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# **Ethnomathematics Approach as a Tool for Cultural Valuation and Social Representativity: Possibilities in a *Quilombola* Community in the State of Amapá - Brazil**

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**Abstract:** In this article, we bring forward a research with ethnomathematical aspects that shows the socio-cultural relations experienced in a *quilombola* community registered as *Santa Luzia do Maruanum*, in the rural region of the capital Macapá, in the state of Amapá, Brazil. Such research was based on the activities developed by 12 ceramic craftswomen in the community, members of the Ceramic Craftswomen Association of Maruanum - ALOMA (*Associação de Louceiras do Maruanum* in portuguese). It was possible, through field research, with a qualitative approach, to understand the social context of ceramic craftswomen, to verify the spoken mathematical knowledge learned out of school in the production of ceramic tableware, in family farming, and consequently in daily habits, such as Marabaixo culture. Through participant observation, it was possible to verify aspects in the relationship between the contents of school mathematics and the activities developed by the ceramic craftswomen, which brings us possibilities of a bridge for teaching mathematics in *quilombola* schools. The results presented here point to the importance of a school education focused on valuing local culture, which strengthens ethnic relations in the search for equity and establishes an artistic-cultural rescue. In this sense, the presence of women as maintainers of household income and in the political leadership of the community stands out. This leads us to reinforce the understanding of the representativeness of the practices of ceramic craftswomen in the teaching of school mathematics, in which the concepts approached in the classroom are exemplified with everyday reality from the communities. Thus, we hope that this article will contribute to reflections at the most diverse levels and educational modalities. We also hope to contribute with other research in Ethnomathematics and to disseminate the *quilombola* culture present in the state of Amapá, which is currently under constant attacks on its rights by the state policy that has been installed in Brazil since 2016.

*Keywords:* Ethnomathematics Program, *Quilombola* communities, Cultural valuation.

## Introduction

In the field of Mathematics Education, we observed that issues involving Ethnomathematics began to arise in the 1970s. D'Ambrosio (2018) said that he knew that the name ethnomathematics had already

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been used in 1971, before he did, but that he had not seen any publication with that term until he used it for the first time.

In Gerdes (2012), we see that several authors tried to give a precise and objective characterization for the concept. Currently, some researchers, such as Mattos (2020), try to bring together ideas about this trend and its dimensions. However, we highlight the contributions of Ubiratan D'Ambrosio, who was the one who best introduced the concept, referring to Ethnomathematics as the most diverse forms of Mathematics with which cultural groups deal with their natural, social and cultural environments. According to D'Ambrosio (2008):

The word ethnomathematics, as I conceive it, is composed of three roots: *ethno*, and by *ethno* I mean the different environments (the social, cultural, natural, and everything else); *matema* meaning to explain, understand, teach, deal with; *tica*, which resembles the Greek word *tecné*, which refers to arts, techniques, manners. Therefore, synthesizing these three roots, we have *ethno* + *matema* + *tica*, or ethnomathematics, which, therefore, means the set of arts, techniques of explaining and understanding, of dealing with the social, cultural and natural environment, developed by different cultural groups. (D'Ambrosio, 2008, p. 8).

Aligned with the thought of the specificities and peculiarities of each group, each region, we point to the reality of the state of Amapá, one of the 27 (twenty-seven) federative units in Brazil, being one of the youngest states in the Brazilian federation, the second smallest in population and number of municipalities, located in the extreme north of Brazil.

*Quilombos* or *quilombola* communities are concepts that have been discussed in the contemporaneity, and approach different interpretations, according to Santos (2010). These terms bring definitions of ethnic groups made up of an eminently black population. In this sense, they are broadly related to Afro-Brazilian culture and territorial space.

According to Guimarães (1988), these groups are related to Afro-Brazilian culture and territorial spaces, and the terminology comes from the "*ochilombo*", which represents nuclei founded on diverse movements, such as the escape from slavery, the occupation of land in agrarian reform areas, and others.

It is characterized as the largest global movement to counter the slave model implanted in Brazil during colonization.

