

Codó (MA) Babaçu Coconut Breakers: Gender, Memory, and Mathematics Teaching

Quebradeiras de Coco Babaçu de Codó-MA:
Gênero, Memória e Ensino de Matemática

Quebradores de Coco Codó-MA Babaçu:
Género, Memoria e Enseñanza de las Matemáticas

Valéria da Silva Santos¹
Kelly Almeida de Oliveira²

Abstract

Our objective is to understand the perceptions of the babassu coconut breakers about mathematics teaching, considering their experiences and sociocultural practices. Regarding the methodological path, we characterize our study as qualitative, descriptive, and interpretative, organized in two stages: bibliographic and field. The techniques used for data collection included: observation and interviews with semi-structured scripts with three babassu coconut breakers. The main authors used for this research were Merleau-Ponty, Bergson, and D'Ambrosio. During this journey, we realized that each of these women has much to teach us, and that their knowledge permeates the school walls. Therefore, we conclude that there are still many challenges faced daily by babassu coconut breakers in Codó (MA) that involve gender, memory, and mathematics teaching.

Keywords: Coconut breakers. Gender. Memory. Teaching of mathematics. Ethnomathematics.

Resumo

Nosso objetivo é compreender as percepções das Quebradeiras de coco sobre o ensino de matemática, considerando suas experiências e práticas socioculturais. Sobre o percurso metodológico, caracterizamos nosso estudo como qualitativo, descritivo e interpretativo, organizado em duas etapas: bibliográfica e de campo. As técnicas utilizadas para coleta de dados incluíram: observação e entrevistas com roteiros semiestruturados com três Quebradeiras de coco. Os principais autores utilizados para tal pesquisa foram Merleau-Ponty, Bergson e D'Ambrosio. O que percebemos durante esse trajeto, foi que cada uma dessas mulheres tem muito a nos ensinar, e que os seus saberes perpassam os muros da escola. Portanto, concluímos que ainda há muitos desafios enfrentados diariamente pelas Quebradeiras de coco babaçu em Codó/MA que envolvem gênero, memória e ensino de matemática.

Palavras-chave: Quebradeiras de coco. Gênero. Memória. Ensino de matemática. Etnomatemática.

Resumen

Nuestro objetivo es comprender las percepciones de Quebradeiras de coco sobre la enseñanza de las matemáticas, considerando sus experiencias y prácticas socioculturales. En cuanto al recorrido metodológico, caracterizamos nuestro estudio como cualitativo, descriptivo e interpretativo, organizado en dos etapas: bibliográfica y de campo. Las técnicas utilizadas para la recolección de datos incluyeron: observación y entrevistas con guiones semiestructurados con tres Quebradeiras de coco. Los principales autores utilizados para esta investigación fueron Merleau-Ponty, Bergson y D'Ambrosio. Lo que nos dimos cuenta durante este viaje fue que cada una de estas mujeres tiene mucho que enseñarnos y que su conocimiento permea las paredes de la escuela. Por lo tanto, concluimos que todavía hay muchos desafíos que enfrentan diariamente los Babaçu Coconut Breakers en Codó/MA que involucran la enseñanza de género, memoria y matemáticas.

Palabras clave: Rompedores de coco. Género. Memoria. Enseñar matemáticas. Etnomatemática.

1 E-mail: vcruz4214@gmail.com

2 E-mail: ka.oliveira@ufma.br.

1. GENDER, THE STRUGGLE, THE PATH, AND THE GAZE

MARIAS OF BABASSU³

*Empower yourself with your fight
Be proud of your knowledge
You glitter
You are full of light, dreams, you are you.
I see myself in your eyes
And I feel your realizing.*

*My dear Marias
How beautiful to see you talk
Of all your achievements
And everything you will still conquer
You deserve the world
And you are going after it.*

*I want to tell your stories
And get them off the paper
It is every fight and victory
That deserved a trophy
But the biggest prize is to remember
That the limit for us is the sky.*

*You are smart
There is so much love and knowledge
Things you learned from life
Not just listening, but doing
That will inspire new stories
People who will learn.*

*I am the daughter and granddaughter of Marias
Who raised me with a lot of love
They gave me affection and taught me to be polite
And taught me respect, affection, and warmth
And they taught me from a very young age
That every fight has its value.*

(Valéria Silva)

³ Poema dedicado às três Marias dessa pesquisa, e para todas as Quebradeiras de coco do mundo.

For a long time, mathematics has been determined from an ethnocentric male point of view. According to Menezes (2005, p.24), mathematics was seen as a field of male predominance because it was considered, among other things, abstract and objective, where reason predominates. Traditionally, writing and mathematics were under parameters that highlighted men's leading role from political, social, cultural, and economic perspectives. Based on the gender category and its possibilities within historiography, many works that involve these issues have been gaining more and more space, taking women out of their secondary role in history and giving them the place they should always have occupied.

Despite its contribution to the sociocultural formation of their region, the women's practice of breaking babassu coconuts in the Maranhão hinterland is still little recognized by the State and by a large part of the population —unaware of its cultural value— as a professional activity. The practice is still invisible and perceived as inferior work. The babassu coconut breakers [Quebra-deiras de Coco] are a historically subaltern women's collective from an epistemic point of view. The debate we propose is precisely about the possibilities that can be constructed from these women's knowledge and practices regarding mathematics teaching to achieve an education focused on valuing the work of the coconut breakers, recognizing and valuing their narratives and sensibilities, above all, with decolonial actions, such as experiencing the challenge that encompasses the search for valuing their cultures in everyday life and the mathematics education field.

