovation: Grassroots Initiatives as Sites of Decolonial Flourishing

GSI occupies a central place in the analytical framework of this thesis because the empirical object under investigation is not decoloniality in the abstract sense, but a grassroots initiative as a potential decolonial site that mobilizes techno-pedagogical practices for social transformation. In this framework, if the pluriverse provides the normative and ontological horizon and TP explains the pedagogical dimension through which decolonial commitments are enacted, GSI explains the organizational form in which these processes become materially organized.

The persistence of the colonial matrix of power and the social inequalities associated with it have encouraged communities, activists, and intellectual movements across Latin America to pursue alternatives to dominant development models and to seek forms of social transformation grounded in local realities, knowledges, and practices (Villalpando et al. 2022). These efforts are reflected in post-development perspectives such as *Buen Vivir*, post-capitalism and de-/post-growth imaginaries, which challenge economic growth as the primary measure of progress and instead prioritize collective well-being, relationality, and social justice (Liodaki and Stockdale 2025; Giorgos Kallis et al. 2025). Within this context, innovation increasingly emerges

not from state or market actors alone, but from community-led organizations and social movements seeking locally grounded solutions to social needs and structural exclusion.

Such forms of community-driven innovation have been conceptualized within the literature as GSI. Grassroots initiatives can be understood as the embodiment of GSI: community-led practices and collective formations that seek greater autonomy from governments and capitalist interests while generating socially just and democratic responses to problems neglected by dominant institutional systems (Apostolopoulou et al. 2022). Emerging from within communities rather than being imposed from above, they mobilize collective action around locally identified needs and aspirations, positioning themselves as alternatives to state-centered and market-driven development logics. In this sense, their bottom-up character constitutes a central analytical criterion through which this thesis examines whether and how decolonial and techno-pedagogical commitments remain accountable to local communities rather than external developmental agendas.

Grassroots organizations are typically mission-oriented formations organized around empowerment, inclusion, and social value creation rather than economic imperatives. They frequently emerge in contexts where state institutions have withdrawn or where market mechanisms have intensified inequality (Apostolopoulou et al. 2022). At the same time, this orientation often exposes them to financial fragility and organizational instability, as they rely on unstable funding structures and resource-constrained environments (Walker and McCarthy 2010; Nicholls and Hernandez 2024; J. Chen 2025). Their existence therefore involves the constant negotiation of tensions between autonomy, sustainability, external support, and community legitimacy.

A particularly important characteristic of grassroots initiatives for this thesis concerns their relationship to knowledge production. As Smith et al. (2014) argue, grassroots initiatives generate knowledge, technologies, and practices tailored to local problems and capabilities. This process may involve the revitalization of traditional, ancestral, and non-proprietary forms of knowledge aligned with local cultures and values (Villalpando et al. 2022). In this sense, grassroots initiatives function as spaces of experimentation in which alternative imaginaries, social relations, and organizational forms can emerge and be collectively negotiated (Smith et

al. 2017). They provide the organizational and social setting through which pluriversal imaginaries and community-oriented forms of techno-pedagogical practice can be materially enacted and explored in everyday contexts.

Conceptualizing grassroots organizations as autonomous formations provides the necessary conceptual and analytical lens to empirically investigate how DL operates as a grassroot initiative in rural Colombia, aspiring to negotiate the tensions between autonomy, sustainability, social empowerment, (de)coloniality of knowledge, and epistemic colonialism via techno-pedagogical practices. Accordingly, GSI informs the organizational dimension of the analytical framework, anchoring the case within a community-based and mission-oriented context, potentially capable of enacting decolonial praxis.

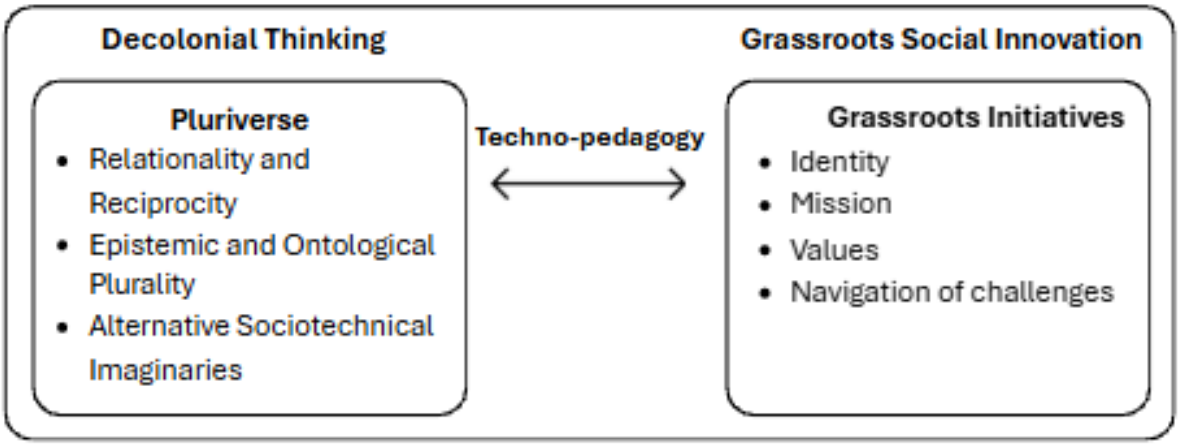

Figure 1: The theoretical framework to explore grassroots TP as sites of decolonial praxis

Importantly, the main advantage of this theoretical framework lies in its integrative character. Rather than merely transferring abstract theoretical, normative, and conceptual principles into the analytical framework or the empirical object of examination, the framework is constructed in a way that inherently describes, defines and informs all the parts of the decolonial undertaking: grassroots initiatives constitute the sites within and through which decoloniality may emerge and flourish; the pluriverse provides the normative and ontological horizon shaping the meaning and direction of this flourishing; and TP operates as the form of decolonial praxis through which these commitments become materially enacted. In this sense, the

framework approaches the decolonial endeavor as a coherent analytical object that can be examined holistically, ensuring that each dimension remains grounded within the same conceptual and normative architecture. In doing so, it allows the framework to maintain analytical coherence while simultaneously capturing the complexity and multidimensionality of decolonial praxis in grassroots contexts.

Ultimately, it enables the thesis to explore if and how grassroots TP can challenge epistemic colonialism and enable new forms of knowledge production by fostering pluralistic sociotechnical imaginaries in Latin American contexts. The rationale of the analytical framework, thus, is to ask not only what kind of technology is taught, but how it is taught, by whom, toward which social ends, and through which epistemic assumptions.

4. Methodology

4.1 Literature Review

This study engages with a set of interrelated concepts requiring an extensive and iterative literature review to ensure conceptual precision (Appendix). While grassroots TP constitutes the central focus, the review extends beyond “grassroots pedagogy” and “epistemic colonialism” to examine the broader historical, cultural, and intellectual conditions shaping the research problem. The inquiry therefore begins with coloniality as a structural phenomenon before narrowing to its implications for knowledge production in Latin America, with particular attention to epistemic colonialism and its manifestations.

Given the interdisciplinary breadth of decolonial scholarship, spanning to sociology, political economy, anthropology, and political studies, the review adopted a focused analytical approach. This process clarified both the sociohistorical conditions driving grassroots organization and the role of technology as a mediating force, examining simultaneously technologically mediated forms of epistemic oppression and grassroots practices that mobilize digital tools to contest them.

Methodologically, the literature search employed an evolving set of 19 keywords, reflecting the iterative nature of the research process. While terms such as “coloniality”, “epistemic colonialism”, and “decoloniality” were predefined, others, including “Eurocentrism” and

“pluriverse”, emerged inductively through engagement with the literature. Searches conducted in Scopus produced approximately 700 studies, from which 146 books and journal articles were selected through systematic screening across 14 query combinations. Scopus was chosen for its broad disciplinary coverage, and selection was guided primarily by conceptual relevance and the geographical focus on Latin America. Nevertheless, foundational contributions emerging from other regions of the Global South, particularly Asia (e.g. notions of Syed Hussein Alatas), were also incorporated where theoretically relevant.

4.2 Ethnographic Fieldwork

The empirical material for this thesis was generated through ethnographic fieldwork conducted between September 2025 and December 2025, following a multi-sited approach mainly across the department of Meta, Colombia, but also in distant places like Bogotá and Yopal. These locations included DL’s headquarters in Villavicencio, public schools in Villavicencio, Cumaral, and San Juan de Arama, the NASA community’s Indigenous school of Resguardo Indígena Villa Lucía in Mesetas, private institutions such as Nuevo Gimnasio in Villavicencio, educational competitions in Villavicencio and Yopal and the universities of Santo Tomás in Villavicencio and the Free University (Universidad Libre) in Bogotá. This geographical and institutional diversity allowed for the observation of DL’s interventions across rural and urban contexts, capturing how social innovation practices materialize differently depending on territorial, cultural, and institutional conditions.

Beyond spatial multiplicity, the “field” in this thesis was also characterized by fluidity and relationality. As will be explained later, DL operates across heterogeneous environments, ranging from urban educational spaces to remote Indigenous communities. Accordingly, my role extended across a wide spectrum of activities that cannot be fully reduced to predefined methodological categories. My participation included teaching English classes, facilitating discussions on the role of ethical use of technology in universities, supporting educational workshops in rural villages, conducting plural imaginaries workshop in Indigenous villages, and contributing to the organization and execution of student technology competitions. In parallel, I engaged in administrative and strategic tasks within the organization.

Crucially, these forms of participation were not merely supportive but constituted a central condition for ethnographic insight. By engaging in both central and peripheral roles, I was able to immerse myself in DL's daily operations and gain a situated understanding of how their approaches are enacted in practice, an immersion that enabled me to study how grassroots initiatives produce and negotiate forms of socially oriented work in rural communities of the Meta department.

4.3 Data Collection Methods

This study adopts a qualitative, ethnographically informed approach combining multiple methods to develop a situated understanding of whether and how DL's practices contest colonial structures and epistemologies. The research integrates semi-structured interviews, document analysis, participant observation, and participatory design activities, enabling triangulation across diverse empirical materials and perspectives.

Semi-structured interviews constituted the primary data collection method to ensure the coverage of core themes while allowing emergent insights (Kallio et al. 2016). The thesis draws on ten interviews with stakeholders within and around DL: three co-founders, cited as ("Co-founder 1-3"), four parents of participating students ("Parents 1–4"), two educational professionals from schools in Meta ("Teacher of Villa Lucía" and "Teacher of San Francisco"), and the Director of Digital Governance of Meta ("Director") explored DL's pedagogical principles, organizational dynamics, perceptions of technology, and regional relevance. Interviews are cited throughout using these pseudonymous identifiers; the two interviews with Co-founder 2 are additionally referenced by interview date for clarity. All interviews were audio-recorded, transcribed, and translated from Spanish to English where necessary. Informed consent was obtained from all participants, who were anonymized. Interview transcripts are provided in the Appendix.

