

## The paths and epistemological encounters in research on mathematics education in Bolivian childhood

**Abstract:** The research in this paper aims to communicate the concerns and findings when researching Mathematics Education in Bolivian curriculum documents through autoethnography. Autoethnography allows researchers to bring their personal experience in the context of social interactions and cultural practices to their study, giving visibility to their emotions. Curriculum texts enable the development of decolonial thinking by integrating knowledge and wisdom from the Global South, broadening perspectives and establishing new lines of reflection and positioning on knowledge. The mathematical concepts highlighted in the documents should be articulated in conjunction with the mother tongue, contributing to the development of language and thinking, in the worldview originating from the students' life history and context.

**Keywords:** Autoethnography. Early Childhood Education. Mathematics Education. Bolivian Curriculum Documents. Aymara Language.

### Caminos y encuentros epistemológicos en la investigación sobre Educación Matemática para niños bolivianos


**Resumen:** La investigación de este artículo pretende comunicar las inquietudes y descubrimientos de la investigación de la Educación Matemática en los documentos curriculares bolivianos a través de la autoetnografía. La autoetnografía permite al investigador aportar a su estudio su experiencia personal en el contexto de las interacciones sociales y las prácticas culturales, haciendo visibles sus emociones. Los textos curriculares permiten desarrollar un pensamiento decolonial al integrar conocimientos del Sur Global, ampliando perspectivas y apoyando nuevas líneas de reflexión y posicionamiento sobre el conocimiento. Las nociones matemáticas destacadas en los documentos deben articularse junto con la lengua materna, contribuyendo al desarrollo del lenguaje y del pensamiento, en la cosmovisión originaria de su historia de vida y contexto.

**Palabras clave:** Autoetnografía. Educación Parvularia. Educación Matemática. Documentos Curriculares Bolivianos. Lengua Aymara.


### Os caminhos e os encontros epistemológicos na pesquisa com a Educação Matemática da infância boliviana

**Resumo:** A pesquisa deste artigo objetiva comunicar as inquietações e as descobertas ao pesquisar a Educação Matemática presente nos documentos curriculares bolivianos por meio da autoetnografia. A autoetnografia admite que o pesquisador traga para seu estudo a sua experiência pessoal no contexto das interações sociais e práticas culturais, dando visibilidade às suas emoções. Os textos curriculares possibilitam o desenvolvimento de um pensamento decolonial ao integrar conhecimentos e saberes do Sul Global, ampliando perspectivas e fundamentando novas linhas de reflexão e posicionamento sobre o conhecimento. As noções matemáticas destacadas nos documentos devem ser articuladas em conjunto com o idioma materno, contribuindo para o desenvolvimento da língua e do pensamento, na cosmovisão

**Joana Inês Novaes**

Municipal Secretariat of Education of  
São José do Rio Preto  
São José do Rio Preto, SP — Brasil  
 0000-0002-8530-2483  
✉ joanainovaes@gmail.com

**Harryson Júnio Lessa  
Gonçalves**

Paulista State University  
Marília, SP — Brasil  
 0000-0001-5021-6852  
✉ harryson.lessa@unesp.br

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**Palavras-chave:** Autoetnografia. Educação Infantil. Educação Matemática. Documentos Curriculares Bolivianos. Idioma Aymara.

## 1 Starting point

The research presented in this paper<sup>1</sup> aims to communicate, through ethnographic writing, my process of constructing an understanding of Bolivian childhood and the mathematics education proposed in the curriculum texts. Throughout this journey, I seek to present the emotions that I experienced, reflecting on the implications and concerns that emerged during the development of a methodological path. This reflection culminated in the decision to experience and share the research process through autoethnography, highlighting the nuances and challenges faced on this journey.

In the first section of the paper, I present the concerns that I encountered in constructing a research path through the theoretical assumptions of ethnography, archival ethnography, autoethnography, and cartography. In the second section, I highlight the construction of an understanding of Bolivian childhood, linking Early Childhood Education with Mathematics Education.