Analyzing the information in Ribeiro (1995), we found that the history of the first blacks in Brazilian territory is presented initially as coming from three large ethnic groups. Even though we know that there were blacks from all regions of the African continent, the highlight of the trafficking was concentrated in greater number on the Yoruba, from Gambia, Sierra Leone, the Malagueta Coast, and the Ivory Coast; Islamized Africans like Peuhl, Mandingas and Haussas from northern Nigeria; and those of the Bantu tribes of the Congo-Angolan group who currently live in the region corresponding to Mozambique.

In this immensity of Afro-indigenous cultures, present in the state of Amapá, Brazil, we highlight the presence of the *quilombola* community of *Santa Luzia do Maruanum*. It is a community located in the Macapá region, capital of the state, formed by the union of several riverside communities<sup>4</sup> around the *Maruanum* River.

In the community of *Santa Luzia do Maruanum*, our attention was drawn to the performance of the Ceramic Craftswomen Association of Maruanum - ALOMA (*Associação de Louceiras do Maruanum* in portuguese), an association made up of 12 women, all elderlies, with little or even no schooling, who make ceramic-based tableware, entirely handmade and without the technical-scientific knowledge of production. This craft is an important source of income for the association and draws attention due to the form and method of elaboration.

The objective of this research is to investigate the ethnomathematical aspects present in daily knowledge and practice in the sociocultural reality of artisans, ceramic craftswomen from *Maruanum*.

We aim to contribute to the knowledge around the production and sale of ceramic tableware, valuing culture and, at the same time, trying to find the knowledge and mathematical practices inherent to it, which can relate the knowledge outside school with the school knowledge.

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<sup>4</sup> Originally “*comunidades ribeirinhas*”, used to identify populations that live near and interact with rivers.

Finally, we hope that this work can interact with research that discusses ethnomathematical aspects as a way of social and cultural valorization of the oppressed classes in Brazil, that strengthen actions that support class struggles, that provide reflections on the teaching of school mathematics in *quilombola* regions of the country and disseminate the handicrafts of the ALOMA ceramic craftswomen.

## Methodological Process of the Research

We opted for field research with a descriptive nature, where we looked to develop the knowledge about a *quilombola* community reality. We worked using direct observation of the group activities and interviews with informers to collect the explanations and interpretations of what happens inside this cultural society.

The subjects of this research were 12 ceramic craftswomen, elderly community women that form the ALOMA. The investigation was built as field research, conducted according to Marconi and Lakatos (2003). The results strengthen D'Ambrosio's conception that every social group has in its way of life, in their habits, their culture, mathematical aspects that should be accounted for as knowledge itself.

We made five visits to the locality during the first quarter of 2020, where we produced data through interviews with the ceramic craftswomen with no formal education level. On these visits, we could gather general information about the craftswomen's school level, source of income, housing, and the main activities that were essential to the composition of the results presented.

This study is an applied research, that according to Gil (1999, p. 43), "[...] it has as a fundamental characteristic the interest in the application, utilization, and practical consequences of knowledge". Thus, we immerse in the social reality of the *Maruanum quilombola* community, where visits and observations were made to understand the way the crafts production develops and how these practices are related to the community, helping us to build pedagogical suggestions to the teaching of mathematics in future work.

The research has a qualitative approach, according to Minayo (2009, p. 21):

Works with the universe of meanings, motives, aspirations, beliefs, values, and attitudes. This set of human phenomena is understood here as part of the social reality because human beings distinguish

themselves not only for acting but for thinking about what they do and for interpreting their actions in and from the reality they live and share with peers.

According to this comprehension, it's possible to use participant observation procedures and interviews, through the monitoring of craft production from the beginning, with the search process for white clay.

According to Gil (1999, p. 43), the objective of research is classified as exploratory when the purpose is to “develop, clarify and modify concepts and ideas, considering the formulation of more precise problems or more researchable hypotheses for future studies”. Furthermore, an investigation built from a survey and interviews with the ceramic craftswomen of *Maruanum* will allow the research to reach a most specific level of interpretation in its results.

The methodology presented is based on technical procedures of field research that, as affirmed by Marconi and Lakatos (2003, p. 186), "it is the one used with the objective of gather pieces of information and or knowledge about a problem to what it searches an answer or a hypothesis you want to prove or, yet, discover new phenomena or relations between them", to raise data about the object of studies in the place where it is located.