Document analysis complemented the fieldwork through the examination of materials produced during my internship at DL, including official documentation, project reports, and my internship contract, also listed in the Appendix. These were approached as situated artefacts reflecting and shaping organizational narratives and practices.

Participant observation played a central role throughout fieldwork, involving engagement in everyday organizational, educational, and administrative activities. This enabled the examination of decision-making processes, organizational dynamics, and the reflexive negotiations through which DL adapts its strategies and values across contexts. The dual role as participant and observer facilitated access to tacit knowledge, informal interactions, and embodied practices not fully captured through interviews. Fieldnotes are provided in the Appendix.

Finally, children's perspectives from two sites were incorporated through the "Imagining the Future Together" game activity developed in collaboration with Anna Bjørk Poulsen. Conducted at the NASA Indigenous Community's school of Resguardo Indígena Villa Lucía and the IESA public school in San Juan de Arama, the activity involved 18 participants aged 5–16. Using color cards and drawing materials, participants reflected on hopes, concerns, and the role of technology in their communities. The activity draws on participatory design traditions emphasizing material engagement and inclusive knowledge production (Brandt et al. 2008). The resulting materials are presented in the Appendix.

5. Findings & Analysis

5.1. Mapping the Terrain: DakotaLab, Meta and Colombia

Before delving into the analysis of DL, it is necessary to understand the context in which it operates and the conditions that motivated its creation. DL was founded in 2020 in Villavicencio, the capital of Meta department in Colombia, through the collaboration of three professionals committed to contextual technology adoption. Villavicencio concentrates more than half of Meta's population, with 90% of its total 531.275 residents living in its urban zones (Espejo and Moncada 2024), while the department's remaining municipalities consist largely of sparsely populated rural areas marked by limited access to education, connectivity, and economic opportunities.

DL emerged from the recognition that prevailing approaches to digital literacy and technological adoption were inadequate for addressing these inequalities. While internet penetration in Colombia rose significantly from 38% in 2014 to 63% in 2023 (International Trade

Administration 2024), national statistics conceal severe urban-rural disparities: rural communities continue to face unreliable infrastructure, scarce digital literacy programs and internet access of just 16.2%, compared to 63% in urban regions (Borgen Project 2024). These inequalities undermine participation in digital economies and civic life and reflect broader development models privileging urban-industrial growth over social inclusion (Kallis 2015; Hadjimichalis 2019).

Meta illustrates this contradiction clearly. Although DANE (2024) identifies the department as highly connected, major inequalities between Villavicencio and surrounding rural municipalities are masked. Connectivity alone does not guarantee meaningful technological use or empowerment, particularly where educational, infrastructural, and cultural limitations persist (OECD 2019). Educational quality and access to connected devices remain significantly lower outside urban centers (OECD 2019), and only half of Colombian adults have completed upper secondary education (OECD 2017), resulting to reproduction of social inequalities and exclusion.

Beyond infrastructure, Colombia's digitalization strategies often prioritize quantitative indicators such as coverage and device distribution over meaningful socio-cultural appropriation (OECD 2019). This technocratic orientation neglects the country's cultural plurality, particularly Indigenous, Afro-Colombian, and rural communities whose epistemologies remain underrecognized. As discussed in previous sections, externally imposed technological models risk reinforcing epistemic displacement and subordination (Escobar 2015).

Meta's uneven geography intensifies these structural asymmetries. While Villavicencio benefits from stronger institutional presence and infrastructure, rural territories remain under-resourced, generating unequal access to opportunities and epistemic validation. Microenterprises in rural areas demonstrate particularly low ICT adoption rates, with over 90% reporting "no need" for digital tools, reflecting both lack of awareness and structural constraints (DANE, 2017).

These conditions justify DL's intervention that emphasizes socio-cultural technology appropriation, local empowerment, and contextual learning as leading ethical imperatives

within this fragmented digital landscape. In this sense, DL can legitimately be depicted as an epistemic community that aims to be an intermediary infrastructure translating connectivity into capability, and access into empowerment for local communities in the Meta.

DL aspires to create a safe space to create a responsible space for culturally and ethically aligned adoption of technology through techno-pedagogical programs and activities, a vision that transcends technology training to embrace what local communities understand as social transformation through ethical technological integration. In this way, DL functions as a site of social and technological innovation, distinguished from conventional educational institutions, consultancies, and technology companies by its non-profit and community-grounded character. Rather, it embodies a co-laboratory that generates spaces for donors of economic resources or knowledge to contribute to social transformation through TP (DakotaLab Manifesto).

This consolidation serves as a reference point for ethical and inclusive technological transformation throughout Latin America, demonstrating that technology adoption can honor cultural contexts while fostering genuine innovation and community empowerment. The laboratory considers itself as catalysts for a broader movement toward ethical adoption of technology throughout the Global South, contributing to a future where technological progress serves human flourishing rather than displacing cultural knowledge and community wisdom (DakotaLab Manifesto).

5.2 From the Original Analytical Framework to Coding Dimensions

This thesis does not perceive decoloniality of knowledge as neither a predetermined outcome nor a merely technical solution, but rather an ongoing procedure entangled with constant social and cultural frictions that inform TP provided by grassroots initiatives.

Moreover, the socially aligned missions of DL that will be thoroughly discussed in the next sections cannot be limited to one-dimensional viewing points of its identity or the curricula themselves. Instead, a holistic examination of the characteristics that compose the “producer” and the “product” to observe if and how their synthesis supports the claims of this thesis, is needed. Put differently, rather than isolating DL’s ideological commitments, organizational identity and pedagogical practices, these dimensions operate *relationally,* examining how

organizational structures, learning processes, and epistemic orientations co-constitute one another within a broader decolonial horizon.

The analytical framework (Figure 2 below) translates the theoretical framework into four coding categories, operationalizing the argument that techno-pedagogical grassroots initiatives may function as sites of decolonial praxis when they organize technological education in ways that recognize epistemic plurality, cultivate alternative sociotechnical imaginaries, and sustain community-oriented and socially transformative forms of organization.

Building on these foundations, the framework is structured around four interrelated dimensions —epistemic, ontological, organizational, and pedagogical— which translate the pluriverse, the structural identity of grassroots initiatives and the redefinition of TP into evaluative criteria (Figure 2 below). These coding categories are then applied to systematize and interpret the empirical material generated through the data collection methods.

The epistemic and ontological dimensions emerge from the concept of the pluriverse. The *epistemic* dimension contributes to the analysis by examining if and how different forms of knowledge are recognized by DL, and whether they can pragmatically become starting points for structuring and navigating TP for and towards them.

In turn, the *ontological* dimension concerns how technology, community, territory, and social transformation are imagined and related, guiding the analysis by exploring whether DL creates space for alternative sociotechnical imaginaries and relational ways of being that move beyond dominant developmental ontologies.

The *organizational* dimension, connected to GSI, focuses on how the initiative's structure, values, and approaches to navigating challenges shape its capacity to resist colonial and institutional asymmetries. It considers the structural characteristics —identity, mission, values, and challenges— that constitute DL as a grassroots, assessing whether these enable it to function as a credible site of social transformation without reproducing epistemic and social inequalities or external agendas. In doing so, it makes visible the conditions under which DL's organizational structure either enables or constrains decolonial praxis.

The *pedagogical* dimension, informed by the reconceptualization of TP, examines how these commitments are enacted through curriculum, teaching practices, and learning environments. It analyzes how the techno-pedagogical curriculum connects the teaching of technology to broader processes of social transformation. More specifically, it asks whether DL's learning environments reproduce dominant individualistic, extractive, and universalist subjectivities, or instead foster relational, situated, and community-oriented modes of existence that support alternative ontologies and challenge colonial structures. In this sense, the pedagogical dimension serves to trace how the other dimensions are materially realized in educational practice.

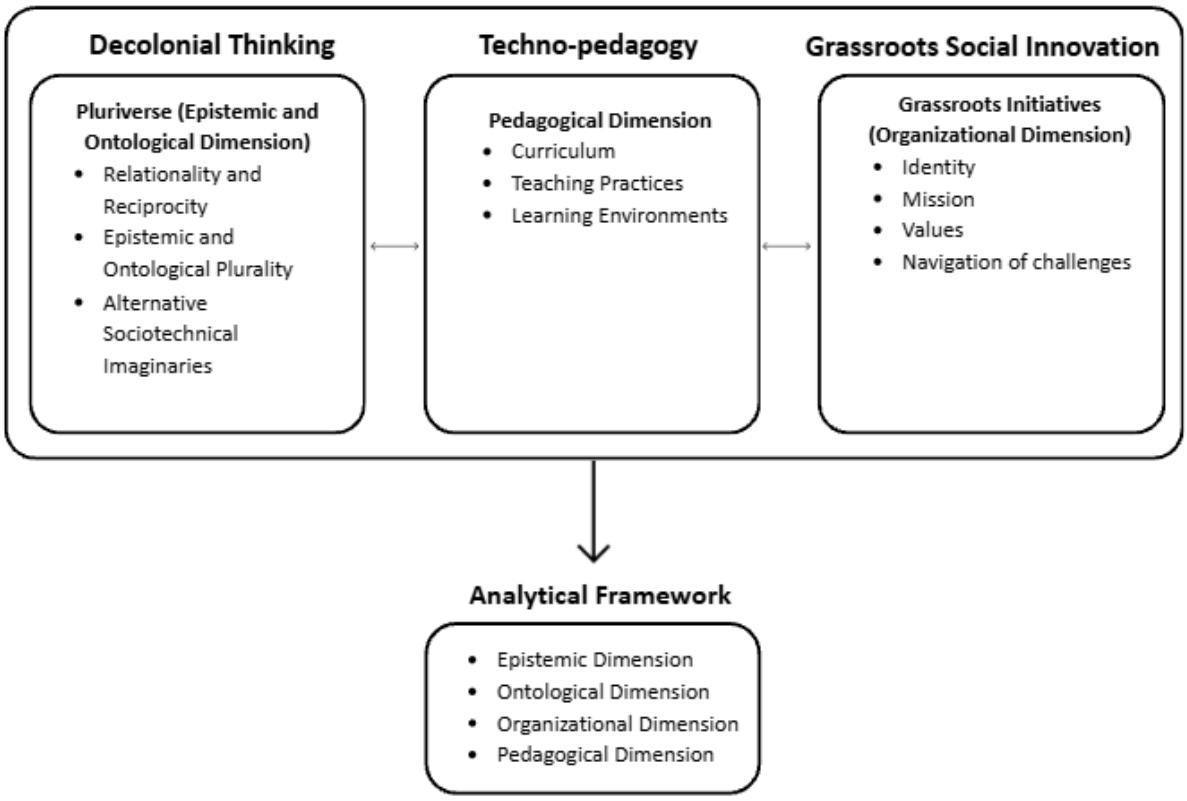

Figure 2: How the theoretical framework informs the analytical framework

Ultimately, the holistic, intertwined analysis of these four points together aims to reveal if grassroots TP can contest epistemic colonialism and enable new forms of knowledge production, through the examination of DL.

