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# HUMANSAPES AND ECOLOGICAL SOCIETIES: SOCIO-AFFECTIVE NARRATIVES ON BEINGS, KNOWLEDGE, AND DOINGS

Paisagens Humanas e Sociedades Ecológicas:  
Narrativas Socioafetivas Sobre Seres, Saberes E Fazeres

**Sandra Maria Nascimento de MATTOS**

Universidade Federal Rural do Rio de Janeiro, Seropédica, Brasil  
smnmattos@gmail.com

<https://orcid.org/0000-0003-2622-0506>

**José Roberto Linhares de MATTOS**

Universidade Federal Fluminense, Niterói, Brasil  
jrlinhares@gmail.com

<https://orcid.org/0000-0002-4075-6764>

**Jorn SEEMANN**

Ball State University, Muncie, United States  
jseemann@bsu.edu

<https://orcid.org/0000-0002-7105-4335>

**Mônica MESQUITA**

Universidade NOVA de Lisboa, Portugal  
mmbm@fct.unl.pt

<https://orcid.org/0000-0001-5912-6829>

## ABSTRACT

This article addresses beings, knowledge, and doings, understanding them as natural, cultural and supernatural or spiritual spaces. In this sense, we bring the narratives of working women – *Louceiras do Maruanum*, who produce ceramics. We contemplate the narratives about the removal of clay, as we perceive a mystical entity brought up in the speeches of these women about the “mother of clay”, a female deity and protector of both the clay and the place in the forest. As aim of our investigation, we adopted the narratives of the women from the *Quilombola Santa Luzia do Maruanum* Community as possibilities of presenting the symbiosis between beings, knowledge, and doings as an addition to culture and as an opportunity for a dialogue between different areas of knowledge. We employ critical ethnography as a methodological approach, emphasizing the relationship between socio-environmental spaces and culture, which generates places of representativity and socio-affective belonging. We follow interdisciplinary paths and focus on authors such as Latour, Descola, Viveiros de Castro, Mesquita, and Seemann, among others. The discussion is permeated by the idea of humanscapes, cultural mapping and ecological societies as significant landscapes between beings, knowledge, and doings as approaches to ethnomathematics and as natural, cultural, and spiritual spaces.

**Keywords:** Humanscapes, Ecological Societies, Cultural Mapping

## RESUMO

Este artigo aborda seres, saberes e fazeres, entendendo-os como espaços natural, cultural e sobrenatural ou espiritual. Diante disso, trazemos as narrativas de mulheres trabalhadoras - Louceiras do Maruanum, as quais fazem peças cerâmicas. Contemplamos nesse artigo as narrativas sobre a retirada do barro, por percebermos uma entidade mística trazida nas falas dessas mulheres sobre a “mãe do barro”, divindade feminina e protetora tanto do barro quanto do local

na floresta. Adotamos como objetivo investigar, nas narrativas de mulheres trabalhadoras, da Comunidade Quilombola Santa Luzia do Maruanum, possibilidades de apresentar a simbiose entre os seres, saberes e fazeres como acréscimo da cultura e como oportunidade de diálogo entre as diferentes áreas do conhecimento. Tomamos a Etnografia Crítica como abordagem metodológica, enfatizando a relação dos espaços socioambientais e a cultura, o que gera locais de representatividade e de pertencimento socioafetivos. Percorremos caminhos interdisciplinares e focamos autores como Latour, Descola, Viveiros de Castro, Mesquita, Seemann, entre outros. As discussões permeiam o conceito de *humanscapes*, *cultural mapping* e de sociedades ecológicas como paisagens significativas entre seres, saberes e fazeres nas aproximações com a etnomatemática e como espaços natural, cultural e espiritual.

**Palavras-chave:** Humanscapes, Sociedades Ecológicas, Cultural Mapping

## 1 INTRODUCTION

Bringing into discussion the narratives of working women is an encouragement to revisit narratives, retold, remembered and experienced in the trajectory of these women as part of the acquisition of culture and significant places and spaces. These narratives impact directly the sense of place as representation and socio-affective belonging. The understanding that “instead of describing a route through a drawing, other cultures with a different notion of the time-space binomial resort to a ‘performance’ of space” (Seemann, 2001, p. 66).

The remembered narratives bring with them a local and spatial identity, in a temporal sequence, collated from the personal biography of each woman. It is noticeable that we are facing a material culture of production of beings, knowledge, and doings that generate income, which provides stability and affective and meaningful belonging to these women. We also face an oral, immaterial culture, which defends knowledge and produces representative spaces and places, inscribed in a temporality, since these narratives allude to geographic and social space, protected in memory, which can only be reported by these women. These narratives can be conceived as maps of meaning or cultural maps, “the way we make sense of the world, rendering our geographical experience intelligible, attaching value to the environment and investing the material world with symbolic significance” (Jackson, 1989, p.2).

