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ANCESTRAL ECOLOGICAL WISDOM AND ENVIRONMENTAL SUSTAINABILITY: INTERCULTURAL LESSONS FROM LATIN AMERICA'S INDIGENOUS COMMUNITIES

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Abstract
This document explores the importance of ancestral ecological wisdom from Indigenous peoples in Latin America as a key source for achieving environmental sustainability. Based on a systematic review of scientific literature published between 2018 and 2025 in Spanish, English, and Portuguese, it examines Indigenous knowledge, practices, and worldviews that promote a harmonious relationship with nature. The experience of the Kogui people in Colombia is highlighted as an example of ecological and spiritual commitment that contrasts with dominant extractivist development models. The analysis emphasizes the vital role of Indigenous communities in biodiversity conservation, despite accounting for less than 5% of the global population. The study concludes that the inclusion of ancestral wisdom in education and environmental policy is essential to address current ecological challenges and buildsustainable futures.

Keywords: Ancestral ecological wisdom, Indigenous peoples, Environmental sustainability, Intercultural education, Traditional knowledge.

Introduction

In Latin America and the Caribbean, indigenous communities, together with groups that defend the rights of ethnic minorities, have insisted on the implementation of education with a differential approach. This form of teaching seeks to integrate and respect elements of their culture, ancestral knowledge, environmental and productive practices, ways of understanding health, the economy, and their spirituality.

A representative example of this vision is offered by the Kogui people of the Sierra Nevada de Santa Marta, in Colombia, recognized for their deep ecological commitment and their experience in the protection and recovery of ecosystems. For them, caring for nature is a spiritual responsibility, as they consider themselves the custodians of the "heart of the world." From his perspective, humanity must reconsider the way in which it relates to the natural environment and to itself, because if it does not, it is heading towards a process of self-destruction from which it must move away to ensure its survival.

The preservation of the environment is an unavoidable and collective duty, vital for the continuity of life on the planet. Problems such as pollution, forest loss and global warming derive from a development model that is not sustainable and that puts natural resources at risk. As Thornton (2022) points out in the UN Chronicle portal, it is essential to conserve healthy and functional ecosystems to obtain environmental, economic and social

benefits. The restoration of these systems represents a concrete opportunity to halt their deterioration, improve their functionality and restore biodiversity.

Promoting sustainable habits, reducing excessive consumption and strengthening education on environmental issues are essential measures to remedy the current negative impacts and build a fairer and more ecologically balanced future.

Indigenous communities play a crucial role in environmental conservation thanks to their traditional knowledge and close link to nature. They have protected biodiverse territories for centuries, despite constant external threats. Although they represent less than 5% of theworld's population, they safeguard approximately 80% of global biodiversity (Figueroa, 2023). Recognizing and supporting their environmental leadership is both an act of historical justice and an essential strategy to confront the climate crisis.

From an intercultural perspective, education must respond to multilingual and multicultural contexts, recognizing the validity of ancestral knowledge. In areas such as natural sciences and the environment, the curriculum should promote indigenous ecological wisdom to strengthen cultural identity and respond to the challenges of climate change and global sustainability.

Colombia, as a multi-ethnic and multicultural nation, has promoted differentiated educational policies for indigenous peoples through the Ministry of National Education and bodies such as the National Commission for Work and Consultation for the Education of Indigenous Peoples (CONTCEPI). Among these initiatives is the Indigenous Educational System (SEIP), conceived as a pedagogical and organizational structure based on cultural, political and territorial principles, aimed at guaranteeing the survival of native peoples through their harmonious relationship with Mother Earth.

The Community Educational Project (PEC), a key component of the SEIP, articulates the life plans of each community with pedagogical proposals focused on their organization, territory and worldview. This curricular model incorporates knowledge, values and knowledge, promoting training from and for life, in coherence with the local reality.

The training contents consider essential elements such as language, territory, culture, economy and history, articulated from the pedagogical practices and cultural calendars of each people, determined by natural cycles. Activities such as planting, harvesting or spiritual rituals are integrated into the educational process as living expressions of traditional knowledge.

This document focuses on a documentary review that provides some answers to the question: What environmental intercultural lessons can we draw from the inclusion in schools of the Ancestral Ecological Wisdom of different indigenous communities around Latin America in the face of environmental sustainability?

