

# **MAPPING FOR MAKING CONSCIOUS: CONSTRUCTING SPATIAL CONCEPTS FROM LOCAL PERCEPTION**

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## **I) INTRODUCTION**

This serves to present the cartographic activities that are being developed with the 4<sup>th</sup> and 5<sup>th</sup> grades students of municipal schools located near the São Sebastião Community, in Realengo district, in Rio de Janeiro, Brazil. The scope of this work is to arouse the consciousness of the community about the environmental problems that devastate the community inhabitants by mapping the local environmental reality.

The methodology adopted in the development of this proposal was the Geological and Environmental mapping as a means of Environmental Education (Rodrigues, 1998) in conjunction with the Action-Research methodology (Loureiro,1994), that served as fundamental driving axles in the methodology of this work.

The methodology employed starts as of a constructivism perspective, that is, that the knowledge is not directly transmitted from a knowledgeable subject to another, but actively constructed by the subject that learns (Driver et al,1994). The constructivists allege that knowledge is of a symbolic nature and can be socially negotiated.

According to the geological and environmental model developed by Rodrigues (1998), some phenomena are selected as of the real world and represented on the maps. The learning process by means of its own creation therefore involves the understanding of cartographic concepts and goes through a process of interaction with the lived reality.

The importance of the comprehension of the local social space, its relations, identities and representations constructed on it allows the students to exercise on his/her daily activities a more global and critical understanding of the community, of the city and of the world.

The educational proposals presented deal with the everyday life, trying to reconstruct the significance of spaces in which people live, transforming them into places(Tuan, 1983).

By means of the geological and environmental mapping the student will be able to observe, identify, recognize, localize, perceive and map the geographic space, the dynamic of its organization and at a later stage, understand and analyze the space.

The articulation and expansion of the contents of the program with the knowledge and information of concepts and practices of environmental education to the students of the existing school net at the communities constitute a safe way to ensure the cognition of such knowledge and promote changes in the practices and attitudes before the community.

## **II) METHODOLOGY**

Pedagogic practices with utilization of drawings and graphic questionnaires, excursions and environmental mapping as didactic resources in the construction of spatial concepts, and in the development of environmental perception and human representation (under a cultural and individual perspective) about the physical environment and nature in general terms is proposed.

As of the concrete reality of the school, house, street, community where the student environment is materialized and where the correspondence between the cartographic representation and the reality is made.

The proposal comprises experiences that initiate with representations in the classroom going to the student's residence taking down the aspects observed during the location and space inhabited study. Please find below some examples among the several activities that are being developed:

### **CARTOGRAPHIC ACTIVITIES:**

#### **I) Mapping the classroom**

An activity that can be worked to map the classroom is introduced.

Draw on the blackboard a rectangle to represent the classroom walls

Ask:

- Where shall we place the classroom's front wall?
- Where shall we place the back wall?
- Where shall we place the right and left walls?
- Where shall we place the door? The windows? The desks? Etc..

Explain that we use symbols for representing each real object. Which symbols shall we use for the classroom objects?

Suggest small black and white balls, small black and white squares, stars, asterisks, etc..

Make a corresponding caption.

Send a child outside the classroom or hide his/her eyes. Hide an object somewhere in the classroom. Mark with an X on the map drawn on the blackboard the place where the object is.

The child should be able to read the map to find the hidden object.

#### **II) Tour to observe your school neighborhood**

The activity is suggested for observation and perception of the school format.

Therefore, follow the steps described below:

A- Before the tour, distribute to the students a text with instructions to sketch/draw a map of the vicinity. Make some comments with them and ask them to adequately fill them up.

B- Make the tour.

Preparation Phase: material to be taken: printed text and rough draft papers, pencils and erasers.

During the tour go out with the students, walk through some blocks. Make them take down the names of streets, public squares. Make them observe the buildings, houses, shops, factories, churches, squares, green areas, rivers, channels, waste land, etc.. Go back to the classroom with the students and instruct them how to prepare their maps. These can be done individually or in small groups.

Mapping the neighborhood:

You will make a drawing, sketch a map of your neighborhood.

You must follow the instructions carefully. Pay attention so as not to forget anything.

- 1- You may bring an example of a map showing a school and the streets that are close to it. Say that this can be a map of anyone's neighborhood.
- 2- Get out and observe the school neighborhood.
  - a- Take down the streets names.
  - b- Observe the closest buildings ( hospitals, banks commercial buildings, factories, etc...)
- 3- How many buildings of the list below you can see? Make symbols.

<b>See this example: Quantities n°</b>	<b>Locations</b>	<b>Symbols</b>
_____	School	
_____	Residential building	
_____	Commercial Building	
_____	Warehouse or Bar	
_____	Gas Station	
_____	Houses	
_____	Factory	
_____	Church	
_____	Railroads	
_____	Squares	
_____	Rivers	
_____	Beach	
_____	Waste land with great quantities of garbage/trash,etc..	

Add anything else that is not on the list.

- 4- When you are back to the classroom draw the map of your school neighborhood.
- Write down the names of streets, public squares, viaducts that you marked down at the corresponding places.
  - Put the symbol to locate your school and other locations

### **III) Environmental Mapping of your Community**

This activity should be performed in four phases:

#### **A) To Register the observations made about the aspects of the local environment.**

Ask the students to carefully observe their residential areas.

Examples:

Go out and take a close/carefully look at all the objects around you. Mark everything that may be deteriorating the environment.

#### **General Aspects about the Environment**

- Rivers with polluted waters.
- Mountains slopes deforestation
- Presence of Slums
- Lack of vegetation
- Noise

#### **Aspects about the Pollution of Air**

provoked by chimneys of factories, garbage incinerators, buildings, cars, buses, trucks, airplanes, burned-over land.

#### **Pay attention if**

The sky is clean. If it has a good visibility.

Do your eyes water?

When the bus leaves the stop do you see its exhaust?

#### **Aspects about Garbage:**

Cleaning conditions on the streets.

Closely examine the materials that you find below the trees on the streets, drain holes, on parks lawns or on waste lands.

The garbage and debris problems cause anti-aesthetic consequences. Other consequences are bad smell and spread of insects that transmit serious diseases.

#### **B) Didactic Tour through the neighborhood or District**

In this experiment that is being carried out all the students chosen live in the same district.

- Ask the students to create a caption to represent the items identified in the previous phase.
- Prepare the fieldwork or the didactic tour.
- Make the route with the students.
- All the students will record on the map the aspects observed in the fieldwork or didactic tour.

### **C) Production of plants, maps and the community environmental report.**

After the tour a discussion should be carried out approaching the main issues found about the district and the maps are sketched as well as an environmental report (taking into account the community problems a map of potential risk areas such as flooding or earth slipping areas should be prepared) .

### **D) Public Hearing and Environmental Report Presentation**

The students then prepare at school a public hearing, at the occasion of which, they denounce the district or community problems. A pedagogic report to be sent the local governmental authorities is then presented.

## **II) CONCLUSION:**

By means of these cartographic practices, the students may be able to read and interpret maps, analyze and establish connections and at the same time, expose their opinions and play an important role as a distinct voice in the city they interact.

The geographic and environmental mapping is also used to foster/promote an educational, creative and critical process where the different areas of knowledge at schools complement and interface with each other.

The purpose of such activities aims at contributing with experiments that will promote a new approach on the part of the students in relation to actions that need to be taken in their environment, making them understand the importance of their social participation in relation with the construction of their space and sensitive to these crucial issues by means of a critical analysis of the reality they are inserted.

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