Researching narratives takes us to an ethnography of listening, looking, and feeling. In this sense, representative landscapes lead to places with different meanings and senses, which awaken countless possibilities, including creating or drawing these local, spatial, and cultural maps. These narratives are populated by beings, knowledge, and doings which refer to different spaces that can be natural, cultural, and supernatural or spiritual. These spaces are appropriated as inseparable parts that intertwine and are

immersed in the imaginary (Mills, 1959) of each distinct group – theoretical paths that corroborate the ideas of Latour (2020), Descola (2016), and Viveiros de Castro (2002, 2015).

Following this reasoning, Mesquita (2023, p. 3) proposes the concept of humanscapes as a movement “to demystify, to re-signify, or even only to complement, the how human beings perceive their surroundings”, by themselves and through their knowledge and doings. The author allows us to conceive mathematical education as an ethnomathematical movement that combines some of the dimensions of ethnomathematics, such as cognitive, pedagogical, anthropological and affective facets. The author states that it is possible to focus on the perception of the relations of what humans produce, because they are rooted in different contexts: social, cultural, ecological, historical, economic and geographic.

Along this path, Oliveira and Mesquita (2023) approach ecological societies as critical spaces in relation to the separation between humans and nature. In these ecological societies there is an obligation to overcome this dichotomy and accept the need for a new system of knowledge that involves the beings, knowledge, and doings of different sociocultural groups. These ecological societies emphasize power relations and the co-construction of knowledge produced in geopolitical and ecological spaces. It is in these ecological societies that ethnomathematics takes root and seizes opportunities to create learning spaces.

Through the exposure of these theoretical contributions, we feel the need to give visibility and create spaces for the voices of women from the *Quilombola Santa Luzia do Maruanum* Community, remnants of a former slave settlement in Northern Brazil, bringing experiential and everyday references to the co-construction of beings, knowledge, and doings when the women remove clay for the production of ceramic pieces, with which they earn their living and gain prominence in the Amazonian environment. Thus, listening to their stories, we separate those that involved the “mother of clay”, a female entity, full of mystery that provides the necessary and sufficient clay.

For this study, we took as our aim to analyze the narratives of working women from the *Quilombola Santa Luzia do Maruanum* Community and investigate possibilities of presenting the symbiosis between beings, knowledge, and doings as an addition to culture and as an opportunity for dialogue between the different areas of knowledge. Geographically located in the southwest of *Amapá* state, the *Quilombola Santa Luzia do Maruanum* Community is situated in the rural area of the capital city of *Macapá*. The

particularity of the community is that its population is predominantly made up of women who work in the production of handicrafts and agriculture.

## **2 HUMANSAPES: RESIGNIFYING SOCIO-AFFECTIVE SPACES AND PLACES**

Understanding the concept of humanscapes (Mesquita, 2023) leads us to understanding the relevant aspects for building a holistic view of human beings and the environment. Therefore, we highlight the collective reflections that emerge from the narratives of working women as a process of formation. Mesquita (2023, p. 11) stresses that “It is worth nothing that such groups, in the historical moment of this formation, experienced the ethnogenesis movement, making each member of each ethnocultural group to visit their ancestry and (re)construct their own individual and, therefore, collective cultural history.” The act of telling stories of representation and belonging builds humanscapes, that is, human landscapes that give new meaning to spaces and places, enabling a sociocultural and ecological framework. Therefore, emphasis is given to give voice and the same liberty to present knowledge from cultures originating from these working women.

Obviously, there is a development of informal dialogues, in the sense given by Freire and Shor (2003) who state that dialogue is part of the historical nature of human beings. With dialogue there are possibilities for discussion as a privilege to talk about oneself, about work as a generator of income, about occupying spaces and places as geopolitical and sociocultural appropriation. Therefore, “dialogue is the moment in which humans meet to reflect on their reality in the ways they create and recreate it” (Freire & Shor, 2003, p. 123). Within this perspective, we open our eyes to a holistic view between these women and the surrounding environment, understanding holistic as everything that is interconnected, which allows us to value the totality of things, since the whole is in the parts and each part is in the whole, including human beings and their relationships with the environment. So, this holistic vision opens up space for those who have the same visions and those that are different to participate in a dialogue that is not antagonistic, but rather dialectical and critical.

We can also say that there is the personal idea of “becoming-woman” (Deleuze & Parnet, 1998, p. 11) which cannot be confused with the stories of other women, each one

retells her story and remembers it, since these becomings “are acts that can only be contained in a life and expressed in a [specific] style.” We further understand that these narratives are in an intermediate situation (Descola, 2016) that involves the natural and the cultural and, as addition, the supernatural or spiritual. The natural is the geopolitical environment of which human beings are part, the cultural involves human action in transforming the environment and the supernatural or spiritual is the boundary between the natural and the cultural.