The theme of this research provides us with very rich sources of knowledge about how the coconut breakers view mathematics teaching and reveals which of them still study. It directs us to projects created from this practice and countless studies on it. Furthermore, this research may also spark the interest of those who dropped out of school in childhood or adolescence and now believe they are too old to be in the classroom. It is important to highlight that these women who break babassu coconuts are spread across communities in Maranhão. Over 300,000 rural women workers make a living from extracting babassu, a prevalent plant species in Maranhão, Piauí, Tocantins, and Pará.

The desire to study this topic arose from a personal issue, as the mother of the first author of this text also worked as a coconut breaker. She had to drop out of school to help her mother support her siblings, as she is one of the oldest, meaning she had to give up her school life so that the younger ones could study. In the academic field, interest in the topic comes from undergraduate research, which aligns with the results of the doctoral research developed by the second author. In the professional field, this topic provided new knowledge and methodologies accessed in the classroom.

Therefore, our research question is: What perceptions do coconut breakers have about mathematics teaching, considering their experiences and sociocultural practices? As a result, we ask the following guiding questions: How do the coconut breakers view mathematics teaching inside and outside schools? Are they aware that, basically, all their work involves mathematics in its most diverse functions? Concerning gender and memory, can they understand that mathematics is not just for men, and what were their experiences with mathematics at school?

In this context, our overall objective is to understand the perceptions of coconut breakers about mathematics teaching, considering their experiences and sociocultural practices. The speci-

fic objectives include understanding the perceptions of coconut breakers about mathematics teaching, reporting on the memories of the school experiences of coconut breakers with mathematics teaching, and understanding the gender and work issues inscribed in the sociocultural practices of coconut breakers that mobilize mathematical knowledge.

To this end, we initially conducted a qualitative bibliographic study with authors who discuss ethnomathematics. For example, Ubiratan D'Ambrósio (1998) and Bergson (2008) helped us understand memory, and Oliveira (2019) helped us with coconut breakers' knowledge and skills. Our methodological choices are based on Merleau-Ponty's (1994) studies and other detailed works on these women's struggles, gender, and mathematical knowledge.

Structurally, the text is organized into sections, and each tells a little about the history, gender, and memories of our respondents.

2. METHODOLOGICAL APPROACH OF THE RESEARCH

This article presents a qualitative analysis with a narrative, descriptive, and interpretative character to understand events and meanings present in the experiences of babassu coconut breakers. The stories different women tell result from experiences built and gathered throughout their lives and are full of meaning.

Brunner (1991) reports that in the form of narratives, we organize our memory and experience of human events as stories, excuses, myths, and reasoning for doing and not doing something. Thus, the author reflects on the construction and organization of knowledge. Taking it to the field of narratives of the babassu coconut breakers, it reports how they see this work within mathematics teaching, starting from the assumption that many are not even aware of its presence in that activity.

The instruments used for data collection included observation and interviews with semi-structured scripts with three coconut breakers. The scripts only guide the conversations because, when asked about specific issues, the coconut breakers went beyond the topic, offering us their stories. This article presents a qualitative analysis with a narrative, descriptive, and interpretative character to help us understand events and meanings present in babassu coconut breakers' experiences. Thus, we decided to record these interviews so that none of this information would be lost.

The interviews were separate and lasted an hour and a half, following a previously established script. However, we added new questions during the conversation, depending on the response and direction.

The first visits were to Maria 1's school. She was 42 years old at the time of the interviews and childless, even though she deeply desired to bear children. She is an active coconut breaker, and to this day, she uses this activity to help with her household expenses.

During this visit, we engaged in informal talks and set the date for the interview. After returning to school two days later, we interviewed Maria 1, who recounted her childhood experiences. She said that she likes school and has fun. She could not attend classes during childhood due to work and family responsibilities. She also reports that breaking coconuts is today her primary income source, as she continues to live in rural areas and supports herself by selling babassu deri-

vatives. Every interview was recorded in audio and transcribed to be later analyzed and related to the content in question.

The second interviewee was Maria 2, a mother of five, including the researcher. A young and hard-working woman, the third oldest of 12 siblings, she had to abandon her studies to follow her mother in the babassu extraction activities to guarantee her livelihood and that of her younger siblings. She left school without completing the first years of elementary school [Ensino Fundamental I], and even today, after having raised all her siblings and now her children, she does not intend to return to classroom activities despite recognizing that she needs school knowledge. Today, she sees herself as a coconut breaker who left the countryside and came to try a life in the city, and it was this knowledge that built her story and identity.

The third interviewee was Maria 3, a mother of two and daughter and granddaughter of coconut breakers, who came from a precarious rural reality. She has always been proud of her practice, passed down through generations. However, through the desire to evolve more and more, she is currently a full-time teacher in the municipality of Codó, Maranhão, teaching the initial years and also seeking to raise awareness among the students' parents about the importance of being examples, of telling their stories and always seeking to evolve. These three women are the face of this research, and their stories certainly served to enrich this work further.

By signing the Free and Informed Consent Form (FIC), all participants authorized the disclosure of their names, images, and the information given. The data collected was organized into structured paragraphs within the article, following the order, information, and topics discussed during the conversations.