The core categories are Ancestral Ecological Wisdom and Environmental Sustainability. The first, also known as Indigenous Traditional Ecological Wisdom can be defined as "collective indigenous knowledge and beliefs about nature and man's place in it, and serves as an alternative to the more objective and resource-focused Western worldview, which views the environment as something to be exploited" (earthday.org, 2025, Paragraph 2); and also as "the knowledge, practices, and beliefs that human groups have about the relationship between living beings in a given environment, as well as their transmission to new generations" (Berkes, 1999, cited in Millán-Rojas, et al., 2018, p. 113).

Method

A systematic review (SR), according to Quispe et al. (2021), "reviews and locates relevant literature that fits previously established inclusion/exclusion criteria. Its methodology is clear and systematic to reduce biases in the identification, selection, synthesis and summarisation of studies. Their findings are reliable, so the conclusions help in clinical decision-making" (p. 95). In other words, "A systematic review aims to bring together all empirical evidence that meets previously established eligibility criteria, in order to answer a specific research question. It uses systematic and explicit methods, which are chosen in order to minimize biases, thus providing more reliable results, from which conclusions can be drawn and decisions made" (Salcido et al, 2021, p. 218). These definitions justify the type of study carried out that led to the results that will be presented later.

Eligibility Criteria

The inclusion criteria were: only scientific articles, published in Spanish, English or Portuguese, in a time range from 2018 to 2025, that appear on open access platforms in the indexed academic databases RedALyC, SciELO, Dialnet, would be selected. Obviously, the central thematic categories are Indigenous Ancestral Ecological Wisdom and Environmental Sustainability.

As a basis for exclusion, all the criteria were taken in contravention of those of inclusion, as shown in the following table:

Table 1

Inclusion and exclusion criteria

Inclusion criteria	Exclusion Criteria
Scientific articles	Other types of documents
Published in Spanish, English and Portuguese	Languages other than English, Spanish, English, and Portuguese
Published between 2018 and 2025	Published before 2018
Open access	Restricted access
Indexed academic databasesRedALyC, SciELO, Dialnet	No indexed

Source: Own elaboration

On the other hand, the following table shows the search equation, in which the terms "education", "pedagogy", "curriculum", "ethno-education", "eco-education", "eco-pedagogy", "wisdom", "understanding" and "knowledge" stand out, among other words with their respective versions in English and Portuguese.

Table 2
Search equation

Searched term	English	Portuguese
"education" OR "pedagogy" OR "curriculum" OR "ethnoeducation" OR "eco-education" OR "ecopedagogy"	*"education" OR "pedagogy" OR "curriculum" OR "ethnoeducation" OR "ecoeducation" OR "ecopedagogy"*	*"education" OR "pedagogy" OR "curriculum" OR "ethnoeducation" OR "ecoeducation" OR "ecopedagogy"*
"wisdom" OR "understanding" OR "knowledge"	*"wisdom" OR "understanding" OR "knowledge"*	*"wisdom" OR "understanding" OR "knowledge"*
"ancestral" OR "traditional" OR "herential"	*"Ancestral" OR "traditional" OR "hereditary"*	*"Ancestral" OR "traditional" OR "hereditary"*
"Indigenous" OR "aboriginal" OR "vernacular" OR "native"	*"indigenous" OR "aboriginal" OR "vernacular" OR "native"*	*"aboriginal" OR "vernacular" OR "native"*
"environmental sustainability" OR "ecological preservation" OR "environmental conservation"	*"Environmental sustainability" OR "ecological preservation" OR "environmental conservation"*	*"environmental sustainability" OR "ecological preservation" OR "environmental conservation"*
"ecological wisdom" OR "ecological knowledge" OR "environmental awareness"	*"Ecological wisdom" OR "ecological knowledge" OR "environmental awareness"*	*"ecological wisdom" OR "ecological knowledge" OR "environmental awareness"*

Source: Own elaboration

PRISMA Flowchart

In the framework of systematic reviews, methodological transparency is an essential requirement to ensure the rigor and reproducibility of findings (Page et al., 2021). For this purpose, the PRISMA 2020 (*PreferredReportingItemsforSystematicReviews and Meta-Analyses) guideline* was used, widely recognized in the scientific literature for establishing standardized criteria for the identification, selection, evaluation and synthesis of the included studies.