The metaphor of travel appears in the process and product of this autoethnography. A person who travels is never the same when they return, as they embark on a journey into the unknown, full of expectations of new experiences. Upon their return, they bring new airs, landscapes, and scenarios from other territories to their lives.

I can say that, for some time now, discussing, studying, and researching childhood and the curricular policies proposed for children has been part of my existential territory, as well as my research and work territory. It is the place where I *feel at home*.

To talk about childhood is to talk about a time marked by first experiences, by the wonder of children as they discover the world around them, analyzing and comparing different elements of reality and their context to build their *communities*.

In this phase of discovery, children, from birth, enter a cultural group with its own customs and ideas specific to the context in which they live and develop different experiences that will structure their entire educational journey.

In these experiences, children, from birth, interact with different languages, including mathematical elements, and actively participate in situations involving relationships between space and time, quantity, organization of movements, and groupings. These experiences promote child development by fostering skills that articulate thinking with various languages. It is therefore necessary to discuss Mathematics Education for children in conjunction with dialogues on Early Childhood Education policies. It was precisely these concerns that led me to pursue a doctorate with a proposal to investigate Mathematics Education in Bolivian Early Childhood Education curriculum policies. Initially, an analysis of the documents would be carried out and a technical visit would be made to visit some Bolivian nursery schools to interview teachers. One of my concerns was: *“How can I develop a study that enters another cultural context in a respectful and sensitive way? How should I proceed?”*.

Some ideas were presented to me as possibilities for subverting the traditional logic of academic research, following paths pointed out by anthropology and ethnography. As these concepts were not part of my training, I sought to deepen my knowledge through individual and

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<sup>1</sup> This paper is an excerpt from a doctoral thesis defended in the Postgraduate Program in Science Education at the São Paulo State University Julio de Mesquita Filho (Unesp), Bauru *campus*, written by the first author and supervised by the second author.

collective studies<sup>2</sup>, courses, and lectures on these topics, intersecting with studies on decoloniality and interculturality, concepts that are the basis of the Bolivian curriculum.

My initial readings helped me to see the process through new eyes and deconstruct my certainties about how to conduct research, but I felt that I still needed other perspectives to support me.

Thus, throughout the design of the research, I learned about paths, journeys, and destinations, and that the journey should be as valuable as or even more valuable than the arrival. I walked along paths that sometimes caused me discomfort and strangeness, but this trail enabled four necessary and precious encounters: ethnography, document ethnography, autoethnography, and cartography.

## 2 First encounter: ethnography

To conduct research in a place with a culture so different from mine, I would have to be careful and find a way to approach it. I was sketching out several possible steps and presented them to my advisor. Provocative as always, he said: *“Joana, put those steps aside for a while, throw yourself into reading, try to learn a little about Bolivian culture, and after our visit, you can decide how to proceed. Take a risk, throw yourself into it!”*.

It was in response to this request that I took a risk in search of understanding other ways of researching, and in this way, some elements began to intersect in my studies, encouraging me to launch into new epistemological perspectives and the work of a researcher.

Among these perspectives, ethnography and its other modes of research emerged, which often caused me some confusion. One of the first texts I studied on ethnography was a paper by researcher and anthropologist Cláudia Fonseca (1999), entitled *Quando cada caso não é um caso* [When each case is not a case]. The text showed that ethnography facilitates the study of subjectivity, feelings, and emotions, which are its basis and are directly related to sociological factors. Therefore, it would be necessary to capture the social dimension of emotion.

This task would require cross-referencing data, comparing different types of discourse, and confronting statements from different subjects about the same reality, thus constructing the fabric of social life in which every value, emotion, or attitude is inscribed in a multifaceted social reality. For the author, the construction of an ethnography requires several stages: i) estrangement; ii) schematization; iii) deconstruction; iv) comparison; and v) systematization.

The estrangement of something, an event, a practice, a situation, can open up enough space for the construction of an object of analysis in the field of research. This would be the first stage. The second would be the schematization of the data constructed through a process of comparisons, abstractions, classifications, and generalizations. The third, deconstruction, aims to deconstruct preconceived stereotypes and strip away certainties. The fourth, comparison, aims to draw analogies and expand knowledge. The last step, in turn, is the systematization of the material into alternative models.

