

## MOTIVATION AND LEARNING - KINDERGARTEN CHILDREN EXPERIENCES WITH C-MAPS IN AN ITALIAN SCHOOL<sup>1</sup>

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**Abstract.** As kindergarten teachers we have been trying to keep up-to-date in order to meet the needs of the more and more exuberant and lively children, and also of ever-changing society. Children coming from foreign countries, new technologies, and globalisation are the main challenges teachers must face, especially in kindergarten, which is so important to set out future pedagogical paths. In such a complex fabric it is a matter of urgency to find an educational weave able to promote self-reliant and confident individuals. The preservation of environment, as a highly ethical subject, is everybody's fundamental knowledge, and demands a cultural change. This is the reason why we believe it is very important to get children to understand and make them aware of such a value: little changes in everyday life can activate mechanisms for awareness, metacognition, love for their own countries and mindful employment of natural resources. Didactics becomes vital when it uses maps, laboratories, circle time, cooperative learning and metacognition.

### 1 Introduction

The "search-action" method gets children to master techniques of observation and activate strategies that are no longer casual, but directed to predetermined aims. Children gradually begin to build a scientific attitude by themselves, through the acquisition of competences coming from their gradual ability to observe, manipulate, discover, catch similarities and differences, advance and verify hypotheses, compare opinions, understand problems and give solutions.

Through:

- Stimulating activities to investigate children's spontaneous knowledge, which is fundamental for new learning (Clinic Conversation)
- Learning based on the child's needs and interests, to go on towards more and more complete ways of feeling and thinking (problem solving/research)
- The method of groups of peers: a setting where everybody influences everybody and is influenced by everybody, so that they can experience forms of empathy and can be charged with different tasks to "put themselves in other people's shoes", and by so doing overcome their natural individualism (cooperative learning)
- The observation of the different kinds of intelligence, to enable the children to get to know themselves and give value to their learning processes, to improve their self-esteem in order to "be able to be" ("saper essere")
- Strategies of metacognitive didactics to motivate the process of thinking (experiences are set in the area defined by Vygotskij as area of proximal development – which is the area of personality in strong expansion in early childhood)
- The building of concept maps, as a creative and stimulating means that gets children to think and give sense to their knowledge, negotiate their results with teachers and peers, in order to learn how to learn, together with the others.

### 2 Learning laboratories

The wide-ranging theme of earth, which goes from the exploration to the re-definition in a project dimension is to be presented gradually in the three orders of school in harmony with the pupils' cognitive psychology and learning rhythms, in the hypothesis of a vertical curriculum development of science, in the project *The Words of Science*. The concept words proposed to kindergarten children are: object, attribute, material. The didactic path to build the meaning of concept words makes children take part in stimulating activities. In the final steps, the building of maps enables the children to tell, negotiate, remember, organize, connect concepts, and gets knowledge and meanings to emerge. While teaching, the following principles must be regarded:

- a) Children must be led to understand concepts through first-hand investigations. Words can isolate and keep meaning - says J. Dewey - only if they have been involved in our close contact with things.

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<sup>1</sup>The teachers Iustini M.Teresa, Giovanna Cipollari e Felici Luigina, have collaborated in the project.

- b) During investigation children observe, measure, interpret according to their abilities, and are led to reflection and gradual conceptualization. Educational actions must bring to conceptualization at every level of development

### **3 Itineraries with construction of c-maps formulated by 4- and 5-year old kindergarten children**

#### *3.1 Lived earth. Explored earth.*

##### 3.1.1 Prerequisites

- Sensory/perceptive experiences
- Experiences of manipulations
- Ability of sensory exploration
- Social ability
- Ability of problem solving

##### 3.1.2 Objectives

- To discover the characteristics and components of the soil
- To discover the characteristics of the plots in the garden and near the school

##### 3.1.3 Procedure

###### 3.1.3.1 Step 1

(We always start from the children's spontaneous knowledge)

Group clinic conversation with questions and answers about "earth", in turns, and mutual listening (circle time).

"If I say the word "earth", what does it call to your mind?"

The children's answers:

- "It's where I put my feet"
- "It's what I trample on"
- "Where I run"

"Where can we find earth?"

- In the garden
- In the vegetable garden

"How many kinds of earth do you know?"