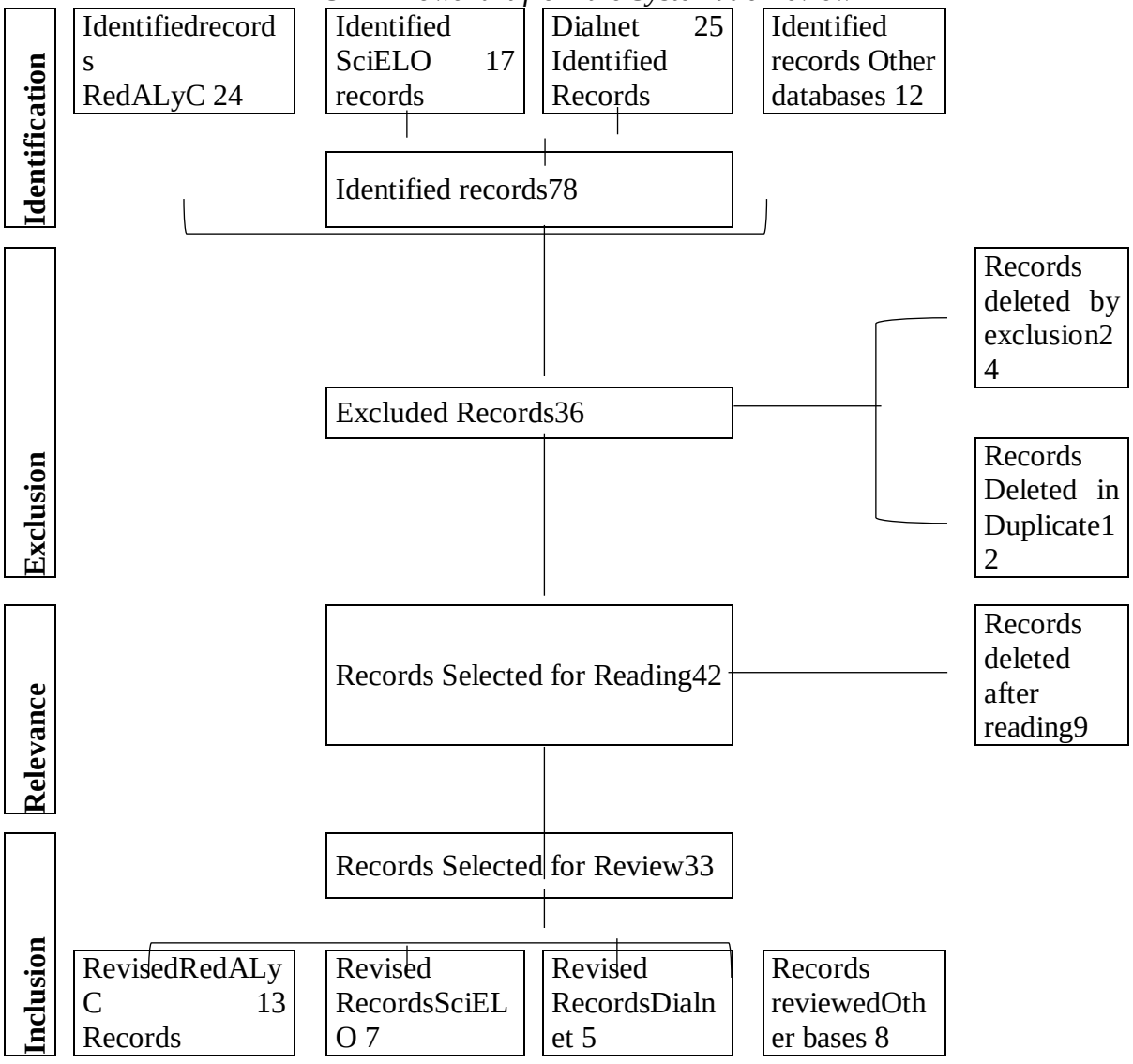
The PRISMA flow diagram presented below summarises in a schematic way the phases developed in the process of searching for and filtering the information. In the first stage, the total number of studies identified in the selected databases was recorded. Subsequently, the elimination of duplicates was carried out and a relevance analysis was

carried out based on the previously defined inclusion and exclusion criteria. Next, the eligibility of the full texts was evaluated and, finally, the number of studies that met the methodological and thematic standards to be incorporated into the final analysis was recorded.

This procedure made it possible to guarantee a systematic and coherent approach to academic production related to Traditional Ancestral Wisdom in educational contexts, ensuring that the results and interpretations presented in this article are based on a corpus of solid evidence, selected under explicit and verifiable criteria.

