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The painting technique application: an experience of art and science for the semiarid environment knowledge

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ABSTRACT

The research aims to evaluate the use of the painting technique portraying the Ceará semi-arid region environment. In the opportunity, it was possible to apply the painting technique and to verify the understanding of some geographic concepts, according to the students artistic perspective. The target audience was consisted by the Deputy Cesário Barreto Lima school students, located in the district of Taperuaba - Sobral, state of Ceará, precisely in the semi-arid environment. Therefore it was portrayed the environment through canvas paintings. The painting material consisted of soil ink.

Keywords: Painting technique; Semi-arid; Painting with Soil; Technical resource.

Aplicação da técnica da pintura: uma experiência da arte e da ciência para o conhecimento do ambiente semiárido

RESUMO

A pesquisa tem por objetivo avaliar o emprego da técnica da pintura retratando o ambiente semiárido cearense. Na oportunidade, foi possível aplicar a técnica da pintura e constatar o entendimento de alguns conceitos geográficos, isso a partir da perspectiva artística dos alunos envolvidos. O público alvo consistiu alunos da E.E.M. Deputado Cesário Barreto Lima, localizada no distrito de Taperuaba-Sobral, estado do Ceará, precisamente no ambiente semiárido. Portanto se retratou o ambiente em questão através de pinturas de quadros. O material para pintura consistiu na tinta de solos.

Palavras-chave: Técnica da pintura; Semiárido; Pintura com Solo; Recurso técnico.

Introduction

Art, through the painting technique, and Science goes together since ancient times. In geographic science this fact comes from its systematization, mainly associating the nature with the category of geographic analysis denominated of landscape. The notion of landscape often linked to nature is from German heritage Geography introducing the landscape in the geographical science with the concept of *landschaft*, due to the strong German school naturalism. The relation between art and geography can also be observed through the evolution of art as a contestation mechanism of current systems, be it in an economic, political or

ideological imprint. This way, as emphasized by Almeida (2016), the imaginary becomes the protagonist, inciting the opening of human conscience to representations of new demands of representation of the reality. Furthermore, from the consideration of the variety of factors which are had as new social wishes, industrialization, pollution, amongst others (Almeida, 2016).

This approach between landscape and nature comes from the emergence of Geography. Due to the difficulties employed in the initial studies, Geography was marked by studies of empirical connotation aimed to describe and characterize nature with a focus on the natural landscape, being Humboldt as its precursor. In

1967

this way, as highlighted by Cene and Ferraz (2016), art and science are characterized by outline narratives about the world, whether through expeditions, in which differentiations are presented only in the nature of language that convey information, or through concepts and categories.

Alexander V. Humboldt was considered a great naturalist and traveler, he used to perform scientific studies. In *Pictures of Nature* in 1808 we can see the landscape in the Humboldt descriptive way - Pictures of Nature are the author's expedition to the New World reports (Humboldt, 1948; 1980).

[...] an attempt to experience the extent to which the scenes of nature from the various continents could be described without losing the effect of the natural and without losing the force of evocation and the material consistency of a perceptive judgment on nature. (Pedras, 2000, p.97).

The descriptive Humboldt mode approaches the dominant artistic and literary type, in which the visible one presents great proportion. The author sought to suggest a landscape that would suggest a living image.

Through the descriptive form, Humboldt sought to represent the landscape as faithful as possible, showing the reality captured by the look and the imagination. But this representation that the description brings does not exclude the emotional, for it is through the direct counting of the traveler with nature that he begins to suggest to him an amplification of the order of the sensible (Pedras, 2000).

In this sense, we can see that the landscape in Humboldt, besides its descriptive and aesthetic aspect, which values the visible, does not leave aside the question of its sensitivity, of the observer's gaze individuality.

For Falcão Sobrinho (2007), in the evolution of geographic science the landscape category has been worked on the concepts of natural and cultural landscape. Essentially, the vision was originated by the dichotomy of the Deterministic and Possibilistas schools geography studies in particular. In this work, landscape is going to be seen as mediation and according to Coutinho (2019), landscape have always been both starting and finish line, and hardly ever it is had as mediation.

Still according to the author, the landscape takes a different approach when the General Theory of Systems is inserted, which began to treat nature considering the interaction of the elements or their association. In the sense of the systemic analysis applicability, the representation of the Natural Landscape is perceived as something delimited, with patterns and attributes for each element. Nature then becomes humanized.