3. HISTORICAL TRAJECTORY OF BABASSU COCONUT BREAKERS: GENDER, MEMORIES, AND MATHEMATICS TEACHING

In their daily activities, coconut breakers mobilize knowledge of counting, measuring, notions of space, and monetary calculations (OLIVEIRA, 2019). This study and others revealed that mathematical thinking has been present in these women's lives since the extraction of babassu coconut to its commercialization, as directly or indirectly, they need school mathematical notions to make monetary profits from their work.

Regarding babassu coconut breakers' practices, their identity is formed from experience acquired through repeatability, i.e., it is passed down generations and is strengthened over time, formulated thanks to the processes of construction and reworking of memory, a process of resignifying learning that is absorbed by contemporary generations. Regarding this aspect, Koselleck (2014) highlights that:

Therefore, besides personal experience, there are also time limits and thresholds of generational experience. Once institutionalized or assumed, they establish a common history. They encompass all people who share the same social life, whether families, professional categories, residents of the same city or soldiers in an army, citizens of states or members of social classes, church believers or non-believers, members of political associations of all types, whether parties, sects, factions, general staffs, circles, guilds or communities. Any community of action brought together by biographical trajectories, by chance, or by an organization helps consolidate lived experiences. Therefore, from a temporal point of view, we

can talk about political and social generational units, whose common characteristic consists of experiencing, gathering, and organizing singular or recurring experiences or sharing experiences (KOSELLECK, 2014, p.35).

In this process of building and forming memory, there is also the formation of a collective identity that is appropriated and modified by the members of the group, who use their own mechanisms to preserve memory and maintain their identities. The narratives constructed based on their experiences are composed from their interpersonal relationships, but above all, from their relationships with their surrounding space. The formative elements of their context will structure their identities and allow new generations to build their own collective identities (BERGSON, 2008).

According to Barros (2010), babassu coconut breakers are social agents who occupy various societal positions comprising mothers, wives, and students, some with double or triple work shifts. It is worth highlighting in this research that there are also men working as coconut breakers; however, we will emphasize women in this study.

The importance society attributes to these women is made invisible, and at this point, the issue of social and gender inequalities becomes evident (ARAÚJO; SILVA, 2014). Therefore, even with female empowerment and representation, female coconut breakers still have their knowledge undermined for several reasons, one of which is their low level of education, which is due, in part, to the long colonization process undertaken in Brazil. The coconut breakers have difficulty in perceiving themselves as producers of knowledge, especially mathematical knowledge, because “[...] coloniality of being refers to the process by which common sense and tradition are marked by the dynamics of power of a preferential nature: they discriminate against people and target certain communities” (Maldonado-Torres (2009, p. 363).

Historically, the division of labor from a gender perspective has always existed. Women were associated with reproduction and domestic chores. Men have always been involved in work outside the home and seen as family providers. These studies reveal that social imposition to this day has overburdened women and even restricted them from certain activities because when it comes to work, their pay is lower than that of men. Regarding leisure, women cannot engage in specific activities or behave in a certain way, as it is a man’s thing. The coconut breakers’ narrated memories tell us that when they become mothers, for example, society already places the weight of motherhood on everything they decide to do, especially regarding their studies.

The most significant educational policies related to youth and adult education began with the Federal Constitution of 1988, as it recognizes education is a fundamental right of a social nature, the protection of which goes beyond individual rights and constitutes part of the conditions for the existence of the dignity of every human person. Article 208 of the Federal Constitution states that:

Art. 208. The State’s duty to education will be enforced by guaranteeing:

Free, compulsory elementary education, including for those who did not have access at the right age;

Progressive extension of compulsory and free secondary education;

(BRASIL, 1988).

This document supports and recognizes the struggles of social movements in favor of the right to free quality public education for all Brazilian citizens, showing concern for those who, for various reasons, did not receive schooling in their childhood and adolescence. Silva (2014) believes that the way the Law of Guidelines and Bases (Lei de Diretrizes e Bases – LDB) sees the Youth and Adult Education/YAE (Educação de Jovens e Adultos – EJA) program led many municipalities to bring it closer to accelerated education, also being a way to escape the restrictions of the National Fund for Fundamental Education (Fundo Nacional de Educação Fundamental - FUNDEF). Therefore, there is no right age to seek knowledge, and the coconut breakers need it. If they want to return to studying, they can do so and have that right.

In the rural environment, as the man is the provider of the house, women's extraction of babassu coconuts is considered just a way to help maintain the family, which is why it is treated with invisibility. The participants' testimonies unveiled that sometimes, the family's only source of income comes from their work. Some leave school, young children, and other activities to work in coconut extraction and cracking because they must guarantee their livelihood and that of their dependents.

For female coconut breakers, babassu extraction is culturally, emotionally, and also financially significant, as many have never known any other profession, as they were born daughters of breakers, perpetuating that kind of labor. However, the practice helps them become financially independent and enjoy freedom of expression.

Respect for autonomy and dignity is an ethical imperative, not a favor we may or may not mutually grant. Precisely because ethical people can disrespect the rigor of ethics and slip into denial, it is essential to emphasize that the possibility of ethical deviation cannot be called anything other than transgression (Freire, 1996, p. 31).

In the case of coconut breakers, this process happens when they present themselves as extractivists in small groups and associations and, consequently, develop discussions, establish joint actions, and define similar strategies, among other factors. In other words, there is a recognition of the value and potential of the group for the promotion of knowledge, for the formation of the group, and, mainly, for the construction of autonomy and the affirmation of identity as a form of social promotion. This fact compels us to seek political-epistemic disobedience (Giraldo; Fernandes, 2019) in mathematics education, mobilizing knowledge and skills of coconut breakers in school pedagogical processes.