According to Viveiros de Castro (2002, p. 354) “mythical narratives are populated by beings whose form, name and behavior inextricably mix human and non-human attributes, in a common context of intercommunicability that is identical to that which defines the current intra-human world.” In other words, all beings – mentioned by specific Amazonian cultures – are intertwined and immersed in the sociocultural imaginary of each distinct group. Consequently, we corroborate Latour’s (2020) view that both the natural and the cultural are inseparable parts, but we also understand that the mystical (supernatural or spiritual), as developed by Restivo (1983), does not have the same meaning for these women than for beings not present in this culture. Each of these spaces is influenced by the representativity given by each woman in the constitution of belonging to the place where she lives, coexists and works.

To reiterate the above, we highlight the report on the removal of clay by women of the *Maruanum* community who produce crockery. They report that they walk silently through the forest and, finding the place from which they can remove the clay, a prayer ritual is carried out asking the “mother of clay” – a divine, feminine being, who provides the veins of the clay – for permission to carry out the extraction of the clay. There is a whole ritual for removing the clay, in which the upper part is discarded, approximately 110 cm deep, reaching the “pure clay vein” (Silva, 2022, p. 157). We are identifying the “mother of clay” deity as an element of the supernatural or spiritual space, protector of the place in the forest and of the clay to be removed by the women, but we do not discard from this encounter the cultural space seized by the older women and passed on to the younger ones and the natural space in which the forest is located, from which the material used for the ceramic pieces is extracted.

Consequently, the evocation of the “mother of clay” relates to mythological, spiritual aspect, in which, according to Viveiros de Castro (2015, p. 59), “[...] each species of being appears to other beings as it appears to itself - as human -, and thus acts as if

manifesting its distinctive and definitive nature as an animal, plant or spirit.” This natural, cultural, and supernatural or spiritual connection reaffirms the socio-affective spaces that these women establish even before producing their pieces, as they mention in their reports that each one makes a small ceramic piece to be offered to the “mother of clay” as thanks and protection for future pieces that will be made by each of them. This offer brings good luck and allows the women to create the pieces without cracks.

### **3 CULTURAL MAPPING: SOCIO-AFFECTIVE NARRATIVES OF PLACES AND SPACES OF COLLECTIVE KNOWLEDGE**

Thinking about the spaces that are representative of experiences and coexistence allows us to see the meanings, that is, the senses narrated in socio-affective stories. It also allows us to think about these spaces involved in a cultural and social practice of collectivities between exchanges of knowledge and traditional and artisanal doings. It is, therefore, in these narratives that we can imagine and relive a cultural mapping (Seemann, 2001) of geopolitical and economic places, imbued by environmental and sentimental richness that is ancestral to emancipatory struggles and fertilized by the representations of each woman and all women at the same time.

This mapping of narratives and, concomitantly, places of representativity and socio-affective belonging of identities, reinforces and enhances environmental preservation and sustainability, to protect the rites and myths hidden by mystical places and spiritual spaces. We are facing a sociocultural and mythical geography with which we construct maps – they are symbolic images of geographic reality (Seemann (2001) – or spatial mappings of places, taken as a place of representativity and socio-affective belonging. We can say that we capture the geographic imagination, since mapping is “not restricted to the mathematical; it may equally be spiritual, political or moral” (Cosgrove, 1989, p. 2). imagined in moments of contemplation of space when the clay is removed These “maps” are preserved in the memory of the matriarch, being revived as many times as necessary to return to the appropriate place for removing the clay, established, so to speak, by the “mother of clay”.

Seemann (2003) states that natural landscapes have a symbolic charge, revealing the mythical content of each culture. Given this, each culture attributes a spiritual aspect to animals, plants and other non-human beings, such as the “mother of clay” that can provide

an artisanal activity of quality for women without breaking or cracking the pieces. They simply need to comply with certain ritualistic precepts when extracting the clay. Cultural or mental mapping or cartography involves “both images of the environment stored in people’s minds to find paths or orient themselves in space and physical artifacts that record how people perceive space and places” (Seemann, 2003, p. 6). It is this mental mapping or cartography that the matriarch keeps stored in her memory, which is why everyone wants to go with her to remove the clay. It is worth saying that maps can be conceived as phenomena of the mind, imaginary projections of representative spaces and socio-affective belonging.