However, in earlier studies, Sauer (1925) already dealt with nature in an integrative way, so he posited that the natural landscape is an area prior to the introduction of human activity is represented by a set of morphological facts. In the understanding of the author, the natural landscape is the basis for the cultural landscape to be modeled according to a cultural group.

The individuality of the landscape is also addressed by Sauer, but the author shows that even the landscape being individual, it is seen with a generic meaning and object of comparison with other landscapes.

The geographer may describe the individual landscape as a type or probably a variant of a type, but he always has in mind the generic and proceeds by comparison. (Sauer, 1925, p.24).

In view of the above, he realizes that the landscape from its conception in geographic Science is linked to the understanding of nature.

In order to evaluate this scenario, it is necessary to search for new methodologies that may help teaching geography and its contents. What in the geography presents itself to be easier to apply methodologies that flee from the traditional one, since in itself it is interdisciplinary.

Therefore, it was pursued to draw students closer to the local reality, in feel and present elements in the landscape scenery. Marques (2015) states that everything in a man is connected, there is nothing accidental. However, such connection is granted by a gestalt, not by an essence, what does not affect the fact that men are permeated by contingency, once it is considered its historicity and refuse the idea of a being purely natural. What can be done regarding to the decrease is to understand an existential interconnection, in which is necessary conceptual settings, always taking the risk of seeing such notions threaten to set human existence.

Stressing, yet, Pimenta (2016), address the importance of identifying in studies about landscapes and relate them to the feeling which people associate them to. Consequently, it awakes studies about the lived environment connection and affection, as pointed out by the authors. An instantly realized landscape transmit feelings like snow transmit serenity and quietness.

Thus, this study aimed to analyze the perspective of the interdisciplinarity that geography gives us to work and the perception of the local landscape with the students from the art, using the painting with soil pigments (Costa Falcão, 2014).

This way, students become active agent in the process, receiving academic information contributing to the theoretical study concerning their perceptions of the semi-arid region environment. We prioritized to carry out the research in semi-arid environment, specifically in Taperuaba, Sobral district which is located in the state of Ceará, Brazil.

The methodological approach proposed the active participation of the public who were reached through the action which were formed by Elementary Education students from the Deputy Cesário Barreto Lima school, since the apparent homogenization of knowledge would give us better scales of analysis in the interpretations of the data collected.

The area to be represented through the art

According to the Brazilian Ministry of Integration (BRAZIL, 2005), the Brazilian semiarid is a region which currently extends over an area of 969,589.4 square kilometers, covering almost the entire Brazilian northeast region,

with the exception of Maranhão state and the upstate of Minas Gerais, this last one is a state located in the Southeast region. The region has an approximate population of 25 million inhabitants living in environmental conditions characterized by dry climate, sparse rains and high evapotranspiration. Barros and Lima (2016), verified that Taperuaba, a municipality in Ceará, Brazil, is completely found in the semiarid area.

The landscape of the semi-arid region has as main characterizing factor the climate, responsible for modifying the other elements of the landscape. They are adapted to the climate, vegetation and the relief formation process depends on the time of year, rainy season or drought, one is predominant other. Araújo (2011) & Falcão Sobrinho (2014).

In the same sense, Falcão Sobrinho (2007) & Vieira Torres; Falcao Sobrinho, (2016) places the climate as a conditioning factor for the other elements of the landscape, but emphasizes that the various forms of relief in the region provide support for the other landscapes elements being the vegetation the element of greater visual impact.

In this landscape design, the state of Ceara occupies a territory of 148,016 square kilometers, with 92% of those subject to the semiarid conditions (Falcão Sobrinho, 2006). As components of the landscape, the State harbors a certain natural and landscape diversity, being the sertaneja¹ surface of greater expressiveness in the aridity context (Gomez et al. 2017). Barros and Lima (2016), verified that Taperuaba, a municipality in Ceará, Brazil, is completely found in the semiarid area (Fig. 1).