For each of the four dimensions, certain indicators have been identified, emerging from the theoretical foundations of the previous chapter. These indicators, together with the key questions that gesture toward what each seeks to capture (see Table 1 below), serve as analytical lenses through which the empirical material is examined. More specifically, the empirical data gathered during my internship at DL are analyzed in relation to these indicators by assessing if and how the data respond to, reflect, or complicate the guiding questions associated with each dimension. In this way, the analysis explores whether and how the empirical findings substantiate the theoretical assumptions embedded in the framework, while also remaining attentive to instances where the data challenge or fail to address them.

Dimensions	**Epistemic**	**Ontological**	**Organizational**	**Pedagogical**
Indicator	-Recognition of diverse knowledges and territorial realities -Knowledge validation process	-Problems definition -Technology–territory–community -Alternative technological imaginaries	-Identity–mission–values -Ecosystem -Challenges navigation	-Critical reflection on technology -Structure of the curricula -Cultural sensitivity -Human formation
Key Questions	-Does DL recognize local knowledges as legitimate forms of knowledge? -How does DL treat local cultural practices? -Does DL foster reciprocal relationships between TP and local epistemologies? -Do community actors shape the design of pedagogical practices?	-What problems is technology assumed to address? -How is the role of technology conceptualized? -How are DL's technological projects evaluated?	-Are DL's missions and values socially and territorially aligned? -How does DL navigate financial and operational precarity? -Does the navigation of challenges compromise the mission and values?	-Is DL's pedagogical approach critical to the ethical and sociopolitical dimensions of technology? -Does the curriculum prioritize purely technical knowledge or socially oriented objectives? -How does DL's pedagogical approach contribute to human formation? -Is the curriculum adaptive to the specific communities it engages?

Table 1: Analytical dimensions and indicators to investigate techno-pedagogical grassroots initiatives and their decolonial capacity

5.3 The Epistemic Dimension

The epistemic dimension examines how DL recognizes and engages with diverse knowledges, territorial realities, and cultural practices present in the communities with which it works, and if these function as starting points for situating TP within their social and material contexts.

A central aspect of DL's epistemic orientation is its recognition of local cultural and territorial knowledge as necessary to its practices. In line with DL's commitment to respect —which involves engagement with local lifeworlds and recognition of social, cultural, political, linguistic, and ancestral differences (DL Manifesto)— Co-founder 2 (6/10/2025; 14/102025) described the organization's work as requiring engagement with "community norms, rhythms, beliefs, hierarchies, and ancestral practices". This orientation was particularly visible in DL's long-term collaboration with the NASA Indigenous community school in Villa Lucía, with which the organization has worked for approximately eight years (Teacher of Villa Lucía, 2025). According to both the school's teacher and Co-founder 2, establishing this relationship required prolonged trust-building and participation in community rituals before educational activities could begin. Rather than assuming that the value of their activities alone granted them legitimacy, DL accepted the community's cultural protocols as necessary conditions for collaboration. Their engagement in rituals and trust-building processes indicates a recognition of the local social and cultural codices and of and the epistemic frameworks through which communities determine how relationships are established and knowledge is exchanged.

This sensitivity to local knowledge systems was also visible in my fieldwork. During the visit to the NASA community, Co-founder 2 adjusted discussions and activities according to local cosmological understandings, including explaining that the NASA conception of the new year begins in November when the sun "arrives" (14/10/2025) while smaller relational practices, as the gift-giving culture when visiting a new community (Fieldnotes 2/10/2025), also shaped the educational interaction. These observations suggest that educational activities were not introduced as purely technical interventions but embedded within broader social expectations and culturally specific forms of reciprocity that the pluriverse entails. This orientation was also reflected in interviews with actors outside DL's leadership. Parent 1 emphasized that the

organization's activities helped children understand "how others live" and "how others exist" rather than merely teaching technical skills (Parent 1, 2025).

The importance of territorial adaptation also became visible in how activities were adjusted to differing infrastructural conditions. Co-founder 1 and Co-founder 3 both stressed that educational practices developed in Villavicencio could not simply be replicated in places such as Mesetas or other parts of Latin America without modification (Co-founder 1, 2025; Co-founder 3, 2025). This became particularly clear in Río Cafre, where classes had to be conducted without electricity. Instead of relying solely on robotics-based activities, lessons were reorganized using paper and markers while battery-powered tools were used only sporadically (Fieldnotes 2/10/2025). The educational process therefore continued through locally available materials rather than through adherence to a fixed technological format.

Field observations further complicate DL's discourse surrounding technology-centered learning and the social interactions around it. During activities in Río Cafre, younger students appeared especially drawn to the robotic tools, frequently playing with them before and after class in ways that exceeded their intended educational purpose. In contrast, older students between approximately 10 and 13 years old appeared more engaged with the paper-and-marker activities, presumably because they involved direct interaction with us, gesturing that engagement was shaped not only by technological devices themselves, but also by the social relations and forms of interaction surrounding the activities (Fieldnotes 2/10/2025; 5/10/2025). Learning therefore emerged as socially situated and relational rather than driven purely by technology.

The empirical material also indicates that DL attempts to incorporate local actors into project development. Co-founder 2 (14/10/2025) described workshops in which educators, community members, farmers, and local leaders participated in identifying local problems and discussing possible technological applications. This participatory dynamic appeared particularly visible within rural and Indigenous communities, where local educators often played an active role in adapting activities according to territorial realities. During fieldwork and off that, I repeatedly observed lengthy discussions and calls between DL and local collaborators regarding how projects should be adjusted. However, there were limits to this participation. Although

communities influenced implementation and contextual adaptation, DL continued to define broader pedagogical structures and technological contents. Participation therefore shaped local implementation more than the broader educational direction of the curriculum.

Taken together, the empirical material suggests that DL recognizes, accounts for and actively incorporates diverse knowledges into its techno-pedagogical practices by adapting activities to local cultures, material conditions, and community priorities. At the same time, epistemic authority remains only partially decentralized, as DL continues to guide curriculum design and pedagogical direction while communities participate more strongly in local adaptation and implementation. Although local knowledges are consistently acknowledged and incorporated into project implementation and the broader collaboration of DL with the communities it serves, the empirical material provides fewer indications that they function as equally authoritative bases for determining what should be taught or how learning should be organized, pointing to an important tension between the recognition of epistemic diversity and the fuller validation of local knowledge systems as foundations for DL's interventions.

5.4 The Ontological Dimension

The ontological dimension concerns what technology is imagined to be and how it enables knowledge production. More specifically, this dimension examines whether DL treats technology as a neutral and universally applicable tool for development, or whether it understands technology as something shaped by social relations, territorial realities, and local ways of living.

Across interviews and field observations, DL consistently presented technology as relational and context-dependent rather than autonomous or universally transferable, with Co-founder (2025) and Co-founder 2 (6/10/2025) both describing technology as inseparable from the people, infrastructures, communities, and environments in which it operates. Technology was therefore not understood as a fixed solution that could simply be implemented everywhere in the same way. Instead, its meaning and usefulness were framed as dependent on local cultural and material conditions.

This orientation is also reflected in the problems DL seeks to address. As discussed earlier, the organization emerged partly in response to inequalities in access to digital education and technological opportunities in Meta, particularly in rural and marginalized communities (Co-founder 2, 14/102025). However, DL does not frame these communities as deficient or in need of externally imposed modernization. Rather, technology is presented as a means of strengthening existing capacities and expanding opportunities within communities themselves.

To this regard, an important contrast emerged in my interview with the Director of Digital Governance of Meta. While the Director (2025) strongly emphasized connectivity expansion and the spread of AI technologies across the region, considerably less attention was given to the educational and social conditions necessary for communities to engage critically with these technologies. In contrast, DL repeatedly emphasized contextual adaptation and socially grounded technological application. Co-founder 1 argued that the starting point should always be the lived realities of the people involved, with technology adjusted to local narratives and conditions rather than communities adapting to externally designed systems (Co-founder 1, 2025).

This perspective became particularly visible also during fieldwork in territories with limited infrastructure, such as in Río Cafre —as already discussed. During the preparation of these activities, Co-founder 2 repeatedly discussed the infrastructural limitations of the school and presented them as conditions that should shape both the structure of the class and our approach to students (Fieldnotes 2/10/2025). Infrastructural constraints were therefore not treated as failures to be overcome through more technology, but as material realities that should actively shape the educational process itself.

The treatment of children's fears in conflict-affected territories further deepens this ontological point. Despite the signing of a peace agreement in 2016 between the government and the Revolutionary Armed Forces of Colombia (FARC), violence has continued in regions historically affected by conflict, involving a wide range of non-state armed groups and leading to 91,000 internal displacements in 2024 (IDMC 2024). Among the most affected areas are the dense forests where Indigenous communities have struggled for years. This is also the case for the Indigenous communities of Río Cafre, where the participatory game activities we operated

revealed that all of the children linked technology with misuse and militarization, such as weapons, drones, and mines (Appendix). In these contexts, technology is shown to carry historically sedimented effects and experiences, especially in territories shaped by violence.

How the activity transpired reinforced this interpretation. During its initial stages, when questions remained general and unrelated to technology, students appeared relatively relaxed despite their initial nervousness at the arrival of two foreigners in their community. However, once the discussion shifted toward technology and its implications, the atmosphere changed noticeably. Students became more cautious in their responses, and the oldest student, a 13-year-old boy, largely assumed responsibility for answering questions orally on behalf of the group (Fieldnotes 2/10/2025). At the same time, many students appeared considerably more comfortable expressing their views in writing rather than speaking openly (Fieldnotes 2/10/2025). These observations suggest that discussions surrounding technology activated anxieties and power dynamics that were less visible in other forms of interaction. Technological meaning cannot be presumed in advance but must be reconstructed through critical pedagogical engagement *in situ*, with DL's activities working to re-signify technology in relation to local histories and fears.