Fonseca (1999) also points out that ethnographers have the ambition to immerse themselves in unfamiliar situations in order to understand their own symbolic universe. At all times, the ethnographer circulates amid this paradox; however, when they recognize that other *territories* exist, they can see more clearly the historical contours and limits of their own values (Fonseca, 1999).

Another important text for broadening my view of ethnography was the paper by José Guilherme Cantor Magnani (2002), *De perto e de dentro: notas para uma etnografia urbana*

<sup>2</sup> The collective studies were conducted through the Research Group on Anthropology and Education (GPAE).

[Up close and from within: notes for an urban ethnography], in which the researcher explores the possibilities of ethnography as a working method in anthropology, helping to understand the urban phenomenon, cultural dynamics, and forms of sociability in large cities.

This reading highlighted a very interesting aspect and made me think deeply about my role in research, my choices and paths, proposing that I take a closer look from within the experience.

Using this strategy requires investment in two ongoing relationships: on the one hand, the social actors, the group, and the practice being studied; on the other, the landscape in which this practice is developed, which must be seen as a constituent part of the analysis.

These readings redirected my gaze: while I should be attentive to social relations and landscapes, I also needed to be attentive to the internal relations and experiences that would take place within me.

Thus, it was amid these studies and methodological constructions that I found myself in full preparation to enter Bolivia in 2020.

We hoped that the pandemic would soon subside, but that was not the case.

Due to this context, it was no longer possible to continue with the initial research design in terms of the ethnographic field perspective. It would therefore be necessary to look at other modes and methods of investigation.

It seemed to me that the study would largely take place amid Bolivian curriculum documents and educational legislation. However, what I had read about ethnography had affected me in some way, and so I wanted to allow myself to experience the strangeness of something, or of a situation, in order to open myself up to the field and thus bring about the possibility of deconstructing stereotypes that I had formed throughout my life.

In this way, I could construct analogies that would help me understand phenomena and situations, systematizing the new constructions into an experiential research model, allowing me to look at the experience closely and from within.

After all, what perspective should I follow, since I would not have conventional fieldwork to interact with people and their spaces? Apparently, ethnography would no longer be directly linked to my research.

However, I was sure of the elements I would need to carry with me: strangeness, the deconstruction of stereotypes, the drawing of analogies, and the systematization into alternative models, without forgetting to be both immersed and attentive to the experience, up close and from within it.

Thus, immersed as I was in the concern of having to give up fieldwork that would involve direct dialogue with various research subjects and seeking other elements to carry it out in a pandemic context, I came across archive/document ethnography.

### **3 Second meeting: ethnography of documents**

I confess that not being able to conduct research in Bolivian schools caused me great frustration and a sense of meaninglessness in my investigation and in the ongoing process. At that moment, I believe I had the same impression as researcher and historian Fraya Frehse (2005) when she came across the document collections at the São Paulo State Archives.

[...] it seems that immersing oneself in archives is diametrically opposed to anthropological fieldwork. There is no direct contact with the subjects of the research; nothing concrete has been experienced. The subjects of my

investigation no longer exist. This makes it impossible to observe, face to face, the individuals in question moving through the streets (Frehse, 2005, p. 36).

When I read this excerpt, I immediately identified with it. Much of my expectation was to be in the field, exercising my ethnographic gaze to capture nuances and make interpretations. Curriculum guidelines and legislation would play an important role, but they would not be the central focus. Now this had been reversed. The only possible scenarios for reflection and focus of analysis were now the documents available on the Bolivian Ministry of Education's *website*.

I had already encountered this ethnographic approach in my initial research, but I did not pay much attention to it. The texts I found were ethnographies carried out in judicial archives, and at that time, I did not see a possibility of applying them to educational documents. There was no room for it.

However, immersion in new readings and discussions helped me understand various aspects of ethnography, especially when it occurs through documents. Supported by the reflections proposed by the course, I felt compelled to read the suggested papers more carefully. I confess, however, that I was still not sufficiently convinced. Even so, I read carefully and, on this second reading, I realized that the authors highlight that anthropology's view of archives took a new turn in the 1980s, when different professionals, including anthropologists, began to make use of their potential, considering them producers of knowledge.