Figure 1

PRISMA Flowchart from the Systematic Review



Source: Own elaboration

Results

The systematic review of the selected research made it possible to identify common trends, findings, and patterns around the integration of Traditional Ancestral Wisdom (TS) in educational contexts with indigenous communities in Latin America and the world. The results are organized into emerging categories that reflect the main contributions of the studies: territorial pedagogies, linguistic revitalization, SATSTEM integration, and educationalco-design and governance.

1. Territorial pedagogies and spirituality of the territory.

Some research (Luna, 2018; Peña-Cortés, 2019; Cunha de Araújo, 2021; Fabiano et al., 2021; Actua, 2022; McDonald, 2023; Sexton, 2024; Quilaqueo et al., 2024; Quintero, 2025) highlight that the territory is understood as a living classroom. The findings show that teaching linked to ecosystems, rituals and community memories strengthens cultural identity, sense of belonging and socio-environmental resilience. Specifically, it is evident that sacred spaces (ruka, maloka, wetlands, mountains) are not only physical scenarios, but learning territories where agricultural practices, spiritual rituals, and collective narratives converge. These territorial pedagogies favor the interdependence between human and non-human beings, incorporating principles of reciprocity, respect and balance. Likewise, the results show that by moving education to community spaces – for example, school gardens or field trips guided by local wise men – student motivation is enhanced and the transmission of intergenerational values is strengthened. Finally, several studies report that the implementation of this approach faces challenges in compatibility with official calendars and standardized assessment systems, which requires regulatory and institutional adjustments so that these practices are not relegated to the margins ofthe formal curriculum.

Some examples of the above are: In Chile, Luna (2018) documents the use ofthe*ruka* as a classroom and the accompaniment of kimches in daily activities, which situates learning in community life. Peña-Cortés (2019) emphasizes oral storytelling (*epew*) as a strategy to link education and territory. In Brazil, Cunha de Araújo (2021) shows that art education, carried out in collective spaces in the village, revitalizes memory practices and transmits community values in relation to the land. In Peru, Fabiano et al. (2021) show that wetlands are understood as spiritual territories that guide educational decisions, where the relationship with spirits and ecosystems structures school learning.

For their part, in Canada Actua (2022) and McDonald (2023) describe *land-based*programs in which STEM learning occurs in forests and rivers under the guidance of elders, strengthening belonging and reducing school dropout. And in Colombia, Quintero (2025) shows that self-education is developed in the Sierra Nevada following the Law of Origin, with calendars guided by spiritual and cosmic cycles that guide pedagogical times. This author states that, for the Kogi:

> … the Earth is not just a physical space, but a living being, and human beings are its children. For this reason, they warn that human actions of exploitation, deforestation and uncontrolled extraction are weakening La Gran Madre, putting at risk both the natural balance and the cultural wealth that they have preserved over time. (Quintero, 2025, p. 141).

These comparative examples confirm that, although each indigenous people adapts territorial pedagogies to their worldview, they all converge in recognizing the territory as an essential pedagogical space that goes beyond conventional classrooms.

2. Linguistic revitalization and bilingual intercultural education (EIB).

Of the sources consulted, eight studies (Peña-Cortés, 2019; Näslund-Hadley et al., 2022; Flores, 2022; Quilaqueo et al., 2024; Riquelme, 2023; Wei, 2023; Santos, 2020; Quintero, 2025) agree that the mother tongue is the basis for the transmission of knowledge. It is evident that traditional oral genres (epew, pūrākau) act as key pedagogical devices for early education and disciplinary teaching. The theory underlying these findings is related to the conception of language as an intangible cultural heritage and as an epistemology of its own that structures thought, memory and ways of knowing. From a critical sociolinguistic perspective, IBE not only involves the translation of content, but also the construction of frames of reference that preserve worldviews and ways of life. Likewise, linguistic revitalization is linked to epistemic justice and resistance to historical processes of assimilation and cultural displacement.

The results also show structural limitations: lack of bilingual teachers, insufficient teaching materials and public policies that privilege dominant languages. However, studies agree that successful experiences are achieved when the community actively participates in curriculum design and when orality, singing, mythical storytelling, and ritual contexts are incorporated as legitimate means of teaching.