At the same time, the activities also revealed alternative technological imaginaries connected to agriculture, environmental care, and community development (Appendix). Many students described future technologies primarily in relation to farming and ecological projects, reflecting both the economic activities of the community and its spiritual relationship to the land. DL's vermiculture project illustrates this orientation clearly. Through collaboration with local communities, soil-moisture and pH sensors were integrated into composting systems to support and enhance existing agricultural practices rather than replace them. Similarly, Co-founder 2 (14/10/2025) described teaching Indigenous women in Río Cafre to use WhatsApp Business to sell handmade crafts online, enabling new forms of mobility despite geographic isolation and gendered restrictions on physical movement. In both cases, technology functioned less as a force of modernization than as a tool embedded within existing social relations, territorial realities, and local forms of knowledge, where success was framed less in terms of technological sophistication than in terms of territorial relevance and social

usefulness. In doing so, it also frames how DL's interventions are evaluated. Co-founder 2 (6/10/2025) explicitly criticized "rigid metrics", arguing instead that projects should be assessed according to whether they remained socially meaningful and practically useful within communities over time, with the aforementioned examples constituting a valuable sample of that.

Overall, the empirical material suggests that DL approaches technology as socially and territorially situated rather than universally applicable. Technological practices are shaped by local infrastructures, historical experiences, and community priorities, while technology itself is framed as a means of supporting and extending existing capacities rather than replacing them. At the same time, DL continues to operate within broader discourses of digital inclusion and technological development, revealing an ongoing tension between situated techno-pedagogical practices and dominant developmental frameworks.

5.5 The Organizational Dimension

The organizational dimension concerns DL's identity, mission, support ecosystem, and the ways it navigates the challenges of institutional and financial constraint in light of its ideological commitments. Compared to the epistemic and ontological dimensions, this dimension reveals stronger tensions between DL's grassroots vision and the structural realities within which the organization operates. While DL presents a coherent ethical and pedagogical orientation centered on community empowerment and contextual sensitivity, the empirical material also reveals significant organizational fragility, unstable support structures, and persistent challenges related to sustainability and expansion.

DL is presented as a grassroots initiative with a clear social mission, described as a "living laboratory" (Co-founder 1, 2025) through participatory learning and the responsible use of technology. Its five core values —respect, responsibility, transparency, trust, and performance (Co-founder 1, 2025; DL Website)— are framed as values enacted through everyday practice (DL Manifesto; DL Website): respect, as discussed in 5.3, involves engagement with local lifeworlds and recognition of social, cultural, political, linguistic, and ancestral differences; responsibility refers to commitment to the social impact DL seeks to create; transparency

involves openly communicating goals and methods to participating actors; trust is understood as reciprocity-based collaboration; and performance refers to consistency with the organization's transformative mission. Thus, at the level of ideological orientation, DL presents a coherent grassroots identity closely aligned with principles of social and epistemic justice deeply entrenched in decolonial thinking.

However, this ideological coherence coexists with significant material precarity. DL's operational structure revolves largely around three co-founders: one fully dedicated to the organization's daily activities, another employed elsewhere to help sustain DL financially, and a third contributing remotely from abroad. Although the organization possesses a strong strategic vision, its operational and administrative basis remains relatively thin due to limited financial and human resources. Responsibilities are frequently overstretched, creating continuous pressure to transform flexibility and improvisation into more stable institutional structures.

These limitations became particularly visible during both interviews and fieldwork. In the Resguardo Indígena Villa Lucía, for example, DL's engagement had been meaningful but intermittent, with the local teacher (2025) emphasizing the need for a more consistent presence —an inconsistency directly linked to the high logistical and financial costs associated with travelling more than 300 kilometers to reach the community. The organization's commitment to underserved and geographically isolated territories therefore simultaneously represents one of its defining strengths and one of its greatest structural burdens.

A similar ambivalence characterizes DL's financial and partnership ecology. On the one hand, the organization has developed a microeconomic model in which fee-based workshops and contributions from urban families help subsidize free educational activities in remote and conflict-affected territories. DL also benefits from collaborations with universities, NGOs, and local governmental actors, which expand its institutional visibility and legitimacy. On the other hand, many of these partnerships remain symbolic, or resource-light, ruled by a "photo-and-signature culture" where partnerships generate visibility more than long-term stability (Co-Founder 2 6/10/2025).

This tension also became visible during my interview with the Director of Digital Governance. Throughout the conversation, the Director appeared particularly cautious in discussing both regional development plans and their implications for grassroots initiatives (Fieldnotes 08/10/2025). During the interview, the Director (2025) argued that supporting NGOs remained difficult due to broader institutional resource constraints. However, after the formal interview concluded, he continued discussing the government's wider developmental agenda in a way that appeared, from my perspective, partly aimed at justifying these trade-offs and encouraging sympathy toward governmental priorities that could be interpreted as controversial from a techno-anthropological perspective (Fieldnotes 08/10/2025). These interactions highlighted how DL operates within broader political and developmental frameworks that cannot fully shape or control, nor get substantial support from.

Importantly, although DL attempts to protect its mission by screening collaborators according to value alignment, it still remains dependent on external actors for funding, institutional support, and legitimacy. This became particularly apparent during my internship, where one of my assigned tasks involved identifying and prioritizing potential "validators" and institutional partners (Internship Contract). While DL was genuinely interested in my contribution to pedagogical activities and methodological development, considerable emphasis was also placed on securing financial support and strengthening institutional recognition, appearing caught between maintaining its grassroots ethos and navigating broader systems of institutional validation necessary for survival.

This tension was especially visible in innovation and entrepreneurship spaces where DL attempted to build strategic networks. One revealing example was the innovation forum in Villavicencio, attended primarily by start-ups and small-scale technology enterprises whose priorities differed considerably from DL's socially oriented mission. As Co-founder 2 explained to me, such spaces still represented potential opportunities for collaboration if DL could position itself strategically (Fieldnotes 17/9/2025). However, the imbalance in attention and engagement when I was there was obvious (Fieldnotes 17/9/2025). While other participants appeared highly attentive to presentations by private enterprises —often continuing discussions informally during breaks— DL's presentation generated considerably less interest

among attendees (Fieldnotes 17/9/2025), suggesting that DL's socially embedded and community-oriented model does not align easily with the dominant entrepreneurial and innovation-oriented ecosystems of the region.

Additional structural limitations also appeared in DL's internal administrative practices. During my collaboration with the laboratory, I observed the absence of systematic mechanisms for documenting participant progression and evaluating long-term program outcomes. This 'documentation debt' identified through the mapping of DL's practices (Poulsen 2025) and organizational structure during the internship, was largely rooted in limited resources and operational overstretch. Although DL's activities often generated seemingly meaningful social impact, the organization struggled to translate these outcomes into forms of institutional legibility recognizable to funders and external stakeholders.

Another central tension concerns DL's cautious relationship with organizational growth. The contextual sensitivity that makes its pedagogical practices distinctive also makes rapid expansion difficult without diluting the organization's ethos. As Co-founder 1 explained, scaling activities to significantly larger populations risks undermining the close teacher–student relationships and territorially embedded practices that constitute DL's primary strength (Co-founder 1, 2025). Parent 1 similarly emphasized the value of the organization's small-group learning environments and personalized engagement (Parent 1, 2025). Expanding substantially would likely require greater standardization, potentially reproducing the institutional educational models DL itself critiques.

This tension is intensified further by financial realities. Although certain funding opportunities could facilitate organizational growth, DL has consciously rejected partnerships that conflicted with its mission. Co-founder 2 (14/10/2025), for instance, described rejecting proposals from companies interested in working in relatively well-served areas near Villavicencio. Instead, DL prioritized underserved communities in remote and insecure territories despite the significantly higher costs and risks involved. These decisions illustrate how the organization's commitment to its social mission simultaneously strengthens its ethical coherence and limits access to financially attractive opportunities.

Finally, expansion also raises challenges of contextual translation. Although scaling DL to other parts of Latin America remains an aspiration of the co-founders, successful replication requires far more than transferring educational materials or technological tools. As Co-founder 3 emphasized, expansion depends on local collaborators capable of adapting DL's principles to distinct cultural, political, and social realities (Co-founder 3, 2025). Indeed, the differences between students across different fields were remarkable, both regarding their engagement to the class and its tools, but also to the teaching staff. The most profound of these differences is the concerns regarding technology between the students of Villa Lucía community school and the ones of San Juan de Arama, where even though the students of the latter presented some deep considerations regarding social isolation and replacement by technology, the students of the former were concerned about actual life or death situations due to the deployment of technology as weapons (Appendix). The engagement with the teaching staff was also different. Although students across all field sites appeared highly curious about us and eager to learn as much as possible through interaction, students from rural villages and Indigenous communities seemed particularly enthusiastic and emotionally invested in these exchanges (Fieldnotes 2/10/2025; 5/10/2025). Thus, the translation challenge is compounded by the organization's reliance on tacit knowledge, relational trust, and territorial embeddedness —elements that are inherently difficult to standardize or reproduce across contexts.

Viewed through the analytical framework, DL demonstrates a strong grassroots identity and a sustained commitment to socially embedded educational practices. At the same time, the organization operates under conditions of considerable institutional fragility, including limited resources, unstable partnerships, administrative overstretch, and dependence on external validation structures. The organizational dimension therefore reveals an enduring tension between DL's ethical and pedagogical ambitions and the structural conditions that constrain its long-term sustainability, stability, and capacity for expansion.

5.6 The Pedagogical Dimension

The pedagogical dimension turns most directly to the architecture of DL's techno-pedagogical practice, examining whether the curriculum reproduces dominant individualistic and universalist subjectivities or instead fosters situated, relational, and community-oriented forms

of existence. Within the analytical framework, this dimension evaluates whether TP is embedded in collective and transformative praxis rather than reduced to technical training oriented toward employability.

DL's learning environments are described as the "living core" of its sociotechnical innovation practices, unified through the principle of learning by co-creation (DL Manifesto; Co-founder 3, 2025). Pedagogy is therefore framed not as the mere transfer of technical competencies, but as the creation of shared environments where experimentation, collaboration, and community engagement converge. In this sense, the curriculum functions as a broader process of social formation rather than just a mechanism for skill acquisition. This orientation is reflected in techno-pedagogical practices that span across DL's four main learning environments: Incubator program, Travelling Lab, Mentorship workshops, and Kangaroos program.

The Incubator program illustrates this orientation clearly. Although the program develops concrete technical competencies —computational thinking, Scratch, Python, electronics, physical computing, and 3D printing— these are organized through the didactic sequence "play, explore, learn, and code" (Co-founder 1, 2025; DL Website). As Co-founder 2 (14/10/2025) explained, the objective is to "awaken the kids, their spark and their ideas", emphasizing that children should "understand on their own if the sun is yellow by exploring it themselves". Learning therefore begins not from technical abstraction or discipline, but from curiosity, experimentation, and exploratory engagement. Technical development is framed as emerging through interaction and discovery rather than through passive instruction.