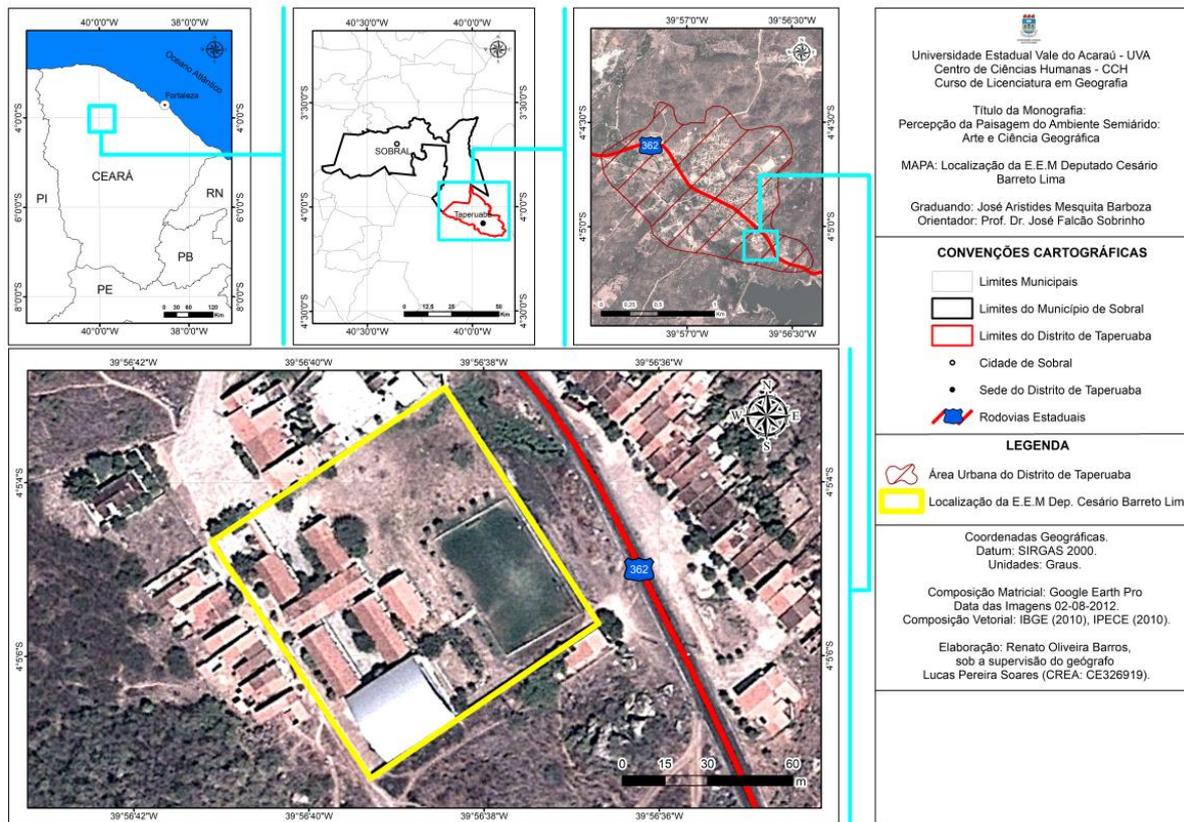


Figure 1: Location of Taperuaba and EEM Deputy Cesário Barreto Lima.
Source: Prepared by BARROS, Renato Oliveira (2017)

According to Souza et al. (1979), the sertanejo surface is embedded between crystalline and / or sedimentary plateaus, its altimetric levels are variants between 100-350 meters covered with caatinga of size and diverse fauna depending on the location. According to the author, it is on the sertanejo surface that the semi-arid climate presents its most acute conditions, such as irregular rains and rainfall indexes that do not exceed 800 mm per year.

In the context of the Ceara semi-arid region, we highlight the district of Taperuaba in the municipality of Sobral, inserted in the sertanejo surface, that holds scenarios in its natural landscape that express well the state scenario. On an empirical look presents in the formation of the landscape a sertanejo surface lined with saws and cut by Bom Jesus River. With arboreal vegetation / shrub caatinga that presents / displays great contrast of colors under the influence of the semi-arid climate that in the rainy block presents a lush green, whereas in the dry

season predominates a gray coloration in the local landscape.

Geography education: landscape and art

As in the conception of geographic research, in the geography teaching, the landscape appears as one of its key structuring concepts. According to the PCNEM, the landscape is "understood as a visible unit of the spatial arrangement that our vision reaches." Thus the landscape within geography teaching can be defined according to Santos (1988, p. 24).

All that we see, what our vision achieves, is the landscape. This can be defined as the domain of the visible which the sight encompasses. It is not only made up of volumes, but also of colors, movements, odors, sounds, etc.