## Characterization of the Ethnomathematics Program

Mathematics has been taken as an example in neutrality, as being a scientific truth and an instrument of analysis and discussion of the physical and social world. This mathematics, disseminated in schools and universities, is seen as being proof of humanity and transcending cultures. But for us, each group has an empirical collection of relevant mathematical concepts and practices that need to be observed, to establish a dynamic two-way relationship with school knowledge.

D’Ambrosio (2018, p. 24) highlights that:

We have to learn the mathematics of other cultural environments. In fact, this has been very interesting and useful in classrooms, not only in multicultural education, which is a modern trend in education, but also in culturally homogeneous groups.

Given the above, it is possible to verify that Ethnomathematics is present in all social groups, represented by the ways of life that transcend time and space and that are passed on from generation to generation. At this point, we highlight that the Ethnomathematics Program is strengthened by promoting a socio-cultural appreciation of different social groups, showing that all are possible to be mathematically represented and that method and mode also matter in the mathematical process. For Knijnik (1996, p. 110), the ethnomathematics approach is characterized as:

The investigation of the traditions, practices, and mathematical conceptions of a subordinate social group (regarding the volume of social, cultural and economic capital) and the pedagogical work that is carried out with the objective that the group interprets and decodes its knowledge; acquire the knowledge produced by academic mathematics, establish comparisons between your knowledge and academic knowledge, analyzing the power relationships involved in the use of these two knowledge. (Knijnik, 1996, p. 110).

This way, we can affirm that valuing, through Mathematics, the student's culture is valuing it by recognizing and respecting its cultural roots and its origins that, in this case, specifically, crossed continents and perpetuated over the centuries; and which has shown, through history, a process of fight, struggle, resistance and constant transformation through the occupation of the territory. In this continuous and time-consuming process, procedures and practices were created, which can be interpreted by the community elements in comparison with the knowledge coming from school mathematics.

For Mattos and Polegatti (2012):

All peoples have the capacity for abstraction, starting from what is useful to them in their daily life, this abstraction of knowing in all its amplitude, be it a plant or an animal. This demands an intellectual capacity that builds worldviews specific to each People, with empirical mathematical knowledge typical of each People, generally not considered abstract to our conditioned Westernized views. (Mattos & Polegatti, 2012, p. 5).

Thus, we understand that Ethnomathematics, as well as other areas of Mathematics Education, should not be left out, or seen only as an innovative aspect, on the contrary, it must compose educational

planning, since it is a tool that helps in the teaching relationship in the classroom, by valuing aspects present in the students' daily lives.

The National Curriculum Guidelines for *Quilombola* School Education in Basic Education, establishes in its Article 6, item VI, the “guarantee of the right to Quilombola School Education to rural and urban quilombola communities, respecting history, territory, memory, ancestry and traditional knowledge” (Brasil, 2012). Thus, we understand that this relationship between the school and the daily activities of community members is important.

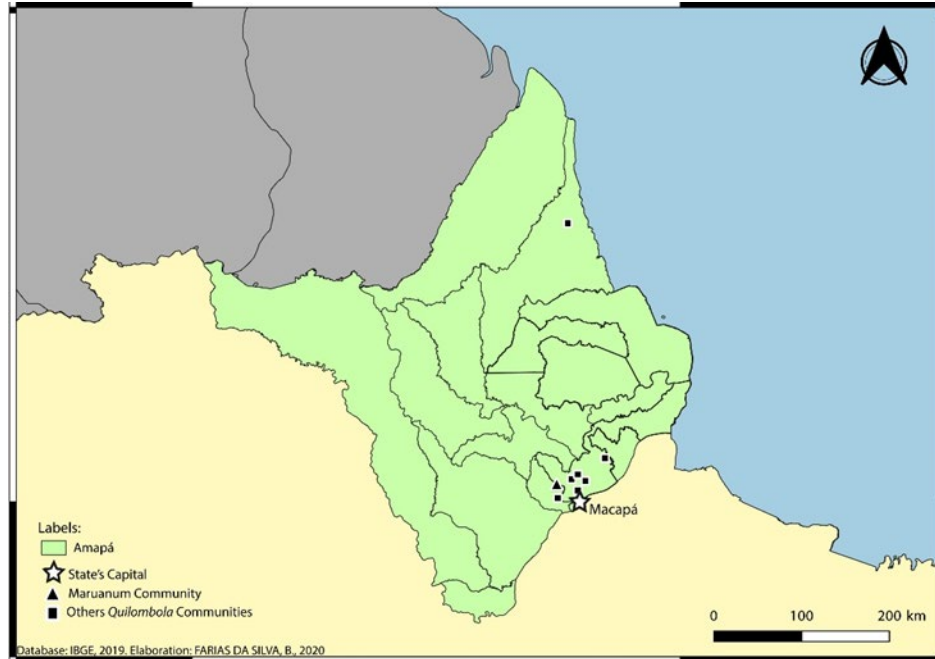
### The *Quilombola* Presence in Amapá: Political and Social Reorganization