Letícia Ferreira and Laura Lowenkron (2020) reinforce this point by stating that research experiences developed with document ethnography require the researcher to engage in dialogue with the people documented, with graphic, textual, audio, or audiovisual supports, considering the agency of each of them. The authors insist that diverse voices can be taken as objects of analysis, since archives are constructed and maintained by people, groups, and institutions.

Therefore, in this new scenario, if I were to follow this approach, the document would become the setting and focus of the analysis — a space through which I would have to move in my explorations.

Yes... I was really gaining confidence in this approach. Still, I needed to feel secure enough to try this new form of ethnography, considering the epistemological constructs I had already explored.

But how could I deal with the documents in such a way that I could do ethnography?

To try to answer this question, I looked for authors cited in the texts I had already read and in others I found in my new readings. Anthropologist Olívia Maria Gomes da Cunha (2004) sees archives as producers of knowledge, as they carry marks and inscriptions that must be interpreted.

Anthropologist Mateus S. Hull (2012), on the other hand, argues that it is necessary to look *through* the documents, that is, to go beyond the words expressed there — including those that are not there, such as silences and the unsaid.

American anthropologist Mary Des Chene (1997), in turn, argues that working with archives has an inherently ethnographic potential. Her actions involve recording, reconstructing, and interpreting, with the authors of the documents as interlocutors. In this case, the informant comes to inhabit the archive and needs to be constructed through a dialogue between the anthropologist and a polyphony of voices, even if they belong to a government agency.

Based on these reflections, I understood that a document organized and disseminated by



any government is also a field composed of various bureaucracies, actors, and social groups, as well as different operating logics, which carry with them the official word of the state.

However, even though they are produced by state bureaucracies, documents should not be seen as products exclusive to these structures. As Villalta and Muzzopappa (2011) point out, they propose a recreation of the state bureaucracy itself, being the result of the power relations that constitute and traverse them.

This understanding is reinforced by Vianna (2014), who states that documents are ethnographic pieces that should be taken as constructors of reality because of what they produce and the process they develop: the sequence of acts in time, the specific conditions in which they were linked, and the multiple and unequal roles played by their actors and authors.

Following this reasoning, it is possible to affirm that documents produce social worlds, as they preserve social relations, knowledge, and discourses. For their interpretation, it is necessary to read and analyze other sources, such as other texts, news from the time, photographs, questioning their materiality and content. This process allows for critical interaction with the document in question, intertwining and interpreting data from various sources (Frehse, 2005).

In this way, it becomes possible to construct a dialogue with other perspectives that contrast with the discourses presented in the documents with the context of their production, including the actors involved, the place where they were stored, and the conditions of access to them.

Therefore, during my research, I was immersed in the *world of papers*, which contained the Bolivian regulations and curriculum guidelines. I remained attentive to the polyphony that was in constant dialogue with me, generating reflections and internal debates, which are published in this autoethnographic writing.

#### 4 Third meeting: autoethnography

How did I arrive at autoethnography? I remember that between February and March 2023, when I finished writing about cartography, I asked for an emergency meeting with my advisor and explained the path I was outlining. He told me that he was not very familiar with cartography, but that he was willing to accompany me in this process and, once again, he asked me a provocative question: *“What you are presenting to me seems very similar to autoethnography. I think it would be worthwhile for you to explore this path...”*.

At that moment, I understood that autoethnography worked with the memory of past events from the subjects' experiences and not with an ongoing experience. I felt that I needed more elements to understand how to develop an autoethnographic approach. So, I needed to look for other references, as many questions still lingered in my mind: What is autoethnography? Where did it come from? What is the role of the researcher in this approach?

The initial clarification came from American researcher Carolyn Ellis. The author explains that autoethnography began to be discussed and experienced mainly in the fields of anthropology and sociology, in response to the growing need to resist a colonialist and aseptic style of research. This, in turn, entered a culture in an authoritarian way, exploiting its members and then carelessly abandoning them, ignoring any bonds and relationships established during the process (Ellis, Adams and Bochner, 2015).