Besides contact with the economic importance of babassu, they establish relationships of feelings, and at a pragmatic-utilitarian level, a culturally specific way of being and existing is articulated (Barbosa, 2008, p. 260). Given this, the female coconut breakers, upon realizing that they were facing countless difficulties, began to take a stand and seek knowledge to obtain appreciation and recognition. Immersed in their experiences, they built this identity, following in their mothers' footsteps and perhaps never even knew another profession (Barbosa, 2008).

4. MATHEMATICAL KNOWINGS AND DOINGS OF BABASSU COCONUT BREAKERS

Within the field of mathematics education, we can understand that several social groups have their own reasoning skills, as well as distinct thoughts about calendars, measurements, counting processes, and numerical systems, among others, and it is important to highlight their use in the most varied aspects within their community. Specificities are revealed in practical activities based on these sciences, such as those related to teaching or applying knowledge and in the knowledge production process.

Mathematics education, from the 1970s onwards, was a topic of reflection along with all the discussions held at the time about unofficial knowledge and knowledge generated by different social groups in the urban and rural context, professional classes, and Indigenous societies, which identified themselves by objectives and traditions common to the groups. D'Ambrosio (2009) calls these various types of knowledge ethnomathematics.

From this perspective, the author states that ethnomathematics aims to explain, know, and understand the knowledge and practices of different peoples. When producing ethnomathematics, such groups move away from the school-based sense and think from the school and official perspective since their knowledge, the logic used for the production, construction, and validation of objects are constructed mainly by historical needs independent of the use of Euro-US-centrist mathematical thought, meaning that "official" knowledge is not necessary to build, measure, count, and perform other activities inherent to survival.

Thus, we realize the importance of observing ethnomathematical knowledge in its original form, permeated by patriarchal constructions, where they constructed, told, and situated themselves in space and time without the help of Western knowledge. However, a transcultural vision is necessary to mediate coexistence in other cultures, that is, in an intercultural context.

Individuals and peoples have, throughout their existence and history, created and developed instruments of reflection, material and intellectual instruments [which I call **thics**] to explain, understand, know, learn to know, and do [which I call **mathema**] as a response to needs for survival and transcendence in different natural, social, and cultural environments [which I call **ethnos**] (D'AMBROSIO, 2009, p.60).

In this sense, in search of investigating and verifying other ways of thinking, ethnomathematics initially aims to understand through history how people, through material and intellectual instruments, produced, and still do, knowledge to respond to the need for survival in their natural and cultural spaces. Everyday life is imbued with the knowledge and practices of different cultures. People are always comparing, classifying, quantifying, measuring, explaining, generalizing, inferring, and, in some way, evaluating, using the material and intellectual instruments specific to their culture (D'Ambrosio, 2012).

Thinking and reflecting on socio-historical-cultural memory does not depreciate or exclude different, local, and dialogical lives and knowledge. Everyday ethnomathematical knowings and doings, for example, are full of meanings and theories but are not measured by the leveling of classroom contexts. They are memories woven amid (inter)faces and without limits on the possibilities of being measured by school knowledge, as it is an inseparable relationship of sensitivity, affection, and playfulness that goes beyond school walls. This is because "The Programa Etnomatemática sta-

tes that mathematical knowledge does not end with understanding the mathematical knowledge [knowing and doing] of peripheral cultures” (D’Ambrosio, 2002, p. 13).

In the perception field, the coconut breakers perceive mathematics in a plural way, but almost none of them perceive it according to the knowledge they learned at school (in the case of some who still managed to go). For Merleau-Ponty (1964; 1992), perception is an open door to several horizons; however, it is a revolving door so that when one side appears, the other becomes invisible. Each sense is exercised in the name of the other possibilities.

We find specificities when we focus on mathematics as the production of theory and its respective possibilities of application, as the teaching of this production, and as a reflection on what is produced and the production process. However, at the same time, the ontological and epistemological conceptions of mathematics diversify and coexist throughout the history of this science.

When we bring these specificities to the field of memory, we realize that mathematics is present in these women’s daily lives, in the tasks they learned throughout their lives, and that they probably would not even know how to explain exactly how it was. Bergson (2008) distinguishes two types of memory: body memory, present in motor mechanisms, and spiritual memory, which exists as independent memories (Bergson, 2008, p. 82). He highlights the difference between them through the example of a lesson learned by heart: on the one hand, learning a lesson can occur as the “acquisition” of a memory, i.e., the memory of the lesson as learned by heart; on the other hand, learning can occur through the “conservation” of a memory, or rather, the memory of one of the readings done when learning the lesson. In the first case, the memory resembles a habit, as one has to repeat “the same effort” as if one had to exercise one’s own body to situate it again in the present. In the second, it becomes the virtuality of the body, always present, and always current. It is what gives meaning to life, regardless of the moment in which it occurs.

As previously presented, regarding coconut breakers’ reality, some develop this craft from a very young age (children) because it has been passed down through generations, and they cannot even remember where it comes from, as they continue to repeat what their ancestors taught them. Their knowledge, skills, and learning are passed on to their children, and as many of them did not go to school, their knowledge was acquired throughout their lives.