These spaces are landscapes full of meanings in the way they are seen by the women who work there and who make it possible to generate income for their sustenance and survival. It is stated that over time the way of life has changed and culture has undergone transformations. It is understood, as Geertz (2004) states, that culture is local knowledge, but certain knowledge, maintained by these women, remains protected by those who hold it. We will also say that this culture “[...] consists of an articulation of collective values tacitly resident in precedents, statutes and constitutions” (Geertz, 2004, p. 329), which contributes to a definition of a sociocultural lifestyle.

Ethnographically speaking, our desire is to “see things from the native’s point of view” (Geertz, 2004, p. 88), in this case, the working women from the *Maruanum* community, without empathetic involvement disturbing or clouding our analyses. Therefore, we aim to practice a “close experience”, in a certain sense. No-one knows the stories the women experience as well as they do. For this reason, there is nothing more adequate than the words, behaviors, images and the surrounding environment, from and with which the women tell their stories. In these narratives, individual and collective life, group identity, the genesis of social, geopolitical and cultural life and the ways of looking at the spaces and places involved come into play.

## 4 ECOLOGICAL SOCIETIES: MIXING BEINGS, KNOWLEDGE, AND DOINGS

Understanding the concept of ecological societies refers to the concept of social ecology, as presented by Bookchin (1982), which, in addition to criticizing the existing



division between humanity and nature, enables the transcendence of this division, leading towards totality, but not as a mere sum of the parts, but rather as “mutual interdependence” in the search for “forms and patterns of interrelations that give intelligibility to a community, be it natural or social.” The totality, in this way, “is a richly articulated structure with its own history and internal logic” (Bookchin, 1982, p. 23). Another concept for understanding is the metaphor of epistemological cages, developed by D'Ambrosio (2016, p. 222), stressing that it is plausible to use the thinking that unites all humanity, as it is “possible through a list of knowledge that is essential for the planetary citizenship” to move towards transdisciplinarity.

Oliveira and Mesquita (2022, p. 388) corroborate this understanding of human-nature relations and emphasize that “ecological societies would be those capable of overcoming processes of hierarchy and imbalances in power relations and evolving in processes of co-construction and acceptance of diverse knowledges.” With these foundations, it is possible to move towards a mix of collective actions, even if differentiated or diversified, that lead to equity of opportunities and intellectual, social and environmental justice. Furthermore, it is possible to emphasize bottom-up educational processes (Mesquita, 2014), which bring sustainability and environmental protection as a resource for the development of decolonial teaching practices, with the involvement of traditional knowledge and doings, which are used by these women. The use of this knowledge can provide interdisciplinary actions, linking different areas of educational knowledge and effectively providing the implementation of transdisciplinary educational projects.

Many communities of working women are ecologically balanced, which favors good living in the sense of Acosta (2016), as it is understood that ecological balance lies in differentiation and diversity, also justifying the social and cultural heterogeneity full of representativity and socio-affective belonging. Following this logic, the role of educational institutions as spaces for co-creating knowledge (Oliveira, 2019) is noticeable, based on the rapprochement between the knowledge and doings of the communities involved and educational knowledge beyond epistemological cages, which facilitates interdisciplinary actions in the direction of transdisciplinarity.

Ecological societies also refer us to symbolic ecology (Baptista da Silva, 2013), and we conceive this as “a cultural scheme of perception and conception of the environment that points to cosmological concepts” (Baptista da Silva, 2013, p. 49). Therefore, there is a need for a new system of knowledge that involves the beings, knowledge, and doings of a wide range of sociocultural groups. We can say that we are emphasizing the relations of



power and co-construction of the geopolitical and ecological space, since we understand that this space shapes these women, but, at the same time, it is shaped by them.

We would like to return once again to the narrative about the “mother of clay” as an example of symbolic ecology. Mrs. Marciane is the woman who, in addition to being the oldest, is also the person who protects the clay removal rituals. She reports that in order to extract the clay it is necessary to observe the location. In her words, “the place to remove the clay has to be right, but where it was removed here is not [right]. Where it was already dug, the soil is a bit shallow, so I choose [a place] where it had never been removed. Then they [the women] like to extract it together with me because I know the place to get the clay out.” She also mentions that it has the right quality of clay, which can be white or yellow and, after removing it, the hole must be closed to prevent the animals from falling inside.

Based on these stories, we understand that Mrs. Marciane maintains a spatial image of the place from which to remove the clay, as she is so emotionally linked that she takes care of the sustainability of the environment, protecting animals and vegetation, since there is no removal of any species. The choice of location is strategic, which guarantees environmental balance and resources for future generations. We perceive the production of meanings in each account, which proves an interconnection between the natural, the cultural, and the mystical (supernatural or spiritual) in relations of representativity and socio-affective belonging.