This orientation became particularly visible throughout my internship. Whether in DL's offices in Villavicencio, during school competitions, or in visits to rural schools across Meta, students consistently demonstrated enthusiasm that extended well beyond the formal educational setting. Before and after classes, as well as during breaks, students frequently continued experimenting with robotics tools, discussing lessons, and engaging with programming materials independently (Fieldnotes 02/10/2025; 27/11/2025), where their engagement appeared less driven by obligation than by genuine curiosity and collective excitement, suggesting that DL's pedagogical model successfully transforms learning into an active and socially shared process rather than a pure classroom exercise.

Families' evaluations of the program further reinforce this interpretation. Parents repeatedly emphasized not only technical learning, but also emotional development, confidence, collaboration, and relational growth (Parents 1–4, 2025). This broader sense of community formation was obvious during school competitions in which DL participated. Parents travelled together across Meta and Colombia not only to support their own children, but also to support other students, teachers, and the laboratory itself. Wearing self-made DL t-shirts and collectively organizing food, transportation, and logistical support, they fostered a strong sense of solidarity extending beyond the classroom environment (Fieldnotes 27/11/2025). These activities therefore functioned not only as educational events, but also as spaces of social cohesion and collective belonging.

The educational experience was consistently described as extending beyond instrumental scientific knowledge toward broader forms of human development, a particularly significant observation in a context where some parents expressed society's declining confidence in what formal education can offer to children on a social and economic level (Parent 1, 2025). DL's practices were instead perceived, as discussed earlier, as helping children understand "how others live" and "how others exist" (Co-founder 1, 2025), thereby connecting technological education to intercultural awareness and social understanding. Parent 1 similarly emphasized DL's efforts to engage with diversity and to "understand life in its entirety" through educational practice (Parent 1, 2025).

Actors outside the organization also highlighted the broader social implications of DL's pedagogy. The Headmaster of Colegio San Francisco argued that DL helps students imagine futures beyond "poverty" and "drug addiction", and instead encouraging "culture" and "cognitive development" (Headmaster, 2025), while Parent 2 (2025) additionally emphasized the significance of a kid in a place like Restrepo (rural small town in Meta) having access to these forms of technological education. These perspectives suggest that DL's pedagogy is understood not only as educationally valuable, but also as socially transformative in contexts marked by inequality and exclusion.

The Travelling Lab and mentorship workshops deepen this pedagogical orientation further. Through the Travelling Lab, DL brings digital education to rural schools, public institutions, and

Indigenous communities while adapting both logistics and content to local realities. The curriculum combines computational thinking and creative technological activities with discussions surrounding digital citizenship, responsible technology use, and applications oriented towards community benefit, approaching technology critically and relationally rather than simply celebrated as innovation. An insightful example in this regard was the series of lectures DL was invited to deliver at University of Santo Tomás and Universidad Libre on ethics in technology and responsible technological use. Across five lectures —three of which I conducted myself— the audiences included university students in Villavicencio and Bogotá, as well as professionals attending mostly the Bogotá sessions. During both the lectures and the subsequent discussions, it became evident that many participants possessed very limited —close to zero— familiarity with issues now widely considered fundamental within critical technology debates such as algorithmic bias, the lack of transparency in AI systems, and the absence of critical reasoning capacities in generative AI models. Participants often reacted with visible surprise to these discussions, suggesting a broader lack of accessible public education surrounding the social and ethical dimensions of emerging technologies (Fieldnotes 15/11/2025; 20/11/2025).

The significance of these sessions became particularly apparent through the strong audience's engagement both during and after the lectures. Many participants approached me afterwards to continue discussions, ask further questions, and express appreciation for the topics addressed (Fieldnotes 15/11/2025; 20/11/2025). These interactions highlighted not only the limited public awareness surrounding critical technological literacy, but also the demand for educational spaces capable of facilitating such conversations. In this sense, the lectures illustrate the broader gap DL attempts to address at the regional level through its emphasis on socially and ethically grounded technological education —especially significant when considered alongside governmental development agendas focused heavily on AI expansion and technological adoption without equivalent emphasis on critical technological education, as discussed previously (Director 2025).

Similarly, the mentorship workshops explicitly connect ICT learning to community innovation, socio-economic development, and collective problem-solving through methods such as design

thinking and problem-tree analysis. Learning remains closely tied to territorially relevant projects, including vermiculture sensors and coffee traceability systems, where technological education becomes inseparable from local productive ecologies and community needs. As Parent 2 observed, such initiatives represent important opportunities for rural communities that otherwise possess limited access to these forms of learning (Parent 2, 2025).

The Kangaroos workshops provide further evidence that DL's curriculum is organized around relational and intergenerational concerns. Designed for parents, educators, and caregivers, these workshops aim to promote digital responsibility and ensure that children's technological development is supported by informed adults. The pedagogical horizon therefore extends beyond the individual learner toward the wider relational environments through which technology is encountered, interpreted, and governed. DL's TP thus recognizes that socially transformative technological education also requires reshaping the social ecologies surrounding technological engagement itself.

Across these environments, DL's techno-pedagogical practices shape how communities relate to knowledge production, validation, and the (re)claiming of epistemic integrity. A central impact of the curriculum lies in building the capacity of current and future users of digital and algorithmic infrastructures to identify the inherited colonial logics such systems can reproduce, particularly in relation to the structural dynamics outlined in Section 1.5. Through discussions of ethical and responsible technology use with both students and their caregivers, the pedagogy is explicitly linked to critical awareness of how data-driven and algorithmic infrastructures may perpetuate inequalities and exclusion. The "play, explore, learn, and code" model therefore foregrounds relational, territorially embedded, and culturally sensitive forms of technological learning while encouraging students to become both users and critical interpreters of digital infrastructures.

Taken together, DL's pedagogical practices deliver the broader outcomes promised by its epistemic, ontological and organizational visions. The curriculum embeds technology within collective transformation, ethical reflection, and territorial relevance. Pedagogical practices remain adaptive, changing according to age, geography, infrastructure, and community profile

rather than assuming standardized educational approaches. Beyond technical learning, DL's techno-pedagogical practices contribute to processes of human formation through social interaction, collective learning, and critical engagement with technology, while expanding participants' capacity to envision alternative futures and forms of social participation beyond the conditions of exclusion and marginalization that characterize their territorial realities.

As such, the pedagogical dimension becomes a central site where DL's challenge to coloniality becomes materially visible. The educational process is organized not to reproduce extractive and individualizing logics, but to cultivate situated technological agencies within socially, culturally, and politically differentiated worlds.

6. Discussion

6.1 Cross-dimensional Interpretation of the Findings

Read together, the relational analysis of the four dimensions gesture that DL emerges not simply as a collection of aligned practices, but as a situated configuration in which epistemic, ontological, organizational, and pedagogical elements co-produce both its decolonial potential and its limitations. The way these dimensions reinforce one another is enlightening: within grassroots settings (organizational), the recognition of plural knowledges (epistemic) and the framing of technology as relational and territorially embedded (ontological) jointly enable approaches in which learning is not the transfer of predefined skills, but a process of co-creation grounded in community realities (pedagogical). In this configuration, technology acquires meaning through use, dialogue, and adaptation, allowing communities not only to access digital tools but to participate in shaping the conditions under which knowledge is produced and validated.

At the same time, this alignment is neither complete nor self-sustaining. The organizational dimension introduces a structural counterpoint that conditions the extent to which these epistemic and ontological commitments can endure over time. DL's reliance on limited resources, intermittent partnerships, and fragile infrastructure reveals that the redistribution of epistemic authority is inseparable from the material conditions that support it. As such, the case demonstrates DL's practice cannot be understood solely at the level of ideas, values, or

pedagogical design, but must also be examined in relation to the organizational capacities that enable, or constrain, its continuity.

Therefore, the dimensions highlight a central insight of this thesis: that the decolonial potential of techno-pedagogical grassroots initiatives lies not in any single domain, but in the degree to which alternative ways of knowing, being, and learning can be institutionally sustained. DL illustrates both sides of this dynamic, showing how TP can be reoriented toward socially embedded and territorially grounded forms of engagement, while simultaneously revealing the structural fragilities that limit the consolidation of such alternatives. The case thus confirms the analytical value of a multi-dimensional framework, making visible the possibilities of techno-pedagogical practice and the conditions under which those possibilities remain partial, negotiated, and contingent.

6.2 Addressing Tensions and Paradoxes: Does Coloniality Shape Its Forms of Resistance?

Throughout the empirical examination of DL and my internship that informed it, I encountered a series of paradoxical observations that complicate straightforward interpretations of resistance to epistemic colonialism, aligning with the earlier notion (see 1.4) that attempts at resistance may remain unconsciously shaped by the very discourses they seek to challenge (Sajjad 2025).

Deleuze and Guattari (1983) observed that capitalism “re-enslaves what within it tends to free itself or to appear freely”, a capacity that I suggest coloniality shares as well. Rather than existing outside coloniality, decolonial praxis appears partially entangled with the technological, epistemic, and capitalist logics it seeks to challenge, thereby shaping the epistemic horizons through which decolonial praxis itself is conceived.

Yet, by this I do not imply that decolonial praxis is impossible or necessarily reduced to colonial reproduction. Rather, I suggest that such praxis emerges within historically sedimented structures that simultaneously constrain and enable transformative possibilities, and a closer examination of their contradictions provide an extra layer of criticality on broader decolonial inquiries, and on whether DL can meaningfully contest epistemic colonialism.

6.2.1 Organizational Tensions: Balancing Precarity with Emancipation

The analysis of DL's organizational dimension affirms certain arguments discussed in the theoretical orientation on grassroots initiatives (see 3.4), particularly the ones regarding grassroots that often operate under conditions of precarity, balancing commitments to the communities they serve with unstable funding structures and limited administrative capacity that lead them to balance between autonomy and partial dependence on external actors (Walker and McCarthy 2010; Nicholls and Hernandez 2024; J. Chen 2025).

Accordingly, DL's analysis on the organizational level makes visible the unfinished and fragile character of such alternatives. DL's structural precarity shows that epistemic redistribution alone does not guarantee organizational durability. Its intermittent presence in places like the Resguardo Indígena Villa Lucía, conditioned by travel costs and logistical hurdles, illustrates how the very communities that most embody the promise of decolonial TP are also those most vulnerable to interruptions. In this sense, DL demonstrates that grassroots actors can partially displace colonial hierarchies of knowledge while still being compelled to operate through the funding and visibility regimes, and administrative infrastructures of the broader system they seek to transform.