5. BABASSU COCONUT BREAKERS: GENDER AND MEMORY

Babassu coconut breakers’ life stories are full of sensitivities and bring up important issues that should be debated inside and outside the school context, not only because they are part of the cultural construction but mainly because they enable the understanding of a context that is historically marked by the systemic invisibility of these women within the teaching of mathematics, as they carry out work completely focused on ethnomathematics, taking into account that it is mathematical knowledge generated and organized within this cultural group, even though in some cases, they are not even able to distinguish this.

According to D’Ambrosio (2012), ethnomathematics is currently considered a sub-area of the history of mathematics and mathematics education due to its natural relationship with anthropology and cognitive sciences. According to the author, the political greatness of ethnomathematics is notable, but what is noticeable during this research is that most women, and even men —who

carry out the work of breaking and selling products derived from babassu coconut— overlook mathematics in their daily lives. When questioned about it, they only suggest that it is present in business since they must price everything, without considering that ethnomathematics aims to give meaning to ways of knowing and doing of various cultures and make them feel like they belong to this community.

Talking to the women who gave origin, face, and form to this research, it became clear from these discussions, research, and dialogues that they are unfamiliar with the scope of mathematics in their daily lives and their profession. When asked about where she believed mathematics was present, Teacher Maria Áurea answered that it must be in marketing because, in her words: “I believe that mathematics is present when we make and sell products such as olive oil, coal, and milk. Because we will need to price and pass on” (MARIA ÁUREA, 2023).

Sensitive narratives like these, which encompass stories of overcoming, dropping out of school, survival through the practice of breaking babassu coconuts, and discoveries about their identities, can be perceived throughout the construction of the imaginary belonging to the universe of the babassu coconut breakers, both in their daily struggles, as in the face of the destruction of the field (which causes damage to the coconuts still on the palm tree), or their joys in the face of a fruitful day of work and, also, in the face of the countless stories that are experienced each day and that unite them around a practice. Teacher Maria Áurea recalls moments spent with her mother and grandmother while they were coconut breakers. She reported the struggle she experienced in reconciling her work and studies, given that she had already started outside the recommended period, at an advanced age.

I remember spending the day in the woods with my mother and grandmother, and it was a huge struggle because while they organized things, I would go and collect coconuts to speed up the day, since when we got home, there would still be clothes to wash and food to make. My father spent the day in the fields, so we always went to the forest very early, to at least pick the coconuts that were available because, when my dad arrived, everything was already prepared for him. Today I realize he could have helped us more, as it was always very tiring and overburdened us. And when I decided that I wanted to study, it was a mess because he thought I couldn't do anything other than go to the countryside to crack coconuts, cook, and get married (MARIA ÁUREA, 2023).

According to Candau (2018), memory and identity are inseparable. There is no identity construction without memory since it is constructed and shaped through mechanisms arising from memory. The individual memories of the women interviewed helped to understand the processes that led to the reported changes in their lifestyles and their respective motivations. In this way, all mechanisms used within this process are explored to make certain actions and attitudes towards reality evident.

However, during the analysis of these narratives, the interviewees realized the relationship between these changes and their affective and emotional memories. In this way, the collective actions of previous and current generations have contributed significantly to the changes that have occurred in the present, thus ensuring improvements in those women's way of life or showing them where they can improve based on this practice.

During the routine of the coconut breakers, the participants' reports make clear that all types of actions, starting from the simplest ones, such as going into the forest to break coconuts, to the most complex ones, such as collective organization to approve laws that defend the babassu palm, are part of a set of mechanisms arising from memory (Bergson, 2008). In this way, the changes in their social contexts are directly related to past actions, as they recall facts and highlight stories that make them who they are. When sharing their memories, women also share their expectations and report the different ways they see life and their own actions, as we can see in Maria Áurea's accounts.

When we talk to Maria Áurea about the reality of the Youth, Adult, and Old People's Education (YAOPE) classroom where she currently teaches, she tells other stories about her students also on the topic studied and recalls several times when she had to use dynamism and travel to those students' homes to get them to come to school after a hard day of work in the fields, or at the market, selling babassu derivatives.

I have had many students who are coconut breakers; many of them have no other profession, so they are devoted to this one. I remember many times when I had to go and pick them up at home, with games, prizes, the way was to invent to see if they would go to school. And I always understood their tiredness, especially because I came from where they are, which is why I encouraged them to seek knowledge, not to be afraid or ashamed of studying, because nowadays, education is everyone's salvation (MARIA ÁUREA, 2023).

This report shows that, especially for women, it is always more difficult, as there is always something before herself, be it work, family, or children; furthermore, when it comes to female coconut breakers, there is a whole routine involved, which most often results in school dropout or low attendance in the classroom due to daily fatigue, as we see in Maria Áurea's report.

The category of gender, first used to analyze differences between the sexes, was extended to the question of differences within difference. The identity politics of the 1980s brought to the fore multiple claims that challenged the unitary meaning of the category of "women." [...] The increasingly visible and vehement differences between women questioned the possibility of a unified politics and suggested that women's interests were not self-evident but a matter of dispute and discussion (SCOTT, 2011, p.89-91).

Thus, when we bring oral narratives, through interviews with babassu coconut breakers, to a school context, we face the challenge of perceiving the need for these voices within a so-called formal education and how this type of knowledge can be worked on. For example, when talking to Maria do Socorro, we realize that she sees school as a "refuge" from daily problems rather than an environment that will change her life. However, she also brings knowledge that she learns from daily life and perfects inside and outside of school.