In this sense, we perceive that the landscape is dynamic and individual. And that we can explore both the visible side of the landscape and the perceptible that are not associated with the vision field. Thus the landscape is loaded with

diverse symbols and meanings that gain values according to how we interpret it.

Landscapes are centers of different meanings, resulting from the ways in which we value them. So according to our evaluating codes they can be interpreted through their visible, non-visible and sensitive symbols, for as a symbol in itself, the landscape, involving here the natural, cultural and eclectic dimensions, reveals the planet Evolution course and the humanity history transformations (Guimarães, 2007, p.21).

Within the geography teaching, the different meanings that the landscape makes reflect on the different possibilities of working the landscape, the point is that when studying the landscape in the geography classes we are stuck to the photographs in the textbooks, often landscape that does not the reality of the students, this ends up making the content uninteresting. What we should do is explore the landscape that surrounds us, whether on the way home from school, or an outdoor lesson, as well as a walk around the school. The study by the textbook only causes damage to students' learning, as we can see in Marciel and Marinho (2011).

The landscape is worked only by images found in textbooks, not considering the rich landscape existing around the school or neighborhood. In this way one loses the opportunity to perceive the landscape in its most varied approaches promoted by the senses (sight, touch, smell, or even taste). (page 68)

And what we must do is seek to reverse this situation and take advantage of geography as an interdisciplinary discipline, where it is possible to associate to its contents various methodologies that can facilitate the geography teaching, providing the understanding about the geography that surrounds us. Silva (2009) shows in this interdisciplinarity of geography we can use music, works of art, films, among others. Thus, we can take the geography beyond the textbooks and the *old way to learn* implanted in the geography teaching.

In seeking interdisciplinary activities, we will try to demonstrate that it is possible to overcome expository classes and that, even with the imposition of the fragmented perspective of

knowledge in schools, it is necessary to seek the whole without losing its specificity. (Costa Falcão and Falcão Sobrinho, 2014. p. 20).

In order to search for interdisciplinary activities we can work the landscape through art, so the landscape is a concept used by both disciplines. This is feasible and it becomes more interesting for students to work the landscape through art, painting their perception of the local landscape. With that, it provides a search to make geography, Bento (2014) claims that school geography must be built, realized, not taught. It has its own movement, relatively independent, carried out by teachers and their school fellows that make decisions regarding to what is effectively taught.

For Myanaki (2003) to work the geographic landscape from the art is a way to better understand its dynamics and transformation, besides being able to construct a new look and perception of the individual on the landscape, making it more sensitive to landscape that surrounds it.

Taking advantage of this geography interdisciplinarity is adopted the practice of painting with soil as the tool that may facilitate the work on the landscape perception by the students. The soil painting work was a methodology acquired in the of the State University of Vale of Acaraú Laboratory of Pedology and *Erosive Processes* in Geographical Studies, according to Costa Falcão (2014).

Methodology

In the methodological path was aimed to find experiences that could bring the students to the study object by entering the student through the painting technique and also the scientific walk as studied by Costa Falcão (2014), allows us this understanding. According to previous experiments carried out by Costa Falcão e Falcão Sobrinho, (2014), Costa Falcão, et al (2018) and Costa Falcão et al, (2019).

In this sense, we have the students in front of a screen and ask them to represent the local landscape, not only judging the aesthetic aspect, but also the meanings of the landscape representations, bringing the student closer to his local reality, since play activities are important tools for teaching-learning and thus better understood than simply verbal activities.

We traced the concept of landscape and art in front of a painting workshop with soil pigments, carried out with fifteen 3rd year students from the Deputy Cesário Barreto Lima school.

The workshop was held in two moments. The first of the 3rd year moment was held in two consecutive days, computing 16 hours duration. It was initially only held with 8 students (by the end of June) due to the amount of material available and the availability of the students. In another moment the same workshop was carried out with another 7 students who made themselves available to carry out the activity (mid-August). We also have the collaboration of the school's educational coordinator and a teacher who gave students for the activity.

In a first moment the contextualization of the theme, Perception and Landscape was done, giving focus to the local landscape. In the opportunity they discussed the geographical concepts they lived in the classroom, as well as their interpretations about the local reality.