## 5 METHODOLOGY

Since we researched on a *quilombola* community of women who produce ceramics, we made use of critical ethnography (Thomas, 1993), as this refers to studies on sociocultural, political, historical, economic, environmental, and educational issues, focused on aspects related to styles of oppression, conflict and power. These aspects generate narrative discussions that were kept in the memory of these working women, which are recalled to “tell” stories that protect traditional knowledge, spaces and places experienced and brought to life in their narratives.

Thus, when using critical ethnography we emphasize social spaces, socio-affective places, and geopolitical spaces aligned with social geometry which, according to Albanese and Mesquita (2023), include tendencies to disperse or associate in the achievement of

states of balance and crises alternately. Through these aspects, there is the involvement of social processes and cultural products revealing existing inequalities in the social reality to which these women belong.

In accordance with the research objective, we employ critical ethnography in a way conceived by Thomas (1993), which is based on empirical evidence, explicit in a variety of cultural, environmental, mystical and social conditions, narrated by each of these women, forming a whole arising from a force, both individual and collective, that connects “geography (space) and history (time)” (Bodenhamer, 2015, p. 9). We also refer to critical ethnography as a strategy for using different instruments, such as participant and non-participant observation, using a field notebook to collect data, documents, interviews, group conversation and capturing images (audios, videos and photographs) on a daily basis.

We also understand that we adopt the observer's view regarding culture, knowledge, and doings for generating income as a possible way to understand the processes of producing identities that show local and spatial belonging. Albanese and Mesquita (2023, p. 123) emphasize that:

[...], investigating becomes an immersion of the researcher in the experience of the chosen group and vice versa, which implies the participation of key actors from the group studied in the dynamics of academia, such as data collection, production of reports, data analysis and dissemination of results, in this case through teaching work.

All data collected and produced in the research environment were analyzed, based on their thick description and interpreted in accordance with the objectives proposed for the investigation. We understand thick description in accordance with Geertz (2008), assuming it as a method of observation that makes it possible to understand the significant structures that are involved in the observed action, whether in the cultural, mystical, environmental or social aspect, to apprehend them and present them posteriori. This thick description is close to what Bodenhamer (2015) calls deep maps, whose concept is not limited to the material, but includes the discursive and ideological dimensions of the place. Therefore, these spaces contain stories based on events that happened in this place.

According to Gil (1999, p. 166), this moment of data analysis “aims to organize and summarize the data in such a way that it makes it possible to provide answers to the proposed research problem.” This is a complex moment consisting of a critical and reflective reading of the data obtained in the study. Data analyses and discussions are put

into a dialogue with the conceptual basis developed in the theoretical framework, supporting the reliability, veracity and interpretation of the analyzed data.

## 5.1 The *Quilombola Santa Luzia do Maruanum* Community

The *Quilombola Santa Luzia do Maruanum* Community is located in the rural area of the municipality of Macapá, capital of Amapá state. The specificity of this community lies in the production of handicrafts and agriculture and differs from most other communities in the state due to a female predominance. In most of the homes, women assume the leadership position and are responsible for the family income. As it is located in the southeast of the state, access is via the BR-156 road. The distance from Macapá to the *Vila de Nossa Senhora do Carmo*, the closest larger settlement, is approximately 80 km, almost entirely unpaved and in the middle of the Amazon rainforest (Silva, 2022).

The extraction of clay is carried out by women in a place in the forest, where they perform the ritual for the “mother of clay”. According to Silva (2022, p. 150),

The women who produce crockery cut a stick and then “dug” to remove the clay. They made offerings and could not use a metal blade to avoid hurting the veins of the earth. Older women say that the layer of clay that they removed was restored and they marked the spot and came back later to see this.

These rituals and experiences contain aspects that refer to spaces and places of representativity and socio-affective belonging that overflow ancestral knowledge and doings, in addition to economic, ecological, and cultural aspects. Furthermore, handicrafts and clay pots are traditionally produced with ancestral knowledge, wrapped in a mystique of sacred and superstitious rituals. In recent years, these women have gained prominence in the production of clay pots, which brings local and personal notoriety.

There is also the *Maruanum* Women Association (*Associação das Louceiras do Maruanum* – ALOMA) that produces crockeries which provides a source of income for them through the sale of products that are labeled as 100% Amazonian. The Association is located in the remaining quilombo community space and place, currently called *Santa Luzia do Maruanum*. As we observed, the place is full of stories of struggles and resistance, of survival and experiences, therefore, it is a geopolitical and socio-affective space.