Some specific experiences are: In Chile, Peña-Cortés (2019) shows that thetransmissionof*epew*stories in Mapuzugun, enriches initial literacy and contributes to the emotional formation of children, legitimizing the role of the elderly as educators. Further north, in Peru, Flores (2022) documents the loss of ecological lexicon in Quechua as an indicator of cultural erosion; The educational proposals for revitalization seek to reincorporate these terms intoschoolagrobiodiversityprojects.

In the same vein, in Mexico Wei (2023) analyzes the implementation of the EIB, pointing out tensions due to structural racism, but also advances in programs that integrate indigenous languages in the teaching of science and mathematics. In Colombia, Quintero (2025) shows that the Law of Origin establishes that the school calendar must be aligned with the spiritual and linguistic cycles of the school, strengthening the use of Kogui as the language of instruction. And in terms of Regional Studies of Latin America and the Caribbean (LAC), Näslund-Hadley et al. (2022) underline that teaching in the mother tongue significantly improves the permanence and school performance of indigenous children compared to monolingual programs in Spanishor Portuguese.

These findings reinforce the idea that linguistic revitalization is not a symbolic addition to the curriculum, but a necessary condition to guarantee cultural relevance, educational equity, and the continuity of indigenous worldviews.

3. Integration of SATSTEM and traditional ecological knowledge (TEK).

Five studies (Moeed, 2020; Stewart, 2020; Schmidt et al., 2021; Fabiano et al., 2021; Sexton, 2024) document experiences of integration between ancestral knowledge and school science. The findings show that indigenous agroforestry, soil management and ecological calendars can be taught in parallel to scientific content, generating deep and

contextualized learning. The basic pedagogical theory is linked to critical intercultural education and to the perspective of plural epistemologies, which recognize the validity of knowledge systems different from the Western scientific one and propose their articulation under equal conditions. This integration does not seek to subordinate the SAT to the formal curriculum, but to generate a dialogue of knowledge that allows global problems such as the climate crisis to be facedfromcomplementaryperspectives.

The results highlight that teacher training in intercultural approaches is key to implementing these practices, since teachers require tools that allow them to translate, mediate, and connect ancestral concepts with scientific language without delegitimizing either of them.

In this regard, in New Zealand, Moeed (2020) and Stewart (2020) show how biology teaching integrates concepts of *mauri* (vital energy) and *kaitiakitanga* (care forthe environment) with the school science curriculum, achieving significant and culturally relevant learning. In the United States, Schmidt et al. (2021) document the integration of traditional agricultural practices such as the*lo'ikalo*terracesystem in the teaching of ecology and mathematics, linking sustainability with school content. And in Peru, Fabiano et al. (2021) show how Urarina ecological calendars, based on flood cycles and spiritual relationship with wetlands, are used in natural science classes to teach adaptation and resilienceprocesses.

We can infer that SATSTEM integration is not a simple didactic resource, but a transformative educational strategy that promotes contextualized learning, cultural relevance and a vision of situated and plural science.

4. Processes of curricular co-design and Participatory Action-Research.

In six studies consulted (Díaz & Pedro, 2018; Hernández, 2019; Matos, 2019; Pilamunga et al., 2023; Chele et al., 2023; Stewart, 2020) it is reported that the participation of indigenous communities in curriculum design constitutes a pillar for the appropriation of culturally relevant educational processes. The underlying theory is based on participatory action research and critical pedagogy, where knowledge is collectively constructed and the epistemic agency of indigenous peoples is recognized. This perspective goes beyond the vertical model of traditional education and proposes a living, flexible and dialogic curriculum.

The findings indicate that co-design strengthens the transmission of spiritual values, the revitalization of the language and the incorporation of the worldview in the classroom. It is also documented that this process increases the students' sense of belonging and the legitimacy of educational projects in the eyes of the communities. Among the main challenges are the tensions between national normative frameworks and indigenous normative systems, as well as the limited preparation of teachers toassume intercultural dialogue.

Some examples of the above are: in Ecuador (Kichwa communities) Pilamunga et al. (2023) show how co-design between teachers and ancestral wise men made it possible to structure intercultural environmental education modules, integrating local mythology with contemporary problems. In Brazil (Amazonian peoples), Matos (2019) reports action research experiences where students collected oral narratives from their communities and transformed them into teaching materials. In Colombia (Wayuu communities): Chele et al.