The contextualisation of the local landscape, the concepts of Landscape and Perception was brief, during a work shift, and without much depth, not running the risk of influencing the response of the questionnaire and its interpretations of the landscape through the painting workshop.

In this context, we applied a questionnaire, mainly seeking to identify the

interpretation of the local reality. The questionnaire applied had the following questions: 1) What is nature? 2) What is landscape? 3) What is natural landscape and cultural landscape? 4) How do you perceive the local landscape? Describe. 5) What feelings and feelings do you have about the Taperuaba landscape?

The same proportion or, still, to identify the students' knowledge about nature, landscape, natural and cultural landscape, focusing more on the district region reality and the sensations and feelings about this in the context of the landscape. This path was the basis for Quincas' worries (2018), when he strives to work with the construction of geographical reasoning in basic schools and which concepts are present in this process. The same view is had by Vasconcelos (2018).

Finally, the practice was applied, with the insertion of a workshop. It was started with a quick presentation about it, explaining how was defined the idea of the paintings with soil and the production of paint from soils workshop realization. The methodology was based on Costa Falcão (2014).

After the paintings production with the students participation canvas and brushes were available so students could produce representations from the local landscape (Figure 2). The workshop took place in the school video room so the students could pass to the screens the landscapes experienced in their day to day



Figure 2: Students performing painting activity on canvas.

After the practical workshop activities, we formed a group conversation with each one of the students so that they could explain the landscape they wanted to represent in the painting. In the conversation the students were asked questions like: 1) What did you wish to represent on the canvas? 2) What period of the year did you like to represent? 3) Have they had difficulty performing the painting because of the colors? Among other questions that emerged from the answers obtained previously.

Results

With the closure of the activities initially proposed, for the students involved in the research, we noticed that they only presented difficulties when they came across the questionnaire, for example, in the words of one of the students *"These questions are very philosophical."* This is because the questions quoted above have been asked in order to actually get personal answers without any kind of guidance.

From the questionnaire application, we can analyze students' understanding about the *nature* and *landscape* concepts, as well as a view of the local landscape according to their perception. The paintings gave us an analysis

of this same landscape perception in a more concrete way.

Analysis of the questionnaire

Nature

In relation to the Nature concept which aimed to identify the definition from the students, we obtain answers such as: *"Nature is composed of life, which composes nature are trees and animals."*, *"It is a place that there are several systems, such as trees stones, birds, rivers, is set related to nature"*, *"It is a divine gift."*

Thus, we can see that most students associate nature with living elements as elements of fauna (such as animals), and flora (exemplified as trees, flowers, shrubs). Other elements also appeared in the answers like rivers, waterfalls and stones.

In general, the students wanted to exemplify nature through its elements and not generalized. Placement as a divine gift was also perceived in the discourse of nature carried out by the students.

Landscape

In order to capture the *Landscape* concept according to the conception of each student, an open question was asked *"what is landscape?"*. We can

figure it out that in general, students conceptualize the landscape following the sense of vision, by means of what can be seen to observe.

Students also related the landscape to nature as in a landscape student's response would be *"They are all natural observable aspects of given location"*. Already another student shows the landscape as *"the vision of natural or cultural aspects"*, which leads us to the idea that the landscape is not only composed of nature, but also man produces and modifies the landscape.

Although beyond what is visible the landscape is perceived by the feelings, as put by some students the landscape brings emotional aspects, and is something capable of bringing peace. We can conclude that defining a landscape is difficult, since observing a landscape is something particular to each one, which is very well placed in a student's response when he says landscape *"It is what is around us, it is what we see, we observe.. It can be ugly or beautiful depending on the observer."* The fact that she puts *"ugly or beautiful depending on the observer"* emphasizes the individuality in the interpretation of a landscape.

In the case of the natural and cultural landscape definitions, the students generally associate the former with the landscapes composed of nature elements and the second with the humans landscapes.

In a broader context, what we see is that students have an understanding of the landscape from the visible elements, forgetting many times that the landscape is the stage of the relationship of these elements, not being explicitly mentioned climate as one of the landscape elements, as well as the fauna and flora. What we must do is get our view deepen of the landscape then we can have a better understanding of it.

Local Landscape Perception

At first when asking the students to describe the local landscape we expected as most of the answers the elements forming the landscape as the relief, the climate, the vegetation and the presence of the locality symbol, the Swallow Rock.