- There's the earth of the park where I play
- There's the earth of compost

###### 3.1.3.2 Comment on Clinic Conversation

Earth is the space children *trample on* or *watch*. They cannot establish a connection between their direct experience of the country which is near the school and the images. Their cognitive matrix highlights a static representation of space, so the task is to promote the ability of relationship and association, by activating their emotional area.

###### 3.1.3.3 Step 2. Exploration game: discovering the earth

The children play freely in the spots they know, exploring the characteristics of the soil through direct touch, (*"pasticciamento"*, free handling). These are moments that can evoke shared emotions and sensations, and stimulate reflections and questions about the soil of the vegetable garden, the lawn, the flowers and the compost (coming from decaying plants). It is necessary to get the children to know other kinds of earth, for example a ploughed field.

###### 3.1.3.4 Step 3

The teacher invites the children to walk on a ploughed field, touch the soil, crumble it and pick up clods to carry to school. The teacher's objective is not only to favour their sensory experiences, but to arouse their curiosity, which motivates active learning: "make to understand".



**Fig. 1 :** “Let’s go and investigate the earth closely. Move the magnifying glass and watch the soil: what can you see?”

After discussing about the characteristics of the soil starting from the first sensations (touch, sight and smell), the children are invited to watch the soil through a magnifying glass: “what else can you see? Is there anything in the earth?” Back to school, the children are invited to draw the maps. After drawing the C-maps, the children indicate the sequence and the links between images and captions. The teacher writes down their *tales*.



**Map.1**

1. Discovering the earth
2. We found a worm
3. Michele picked up the big earth
4. There was a big oak in the middle of the field
5. We went back to school with the earth and we watched the earth with the lens and there were some ants

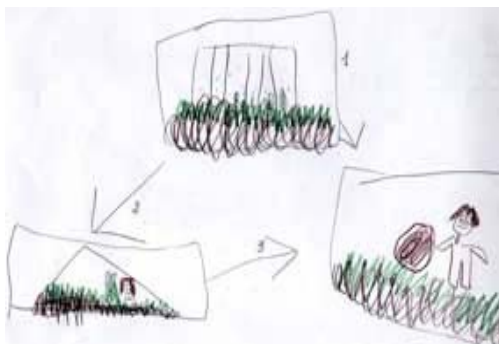
### 3.1.3.5 Step 4 Learning how to collect thoughts and share perceptions. Educating children to think before acting and make a choice

This question got the children to follow other strategies in order to discover the characteristics of the earth: “Where do you want to dig for another clod, outside our school? “

The children group themselves spontaneously with the common task to find the spot from where they have to pick up clods, they also have to decide how to take them. The different ways are compared. The children discuss and ask each other questions (cooperative learning).

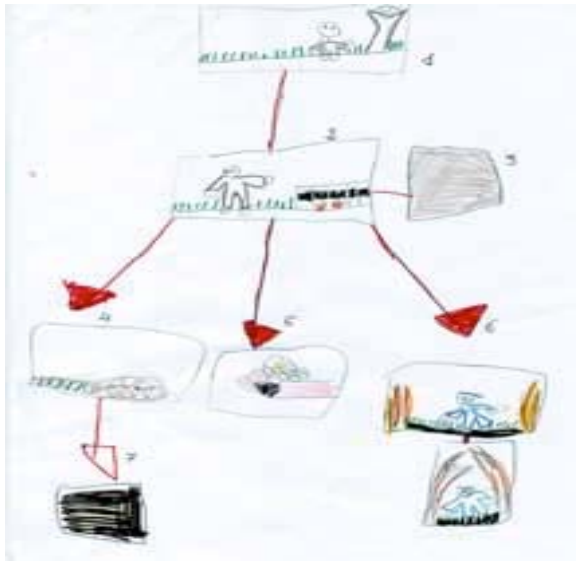
The choice of clods: clods of a lawn, clods of violets, clods of vegetable garden

By repeating the experience the children get a first map: a topological map of the ground. Organization of “the soil laboratory”: manipulation and exhibition of different kinds of soil (gardens, vegetable gardens, fields, compost); description of sensations (sight, smell, touch)



**Map 2**

1. “The earth of the compost was full of little seeds. It was grey and brown”
2. “The clod of the garden”
3. “The clod of the field was big, heavy and brown. And stank”