I really like going to school, where I forget my problems and can talk about other things with people. But I don't think I'm old enough to learn anything yet. Everything I had to learn I have already learned. Cooking, embroidering, crocheting, cracking coconuts, washing and ironing are the things I know how to do and it wasn't school that taught me, it was life, necessity, need. So I expect more fun from school than learning things because up until now, I'm still struggling to learn how to sign my name (MARIA DO SOCORRO, 2023).

D'Ambrosio (1998) argued that a person's teaching and learning processes can be based on their knowledge, including what is learned culturally, as well as intrapersonal and interpersonal relationships. In this sense, the interviewee will not only be able to acquire new knowledge within the classroom but also pass on what she already has to others.

6. BABASSU FLOWERS – THE THREE MARIAS: SOME REFLECTIONS

During this research, we questioned the value and social identity of women babassu coconut breakers several times. The conclusion was that they go through a legacy of historical and economic factors contributing to their formation and their groups' formation in general.

The criteria used to choose these participants were availability and affinity because, before this research project, we had prepared another one as a course completion project, and from there, we had material and people who were available to participate if there would be continuity.

Based on this, this section aims to address the learning that the interviewees demonstrate and how much they fight for political appreciation and recognition. These powerful women bring one or more good and bad memories from each step of their journey. They also report how much they are like flowers. They seem sensitive and fragile but show internal and external beauty and the fact that they can rebuild themselves and be reborn more and more beautiful and strong. The three Marias, Maria 1, Maria 2, and Maria 3, are the faces of many women worldwide who would also like to tell their life stories and have this space to speak, with fictitious names to preserve their identities.

When asked about the profession of coconut breakers, they all had much to say. Maria 1 was the first to recall moments that she relives every day. As of the three interviewees, she is the one who still has it as a profession.

I was a girl when I started, I can't even say how old I was. I went to the countryside with my mother, and I was taught from an early age that that was where I would earn my living. Even so, my mother always told us to study, because she was already illiterate, so she wanted us to at least learn to write our names and read something. Nowadays I know a little about reading and I can sign my name. I even studied until the 4th grade, then the workload increased, my mother got sick and tired, and I had to leave school to help more. I do everything, I collect coconuts, make charcoal, oil, milk, and with the pulp, I even mix tapioca to make bejú (MARIA 1, 2023).

Diegues (1996) corroborates this perspective, giving other typical characteristics of traditional cultures, such as a connection with nature to build a way of life, a way of manipulating natural resources that are passed down from generation to generation, knowledge about territory and the space that the group occupies; attributing relevance to family and community subsistence activities.

In this report, we can see through her speeches that Maria 1 speaks proudly about everything she learned, but also makes clear the mark that the lack of education left on her; therefore, she decided to resume her studies and is now at YAOPE. We realized that besides fighting, she is a woman with much knowledge about various subjects, especially babassu coconut, a practice passed down through generations. She can describe everything, from when the coconut is ready to be cracked to all its uses.

Maria 2 also left her contribution and reported that when she only broke coconuts, she had to travel from home to where she would collect and break open the coconuts. He also said that most of the time, a car would take the women to the place because it was very far away, but when there was none, they had to wake up much earlier to go on foot.

It's very difficult to remember this, we were very poor, so poor that sometimes we slept without a meal and had no idea what we would eat the next day. And my mother worked a lot in the forest, cracking coconuts and cleaning houses so she could at least feed us. As I grew up, I started wanting to change that life, but it was difficult because my older brother and I had to drop out of school early to go to the crops with our mother. Sometimes, we would go at five in the morning and only come back at night, hungry and tired. Then our mother would make food when she had something to cook with. The next day, she would make olive oil and charcoal, and we would help her because we knew that if she sold those things, we would have something to eat the next day (MARIA 2, 2023).

Given this respondent's report, we learned that people usually start as coconut breakers when they are children, meaning that this practice is passed down through the generations. Children see their parents working with this and later learn from it. For Maria 2, for example, the practice started with her mother, who had also learned from her own mother. However, it was also a question of necessity, as she emotionally recounts that there were days when, even though she worked all day, she would come home and not even have anything to eat.

Maria 3's account is also not very different from the other respondents when she states: "*I always wanted more than what harvesting had to offer me, so even though my work as a coconut breaker lasted, I knew it was temporary. However, I cannot help but recognize that it made me strong, patient, and observant*" (MARIA 3, 2023).

Like Gomes (2012), we understand that Maria 2's and Maria 3's explanation about everyday activities are ways of relating and being with and in the world. Each one brings their version of how they started this practice and what perspectives they had beyond the environment and reality in which they were already inserted.

The following questions provoked long stories. Then, participants expressed how they felt about the devaluation of this working class and how they, as women, felt in this environment and within their communities. The responses were almost unanimous. They said they feel that no matter how hard they try to produce as much as men, they will never receive the same recognition. They were also encouraged to answer questions about their mathematical knowledge, which attracted much attention, as basically everything they have been used to doing since childhood involves mathematics.

I don't understand much of the math taught in school, but I know that I use it because I need to put a price on the things I make from coconut. But apart from that, I think that the time it takes for these things to work out also involves mathematics, but not the classroom kind of mathematics; I mean the one we learn through hard work, it is the mathematics of life (MARIA 1, 2023).