And the result confirmed our initial idea about the local landscape, some with

larger and others on a smaller scale. The answers exalted the great presence of mountain ranges, and these are possible to be observed from any part of the district. The vegetation also mentioned, but not specified as caatinga vegetation, was exemplified as *"plants of various types"*.

More specifically the vegetation appeared in the answers as *"the mark of the Northeast that is the cacti"* and *"remarkable plants like the mandacaru"* which shows the students attention to one of the caatinga symbolic plants. In other cases the vegetation appears in contrast to the green of the rainy season and the vegetation dries during the most of the year.

The local landscape cultural aspects were scarcely mentioned, this is because the district is growing, but nature is predominant in the local landscape as emphasized by one of the students who said that there is *"the predominance of natural aspects in relation to the human."* The natural aspects such as the soil, placed as being rocky and the water bodies like river and weir were little mentioned. That river is Bom Jesus river that passes behind the school, the same was placed by a student who lives in the locality of the same name and on his way home from school the student realizes the route that the river makes to its dam in Taperuaba, being called the Sonrizal reservoir. The lack of water bodies is due to the fact that we are experiencing rains below average. This climatic issue was mentioned mainly when it refers to rain, where the student highlights the beauty of the landscape in the rainy block, *"It looks very nice especially when it rains."*

The "Swallow Stone" which is very symbolic for the district, was mentioned a few times, which contradicts the initial idea that we expected in relation to the local landscape. Another local landscape element that was not mentioned was the *Bico do Parrot*, which is in the district border with a city called Santa Quitéria, but which belongs to and can be seen from several points of the district headquarters, so we consider that it is also part of a panoramic view of the local landscape.

What we can notice is that on natural landscapes the students showed a good feeling and the beauty of the same ones, leaving to be

desired in the cultural landscapes putting the pollution like factor causing a bad feeling before the local landscape.

Landscape analysis through the application of painting technique

For this section of the work, we reserve for the analysis of the paintings painted by the students. We separated the 15 paintings into 4 mosaics, groups specified as: 1) paintings that appear natural and cultural elements, 2) the mountains as predominant, 3) representations of the Rock of Swallow and 4) the climatic contrast of the landscape, despite the two paintings chosen to fit into group 3.

With regard to the paintings that contemplate the natural and cultural elements in the same landscape cut, 4 paintings occurred (Figure 3). The cultural traits inserted into the natural landscape were expressed through houses (3:04), man road (2), where the student sought to represent the landscape seen during the home ride to school.

There were also traces of the local culture, the cavalcade (1), which is geared towards the local scenery. In analyzing the pictures we perceive the tranquility of the represented environments, typically rural, where the elements of nature still appear predominantly in the landscape.

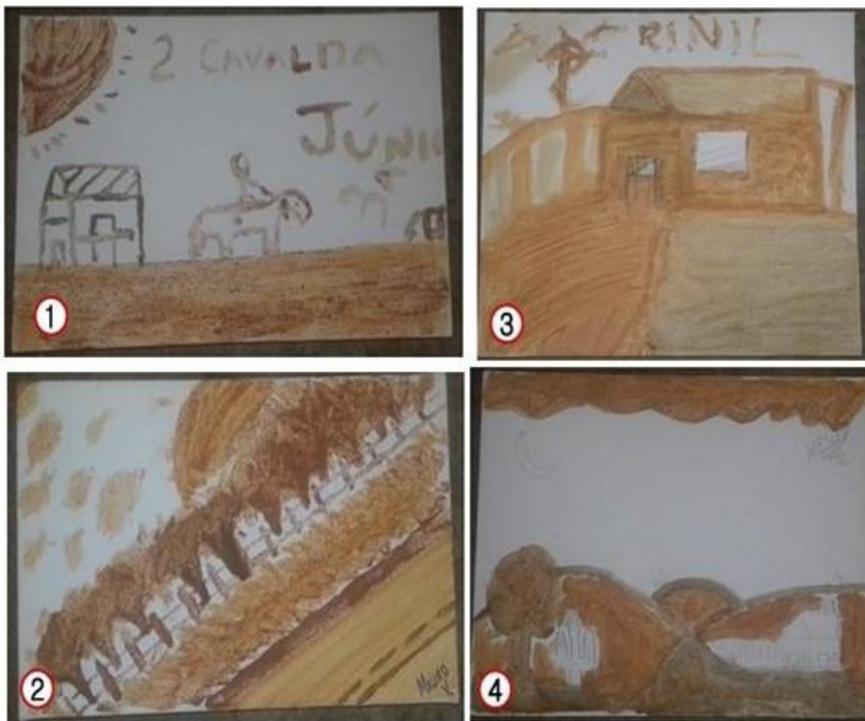


Figure 3: Landscapes as cultural traits contrasting with the nature elements.