The state of Amapá - AP is one of 27 (twenty-seven) federative units in Brazil, which has 26 (twenty-six) states and one federal district. Amapá was considered union land until 1988, only through the Constitution of the Federative Republic of Brazil of October 5, 1988 (Brasil, 1988), it became a state.

In Amapá there are countless weaknesses concerning land ownership, since most of the land is not yet registered with real estate registries, another large part of the land, some without occupation, is under the possession of the union. However, in recent years, much has been done about land regularization and demarcation in this state.

Historically, it is known that the region is made up mostly of blacks, descendants of slaves, and today, recognized as *quilombola* communities, with social and cultural characteristics that stand out and that date back to the ways of life of a special People. The lands now recognized as *quilombola* communities have their origins in two important movements, namely, the escape from slavery with greater emphasis on resistance to the slave model and more recently through access to land through the Land Reform Program (**figure 1**).





**Figure 1:** Map of the Federative Republic of Brazil - Delimitation of Amapá – AP.

Therefore, it is important to consider the contribution of afro-descendant People to the development of the state of Amapá. In fact, for Fonseca (2012), “[...] we cannot treat the culture of other peoples, other social groups, other social classes, as something without scientific relevance, considering that only we, white, western, ‘civilized’, technologically developed, can build valid scientific knowledge” (Fonseca, 2012, pp. 2-3).

In this scenario, according to Munanga and Gomes (2006), the highlight of slave history, a history marked by a lot of struggle and organization, acts of courage that characterized what was conventionally called "black resistance", whose forms varied from disobedience to working conditions, revolts, religious organizations and escapes to the so-called *mocambos* or *quilombos*. African-inspired, Brazilian quilombos became opposition strategies.

According to Silva (2010):

Currently, from the 1970s onwards, the quilombola issue was brought back into the national context with the “discovery of quilombola communities”, thanks in large part to the contemporary black movement [...]. Alongside this, it is important to mention the political mobilization that culminated in

the publication of an article in the Transitional Provisions (68), of the 1988 Constitution, which gives the right to the title of occupied lands. (Silva, 2010, p. 2).

*Quilombos* or *quilombola* communities have been much discussed in contemporary times. According to Santos (2010), these terms evoke definitions of an ethnic group consisting of an eminently black population, in this sense, they are, in general, related to Afro-Brazilian culture and territorial space.

Parallel to this conception, it is important to mention that the *quilombo*, which comes from the term “*ochilombo*”, also represents nuclei of resistance to slavery, due to the movement against the slave system and resistance through escape and self-organization. Over the past few decades, it has occupied a primary role in research involving issues related to the organization and culture of social groups, especially those that reflect aspects related to ethnohistories.

Highlighting that the registration of a *quilombola* community has more to do with the feeling of belonging that this group needs to have, we will approach it throughout the research information, for example, of schools characterized as *quilombola* by law, but which are not in fact, especially by the feeling of belonging. This strengthens the need for discussion that can meet the consolidation of cultural approaches, which guarantees these individuals the feeling of understanding themselves within this space, of valuing this space and especially of perpetuating this culture that is unique and characteristic of the existence of these groups.

In addition to the feeling of belonging and all the harsh history of slavery experienced by these social groups, we know that, regarding the state of Amapá - the place where the research was conducted -, although significant advances have been achieved in the last two decades, significant efforts are still necessary in order to guarantee these individuals the use and appropriation of land and space.