We corroborate these narratives because D'Ambrosio (2009, p. 9) explains that mathematics education permeates all discussions about unofficial knowledge, as well as the knowledge generated by different social groups in the urban and rural context, in professional classes, Indige-

nous and quilombola communities, in *terreiros* and riverside regions. These cultural groups identify knowledge and practices through shared objectives and traditions, associating them with studies on ethnomathematics. In other words, the knowledge these people acquired during their practices and experiences, considered the “mathematics of life,” is ethnomathematical knowledge. For this understanding, Maria 2 left her contribution:

I think that mathematics is very difficult, I was a bit impatient at school, because I remember that the teacher taught a lot of material and there was also a times table, and she would call us to speak in front of the class and whoever got it wrong would get a slap on the hand. I learned the basics, I know how to count, I know how to do some simple calculations, apart from that, I don't know anything else (MARIA 2, 2023).

Such reports make us realize how much mathematics has been restricted to the classroom by observing that the coconut breakers already had all this knowledge that could easily have been used to enhance teaching. As an example, we can mention knowledge of time (when waiting for the right time to collect the coconut) and space (which is the sequence of transformations of matter), i.e., notions of magnitudes derived from the forms and magnitudes of matter and its transformations, movements, and energy. These are just a few examples, as the babassu coconut breakers are faced daily with mathematical concepts that are studied at school, but in a way that does not encompass students' reality.

Taking into account the plurality of cultures and mathematical knowledge,

We are thus led to identify techniques or even skills and practices used by different cultural groups in their search to explain, to know, to understand the world that surrounds them, the reality that is sensitive to them, and to manage this reality for their benefit and for the benefit of their group (D' AMBROSIO, 1998, p. 6).

The same happens with the babassu coconut breakers, women with a specific culture and practices, with specific ways of acting, thinking, and behaving. They have their own habits and routines. In their daily lives, they count, classify, and quantify objects through their work to obtain improvements in the lives of all participants in the social group and, with their products, also move the economy.

Teacher Maria 3 talks a little about how mathematics is seen inside and outside schools, and, in her view, it is a subject that should be better structured so that teachers can work on it in a way that students understand. However, according to her, the system requires students to only know how to count, not to have full knowledge of the mathematical reality surrounding them.

We know that mathematics is present in everything around us, yet it goes unnoticed. But this is not just our fault; it is the school's fault, the fault of the boys who are not interested, and it is a much bigger fault. We know that the system doesn't want people to be informed; they want us to learn, and they think that this is still a lot. They provide content that is outside the students' reality, they do not provide any support for the work to be done and they still want us to manage to present results. When I was an active coconut breaker, I didn't know that, but now, studying, I realize that breaking coconuts, besides being an art and science, is pure mathematics (MARIA 3, 2023).

Therefore, during the conversation with these women (the three Marias in this research), we realized that knowledge always goes further; it goes beyond the classroom, beyond what we see and beyond our understanding, because it is built in different ways and different realities, and that is what makes it so real and beautiful.

Furthermore, Oliveira (2019, p. 2) states that “in their daily tasks, coconut breakers mobilize knowledge related to counting, measuring, notions of space, and monetary calculations.” In this way, the coconut breakers develop and practice mathematical knowledge constantly in their daily experiences, even though they have not received schooling related to academic mathematics, and today, they do not master the rules and formulas of formal mathematics. However, their daily activities and needs taught them to solve everyday problems that require mathematics.

7. FINAL CONSIDERATIONS

Given the issues and narratives addressed in this research, there is still much to be discussed regarding the daily challenges faced by babassu coconut breakers. The physical and emotional resistance factor is part of the construction of the collective identity of these women.

The women who break babassu coconuts use mathematical knowledge to produce and sell babassu coconut derivatives and perform various daily activities. By analyzing the observations, informal dialogues, and the semi-structured script, we understood that they have knowledge and carry out unique activities, using only the lived reality and experience gained throughout their lives. Which can help us understand that a:

decolonial option in mathematics education can destabilize power relations, subverting hierarchies and strengthening voices of subalternate bodies, knowledge, and territories, allowing them political identifications that escape the assimilation of identities produced by power structures (Fernandes, 2021, n/p.).

We also realized that despite all the struggle, the coconut breakers love and respect the practice. Through it, one coconut breaker earned subsistence, the other found the strength to seek a better life, and the third gained financial independence. Like them, many others do the same. About mathematics teaching, it is clear that they lacked mathematics that encompassed their realities, embraced their knowledge, and enhanced it. The question remains: Is this fact also related to the large number of school dropouts? It is a question that will probably echo in our minds, make us reflect on our teaching practices, and refer us to the methods by which we were taught mathematics, as it is clear here that it was never just a subject.

Within this context, these women learned mathematical knowledge empirically. Thus, it can be considered part of the ethnomathematics program, as it is associated with a culture and is used to meet the needs of women involved in resolving daily situations. In this case, the ethnomathematics these women carry out contribute to their work: the extraction of babassu coconut and the production and commercialization of their products.

Therefore, this research enabled us to share memories, learnings, and trajectories of overcoming, struggling, and learnings. Indeed, we will have more to share in the future, as there are many stories and reasonings to tell. Furthermore, based on our conversations, we can say that something

valuable will come out of this research for the babassu coconut breakers and everyone who manages to access it, as the exchange of knowledge, feelings, and learning was very enriching. Thus, we realized the physical and emotional resistance factor is part of the construction of the collective identity of these women, showing that decoloniality is present in each one as they continue to resist and deconstruct patterns, concepts, and epistemological perspectives imposed on subalternized peoples during colonization.

8. REFERENCES

BARBOSA, Viviane de Oliveira. Trabalho, Conflitos e Identidades numa Terra de Babaçu. **História Social**, Campinas-SP, n.14/15, p. 255-275, 12 ago. 2008.