## 6 ETHNOMATHEMATICS: CO-CONSTRUCTING LEARNING SPACES BETWEEN BEINGS, KNOWLEDGE, AND DOINGS

We have already started a conversation about epistemological cages (D'Ambrosio, 2016) as a way of intertwining the different areas of knowledge, bringing together a list of knowledge towards planetary education and transdisciplinarity. However, the path is long and as we have not yet reached this level for a series of reasons, which are not discussed in this text, we are in line with the procedures which involve the so-called Ethnomathematics Program as a strategy to begin or continue the modification or co-construction of knowledge. We know the difficulties of transposing Western mathematics to the different original and ancestral communities, therefore, there is a latent need to bring in the mathematics that are specific to these communities so that individuals facing them can look at Western mathematics, observing similarities and differences and noticing ways to mathematize the world.

D'Ambrosio (2008, p. 10) warns us that ethnomathematics is not a discipline, but “proposes a living, dynamic pedagogy of doing new things in response to environmental, social and cultural needs, giving space for imagination and creativity.” Therefore, ethnomathematics emphasizes the beings, knowledge, and doings inherent to the most diverse sociocultural groups. Looking at human beings, we anthropologically focus on space, time, culture, the economic and the social. However, beyond these dimensions, we also focus on imaginable, supernatural, spiritual beings that live in the same environment as human beings. Similarly, we envisage possibilities of dealing with issues relating to the occupation of space, the notion of time and economic strategies, among others.

When we look at forms of knowledge, we take them as intellectual instruments that enables us to reject ethnocentrism and the belief that one culture is superior to others. By refusing these aspects, according to D'Ambrosio (2020), we must reach the truth. Therefore, we corroborate his argument when he states that we are lacking means and methods to “analyze how capabilities mutually reinforce themselves and even merge among each individual and cultural group, [which] is fundamental for conceiving transdisciplinarity and transculturality” (D'Ambrosio, 2020, p. 7). We can say that the survival of these women carries within it the transcendence to live with dignity. Going beyond satisfying everyday needs, they are linked to the spiritual and the ritualistic, which contributes to the withdrawal of clay of good quality. In her account of the removal of clay,

Mrs. Marciane (2023) states that pregnant or menstruating women must not go out collecting clay, neither are they allowed to drink alcoholic beverages nor sing music not related to the extraction.

We return one more time to Deleuze and Parnet (1998, p. 6) who state that there is an “extremely populous solitude” of encounters on the occasion of the removal of clay, encounters between the natural, the cultural, and the supernatural or spiritual; encounters of beings, knowledge, and doings. Encounters that function as plots – in the sense of Deleuze and Guattari (1995) – that are linked to each other and give rise to new learning. In the light of these encounters, we co-construct learning spaces. Mrs. Marciane (2023) reported that once many people went out digging for clay. They opened two holes, but one of them did not contain any clay because the women took a little radio to listen to music, and, above all, they were drinking. Because there was no clay in the hole, they asked her to leave the hole open so that they could remove the clay. Then they would cover it up. Mrs. Marciane and her group left, and they started to enter the hole, but the soil started to fall, they began to scream and had to be pulled out of the hole, if not they would have died. According to Mrs. Marciane, this happened because the women drank alcohol and had a radio. We understand how important it is for them to respect and defer to the deity “mother of clay”, when they extract the clay.

In this sense, we come to actions that are no less important than the previous ones but serve, on an equal scale, for the construction of new learning experiences. In the same way, we look at the removal of the clay. The women search for clay once a year but are unable to get all the clay at once and gather at the matriarch's house. They take a “*rabeta*”<sup>1</sup> and go up the river. They enter the forest, and the men are already cutting the “*ferro de pau*”<sup>2</sup>. They choose the place and ask the “mother of clay” for permission to let them extract the clay in peace. There is one person for digging, guided by the matriarch, who deepens the layers of the hole up to 110 cm which will be discarded.

The first layer that they remove contains black or red soil as they call it, going to a depth that is estimated in palms and goes down to 80 cm. This measurement, which uses simple material instruments, such as the body itself, meets D'Ambrosio's concept of *tecnoracia* (“technoracy”) proposed in the Trivium curriculum of the Ethnomathematics Program (D'Ambrosio, 2011). Since these upper layers of the soil are useless because they are not clean and mixed with other materials, they are left separate, next to the hole,

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<sup>1</sup> Small boat with a propulsion engine.

<sup>2</sup> Tree from the Amazon rainforest known as *Pau-ferro* (Brazilian Ironwood).

and then are used to fill and cover it again. The second layer to be removed contains a material called *tabatinga*, literally white clay. This layer is 30 cm deep and measured in the same way as the first. Although this material is not suitable for making ceramic pieces, it is used for brick-making and stoves. From that depth onwards, pure clay is available that is suitable for making crockery and handicrafts.