Regarding the demarcation of *quilombola* lands, it is essential to understand social agents and their respective actions in the field of social relations, be they mediation, disputes, and conflicts, through which strategies and power relations are imposed by different rules and symbolic capital.

For Trindade and Moraes (2014):

Therefore, to face this conjuncture of threats to traditional quilombola territories, concerning state institutions and sectors, an integrated policy is necessary. Despite the existence of legal instruments and government actions, this policy has not been strategically articulated between sectors and government agencies. Despite countless attempts, when visiting some of these government agencies, we were unable to access any database of indicators for effective planning of public policies for land regularization. Thus, these sectors must, through the thematic training of their responsible technicians, understand the procedures for land tenure regularization and the socio-cultural dimension of traditional territories, as well as directing budgetary resources to the implementation of public policies. (Trindade & Moraes, 2014, p. 20).

In this scenario of seeking understanding about the occupation of their space and their way of life, we found the Ceramic Craftswomen Association of *Maruanum* - ALOMA, present in the *Maruanum* District, located in the metropolitan region of Amapá's capital, a *quilombola* community, composed of more than ten villages on the banks of the *Maruanum* River. The largest village is *Nossa Senhora do Carmo*, considered the headquarters of the District, located 68 km from Macapá. We emphasize that ALOMA serves community interests, with a focus on the development and implementation of concrete actions for the region.

The economy of ceramic craftswomen is based exclusively on the manufacture of clay-based crockery and family farming. We also highlight that the presence of *Marabaixo* in the region is strong, keeping alive an exclusive cultural artistic movement in the Amapá region.

Regarding the conception of *Marabaixo*, Tugny and Queiroz (2006) affirm that it is a local rhythm and dance of the quilombos of Amapá that amuse the parties that occur during the year. In *Marabaixo* the instruments used to play are the "boxes" and the drums, in the *batuque* (a rhythm related to *Marabaixo*) they are tambourines and drums, the dance symbolizes the dragging of the feet as if they were tied.

In addition, the contributions of Videira (2010) are worth mentioning:

The songs and rhythms produced in these traditional events of the black populations of Amapá are as original as their names suggest: *marabaixo*, *sairê* or *zimba*. Even the *batuque* at the only remnant of

an old *quilombo* in the state, the *Cria-ú*, in many ways differs from the *batuque* in the south of the country, due to the presence of large tambourines, played in three or four, accompanying two drum-shaped drums, made with a tree trunk, lying close to the ground and “assembled” by their players. (Pinto, 2000 apud Videira, 2010, p. 77).

Therefore, we found a unique space, with a way of life and survival techniques that are unique to the region and that are full of mathematical concepts in the elaboration of ceramic pieces, clothes, and artifacts used for the dance of Marabaixo and in family farming, such as geometric shapes of instruments and ceramics, which can and should be used as marker instruments for the presentation of so-called school mathematics.

### Maruanum's Craftswomen: The *Quilombola* Women as Community Leaders and Responsible for the Region's Collectivity Construction

Costa (2011) highlights that ceramic craftswomen's knowledge is passed from generation to generation. The ceramic pieces are produced only by the craftswomen and by the women of the local families, using ancient techniques and, thus, generating a source of income for their families. We emphasize that in the state of Amapá, only the Maruanum's craftswomen produce ceramic pieces, such as those from the Amapá Agency collection in **figure 2**, although other traditional activities like family agriculture and *Marabaixo* are present in the other communities.



**Figure 2:** Ceramic pieces produced by the craftswomen.

It's important to highlight that the craftswomen have simple ways of life. They also are the ones that collect white clay used as raw material such as in **figure 3** (Costa Ferreira, 2016, p. 88). In many cases, it can be extracted from the ground at a depth of three meters below the surface. This mineral later will be shaped according to the proportions ordered, and with the help of specific and typical tools of the community such as "*cuia*", a common object originated from a tree called coité or cuieté, used to determine absolute measures, and also the "*cuiapéua*" which is used to determinate the embossment and smoothing through the pieces. After this procedure, it is burned and consolidated into ceramic pieces, clay stoves, pots, and other dishes. In this perspective, we highlight the chants, always present in the daily activities of the craftswomen, which strengthen the very manifestation of *Marabaixo*, in technical analysis that transforms daily activity into a ritual model.