This tension is compounded by dilemmas around scaling. On the one hand, there is an aspiration to reach and serve a wider range of communities. Yet, doing so requires forms of organizational streamlining capable of sustaining broader territorial reach without compromising the relational and situated principles that constitute the initiative's ideological foundation. The same territorial embeddedness and relational trust that give DL's pedagogy its educational depth and decolonial plausibility also make expansion difficult without risking a slide into the standardized, efficiency-oriented models it critiques. On the other hand, without some degree of organizational consolidation capable of strengthening networks, continuity, and material sustainability, such initiatives remain vulnerable to the very institutional and economic constraints against which they struggle to sustain their work and ideological commitments. Thus, the case illustrates a broader problem for decolonial practice in grassroots contexts: how a grassroots initiative solidifies and extends its decolonial practices without reproducing the

very logics of abstraction, universalization, and institutionalization that coloniality has historically mobilized.

For that reason, DL reveals both the possibility and the cost of building decolonial techno-pedagogical practice from below. It shows that alternative formations are not utopian concepts: they can be designed, implemented, and experienced by communities that renegotiate their relationship with digital tools and with their knowledges. Yet, the organizational precarity surrounding DL's endeavors shows that epistemic redistribution alone does not resolve the structural asymmetries that condition its sustainability. The need to continuously negotiate with state agencies, private actors, and formal educational institutions reveals that such grassroots initiatives operate from within, rather than outside, the architectures of colonial modernity, remaining embedded within broader institutional, logistical, and economic relations that continuously shape their possibilities and limits.

6.2.2 The Ambivalence of DakotaLab: Neoliberal Rationalities in a Decolonial Context

The nature of DL's activities, when read outside their territorial and sociopolitical context, could easily be interpreted as neoliberal rationalities drawing on entrepreneurship, competitiveness, innovation, and digital skills development. However, I suggest that DL's practices cannot be reduced to straightforward reproductions of neoliberal governance without accounting for the structural conditions to which the laboratory emerged in response (see 5.1). Instead, they operate ambivalently: while mobilizing the language, tools, and institutional forms associated with neoliberal development, they simultaneously function as pragmatic strategies of access, participation, and empowerment within structurally unequal realities shaped by neoliberal conditions themselves.

At the same time, it is important to consider the possibility that colonial and capitalist logics continue to condition the very epistemic horizons through which decolonial praxis itself becomes imaginable and actionable. The co-founders' understandings of innovation, technology, and entrepreneurship may therefore also reflect the extent to which dominant developmental frameworks have become normalized as some of the few institutionally legible and socially coherent pathways through which epistemic colonialism and territorial

marginalization can be contested. In this sense, the paradox is not that DL necessarily compromises its political commitments by promoting digital literacy or technological participation that fosters competitiveness among local communities, but in the possibility that the aspirations, and visions of transformation through which resistance is articulated remain partially shaped by the very structures decolonial praxis seeks to challenge.

However, these tensions should not be interpreted through a reductive binary between co-optation and resistance. Instead, they can be understood relationally through the interplay between structure and agency, recognizing that actors operate within historically sedimented structures while simultaneously attempting to reproduce, negotiate, and transform them (Tadesse and Elsen 2025).

From this perspective, DL's practices can be understood neither as fully autonomous from coloniality nor as mere reproductions of neoliberal logic, but rather as situated and imperfect forms of praxis emerging from within unequal structural conditions. Thus, maintaining a reflexive engagement with these contradictions while still recognizing their situated emancipatory potential, becomes essential. This is particularly important when practices associated with entrepreneurship, innovation, and competitiveness simultaneously operate as mechanisms of institutional legibility and as pragmatic means through which marginalized communities seek recognition. Consequently, the issue here is less whether these practices are inherently emancipatory or co-opted, and more how their meanings and effects remain subjected to the structural conditions within which they are mobilized.

6.2.3 Digital Empowerment and the Promise of Freedom

As seen, DL's WhatsApp Business classes for women from Indigenous communities aimed to support the online sale of their crafts while enabling what Co-founder 2 (14/10/2025) described as the freedom to "get out" of their houses through the internet. While this interpretation may reflect a genuine intention toward empowerment given the cultural conditions, it also reveals broader assumptions regarding freedom, mobility, and technological participation that deem critical examination.

Importantly, this does not diminish the significance that digital participation and economic autonomy may hold for the women involved, nor does it deny that online engagement can meaningfully reshape access to opportunities. However, the notion that digital connectivity may itself constitute a sufficient form of liberation risks narrowing emancipatory imaginaries to technologically mediated forms of participation, while simultaneously —and most importantly— undervaluing material and physical forms of freedom that have been historically and to this day restricted in many ways through colonial and patriarchal structures.

On the one hand, it works within existing constraints rather than demanding immediate transformation of patriarchal structures —a realistic approach given DL's limited power to restructure entire communities. On the other hand, it risks instrumentalizing technology as compensation for injustice rather than a tool for challenging injustice itself. Accordingly, such projects pragmatically expand opportunities available to the communities they serve (in this case Indigenous women) within existing structural limitations, yet they also illustrate how these emancipatory projects may prioritize forms of inclusion that are more institutionally and technologically accessible than deeper transformations of the social conditions that produce and sustain these orders in the first place.

Thus, the tension here does not lie in dismissing digital participation as meaningless or completely ineffective, but in acknowledging the partiality of its —and, more broadly, of decolonial endeavors'—empowerment potential when broader oppressive orders such as patriarchy remain intact. Consequently, empowerment —along with the decolonial capacities it cultivates— emerges not as a fixed condition, but as a negotiated and incomplete process shaped by the material realities within which these interventions operate. Precisely because of these conditions, the critical issue is not Co-founder 2's interpretation itself, but how coloniality may continue to shape decolonial praxis indirectly, not necessarily through explicit domination, but through the conditioning of the epistemic and imaginative boundaries within which emancipation itself is understood and articulated.

6.2.4 Technology as Empowerment and Threat

One of the clearest paradoxes emerges from the very role of technology within decolonial resistance. While TP is examined in this thesis as decolonial praxis potentially capable of fostering epistemic resistance, the students at the schools of Villa Lucia and IESA simultaneously perceive technology as a source of threat and domination. As discussed, the anxieties expressed by the students associated technology with militarization, unemployment, dependency, and social isolation, revealing that technology is encountered also —maybe more significantly in these instances— as a field already saturated with the historical logics of coloniality and capitalism.

In this sense, the promotion of technological literacy as a decolonial intervention becomes paradoxical as the very object mobilized to resist epistemic colonialism is also experienced as carrying the same structures of dispossession and control that decolonial praxis seeks to dismantle. Consequently, this paradoxical condition reveals how decolonial praxis may itself reproduce certain assumptions inherited from colonial modernity, particularly the idea that technological participation necessarily equates to social empowerment.

Therefore, without invalidating these efforts, the goals and visions of decolonial action remain partially mediated by colonial dynamics and, as a result, TP as decolonial praxis cannot be understood simply through access to technology itself but must also account for the contradictory meanings and social consequences that technology carries within marginalized territories.

6.3 Can DakotaLab Contest Epistemic Colonialism?

The cross-dimensional analysis of DL and the tensions addressed suggest that DL and its techno-pedagogical practices can constitute a meaningful and empirically grounded challenge to epistemic colonialism by providing pluriversal learning environments committed to social transformation, although not in an absolute or completed form. At this point, I suggest that the significance of this investigation lies less in presenting a finished decolonial model than in demonstrating how such an endeavor can materially redistribute epistemic authority and situate technology within territorial and relational worlds through TP. In doing so, DL

reorganizes the relationship between knowledge, technology, and community under conditions of structural constraint, synthesizing grassroots identity and techno-pedagogical practice into a coherent, socially embedded mode of action.

From an epistemic perspective, DL contests the presumption that valid knowledge is universal, disembodied, and primarily certified through formal credentials. Its practices foreground local histories, community problems, and everyday experiences as legitimate starting points for technological inquiry, positioning community members as knowers rather than mere recipients of expert knowledge. In this sense, technological interventions are evaluated through forms of social usefulness defined by the communities themselves, whether through improvements in coffee production and quality or through the alternative educational, professional, and life opportunities digital skills may create for children. By treating community knowledge as a criterion for shaping and assessing technological practice, DL partially reverses colonial hierarchies that traditionally subordinate local experience to external expertise.

Ontologically, DL rejects the assumption that technology is a neutral and placeless tool deployable identically across contexts. Across its programs, technological interventions are understood as relational and territorially embedded, acquiring meaning only in connection to specific ecosystems, livelihoods, and social relations. Rather than consisting of exercises in abstract coding, these practices attempt to weave digital infrastructures into existing socio-ecological worlds, aligning with decolonial calls to re-root technology within particular territories and relational obligations instead of reproducing singular trajectories of "catching up" with Northern models of innovation (Mesa 2022).

At the organizational level, DL's grassroots identity and value framework anchor these epistemic, ontological, and pedagogical commitments in concrete decision-making, aligning organizational practice with decolonial aspirations. Yet the case also reveals the fragility of building decolonial alternatives from below. Limited funding, uneven territorial reach, administrative precarity, and dependence on external visibility and funding regimes expose how such projects remain embedded within the broader architectures of colonial modernity they seek to challenge. Moreover, the same relational and territorially grounded practices that

sustain DL's decolonial depth also constrain its scalability, since expansion risks reproducing the standardized and universalizing logics the initiative critiques.

Pedagogically, DL's curriculum functions as a key mechanism through which this epistemic and ontological reorientation is enacted. The Incubator program's "play, explore, learn, and code" sequence, the Travelling Lab, Mentorship workshops, and the Kangaroo program collectively reject a model of education solely aimed at producing standardized, competitive, self-maximizing individuals. Instead, they cultivate curiosity, experimentation, ethical reflection, and community relevance as central dimensions of technological learning. Parents' emphasis on emotional growth, confidence, collaboration, and awareness of "how others live" indicates that participants experience DL not merely as training in digital skills, but as a broader process of social subjectivation. In decolonial terms, these practices aim to form technologically capable subjects who can recognize and question inherited colonial logics in data, algorithms, and platforms, and who are equipped to imagine other ways of designing and governing digital infrastructures.

Overall, the thesis findings suggest that DL can legitimately be understood as an emergent, situated, and incomplete decolonial formation that does not simply include marginalized communities within pre-existing digital modernity, but actively reworks the meanings of technology, pedagogy, and knowledge in relation to the territory and communities involved. It might contest epistemic colonialism by validating local knowledges, embedding technology on relational and territorial levels, and organizing learning around collective transformation, while simultaneously exposing how far such contestation can proceed under conditions of organizational fragility and constrained autonomy. Its future as a durable site of social and epistemic justice depends on whether its structural conditions can be strengthened through more stable alliances, improved documentation, and expanded human capacity, without sacrificing the dialogical, territorially embedded ethos that currently constitutes its greatest strength.

