



## **Trends in Soil Science education: moving from teacher's questioning to student's questioning**

Núria Roca

Laboratory of Soil Science, Faculty of Biology, University of Barcelona, Avd. Diagonal 643, 08028 Barcelona, Spain  
(nroca@ub.edu)

Soil science has suffered from communication problems within its own discipline, with other disciplines (except perhaps agronomy) and with the general public. Prof. Dennis Greenland wrote the following in the early 1990s: "...soil scientists have also been frustrated as their advice has gone apparently unheeded. This may be because the advice is couched in terms more easily understood by other soil scientists than by politicians and economists who control the disposition of land. If soil science is to serve society fully it is essential that its arguments are presented in terms readily understood by all and with both scientific and economic rigor so that they are not easily refuted". Soil is a 3-dimensional body with properties that reflect the impact of climate, vegetation, fauna, man and topography on the soil's parent material over a variable time span. Therefore, soil sciences must integrate different knowledge of many disciplines. How should one go about the teaching and learning of a subject like soil science? This is an ever present question resident in the mind of a soil science teacher who knows that students will find soil science an inherently difficult subject to understand. Therefore, Soil Science cannot be taught in the same way. This paper proposes a mural construction that allows to understand soil formation, soil evolution and soil distribution. This experience has been realized with secondary teachers to offer tools for active learning methodologies. Therefore, this teaching project starts with a box and a global soil map distribution in a wall mural. The box contains many cards with soil properties, soil factors, soil process, soils orders and different natural soil photos as the pieces of a big puzzle. All these pieces will be arranged in the wall mural. These environments imply a new perspective of teaching: moving from a teacher-centered teaching to a student-centered teaching. In contrast to learning-before-doing—the model of most educational settings. The main functions such as encouraging students to think, arousing interest and curiosity, developing students' reflection and stimulate students to ask questions of their own will be developed with the construction of the mural.