**Figure 3:** Ceramic craftswomen performing the extraction of clay.

Reinforcing cultural issues, we emphasize that after collecting the clay, the craftswomen usually offer a mini-mug or pot to the “clay mother” as shown in **figure 4** of the collection of the *Casa do Artesão de Macapá*. They believe, origin unknown, that below the clay hills, there is an entity, from whom they ask permission to remove the clay and turn it into a source of income.



**Figure 4.** Ceramic pieces used as an offering to the “clay mother”.

We observed that most of the craftswomen have little schooling, and all knowledge in making crafts is obtained empirically. In an interview with the twelve of them, we observed that only one declared that she had completed elementary school, the others declared that their education was incomplete. In this sense, all questions related to the association's economy are learned empirically.

In the course of the research, it was possible to verify that the craftswomen do not use any relation with the schooled knowledge, nor for the making of the material, neither in the calculation of the value of the products that are offered for sale, like the sale of two pots, where one corresponded to  $\frac{3}{4}$  of the other and its market value was 50% of the initial value. When asked about the value, they replied that one was smaller and therefore half the price.

It was also possible to perceive that all 12 ALOMA craftswomen understand their social role as a living memory of their ancestors, and we registered the speech of one of them, lamenting that all women who are in the current practice are older and that currently, young people of the community do not find the strength to learn how to make crafts. At this point, we believe that spaces for the exchange of knowledge, schools, day-care centres, etc., must be constituted as spaces for cultural appreciation, to show young people the historical value of the practices performed in the community's handicrafts.

Throughout the research, we noticed a great concern with the spread of the culture, the symbol of the *quilombola* community, as we can see in the words of lady Marciane, one of the ceramic craftswomen:

“today we are only 12, some have already left this life, the *gitas*<sup>5</sup> of today, granddaughters, daughters, and nieces do not want this life, they want to leave and they did not learn to make the pots, then in a few years it will end, our history will end if nobody keeps doing it”. In this context, we observed in lady Marciane's speech a desire for a feeling of belonging among the young people of the community. In this scenario, it is believed that Ethnomathematics in the classroom, based on this reality, always highlighting the importance of local history, may in the medium term sharpen young people's interest in maintaining practices, even if only culturally, not necessarily as a commerce.

Lady Lúcia said that the best way for children to learn how to make crafts is, from an early age, to teach them with the clay. She said that her daughter knows more or less because since she was a child, she was always with her and the clay dolls were her daughter's first pieces. We know that the feeling of belonging is essential for local development, for maintaining traditions, and for the perpetuation of culture. The school must also understand that the best world for young people in the community can be in the community itself. We realize that for the ceramic craftswomen the younger generations think that “a better life” is far from the community. This is a feeling that we can no longer feed. The current model of knowledge construction needs to demystify the idea of “*Jeca Tatu*”<sup>6</sup>, and make it commonly understood that it is possible to have progress and cultural appreciation in remote and extreme spaces of the country, and of the world.

Lady Marciane's speech, implicitly, remained among all the interviewed craftswomen. Another interesting point was to notice the distancing of *quilombola* schools from local practices. We asked if at any time they gave a workshop in schools, for the local young people themselves and lady Maria replied: “not here, I have already given courses for boys from universities, for doctors who came from abroad to see our pieces, but not here at school”. At this point, this introductory contact for the construction of a greater proposal of interference in teaching with suggestions for cultural appreciation had a moment of

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5 “Gitas”, in Brazilian Portuguese, is commonly used to refer to children or younger people.

6 “Jeca Tatu” is a character created by the writer Monteiro Lobato. Portrayed as an uneducated man from the countryside, he is used in popular Brazilian language to refer, pejoratively, to people of similar origin.



reflection. These craftswomen recognize the richness of their work for the external public, however, due to factors not yet identified, they do not see it within their space. In this way, we understand that the role of a pedagogical proposal based on the social reality of the students, always bringing the community as agent of contribution in the students' learning, is extremely important.

Another important factor is that even without, or with little schooling, they perceive the use of mathematics in their craft. When asked about the presence of mathematics in crafts, lady Lúcia said: "Yes, I use the ruler to measure the rim of the pots" referring to a piece of wood that they use to measure the proportion of the pot's circumference when sold in sets of three sizes. We observed, however, that the values do not follow a defined rule, sometimes they are sold for values "placed in the look", that is, they do not always value the product. Thus, we highlight the importance of schools having a direct relationship with these women, adding value to the product, and valuing cultural characteristics (**figure 5**).