In this sense, DL offers not a finished model to be copied mechanically, but a generative blueprint and an empirical standpoint for how techno-pedagogical grassroots initiatives may

contest epistemic colonialism in the context of Latin America's multicultural terrain. It shows how grassroots TP can be enacted in practice in decolonial contexts across epistemic, ontological, organizational, and pedagogical dimensions, and what tensions, trade-offs, and vulnerabilities such enactment inevitably entails.

6.4 Methodological Considerations: The Analytical Framework

This section reflects on the broader role of the analytical framework devised in this thesis within the decolonial scholarship. I suggest that its primary contribution lies in reconfiguring the examination of decolonial praxis in relation to epistemic colonialism, by positioning it as a relational inquiry and multi-dimensional process rather than an individual or purely discursive phenomenon.

The framework advances a holistic understanding of decolonial praxis by accounting for the ways in which its interrelated domains operate not in isolation, but through their combined interaction. In that way, it enables a grounded analysis of how coloniality is both reproduced and contested across multiple domains of practice, shifting the analytical focus from abstract normative commitments to the situated and operational processes through which alternative forms of knowledge production are enacted, negotiated, and constrained.

A key strength of the framework lies in its capacity to make visible the multi-layered colonial entanglements that traverse these domains. It moves beyond binary categorizations of endeavors as either "decolonial" or not, offering a nuanced account of how decolonial commitments are differentially articulated and negotiated across different domains through their interaction, including the frictions and misalignments between them.

This perspective allows for a more differentiated evaluation of empirical cases. For instance, the analysis of DL demonstrates a high degree of epistemic depth, reflected in its recognition and advocacy of diverse knowledges, while also raising critical questions about the extent to which such commitments are translated into pedagogical practice. If epistemic positions are not enacted within the curriculum, their decolonial capacity remains partial. Similarly, while organizational precarity might suggest a constrained decolonial capacity, the framework enables a broader interpretation by highlighting how such constraints are navigated in relation

to the initiative's broader mission, thereby situating limitations within ongoing processes of negotiation rather than treating them as disqualifying conditions.

In that way, the framework conceptualizes decolonial praxis as a process of uneven and contingent alignment across domains, rather than as a complete rupture from colonial structures. However, this does not diminish the significance of decolonial efforts. Rather, it accounts for their dialogical and processual nature. By illuminating how shifts or weaknesses in one dimension reshape dynamics across others, the framework provides a relational lens through which the redistribution of decolonial capacities can be understood.

Moreover, the framework expands the analytical scope of epistemic colonialism itself within the very sites that aspire to contest it. It demonstrates how coloniality operates through those sites normalizing universalist assumptions about development, legitimacy, institutional organization, and education. For instance, while the epistemic dimension reveals whether diverse knowledges are recognized, the framework shows that such recognition is insufficient in the absence of supporting ontological, organizational, and pedagogical conditions. In doing so, it shifts the focus from the content of knowledge alone to the conditions under which knowledge can be (re)organized, legitimized, and sustained in decolonial sites.

Finally, when reading against broader decolonial scholarship, the framework addresses persistent methodological gaps such as the lack of analytical specificity and the limited operationalization of decolonial praxis across multiple domains. Namely, by offering a context-sensitive and empirically applicable tool, it bridges theory and practice while enabling the systematic tracing of contradictions, ambivalences, and partial transformations that are often overlooked in more normative or binary approaches.

However, the framework also comes with limitations. As it is devised through the study of grassroots TP, its dimensions are especially attuned to initiatives in which education and technology are central mediating factors, which was attributing the framework analytical precision in this thesis. This particularity may thus limit its transferability to other forms of grassroots decolonial praxis that are not primarily organized through an emphasis on pedagogy or techno-pedagogical work, or that do not rely on sociotechnical engagement in general. In

such cases, the framework may need to be adapted, rather than mechanically applied, to remain analytically sound and knowledge generative.

For this reason, future research would be expected to reshape the framework in several ways. The pedagogical dimension could be broadened into a wider praxis or reproductive dimension capable of capturing processes beyond learning. Similarly, the ontological dimension could be reformulated more explicitly as a territorial-relational dimension, so that it can better address decolonial grassroots initiatives centered on domains different than technology. Such revisions would allow the framework to work beyond TP while preserving its central insights against epistemic colonialism, that might be studied across multiple and interconnected domains.

Taken together, the framework reconfigures the examination of decolonial praxis as a relational, multi-dimensional inquiry, attentive to the conditions through which knowledge is produced, mediated, validated, and sustained in concrete scenarios. Its contribution is therefore both methodological and conceptual. It offers a way of analyzing decolonial praxis as lived infrastructure embedded in territorial realities, shaped by organizational capacities, mediated through pedagogy, and always marked by tensions between transformative aspirations and structural limitations. In doing so, it provides a more rigorous basis for understanding how grassroots initiatives can open decolonial possibilities within, against, and beyond enduring epistemic hierarchies.

Essentially, I also envision that the pragmatic value of this analytical framework should not be assessed solely within the academia; particularly within the Western academic context I am also part of. Rather, in alignment with the normative commitments that informed its development and the broader mission it seeks to serve, the significance of this methodological endeavor should be determined by the communities it is intended to examine and support, that is marginalized communities whose knowledge systems are subordinated. In contesting epistemic colonialism through techno-pedagogical practices, this aim entails that grassroots initiatives might directly engage with those affected by projects, and that their own situated needs and values should be considered, also in re-shaping the framework itself.

This strategy reflects the relational logic/ontology underlying the framework, whose value should to be examined through the very principles it aims to advance. That is its worth should be grounded primarily in its social usefulness, as explained earlier, rather than in academic markers of success, such as addressing gaps in the literature or contributing to scholarly debates in isolation.

In this sense, relationality is not only an analytical feature of the framework but also a guiding principle that extends across its entire lifecycle: from the theoretical and conceptual foundations that shaped it, to its multi-dimensional structure and its application in real-world contexts, and ultimately, via the evaluation of its significance through the communities and practices it engages with.

6.5 Advancing Decolonial Discourse in Practice: Insights from Grassroots Techno-pedagogy

In Section 3.1, I examined how the current decolonial discourse engages with contestations of epistemic colonialism, as well as the limitations, critiques and gaps that emerge from these approaches. Drawing on the empirical investigation of DL's practices, I suggest that the reconceptualization of TP and its application within decolonial frameworks should be understood as part of the broader effort to advance decolonial discourse, particularly by expanding the methodological possibilities of decoloniality. Above all, this contribution rests on recognizing technology's capacity to engage with and contest epistemic colonialism as a transversal force, while simultaneously serving liberatory ends through a form of "technology politics" (Winner 1980).

Several technological grassroots initiatives have emerged throughout Latin America in recent years in response to locally situated social, economic, and political challenges. Notable examples include Alerta de Mareas Rojas (Colombia), where artisanal fishers trained an AI system using low-cost sensors to predict algal blooms and protect their livelihoods (Ruiz 2025); MetaReciclagem (Brazil), which promotes the upcycling of discarded computing technologies and their use for artistic expression (Roussel and Stolfi 2020); Banco Palmas' development of a solidarity cryptocurrency within Brazilian favelas (Sanches et al. 2025); and Radio Indígena together with the Mixteco/Indígena Community Organizing Project (Mexico), which strive for

the decolonization of digital media (Martens et al. 2020). These initiatives illustrate how technological practices can become embedded within broader collective decolonial struggles.

However, epistemic colonialism itself has rarely been directly contested through grassroots technological interventions (as DL does). I suggest that a holistic pedagogical approach structured around, with, and for technology can serve as a productive starting point for such interventions. This is not only because communities may engage with these initiatives in more socially meaningful and decoloniality effective ways, but also because such approaches can foster cultures of epistemic resistance through the use, design, and development of technologies that empower local communities.

As seen in DL's practices, technological and regional epistemologies coexist and mutually inform one another, resembling Santos's (2014) notion of epistemologies born in struggle, where forms of inquiry focus on the construction and validation of knowledge developed by social groups as part of their resistance to the systematic injustices and oppressions (re)produced by capitalism and colonialism.

Grassroots TP transmits the knowledge necessary to confront expressions of colonialism from the earliest stages of education, whether at niche levels (e.g. culturally sensitive design) or broader ones (e.g. social empowerment through digital literacy). In doing so, it enables alternative forms of knowledge production by framing technological design and deployment as relational and participatory processes oriented toward situated needs. Simultaneously, the production and circulation of knowledge itself can be reorganized along relational lines.

Rather than presenting technology as a neutral tool vulnerable to purposeful appropriation, the critical techno-pedagogical approach that emerges from this thesis would encourage communities to examine whose interests technological systems serve, what futures they project, and how they might be redesigned to challenge, rather than reproduce, existing inequalities.

In this way, and similar to pedagogical principles advanced by Freire (1970), education can be framed not as the transfer of knowledge, but as a dialogical process through which learners develop critical consciousness of their sociopolitical realities. TP in decolonial contexts extends

these principles into technological domains by treating digital literacy as a means through which communities can "name their world" (Freire 1970) and imagine alternatives, rather than merely learning to operate devices designed elsewhere.

Equipping local communities with the tools to design and develop technologies in responsible and culturally sensitive ways creates conditions for greater technological autonomy. It enables individuals not only to understand technology, but also to employ it in ways that sustain and strengthen their own forms of life. In this sense, TP can cultivate subjects who are more resistant to epistemic and technological interventions, thereby reinforcing communities' capacity to resist the subordination of local knowledges.

Grassroots TP can thus embed decolonial principles directly into educational processes surrounding a field that increasingly shapes social, cultural, and political life. In this sense, it advances decolonial discourse not by replacing existing approaches, but by extending decolonial praxis into the sphere of technological education.

6.6 Against a Blind Romanticization of Local Knowledges: Power and Oppression Within Local Knowledge Systems

A crucial issue to be raised here is that while this thesis advocates for epistemic liberation and the recognition of local knowledges, it does not follow strands of decolonial discourse that romanticize all Indigenous or marginalized knowledge systems as inherently emancipatory. If social justice is to remain the normative compass of decolonization, then all forms of domination must be critically examined and challenged, regardless of the context in which they emerge or the identity of those who reproduce them (Lee 2023).

This section does not seek to undermine the broader emancipatory project of epistemic decolonization, nor does it deny the historical violence of colonial knowledge systems. Rather, it argues that decolonial endeavors must remain self-critical so as not to collapse into relativism, where harmful social structures are left unchallenged simply because they originate from marginalized communities.