Other voices joined that of the aforementioned author, such as those of Carolyn Ellis, Tony Adams and Arthur Bochner (2011). For them, autoethnography is defined as research and writing and goes beyond description, as it is committed to analyzing personal experience in order to understand something broader, the cultural experience. Therefore, when conducting

and writing an autoethnography, the researcher will need to be guided by the principles of both autobiography and ethnography, understanding that it is simultaneously a process and a product (Ellis, Adams and Bochner, 2011).

This approach recognizes that the ethnographer is part of the research process and moves back and forth through a wide-angle ethnographic lens. They seek to analyze from themselves, from their personal experience, focusing on social and cultural aspects, looking inward and observing how certain actions and internal motivations occur, combining processes of autobiography and ethnography, which exhibit multiple layers of consciousness and thus connect the personal to the cultural (Ellis and Bochner, 2000).

In this direction, in the composition of the writing process, the researcher, in order to give meaning to their experience, puts their experiences, affections, and emotions in the foreground, exploring literary aspects, visual, poetic, and even musical elements.

For Argentine researchers Adrián Scribano and Angélica de Sena, through autoethnographic gestures, researchers seek to develop knowledge about an aspect of reality based on their participation in the world of life in which that aspect is inscribed. In this process, they take advantage of and reaffirm the affective and cognitive experiences that they go through, in addition to experimenting and producing writings that include their experience in a particular group or society. In this way, they have a privileged way of working with information (Scribano and Sena, 2009).

Author Daniela Becaccia Versiani (2008) draws attention to the terms *auto* and *ethno* as simultaneous and non-antagonistic instances. The word autoethnography enables the joint perception of the terms *auto* as the subjectivity of the subject and *ethno* as the articulation with culture (Versiani, 2008).

Throughout this discovery, I found that autoethnography allows one to move between experience and the culture in which it occurs (Ellis and Bochner, 2000). Its approach can be used in both research and writing and aims to describe and analyze personal experience in order to understand cultural experience (Ellis, Adams and Bochner, 2015).

In this search, I understood that my experiences and yours will always be social and permeated by the culture in which we were formed; therefore, they are unique and particular. My view, whether throughout the research or in any phenomenon, will always be mediated by culture and will never be objective and aseptical.

Given this exploration of autoethnography, in my role as a researcher, I needed to know: What stance should a researcher take in an autoethnographic investigation?

I found this answer in the literary criticism studies of Brazilian researcher Daniela Versiani, who offers the following guidance:

Cultural researchers should maintain, as far as possible, a self-reflective (autoethnographic) stance, attentive to the intersubjective construction of their own subjectivity, detailed by unique intellectual and personal trajectories, through their insertion in different sociocultural groups, the interweaving of theoretical curiosities and rational, affective, and even casual and contingent choices, elements that are present in the construction of their objects of study. (Versiani, 2002, p. 71).

I tried to take this description of the autoethnographic stance as advice from a more experienced friend who has already traveled these paths. In addition, throughout the construction of my object of study, I sought to draw on the experiences that affected me during

the research process, in the various encounters I had, triggering memories of episodes from my personal, professional, and academic trajectory.

Well, I still need to report on my encounter with cartography.

## 5 Fourth meeting: cartography

The concept of cartography, initially coined in geography, has been shifted to studies in the fields of philosophy, politics, and subjectivity. It was formulated by philosophers Gilles Deleuze and Félix Guattari (1995) in a series of five books called *A Thousand Plateaus*.

Therefore, cartographic practice proposes that the research journey begin with an attentive and open mind, without preconceived objectives, as these will be formed along the way, through points that arouse the researcher's interest, who must be open and attentive to anything that may affect them.

Despite this reversal, the rigor and precision of the path remain, albeit in a new form, since they are now seen as commitment, interest, and involvement in reality, and no longer as accuracy. When practicing cartography, the researcher traces their path while apprehending and being apprehended by circumstances. As in a territory to be mapped, the practicing cartographer can follow a path without a clearly defined end, and the actions and reactions of this landscape connect and create meanings for the investigation.

