



Drawing rocks at primary school: a tool for emerging misconceptions and promoting conceptual change

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In order to investigate spontaneous ideas of children about rock samples, the Museo Friulano di Storia Naturale in collaboration with the Università di Udine submitted six classrooms of fifth and fourth grade-students to a specific test. One hundred thirty-three students without a specific background in Earth Sciences were asked to give a) a written description of a rock sample; b) a drawing of the sample; c) a written short story about the sample.

The selected thirty-five samples in the opinion of the researchers contain 255 geologically relevant self-evident characters such as fossils, clastic textures, planar discontinuities and so on. Childs spontaneously described 209 geological characters. Forty-seven fifth-grade students (group A) have been previously followed specific training in multisensory description of objects and observed the 90% of the geologically relevant characters. Group B (forty-three fifth-grade) and group C (forty-three fourth-grade) on the contrary, without any previous instructions discovered the 77%.

In order to follow childs building their knowledge through experience we found that the main problem was the lack of consistency between written and drawing description.

Heterogeneities as evident as a magmatic contact have been correctly represented by the drawing but it has not been worth of any attention in the written description. On the contrary, written description may sometimes contain careful description of the clastic sedimentary process but these criteria are applied for example to a travertine, without any relations with observed characters. Descriptions and drawing of rock outcrops performed by university students demonstrate the persistence of this attitude. Thus, groups B and C were then asked to describe their drawings. We found encouraging progress stimulated by thinking on their own work.

We suggest that drawing activities and laboratory book notes could represent useful strategies in order to stimulate specific skill in observing reality, and to understand complex and heterogeneous natural objects. Conceptual change is promoted by comparing children experiences with their previous ideas.