**Figure 5:** Production of handcrafted pieces.

For Silvani (2012):



The modeling of ceramics is performed in a solitary way, usually at home. Some craftswomen pointed out in their reports the pleasure they feel in molding the ceramics and, perhaps because of this, they prefer to make it alone, in silence, without the interference of others who can take their concentration. The making of the piece begins when, pressing the clay between the hands, the craftswoman forms a flat and circular base, which, arranged on a smooth surface, starts to receive the clay rollers, superimposed on each other, forming the piece. (Silvani, 2012, p. 10).

Given the above, we have a space with a strong relationship with Africa that mixes with indigenous practices. The existence of these ceramic craftswomen constitutes the synonym of a solidarity economy, in addition to showing the importance of public policies that permit the correction of historical wrongs with the oppressed classes of this country, especially regarding the access to education aspects. We also highlight the involvement of the community, specifically the role of women in the context of *Marabaixo* (**figure 6** - collection of the *Casa do Artesão de Macapá*).



**Figure 6.** Presentation of a *Marabaixo* Group in Macapá – AP.

According to Pessoa and Venera (2016, p. 13):

The *Marabaixo* is a cultural manifestation that has the power to tell the black territoriality

process in the city of Macapá. It's a dance that started to appear since the African Diaspora in the Amazon regions during the XVIII century when Africans were violently forced into slavery work on the construction of the *São José of Macapá* fortress.

Based on Barton (1999) we found a solid basis that can admit the presence of mathematics in a culturally different context. Likewise, we used as a basis of analysis aspects present in *Marabaixo* dance (clothing and drum) to employ as teaching methodology and use in the classroom, valuing the relationship between teaching and learning of school mathematics. This study addresses the importance of cultural valorization and ethnomathematical studies as a way of empowering children at *José Bonifácio* State School, which is recognized nowadays by the state, of fact and law, as a school with *quilombola* identity by the patterns of Brazilian responsible institutions.

## Possibilities Between the Non-Schooled Spoken Knowledge and the Formal Teaching of Mathematics

According to D'Ambrosio (2011, p. 42) "recognizing and respecting the roots of an individual does not mean ignoring and rejecting the roots of the other, but, in a synthesis process, reinforcing their own roots", that is, from the tools of their daily lives each student can work in their natural environment, giving a new meaning to mathematics.

Mazur (2012) states that:

Valuing the knowledge of peoples, their cultures, their ways, and their traditions means presenting mathematics as an unfinished science in the classroom, which is constantly changing and which is necessarily present in everything. In addition to keeping the culture of a people alive, performing a rescue of the students' memories, and above all perpetuating their roots, in this work we present the quilombola people in Amapá, a social group that for centuries had their memories erased, and were removed from social spaces and academic circles, and so, with a teaching that values their social conceptions, it becomes possible to reframe this history. (MAZUR, 2012. p. 19).

Thus, we affirm that Ethnomathematics can focus on the possibilities of demonstrating how each social group creates and discovers arts and devices that are used in daily life, with the aim of understanding, exemplifying, and working this reality in relation to school knowledge, taking the position and the ability to transform it.

Throughout the research, we could watch and experiment with the ceramic craftswomen the perceivable relationships between school knowledge and non-school knowledge, and here we list the approaches and their main results.

**Example 1:** Unit of measurement using *Cueba* (**figure 5**), a shallow and flattened gourd, extracted from the seed of *Coité*, which is used for measurement in family farming (in weighing, for example, beans and *açaí*). In the presentation with the craftswomen, it was possible to make an approach relating the concepts of liters and pounds and, consequently, the ratio of proportion. Therefore, we found that, as in other investigations with communities recognized for outstanding professional practices, such as in Sousa and Palhares (2019), the notions of proportionality are very much alive and useful in the community's daily life and can also be used as bridges in the construction of school notions of proportionality.