BARROS, Valderiza. **A concepção de educação das quebradeiras de coco babaçu: um estudo preliminar**. 2010. Disponível em: <http://portalypade.mma.gov.br/quebradeiras-de-coco-babaçubiblioteca?download=612:a-concepcao-de-educacao-das-quebradeiras-de-cocobabaçu-um-estudo-preliminar>. Acesso em 16 de julho de 2023.

BRASIL. Constituição. **Constituição da República Federativa do Brasil**. Brasília, Senado Federal, 1988.

BERGSON, H. **Matière et mémoire Edition critique**. Paris: PUF, 2008.

BRUNNER, Jerome. **A construção narrativa da realidade**. Critical Inquiry, p. 1-21, 1991.

CANDAU, Joël. **Memória e Identidade**. São Paulo: Contexto, 2018.

D'AMBROSIO, U. **Etnomatemática: Arte ou técnica de explicar e conhecer**. São Paulo: Editora Ática, 1998.

D'AMBROSIO, U. **Educação matemática: da teoria à prática**. Campinas: Papirus, 2002.

D'AMBROSIO, U. **Etnomatemática: elo entre as tradições e a modernidade**. 3.ed. Belo Horizonte: Autentica Editora, 2009.

D'AMBROSIO, U. **Transdisciplinaridade**. 2.ed. São Paulo: Palas Atenas, 2012.

DIEGUES, Antônio Carlos. **O mito moderno da natureza intocada**. São Paulo: Editora Hucitec, 1996.

FERNANDES, Filipe Santos. Matemática e colonialidade, lados obscuros da modernidade: giros decoloniais pela Educação Matemática. **Ciência & Educação** (Bauru), vol. 27, e21065, 2021. DOI: <https://doi.org/10.1590/1516-731320210065>

FREIRE, Paulo. **Pedagogia da Autonomia: saberes necessários à prática da autonomia**. 25ª Ed. São Paulo: Paz e Terra, 1996.

GIRALDO, V.; FERNANDES, F. S. Caravelas à vista: giros decoloniais e caminhos de resistência na formação de professoras e professores que ensinam matemática. **Perspectivas da Educação Matemática**, Campo Grande, v. 12, n. 30, p. 467-501, jan. 2019. DOI: <https://doi.org/gxtr>.

GOMES, A. A. M. **Aprender Matemática na Educação de Jovens e Adultos**: a arte do sentir e dos sentidos. 2012. 354 f. Tese (Doutorado em Educação) - Faculdade de Educação, Universidade Estadual de Campinas, Campinas, 2012.

KOSELLECK, Reinhart. **Estratos do tempo**: estudos sobre história. Rio de Janeiro: Contraponto: PUC-Rio, 2014.

OLIVEIRA, K. A. **Entre o Machado e o cacete**: de um olhar para a um olhar com as Quebradeiras de coco Babaçu partir das diferentes Matemáticas. In Anais XXIII Encontro Brasileiro de Estudantes de Pós-Graduação em Educação Matemática. São Paulo/SP: 2019.

MALDONADO-TORRES, N. A topologia do ser e a geopolítica do conhecimento: modernidade, império e colonialidade. In: SANTOS, B. S.; MENEZES, M. P. (ed.). **Epistemologias do sul**. Coimbra: Almedina, 2009. p. 337-382.

MERLEAU-PONTY, M. **O visível e o invisível**. A. Gianotti, & A. Mora, Trad. São Paulo: Perspectiva, 1992.

MERLEAU-PONTY, M. **Fenomenologia da percepção**. C. Moura, Trad. São Paulo: Martins Fontes, 1994.

MENEZES, M. B. **A Matemática das mulheres**: as marcas de gênero na trajetória profissional das professoras fundadoras do Instituto de Matemática e Física da Universidade da Bahia (1941-1980). Tese (Doutorado). Universidade Federal da Bahia, Salvador (BA), 2015.

SCOTT, Joan. História das mulheres. In: BURKE, Peter (Org.). **A escrita da história**: novas perspectivas. São Paulo: UNESP, 2011.

SILVA, L. A. **Movimento interestadual das quebradeiras de coco babaçu**: Mulheres, trabalho e informação. 2014. Dissertação (Mestrado em ciências da Informação) - Instituto Brasileiro de informação em Ciências e Tecnologia. Programa de pós-graduação em Ciências da informação; Universidade federal do Rio de Janeiro, Rio de Janeiro, 2014.

Editorial History

Received on 31/03/2024.

Accepted on 26/10/2024.

Published on 30/12/2024.

How to cite – ABNT

SANTOS, Valéria da Silva; OLIVEIRA, Kelly Almeida de. Quebradeiras de Coco Cabaçu de Codó-MA: Gênero, Memória e Ensino de Matemática. **REVEMOP**, Ouro Preto/MG, Brasil, v. 6, e2024040, 2024. <https://doi.org/10.33532/revemop.e2024040>

How to cite – APA

Santos, V. da S., & Oliveira, K. A. de. (2024). Quebradeiras de Coco Cabaçu de Codó-MA: Gênero, Memória e Ensino de Matemática. *REVEMOP*, 6, e2024040. <https://doi.org/10.33532/revemop.e2024040>

This article was funded by the Minas Gerais State Research Support Foundation (Fundação de Amparo à Pesquisa do Estado de Minas Gerais-FAPEMIG), Project APQ-04960-23, Notice N. 008/2023-Support program for scientific and technological publications.