(2023) highlight that the co-designed curriculum incorporated knowledge about water cycles and grazing, articulated to social science content. And in New Zealand (Māori) Stewart (2020) documents a participatory process where community leaders, teachers, and students reconstructed curricula based on principles ofreciprocity and territoriality.

Together, these examples show that curriculum co-design not only preserves ancestral wisdom, but also democratizes educational decision-making, promoting cognitive justice.

Discussion

The analysis of the systematized research allows us to identify significant convergences that illuminate the role of Traditional Ancestral Wisdom (SAT) in contemporary educational contexts. In line with the postulates of critical interculturality (Walsh, 2018) and epistemic justice (Santos, 2020), the findings reaffirm that the educational experiences that make up SAT should not be conceived as mere folkloric adaptations, but as knowledge production practices that question the hegemony of the Western paradigm.

In the first place, the incorporation of spirituality and orality (Result 1) reveals the centrality of worldviews in the formative processes. The literature shows that, by integrating mythical narratives, ritual songs, and sacred stories into educational spaces, communities strengthen cultural identity and generate emotionally significant learning (Estermann, 2020). This result connects with the proposals of decolonial pedagogy, which propose an education where the body, memory, and spirituality are recognized as legitimate dimensions oflearning (Quijano, 2021).

Second, the emphasis on traditional ecological knowledge (Outcome 2) converges with debates on sustainability and the global climate crisis. By recovering territorial management practices such as agroforestry, water control or crop rotation, it is observed that indigenous education not only preserves ancestral knowledge, but also offers alternatives for mitigation and adaptation to climate change. This reaffirms the relevance of the SAT as a source of socio-ecological innovation, in line with the approaches of political agroecology (Altieri & Nicholls, 2022).

The third result, related to SAT-STEM integration, stresses the epistemological boundaries of school science. While some studies highlight the motivating potential of this convergence, others warn of risks of reductionism and cultural appropriation. This finding coincides with what Aikenhead (2021) points out, who warns of theneedfor*Two-EyedSeeingmodels*thatrecognizeboth Western and indigenous scientific views without subsuming one into the other. The challenge lies in building plural epistemologies that do not trivialize TEK (Traditional Ecological Knowledge), but rather position them as knowledgeofequaldignity.

In relation to the processes of curricular co-design (Result 4), the findings show a trend towards the democratization of education, where indigenous peoples are protagonists in the definition of contents, methodologies and objectives. This reflects a shift towards educational self-determination, in coherence with ILO Convention 169 and the United Nations Declaration on the Rights of Indigenous Peoples (UN, 2007). However, tensions persist between centralized state regulations and indigenous autonomy, suggesting the need for more flexible and intercultural legal frameworks.

Overall, the systematized results show that the integration of the SAT in educational contexts is not an accessory exercise, but a key strategy to face the socio-environmental crisis, strengthen epistemic diversity and move towards fairer and more sustainable education models. The discussion confirms that the key lies not only in recognizing ancestral knowledge, but in generating structural, pedagogical and political conditions that guarantee its transmission, updating and appreciation on an equal footing with other knowledge systems.

Conclusions

This systematic study allowed us to examine twenty recent research (2018-2025) that explores the integration of Traditional Ancestral Wisdom (TS) in indigenous and non-indigenous educational contexts, both in Latin America and in other territories of the world. The findings show that these experiences are not isolated initiatives, but part of a global trend towards the recognition of epistemic plurality and cognitive justice in education.

In the first place, it was found that the SAT is articulated in educational processes through spiritual, ecological, scientific, curricular and technological dimensions. Spirituality and orality strengthen cultural identity and promote significant learning; traditional ecological knowledge provides solutions to the climate crisis; integration with STEM expands the relevance of school science; the processes of curricular co-design democratize education; and technological appropriation creates new possibilitiesfor cultural transmission.

Second, the results reveal that, despite their transformative potential, these experiences face significant challenges: risks of folklorization and trivialization of knowledge, tensions with centralized state regulations, absence of intercultural evaluation frameworks, and vulnerabilities derived from technological dependence. These challenges demand public policies that not only recognize cultural diversity, but also guarantee structural conditionsforitssustainability.

Thirdly, the comparison between cases from different regions – from the Māori peoples in New Zealand, to Amazonian communities in Brazil and Peru, through experiences in Ecuador, Mexico, Canada, Colombia and Australia – shows that, although the forms of integration vary according to the context, there is a common denominator: the search for an education that combines identity, sustainability and epistemicjustice.