In cartography, when we construct an existential territory, we cannot place ourselves hierarchically before the object being researched, as an obstacle to be overcome and dominated; on the contrary, we must compose an existential territory with it, engaging with it. From this perspective, one does not research something or someone, but rather develops a research with someone or something.

Given the information and knowledge acquired, I built an understanding of the potential of each of these approaches for my training and for the written production of my doctoral report. Studies on ethnography, document ethnography, and autoethnography supported me in launching myself into the research process, bringing me closer to and inside the experience of the investigation process.

The understanding I have built about autoethnography as an epistemic practice is that it has the potential to open up space for the exploration of my personal, academic, educational, and everyday experiences. It has also broadened my investigative gaze toward relationships with the world and with others, through the dialogues I have established with documents and with graphic, textual, and discursive supports. In this sense, it gave vent and shape to the process experienced through writing, establishing a direct relationship with my sociocultural and political frameworks, in encounters with people, places, Bolivian documents, and other texts.

One of the territories I inhabit is that of education, especially with regard to research on the processes of curriculum development in the Brazilian educational system. The current investigation required me to inhabit a new territory. It was therefore necessary to reflect on how I would enter this new territory, what lenses would help me in this journey, which required me to be attentive to the process that was taking place within me.

From this perspective, through the ethnography proposed by Cláudia Fonseca (1999), I was able to bring in elements that facilitated the study of my subjectivity, emotions, and feelings in relation to sociological factors, together with the steps highlighted by the author.

The strangeness of conducting research based on a different logic, without a predefined path, opened up space for the construction of an object of analysis, in this case, the affections and intersections that marked me throughout the research, which I sought to demonstrate to the reader through questions.



The schematization of the data involved processes of comparison, abstraction, and generalization, which I attempted to carry out throughout the text by describing the legislation and curriculum documents in detail, using comparisons and analogies, according to my arrangements.

By stripping myself of my certainties about how to conceive of research and observing other knowledge on an equal footing with canonical knowledge, conceptions about education, family, and children were stripped of preconceived stereotypes. Finally, the material was systematized into alternative models, constructed through an autoethnographic text.

In general, through archival ethnography, I understood that documents are ethnographic pieces and that, in order to interpret them, it is necessary to read and analyze other sources, using polyphony. Through cartography, I was able to look at myself, following the movements and changes that took place along the way, being open to the possibilities of new compositions. I engaged with the process, with the aim of looking at myself and the means I used to experience and produce this research.

Thus, in order to engage in this experience, I had to turn inward and look at the power relations that make me who I am. In this way, the approaches explored helped me to establish the paths to be taken in constructing a way of being a researcher, including my own investigative experience as part of my training and research process.

Therefore, the entire journey lived and experienced in this autoethnographic approach became part of the work through writing that could bring to light the emotions, experiences, and knowledge constructed.

## **6 Mathematics Education proposed by curriculum documents**

Due to the limitations of this paper, this section presents some of the results of research into two Bolivian ethnographic documents, the *Currículo Base Educación Inicial em Família Comunitária Escolarizada* [Base Curriculum Initial Education in Schooled Community Family] (Bolívia, 2014) e o *Currículo Regionalizado de la Educación Inicial en Família Comunitaria Escolarizada de la Nación Aymara* [Regionalized Curriculum for Early Childhood Education in Schooled Community Families of the Aymara Nation] (Consejo Educativo Aymara, 2018). The investigation of the two documents was interspersed with a polyphony of voices present in other texts, materials, social networks, and people with whom I had contact, highlighting the Bolivian Early Childhood Education system, its principles and methodologies, and the location of mathematical knowledge.

Bolivian curriculum guidelines point to a problematizing education, emphasizing that it is strongly contextual and historical. Through dialogue, individuals become aware of the place and social and historical context in which they live, mobilizing people's actions in the search for transformation.