**Map 3**

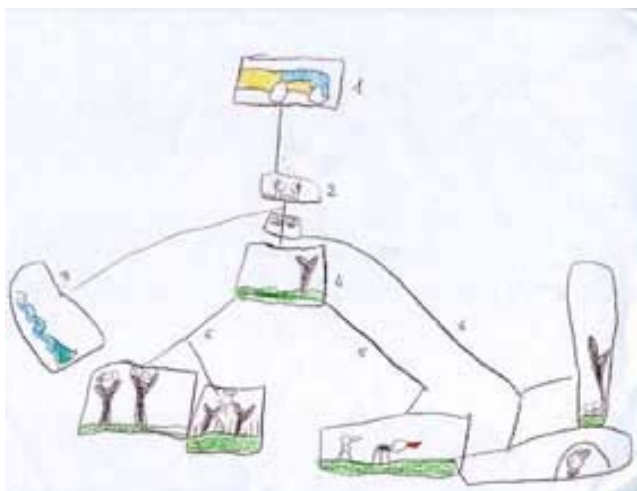
The children say:

1. discovering the earth
2. the earth of compost
3. the colour of the earth of compost
4. the ploughed soil of the field
5. the clod of daisies
6. the earth of the path was hard
7. the colour of the soil in the field

By repeating the activities in different situations, the children develop strategies that stimulate learning from a metacognitive perspective. This approach gets children to master the necessary abilities to build ideas and concepts. Their ability to organize the map becomes better and better. The children start asking questions about "why" and investigating according to their own interests. Questions must be stimulated and provoked. The teacher acts as "facilitator" for the investigation process and accompanies the work with argumentative hints.

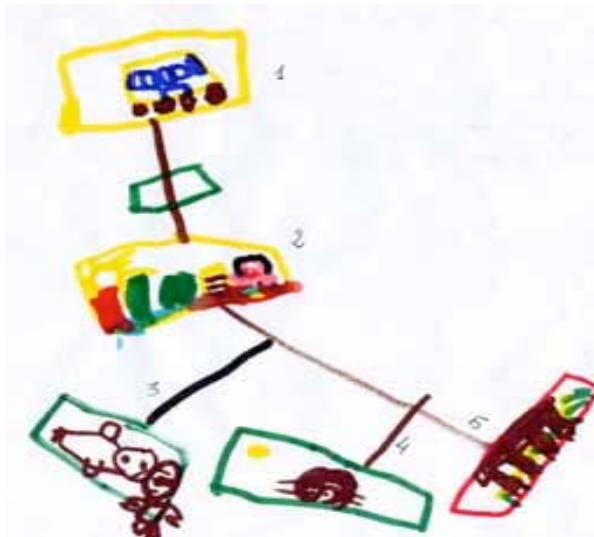
The manipulation of maps plays a fundamental role in the gradual development of metacognitive abilities in order to stimulate children to build c-maps and to the correct use of language.

### 3.1.3.6 Step 5. C-maps of investigations on river



**Map 4**

1. The trip to discover the river
2. The feet on which we walked, and we watched with our own eyes
3. We saw the dead river and the river alive
4. There were trees
5. We saw flying animals



**Map 5**

1. The minibus of the trip (the green box is for the word)
2. The river
3. There were animals: little birds
4. The porcupine
5. The badger

#### 4 The birth of a map (dramatization)

1. In the classroom, working in group, the children choose the moment of the experience they want to draw.
2. Each child draws on a sheet of paper.
3. They move to the gym with their drawings. (The children have already worked on spatial maps, identifying them first on the gym floor and then on paper. They place objects and drawings in the space to label concepts).
4. In the gym the children take place in the space, as if they were pieces on a chessboard, starting from the drawing on the initial issue or concept. They use language to establish the first relations between drawings and words and representing the experience they lived on the theatre.
5. The first maps are built in large spaces while playing. Concepts are represented by objects or drawings. Links are told by the children.

For the children the representation of their knowledge with drawings and lines is a very natural process because each drawing included in the c-map refers to the child's thought. The situations that are suitable for the evolution of a specific element are also suitable for the development of other elements.

#### 5 Summary

This didactic experience wants to highlight the progress made starting from the children and their spontaneous ideas. The earth is what they trample under their feet and observe. Through an explorative game, they build c-maps, which help them make their knowledge richer. From the trampled and watched earth they pass to the manipulated and managed earth, to arrive at the question of its use. By doing so, the earth loses its static dimension and becomes something alive to touch, mould, work today and manage tomorrow, as a land that is not only physical, but also anthropological, with the responsibility to defend it as a common good.

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