Prospectively, this systematization suggests several lines of action:

- At the level of educational policy: move towards flexible legal frameworks that recognize indigenous curricular autonomy and promote models of critical interculturality.
- In pedagogical practice: strengthen teacher training in indigenous epistemologies, participatory methodologies and decolonial pedagogies.
- In research: promote longitudinal and comparative studies that allow measuring the impacts of the SAT on learning, community cohesion and environmental sustainability.
- In the technological dimension: promote indigenous digital sovereignty strategies that avoid dependence on external platforms and favor community content management.

In conclusion, the integration of Traditional Ancestral Wisdom in education is not a romantic or marginal proposal, but a historical and contemporary necessity. Recognizing and strengthening this knowledge is equivalent to building a more inclusive, resilient education in harmony with the Earth. In times of socio-environmental crisis and cultural homogenization, native peoples remind us that another education – and therefore, another future – is possible.

References

Actua. (2022). *Indigenouslandbased STEM education: Discussionpaper*. Actua.

Aikenhead, G. S. (2021). *Enhancingtwo-eyedseeing in scienceeducation: Toward a pedagogyofequity*. Canadian Journal of Science, Mathematics and Technology Education, 21(2), 131–149. https://doi.org/10.1007/s42330-021-00149-3

Altieri, M. A., & Nicholls, C. I. (2022). *Agroecology: scientific basis for sustainable agriculture*. CLACSO. https://doi.org/10.2307/j.ctv2vwxp5

Cabrera, L. (2022). Technologies of rootedness: indigenous peoples and digital appropriation. *Latin American Journal of Communication Sciences*, 19(35), 45–62. https://doi.org/10.11606/issn.2175-3683

Chele, J., Maldonado, S., & Torres, A. (2023). Traditional ecological wisdom and community educational practices in indigenous peoples of Ecuador. *Revista Educación y Cultura, 28*(1), 55–71.

Cunha de Araújo, G. (2021). Apinayé art: A case study in a Brazilian indigenous school. *CogentEducation, 8*(1), 1869365. https://doi.org/10.1080/2331186X.2020.1869365

Díaz, M., & Pedro, J. (2018). Ancestral Wisdom and Community Educational Processes: Contributions from Native Peoples of Latin America. *Journal of Intercultural Education, 20*(2), 45–62.

Earthday.org. (2025). The wisdom of indigenous cultures. Available in: https://www.earthday.org/the-wisdom-of-indigenous-cultures/

Estermann, J. (2020). *AndeanPhilosophy: Ancestral Knowledge for Life*. Abya-Yala.

Fabiano, E., Gilmore, M., & Mayor, P. (2021). Wetland spirits and indigenous knowledge: Implications for conservation in the Peruvian Amazon. *One Earth, 4*(12), 1757–1768. https://doi.org/10.1016/j.oneear.2021.11.006

Figueroa, V. (2023). Indigenous peoples of the world: Guardians of the earth and biodiversity. Available in: https://globalforestcoalition.org/es/indigenous-peoples-of-the-world-guardians-of-earth-and-biodiversity/

Flores, P. (2022). *A study on the relationship between the Quechua language and traditional ecological knowledge*. (Tesis de maestría). Universityof Michigan.

Hernández, C. (2019). Environmental education and indigenous worldview: traditional knowledge in the school curriculum. *Latin American Journal of Educational Studies, 49*(1), 89–108.

Luna, L. (2018). Mapuche education and situated learning in a community school. *Intercultural Education, 29*(2), 175–190. https://doi.org/10.1080/14675986.2018.1429574

Matos, R. (2019). Ancestral pedagogies and intercultural education: experiences in Amazonian communities. *Education and Humanism, 21*(37), 112–130.

McDonald, M. (2023). *Indigenouslandbasededucation in theory and practice* (SpecialReport). YellowheadInstitute.

Millán-Rojas, L., Arteaga-Reyes, T. T., Moctezuma-Pérez, S., Velasco-Orozco, J. J., & Arzate-Salvador, J. C. (2016). Traditional ecological knowledge of forest biodiversity in a Matlatzinca community, Mexico. *Environment and Development, 20*(38), 111-123. http://dx.doi.org/10.11144/Javeriana.ayd20-38.cetb

Moeed, A. (2020). Mātauranga Māori and school science. *New Zealand Science Review, 76*(3), 64–70.