Another aspect highlighted by the curriculum proposal is the proposition of a comprehensive education that, in the Andean worldview, takes place in harmony with the community, nature, and the cosmos, in addition to articulating the dimensions of being (community values), knowing (mental processes), doing (application-production), and deciding (self-determination and critical thinking).

The document *Currículo Base* [Basic Curriculum] states that Mathematics Education should be developed and approached from different everyday experiences, such as visits to markets, fairs, neighborhood stores, public transportation, places of food and production, outings, among others. In these situations, calculations and estimates of quantities, spatiality, laterality, weight, size, shape, length, distance, order, measurement, and time can stimulate

creative thinking that is productive and thought-provoking.

The Regionalized Curriculum in the subject area *Education for environmental transformation* incorporates practices focused on Mathematics Education, working with the concepts of this component, organized into everyday practices and experiences of children, together with the use of the *Aymara* language.

The mathematical concepts highlighted in the *Aymara* Educational Council document focus on size, weight, distance, quantities, volumes, spaces, textures, time and its markers, numbers, and geometric solids. In surveying the mathematical concepts present in the curriculum text, I encountered some difficulties, as many terms and concepts were only in the *Aymara* language. In addition, most of the translations I accessed were from other official documents and even social media, where I found Aymara digital influencers who seek to promote the culture and language of the nation through the use of materials that refer to their knowledge and identity.

One aspect that I think is important to highlight is the role attributed to the mother tongue. I start from the understanding that language is present in all spheres of social communication, in every context, and adapts to the needs of each group. After all, human actions take place through language. In this context, the teaching of the mother tongue, together with mathematical concepts, contributes to the appropriation of language and the development of children's thinking, within a worldview of their life history and context.

Over the years, as a preschool teacher, I have come to understand that pedagogical work with mathematical concepts such as size, weight, distance, quantity, space, time, and volume, among others, allows children to construct learning through their experiences with the environment and in interaction with other people, children, and adults.

This understanding has been strengthened by some theoretical references and also by observing the work of Early Childhood Education. Brazilian authors Celi Espasandin Lopes and Regina Célia Grando (2012) state that children perceive numbers through the meanings they take on in different situations. Thus, children acquire numerical concepts in a way that is linked to their reading of reality.

According to Sérgio Lorenzato (2008), children are exposed to mathematical language all the time, and schools need to take these concepts into account. Teachers need to create conditions for children to acquire these concepts in situations that are organized and planned by the teacher.

With regard to the learning of *Aymara* children, the guideline is that teachers should organize activities in which children can develop exploratory actions, interacting with their peers and with adults, since it is in this situation that they make discoveries, form hypotheses, and establish relationships. And this happens all the time.

Take composing and decomposing, for example. This is a very common action in children's play and manifests itself through assembling and disassembling, separating and joining, putting and taking away. On the border between Brasil and Bolivia, I noticed a child playing with this action. She was stacking and unstacking stones. Through this play, she was trying to understand the physical and mathematical phenomena that occur in her explorations, as a result of her actions and interactions with the materials.

The teaching guidelines for the development of Mathematics Education for children are designed to help them acquire the concepts, applications, and names in *Aymara*. It is important to organize various activities to observe time and compare different notions of size, distance, and space, which are specific to the Aymara nation. These are everyday practices in the community, in their ancestral spaces, and the creation of games with concepts and shapes taught

through resources from the environment.

Children carry a vast knowledge built through their experiences in the family and community to which they belong; therefore, they are in contact with Mathematics Education at all times. Curricular guidelines reinforce the need to explore play as a teaching activity, as it allows children to appropriate the concepts involved, trying to understand physical and mathematical phenomena, while developing within their own culture.

Both the *Currículo Base* and the *Currículo Regionalizado* state that children's education should take place through the forms of teaching present in the family and community to promote intergenerational relationships as a source and means of learning. This idea emphasizes the participation of mothers, fathers, and society, especially older adults, such as grandparents, who are considered wise.