Although a deeper sociological or anthropological investigation into the historical roots of inequality within colonized communities would be valuable, the present discussion approaches

the issue from a philosophical and normative perspective. Practices such as nativism, ethnic nationalism (K. Chen and Durham 2011), and forms of social subordination that oppress minority voices within those very same communities (Toole 2022), for example, based on gender, sexual identity, or sexual orientation, should not be treated as ethically unproblematic merely because they emerge outside dominant Western structures of power.

For example, DL's digital marketing classes for craftswomen reveal how patriarchal norms remain deeply entrenched in some Indigenous communities, where women's roles are still perceived primarily —if not exclusively— as supportive of the family's day-to-day needs, rather than as forms of entrepreneurship capable of providing economic independence and autonomy beyond the socially prescribed roles they are expected to fulfil.

Such examples demonstrate how systems of knowledge can simultaneously preserve cultural identity and reproduce social hierarchy. Gendered power relations become embedded within everyday social practices and are reproduced through discursive structures that shape both collective norms and individual self-understanding. In this sense, knowledge is not neutral but participates in the production and maintenance of power relations (Foucault 2013), in this particular example, through patriarchal structures.

Accordingly, this thesis does not propose one ethical standard for dominant groups and another for marginalized groups. Instead, it accounts for a consistent anti-oppression ethic attentive to power at both the micro level of community relations and the macro level of regional or structural domination. Although such forms of oppression may not have the same institutional reach as colonial or hegemonic systems, they remain morally and politically significant.

From the normative and emancipatory horizon of decoloniality, this thesis therefore calls for a holistic and critical engagement with local knowledges. Importantly, recognizing oppressive elements within marginalized communities does not exclude those communities from the project of epistemic justice. Rather, it reinforces the need for careful, reflexive, and ethically consistent analysis of how knowledge operates within all structures of power.

6.7 Limitations & Future Research

This thesis contains several important limitations that must be acknowledged to avoid overstating its findings or reproducing the forms of abstraction that decolonial research itself seeks to challenge.

The first limitation concerns the question of generalizability of the findings, which cannot be broadly applied to Latin America as a whole, as such a claim would ignore the region's significant cultural, sociopolitical, economic, and infrastructural diversity. Although Latin American societies share histories of imperial colonialism and ongoing forms of coloniality, these shared historical conditions do not necessarily translate into homogeneous contemporary realities. Therefore, the theoretical compatibility identified between DL's practices and the decolonial framework developed in this thesis does not justify broader continental conclusions *per se.*

This limitation also emerges from the narrow empirical base of this research. DL constitutes a single illustrative study, but the absence of other documented grassroots initiatives operating explicitly through techno-pedagogical methods makes empirical triangulation difficult. As a result, it remains unclear whether the practices and tensions identified in Meta would emerge similarly in different regional or national contexts, a limitation particularly important given the thesis' broader emphasis on situatedness. Conditions such as digital infrastructure, perceptions of technological education, local economic priorities, demographic composition, and financial sustainability differ substantially across communities and directly shape both the possibility and the form of grassroots technological interventions.

Furthermore, the development of techno-pedagogical initiatives depends heavily on the actors who initiate them. The identification of a social problem, the prioritization of technological education, and the conceptualization of possible interventions are all context-dependent processes. In communities facing more immediate forms of material insecurity or political instability, techno-pedagogical projects may not constitute a primary social priority. Thus, the findings of this study should be understood as contextually situated rather than universally transferable.

The second limitation concerns the empirical evaluation of DL's impact. Although the findings suggest that many of DL's practices align with broader decolonial objectives established in this thesis, the study cannot conclusively assess the long-term effects of these interventions would deeply contest epistemic colonialism within the communities involved. As highlighted by the organizational dimension analysis, this problem emerges partly from DL's lack of systematic administrative mechanisms for documenting, measuring, and evaluating the outcomes of its activities in both quantitative and qualitative ways.

Even if certain impacts that could potentially be measured quantitatively, such as the coffee production before and after the soil-monitoring tools developed in collaboration with the Río Cafre community and whether this could contribute to higher communal revenue, these indicators alone cannot fully explain how forms of technological participation or economic empowerment relate to broader processes of decolonial transformation. The relationship between technological engagement and epistemic decolonization is neither immediate nor linear.

In addition, coloniality operates through long-term historical and intergenerational structures. Qualitatively evaluating attempts to challenge such structures within the limited timeframe of a short internship inevitably restricts the depth of the analysis. This limitation becomes even more significant considering that DL's central approach focuses on cultivating new forms of technological literacy and participation among younger generations, thus the social and epistemic effects of such processes may only become visible over much longer periods of time.

Acknowledging this limitation is essential to avoid reproducing a form of decolonial tokenism through which the thesis exploits the language of decolonization theoretically without sufficient evidence of material transformation. Consequently, while this thesis identifies important possibilities within grassroots techno-pedagogical practices, it cannot definitively demonstrate their long-term decolonial effectiveness.

The final limitation concerns the methods of data collection, particularly the interviews. A substantial portion of the material derives from the testimonies and reflections of DL's co-founders. Although these perspectives were essential to the research, their centrality creates

the risk of organizational bias and romanticization that as individuals deeply invested in the initiative's mission, the co-founders may consciously or unconsciously frame DL's activities in ways that emphasize certain aspects over others.

This issue also relates to the researcher's own positionality. Conducting the research through close participation in DL's activities created valuable access to the organization's internal dynamics, but it may also have subconsciously reduced my critical distance during the interpretation of findings. Similarly, actors collaborating with DL —teachers, parents, or community participants— may have been inclined to provide predominantly positive accounts due to their existing relationships with the organization —a social desirability bias that concerned me during the research.

At the same time, the study lacks substantial input from actors with no direct involvement in DL's operations. The absence of external perspectives limits the ability of the research to assess how such initiatives are perceived within the broader community, and therefore, how yet another external condition affects and shapes the decolonial plausibility of DL's operations. Questions regarding public skepticism, indifference, resistance, or alternative interpretations of DL's activities remain insufficiently explored.

Despite these limitations, I tend to believe that they do not invalidate the contribution of the thesis. Rather, they clarify the scope of its claims and identify important directions for future research. Besides, as already discussed, one of the central insights of this study lies less in providing definitive evidence that grassroots TP effectively contests epistemic colonialism, and more in demonstrating why such initiatives (should) constitute an important field of inquiry within decolonial research.

Future research should therefore focus on expanding the empirical basis of grassroots techno-pedagogical studies across different contexts in Latin America. Comparative case studies would allow for stronger empirical triangulation and a more nuanced understanding of how local conditions shape the possibilities and limitations of decolonial technological interventions.

Also, further conceptual clarification of TP itself is necessary. Throughout this thesis, TP has been approached as a relational form of technological education that exceeds conventional

models of digital literacy or technological training. Its reconceptualization and the distinction it generates from concepts such as digital education, participatory technological design, or critical pedagogy requires further theoretical development.

Finally, future studies should adopt more systematic long-term approaches to evaluating grassroots decolonial practices. Such research should examine not only the direct outcomes of technological interventions, but also the indirect and mediating processes through which empowerment, participation, and technological autonomy may gradually contribute to broader decolonial transformations. For example, future research could investigate how interventions such as the WhatsApp Business classes for Indigenous craftswomen in Río Cafre translate into longer-term changes in economic autonomy, technological agency, or epistemic self-determination and, in turn, how these inform decolonial plausibility.

By tracing these processes over time and across different contexts, future research could provide a more grounded understanding of how grassroots technological practices may contribute to decolonial struggles beyond the immediate scope of this study.

7. Conclusions

This thesis explored whether and how grassroots TP can contest epistemic colonialism and enable novel forms of knowledge production in Latin American context, examined through the illustrative case of DL in the Meta region of Colombia. By developing and applying an original analytical framework, the study examined the epistemic, ontological, organizational, and pedagogical dimensions and the interactions among them through which DL may intervene in dominant colonial structures of knowledge. The examination of grassroots TP as decolonial praxis reveals possibilities for challenging and reconfiguring dominant universalist and colonial epistemic frameworks.

The main findings suggest that grassroots TP at DL can partially contest epistemic colonialism by legitimizing local experiences, emphasizing community-based learning, and approaching pedagogy of technology as socially and politically embedded rather than neutral. In doing so, DL may empower participants to move beyond the uncritical consumption of technology and

externally imposed knowledge toward more critical forms of engagement with technological tools that support the production of locally grounded knowledges.

A central insight of this thesis is that decolonial endeavors cannot and should not be examined outside the structural conditions that enable and/or constrain them. Accordingly, resistance would occur through continuous negotiation within the structures in which decolonial grassroots operate, opening new avenues for critically examining how the imagination and materialization of decolonial practices are shaped also by the colonial orders they seek to dismantle.

Even though DL's investigation demonstrated that alternative forms of technological education, knowledge production and community organization remain possible, the findings also suggest that grassroots TP is not a definitive solution to epistemic colonialism. Rather, its significance lies not necessarily in escaping coloniality in its entirety, but in creating spaces where dominant epistemic arrangements can be questioned, negotiated and reconfigured. In this sense, decolonial praxis in the form of grassroots TP emerges not as a complete project, but as an ongoing and contested process shaped by both possibilities and constraints.

At the same time, the thesis addressed significant gaps in the current decolonial scholarship, particularly regarding the lack of explicit methodological tools to investigate and guide decolonial praxis in Latin American context: the outlined analytical framework profitably operationalizes decolonial commitments in an intertwined manner and convert key concerns into empirically observable categories for examining grassroots TP and their decolonial commitments. Moreover, providing an illustrative example of a grassroots initiative mobilizing technological means, and technology at a broader conceptual level, that can contest epistemic colonialism, advances the focus of mainstream decolonial approaches centered on universities and formal education systems. In doing so, it broadens the methodological possibilities of decolonial scholarship by highlighting alternative sites capable of contesting epistemic colonialism, together with new forms through which decolonial praxis may be enacted.

The conclusions must also be understood in light of their limitations. The relatively short timeframe of the ethnographic fieldwork, the absence of comparable documented initiatives,

and the lack of long-term evidence regarding the enduring impacts of decolonial praxis, restricts the possibility to make both definite claims of grassroots TP's capacity to fully contest epistemic colonialism and broader generalization claims concerning the applicability of the same formula (theoretical foundations, methods) based solely on historical and geographic similarities across the whole continent.

Finally, the empirical limitations of this thesis, together with the residual gaps of the mainstream decolonial discourse should inform future directions in the field. Future research would benefit from longer-term and comparative studies across different regional contexts so as to provide deeper insights into how territorial, cultural, and sociopolitical conditions shape decolonial praxis and its actual possibilities to contest epistemic colonialism and enable new forms of knowledge production in Latin American context.