The person who digs does not remove the clay, as pure clay cannot come into contact with other residues. The diameter of the hole must be proportional to the person or persons who, one by one, will remove the clay. They are estimated to be around 120 cm in diameter so that two people can fit inside the hole at the same time to extract the clay. The use of estimates to calculate diameter comes from experience. We observed that the way of estimating the diameter brings explicit ideas of mathematizing the world, that is, particular ways of comparing, measuring, counting and estimating.

D'Ambrosio (2011, p. 22) affirms that doing mathematics in everyday life involves “comparing, classifying, quantifying, measuring, explaining, generalizing, inferring and, in some way, evaluating.” Therefore, estimating values and numbers has to do with evaluating intuitive mathematical possibilities for opening the hole, an aspect that involves these women's daily lives. For Mattos (2020, p. 63) “every-day or lived mathematics involves a set of knowledge and doings that are used in people's daily lives due to the needs they have to solve problems found in nature.” Therefore, they are strategies used to solve work activities. Mattos and Mattos (2019, p. 105) emphasize that “this knowledge is anchored in the mental structures of each person, allowing it to be passed on from generation to generation,” which corroborates the mathematical manifestations developed by these women when removing the clay.

Those women who dig make small ceramic pieces to offer to the “mother of clay” so that the objects they are making can burn in peace. These small offerings are placed in the hole, together with all the soil that was removed. Focusing on educational mathematical concepts, analogously, it is possible to align with knowledge of plane and spatial geometry, without, however, minimizing the intellectuality understood in these ancestral doings. Both knowledges are equally valuable, therefore, they provide equal opportunities to be learned by different people.

Through these beings, knowledge, and doings, we contemplate the interconnection of areas of knowledge, escaping the epistemological cages that imprison knowledge. In addition, existential transcendence occurs between the past, the present and the future. Therefore, when we approach ecological societies, we understand that there is a

collaborative and collective nature among these women, as they work towards a common goal that, at the same time, is individual and connective with others. There is also a creative nature in which each woman, when she creates her ceramic piece, distinguishes herself from the others.

We emphasize learning spaces, not only in formal educational institutions, but in any space or place where there is some aspect of learning. Mesquita (2014, p. 25) confirms the process of co-construction of these learning spaces, ensuring “that scientific tasks emerge from the needs that are experienced by local communities.” The author also admits that there is a bottom-up movement in which the voices of participants and a community find each other. It is on this path that we come across ethnomathematics to understand the different mathematical manifestations that exist in humanity.

Ethnomathematics does not take action on victimization or the exclusion of the exotic, but emphasizes that different knowledges have equal freedom to be expressed. Therefore, validating this knowledge removes these women from the margins of society, making them visible and giving them spaces for sociocultural and economic dialogue and confrontation. By echoing their voices, they transmute reasoning critically and collectively and take for themselves the power of being, knowing, doing, and above all mother nature. We highlight the forms of ethnomathematics that provoke disturbances and elevate the defensive and insurgent aspects of this collective work that we have discussed in this text. Mattos and Mattos (2021, p. 19) highlight that the ways of mathematizing the world with others intertwine “knowledge to promote a true and dynamic encounter between cultures,” producing bonds and socio-affective relationships.

## 7 CONCLUSIONS

As we could confirm in this article, the working women from the *Quilombola Santa Luzia do Maruanum* Community are responsible for taking care of both the place from which they remove the clay and the beings, knowledge, and doings that involve natural, cultural, and supernatural or spiritual spaces. We understand, based on Descola (2012), that there is a division of tasks that contributes to local identity and the relationships of affinity that exist between them. We also understand that this worldview or cosmogony does not discriminate between human beings and non-human beings.



Viveiros de Castro (2002, 2015) supports our idea of the understanding that mythical narratives involving human and non-human beings have an intercommunicability that emerges in the sociocultural imagination of each Amazonian group and, in particular, in each of these women. Consequently, we were able to establish an alignment with these women's narratives about beings, knowledge, and doings about the removal of clay for the production of ceramic pieces, reported by the matriarch. This allowed us to consider that these natural, cultural and spiritual spaces are representative spaces of socio-affective belonging.

Humanscapes is an innovative concept, developed by Mesquita (2023), which permits us to understand the movements of resignification and demystification of how these women perceive their surroundings and themselves as people carrying knowledge and ancestral, traditional and artisanal intellectuality developed through their knowledge and doings. We conceive this concept as human landscapes, in which these women have relevant knowledge for the holistic construction of the environment and the beings that are part of it.

Mesquita (2023) alerts us about the historical movement that interacts in this process of co-construction and about the ethnogenic movement in which each woman revisits her ancestry. With each movement, the women reconstruct their natural, cultural, and spiritual history that, at the same time, is collective since all of them reconstruct humanscapes, giving new meaning to spaces and places which cohabit human and non-human beings. In this sense, the narratives of these women bring up dialogues of a historical nature, setting precedents to talk about themselves, their work, their struggles, resistance and insurgencies, in the light of the geopolitical and sociocultural occupation of spaces and places, whether these are mythical or not.