In an interview for the journal *Propuesta Educativa*, Bolivian researcher Mario Yapu (2012) discussed indigenous pedagogy and the preponderant role of the family:

Indigenous pedagogy is completely open and complex. There are no rules. Fathers don't take a minute to say, "Son, we have five minutes. Pay attention to me. I'm going to tell you what to do," and then the child does it. That pedagogy does not exist. Indigenous pedagogy is rather a pedagogy of imitation, where children are allowed to do things by watching their father, their elders, or their peers. Adults only intervene when a boy or girl is doing something that could be dangerous, and then they say, "Don't do that, try something else." [...] (Yapu, 2012, p. 55).

For the author, indigenous pedagogy is intracultural, open, and complex, not bound by rules or time. It values imitation, a method by which children learn by observing their elders and peers. This pedagogy is based on learning by imitation, as children learn about the world by reproducing the behaviors of adults, themselves, animals, plants, and objects. Adults, in turn, believe and trust in children's potential, intervening only in cases of imminent danger — such as when a child handles a dangerous object that could hurt themselves or others, or comes into contact with a poisonous plant.

It should be noted that imitation is not copying, but a creative activity in which children develop, interpret, and express their imagination. In this regard, readings from both educational documents and other texts have shown that indigenous pedagogy has developed within the family and community for centuries. At its core, it carries philosophical and pedagogical principles that emphasize the importance of trusting children's abilities and not interfering unnecessarily in their course of action. This approach gives children time to learn at their own pace and through pedagogical practices developed in everyday life.

## 7 Final thoughts

A person who travels is never the same when they return, because they embark on a journey into the unknown. We return with different perspectives, landscapes, and scenarios. Yes... my existential territory has definitely changed along the way and along the paths I have traveled. Stripped of my certainties, I was able to look inward and closely at my ongoing experience, and this transformed me with each new landscape I encountered.

During my research, I had to constantly return to myself, attentive to the senses and emotions that held me back or drove me forward. At many points, I found myself forced to revisit my essence in order to see myself and thus understand the phenomena surrounding me.

All of this allowed me to explore other modes of production throughout the

investigation, in the relationship established with myself and in encounters with other people, texts, thoughts, theories, and concepts, among others, perceiving myself as part of the process as I moved through different territories: geographical, methodological, theoretical, and epistemological.

When ethnographing the text of the *Currículo Regionalizado de la Educación Inicial en Familia Comunitaria Escolarizada de la Nación Aymara* [Regionalized Curriculum for Early Childhood Education in Schooled Community Families of the Aymara Nation], I understood that community pedagogy requires educational practices with their own community themes that complement broader national themes and canonical knowledge. I observed that interculturality, as proposed in the Aymara documents, creates the possibility of an exchange between traditional knowledge, silenced and subordinated for centuries, and other forms of knowledge, in a relationship that, although tense, needs to be egalitarian.

Part of these principles, safeguarding particularities, is also present in curriculum documents and contemporary studies on childhood in Brazil, but they are based on European inspirations. This demonstrates how much knowledge about South American children and childhood is invisible and inaccessible to us, Brazilian educators who, trapped by colonialities — of power, knowledge, and being —, validate and value only Eurocentric pedagogies.

For centuries, indigenous populations have been developing within their communities a pedagogy focused on education in which rhythms and forms of learning take place in a cultural and social context and in relation to nature.

Today, I see these elements being discussed here in Brasil as a great current discovery, but they have been present for centuries in the education of indigenous peoples.

How much other knowledge from indigenous pedagogy is hidden by our epistemic, political, and aesthetic blindness, which could serve as a source of knowledge for the development of a broader educational field for working with children, so that we could embrace their rhythms, their times, their actions, and trust in their capacity for action?

We urgently need new research based in the Global South so that we can decolonize childhood and curriculum policies.

Let us continue walking *in* and *towards* the South, inspired by the words of Bolivian writer Norma Mayorca (2012), as a final warning to the travelers-readers who have been with me on this journey:

Um passo y outro passo,  
sin tiempo, sin eco  
Y sin apuro.  
Es mi camino (Mayorca, 2012, p. 33).

### Conflicts of Interest

The authors declare that they have no conflicts of interest that could influence the results of the research presented in the article.

### Data Availability Statement

The data collected and discussed in the article will be made available upon request to the authors.

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