The second group is about the paintings where the relief forms appear as main landscape components (Figure 4). When we looked at the local landscape it was portrayed by the students, because they wanted to represent it through the mountains, due to the urban mesh that is inserted between them.

As far as relief is concerned, the landscape evokes more acute reliefs and with slightly more convex characteristics. However, in the students paintings, the forms of relief presented were those with convex characteristics, that is, the saws with their rounded tops, an approximation of the hills shape



Figure 4: Local landscape representation through the relief.

In the Group 3 are organized the paintings that refer to the symbolism of the Swallow Stone within the local landscape (Figure 5). At first, we thought that almost all the students should refer to the landscape of the Pedra da Andorinha, but in the first half of the workshop (with 8 students) this thought was destitute, since only 2 students represented the same. Already in the second half of the workshop (with 7 students), 4 students alluded to the Swallow Stone.

What we can notice is that almost half the students crew who participated the workshop

sought to represent the Swallow Stone as the main natural landscape of the district. This Swallow Stone representation is explicable beyond symbolism, by the question of the visible aspect, since it is possible to be observed from many points of the district.

Group 4 was reserved for two paintings that could also belong to the previous group since they refer to the Swallow Stone, but what we want to highlight is that the paintings themselves bring the contrast of the climate and its influence on the local landscape (Figure 5).



Figure 5: Representations of the Rock of the Swallow in the Landscape of Taperuaba.

In the figure above we can notice two distinct periods of the local landscape. On the left side (1) we can observe the semi-arid as it is for most of the year, dry vegetation and strong solar radiation. On the right side (2), we observed the semi-arid zone in the so-called rainy season, the student represented the rainy season even at the workshop being applied in the post-rainy months.

It was found that, although the workshop was applied in June and August, with different

rainy seasons, the students preferred to represent the dry season of the local landscape, because it is the predominant landscape throughout the year, and aggravated even more by the scarcity we are experiencing. This situation also justifies the presence of the sun in most paintings. From what we can see the sun comes as a symbol of the dry season of the region, highlighting even more the local climate issue.



Figure 6: Landscape contrast, dry season and rainy season.

The issue of students having represented the dry season, for some were influenced by the available colors (brown, reddish brown and grayish-brown) colors often used by painters to represent drought in northeastern Brazil. As for the colors influencing the paintings of the students, was well divided, half of the students had difficulties. Those who had difficulty in coloring claimed that it is difficult to vary the elements of the landscape with similar colors, especially the lack of green to represent the vegetation.

Final considerations

The development of the research allowed to work the perception of the landscape through the art and to verify its applicability in a positive and enthusiastic way, through the students inserted in the research. Taking advantage of the interdisciplinarity of geography by inserting the methodology of the workshop of paintings with soil pigments within the study of the landscape in the semi-arid and easily the unfolding was exposed in canvases.

As we work the semi-arid landscape through paintings, we bring the students closer to their local reality, arousing their interest in the day-to-day landscape that goes unnoticed.

The accomplishment of the activity as we can see varied cuts from the landscape of Tapera, where it was possible to observe several elements of the nature interacting among themselves, besides the insertion of human elements that modify the natural landscapes. Among the natural elements the mountains appeared in a very significant way, as well as Pedra da Andorinha, which is a local symbolic landscape.

One of the difficulties of carrying out the work was the fact that few students were available to carry out the activity, which is why the workshop was held in two different moments, with two groups of students. Even with the few students involved, the workshop was satisfactory, generating a diversity of materials to be analyzed. The issue of colors became a difficulty also within the representation of the landscape, mainly in what refers to the vegetation, which took part of the class to represent the dry season.

In a general context, leaving aside the aesthetic aspect, and considering more the landscapes representativeness, the painted pictures came loaded with individualities and meanings in

the perception of the landscape, which shows that the realization of paintings becomes an important tool for the study and understanding of the landscape, as it ends up providing the students with a practical activity that works the local reality.

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