**Example 2:** The *Marabaixo* snare drum is a musical instrument characteristic of the *quilombola* communities of Amapá (**figure 7**). We found that these skills were being structured within the process of generating this knowledge because when building the “box” (of the instrument) it takes into account the size that the instrument will have and there are generally few people in the community who have this skill. We emphasize that in these instruments there are aspects linked to the measurement rulers of the pieces, to the proportional relations between each other, and the geometric shapes present in the paintings of the boxes. In this regard, there are some similarities with the geometric aspects identified in other investigations in Mozambique (Gerdes, 1999) or Angola (Dias, Palhares e Costa, 2019).

In addition to example 2, it's possible to highlight the study of aspects related to the execution of music and dance that were not studied or developed yet, likewise other investigations, for instance, Ribeiro, Palhares and Salinas (2020).



**Figure 7:** Snare drums for *Marabaixo* and *Batuque* (*Casa do Artesão de Macapá*).

**Example 3:** *Peconha*, used in the açai berry harvest, is made by pieces of *Embira* fiber or *Ubuçu* fiber, and the climbers use it as support to their feet so they can climb up the trunk with the strength of their feet and hands (**figure 8**). During the practice of this activity, it was possible to create relations of ratio considering the proportions and size of the *Peconhas* and linking it to the height of the harvestmen. It was also possible to bring some discussions about circles and circumferences (This relation was possible through talks with the craftswomen).



**Figure 8:** *Peconha* / Açai harvest. (*Casa do Artesão de Macapá*).

PS: We hope to make progress in the discussions and apply mathematics activities to relate to the results we observe in everyday life.

Based on the previous considerations and in what we saw from the relations at the *Maruanum* Communities, from the kids to the grown-ups, it's important to think about opportunities to instigate an enthusiasm for learning. It's also worth considering that the majority of people there didn't have access to the school by the time they were supposed to. The continuous contextualization of the school mathematics as a process in which they can recognize their environment and cultural identity in it, it's a significant step to reach this goal; consequently, the educator has the opportunity to stimulate interest in learning.

## Final Considerations

Data presented here show us a ramification of possibilities that can and should be considered while teaching mathematics, especially if we consider the facts observed through festive activities, community actions with music, and with the *Marabaixo*.

In the same way, we can mention the non-acceptance of the banking conception criticized by Freire (2014), where the oppressive society practices the culture of silence against the oppressed individual weakening its roots and its essence.

And this fight only has meaning when the oppressed, when looking to reinsure their humanity, that is a way of creating it, don't feel idealistic oppressive, and don't turn themselves into oppressors of the oppressors, but restaurateurs of the humanity in both of them. And there is the big humanistic and historic task of the oppressed - free themselves and the oppressors. (Freire, 2014, p. 41).

In this way, we point out that Ethnomathematics values the differences and strengthens the solidity to the construction of mathematical knowledge that is closely related to the traditions. Also, in this specific community, traditions are connected especially to the potential of Marabaixo.

That said, we reinforce the need to appropriate common understanding, which allied to a constant dialogue with the academic knowledge, can give the individuals a critical and reflexive vision of the world that strengthen the history of their own identity. Besides, other dimensions are also part of the Ethnomathematics, especially the political one. According to D'Ambrosio (2011), and in this context, the history of a student cannot be hidden or obstructed.

The development of this research provided the understanding of Ethnomathematics as a field of Mathematics Education that values the differences. It also strengthens the construction of mathematical knowledge from a perspective related to traditions that, considering the community mentioned, would be the potential of the craftswomen and the *quilombola* inheritances.

We hope this paper contributes to the academic community spreading the relevance of the black population in the history of the formation of the state of Amapá, their main fights, and their history of escaping for freedom and better conditions of life. We expect as well that it helps to increase the perception of the importance of Ethnomathematics as an academic alternative to teach mathematics.

Besides, considering that there are a few scientific productions that contextualize the characteristics of the state of Amapá, we wish this research can contribute as an incentive for the production of new material about Ethnomathematics, with the *quilombola* community as a focus. At the same time, publicizing spaces that were built destined to fight and war, adds to the history of black people in the construction of Brazilian identity.

Finally, we expect that it allows reflections about the role of school, especially on the practice of teaching in social spaces where existing specific values and knowledge need to compose the formation of a dynamic curriculum, and at the same time aggregator, of the aspects that are part of the origins of these people.

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