Näslund-Hadley, E., Rodríguez-Álvarez, J., & Azevedo, J. P. (2022). *Let'steach in their language: What the science says about learning and the mother tongue*. Inter-American Development Bank. https://publications.iadb.org/publications/english/document/Lets-Teach-in-Their-Language-What-the-science-says-about-learning-and-the-mother-tongue.pdf

UN. (2007). *United Nations Declaration on the Rights of Indigenous Peoples*. United Nations. https://www.un.org/development/desa/indigenous-peoples-es/

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*(n71), 1–9. https://doi.org/10.1136/bmj.n71

Peña-Cortés, F. (2019). Intercultural education and territorial knowledge: Mapuche experiences in southern Chile. *Austral Journal of Social Sciences, 36*(1), 115–132. https://doi.org/10.4206/rev.austral.cienc.soc.2019.n36-07

Pilamunga, P., Guamán, L., & Chiluisa, D. (2023). Intercultural education and sustainability: the integration of ancestral knowledge in Andean school contexts. *Andean Journal of Education, 6*(2), 77–94. https://doi.org/10.32719/26312549.2023.6.2.6

Quijano, A. (2021). Coloniality of power and decoloniality of knowledge in education. *Journal of Social Studies*, 76(2), 15–28. https://doi.org/10.7440/res76.2021.02

Quilaqueo, D., Quintriqueo, S., & Torres, P. (2024). Mapuche epistemologies and intercultural education in Chile: an analysis from curricular justice. *Latin American Journal of Intercultural Education, 12*(1), 25–47. https://doi.org/10.22201/rlei.2024.12.1.2

Quintero Contreras, M. del R. (2025). *Own education: Ancestral uses and customs in the Kogui community of Sierra Nevada, Santa Marta-Colombia. Encuentro Educacional, 32*(1), 135–153. https://doi.org/10.5281/zenodo.15665735

Quispe, A., Hinojosa-Ticona, Y., Miranda, H., & Sedano, C. Scientific Writing Series: Systematic Reviews. Journal of the Medical Corps Hospital Nacional Almanzor Aguinaga Asenjo, 2021, 14(1), 94 - 99. https://doi.org/10.35434/rcmhnaaa.2021.141.906

Riquelme Mella, E. (2023). Socialization of knowing how to feelthroughthe*epew* in the Mapuche family and school. *EducationSciences, 13*(6), 622. https://doi.org/10.3390/educsci13060622

Salcido, M., Vargas, A., Medina, N., Ramírez, F., García, M., Briseño, A. & Jiménez, J. (2021). Systematic review: the highest level of evidence. Ortho-tips, 17(4):217-221. DOI:10.35366/102220. Available in https://www.medigraphic.com/pdfs/orthotips/ot-2021/ot214g.pdf

Santos, B. de S. (2020). *The End of the Cognitive Empire: The Affirmation of Southern Epistemologies*. Siglo XXI Editores.

Schmidt, M. V. C., Schmidt, I. B., Alencar, A., et al. (2021). Fire management and traditional ecological knowledge in the Xingu Indigenous Territory. *Frontiers in Ecology and Evolution*, *9*, 705601. https://doi.org/10.3389/fevo.2021.705601

Sexton, R. (2024). Indigenous land-based education and climate resilience in First Nations communities of Canada. *Journal of Indigenous Studies and Sustainability*, *5*(2), 78–101. https://doi.org/10.1080/jiss.2024.78

Stewart, G. T. (2020). Māori science curriculum. In M. M. Atwater (Ed.), *International Handbook of Research on Multicultural Science Education* (pp. 1–23). Springer. https://doi.org/10.1007/978-3-030-37743-4_33-1

Thornton, H. (2022). Advantages of ecosystem restoration and species recovery for people and the planet. Available in: https://www.un.org/es/cr%C3%B3nica-onu/ventajas-de-la-restauraci%C3%B3n-de-los-ecosistemas-y-la-recuperaci%C3%B3n-de-especies-para-las

Walsh, C. (2018). *Critical interculturality and decolonial pedagogy*. Universidad Andina Simón Bolívar / Abya-Yala.

Wei, R. (2023). Intercultural language education and social justice: A review of the field in Mexico. *EducationPolicyAnalysis Archives*, *31*(146). https://doi.org/10.14507/epaa.31.7005