Another concept we brought forward to this debate is cultural mapping (Seemann, 2001), which allows us to look at spaces as places representing socio-affective stories. According to the author, maps and mapping should be considered as “powerful methodological tools for understanding regional worldviews” (Seemann, 2017, p. 63), becoming images originating from visual memory that refer to a natural, cultural, mystical, social and collective practice. These are practices (“mappings”) rather than representations (“maps”), whose “emphasis is not on the cartographic representations themselves, but on the way in which people cartographically engage with their geographies, histories and identities and how they express their ideas, values and emotions” (Seemann, 2017, p. 63).

Consequently, the concept of cultural mapping reveals natural, cultural, and mystical (supernatural or spiritual) landscapes with an intense symbolic charge. The women of *Maruanum* see the “mother of clay” as a non-human being, but with human characteristics that involves a mystical ritual to provide the clay that they need so much for the production of their ceramic pieces. Therefore, this path of remembering or even orienting oneself in the space to be experienced is guided by a mental cartography, accentuated by projections of that space that can be both imaginary and image-like.

This way, we understand ecological societies as settings that allow us to transcend the binarism that separates human beings or non-human beings from nature, which interrelates natural, cultural, and supernatural or spiritual spaces to overcome the epistemological cages (D'Ambrosio, 2016) that separate each area of knowledge in little boxes. Therefore, the imaginary boundaries, that exist between what is accepted as knowledge in a specific area or field, are broken, causing mutual interdependence and transdisciplinarity. Conceiving this idea as a holistic approach, we can move towards a planetary education.

In ecological societies, we encounter a mix of collective actions that overcome imbalances in power relations, restructured through actions of equal opportunities and social justice, evolving through processes of co-construction and acceptance of various knowledges (Oliveira & Mesquita, 2022), as well as of doings and human on non-human beings that cohabit the spaces and that interconnect the different areas of knowledge. Consequently, there is a symbolic ecology in these ecological societies, by means of which we registered narratives about the “mother of clay” as a mythical being, belonging to a spiritual and sacred space, in which these women respectfully maintain their ancestry in the traditional extraction of clay.

To conclude our analyses and in the light of these theoretical contributions, we defend the perspective of ethnomathematics as a proposal to use a lively, creative and imaginative pedagogy. It is through ethnomathematics that we will move towards the co-construction of knowledge, in the interconnection of areas of knowledge, which can be both available in academia or come from the most diverse socio-cultural groups. This knowledge materializes, observing the mutual interdependence in the process of co-constructing or co-creating themselves harmoniously.

Ethnomathematics allows us to value critical encounters between beings, knowledge, and doings dialogically and dialectically and, in the same way, reconciles a basis of mutual respect, which dignifies all knowledge built throughout the history of

humanity. Mattos and Mattos (2019) emphasize that when approaching mathematics or mathematical knowledge we must consider it as being composed by different mathematics existing in the world. It is, in a way, subverting what Freire (2019) called the model of banking education, presenting the knowable objects as a strategy for problematization and liberation. It is through educational humanization that involves ethnomathematics that we can understand the natural, cultural, and supernatural or spiritual spaces and interrelate beings, knowledge, and doings as equal values.

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## NOTAS

### TÍTULO DA OBRA

Humanscapes and Ecological Societies: Socio-affective narratives on beings, knowledge, and doings.

**Sandra Maria Nascimento de Mattos**

Doutora

Universidade Federal Rural do Rio de Janeiro, Programa de Pós-graduação em Educação Agrícola, Seropédica, Brasil  
smnmattos@gmail.com

 <https://orcid.org/0000-0003-2622-0506>




**José Roberto Linhares de Mattos**

D.Sc.

Universidade Federal Fluminense, Instituto de Matemática e Estatística, Niterói, Brasil

jrlinhares@gmail.com


 <https://orcid.org/0000-0002-4075-6764>

**Jorn Seemann**

Ph.D.

Ball State University, Department of Geography & Meteorology, Muncie, United States

jseemann@bsu.edu

 <https://orcid.org/0000-0002-7105-4335>

**Mônica Mesquita**

Ph.D.

Universidade NOVA de Lisboa, Departamento de Ciências e Engenharia Ambiental, Portugal

mmbm@fct.unl.pt

 <https://orcid.org/0000-0001-5912-6829>

**Endereço de correspondência do principal autor**

Rua Mario Carpenter 1070 CEP 20755-065, Abolição, Rio de Janeiro, RJ, Brasil.

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