****

**Homo docens: When we teach we learn**

Antonio M. Battro, OLPC Chief Education Officer

We live in a digital era, and we are transforming our education because the new digital environment has changed our pedagogical perspectives. Today we can study how teachers interact with students and how children teach in extended digital environments. Moreover, the new digital environment is becoming an “expanded school” without borders. In fact, we have now online access to thousands of teaching and learning activities of adults and children around the world.

**A digital version of the Socratic Dialog**

Socrates, the great teacher, excelled in the way he presented questions and negotiated answers. But Socrates himself tried to show that “he was not teaching at all.” He was just helping others to *unfold* their own knowledge.

Socrates presented proof of his theory of teaching by giving a lesson on geometry to a slave boy. This lesson became a paradigm of Socratic pedagogy for centuries. We have repeated it with secondary and college students and, amazingly, in 28 questions, the response of every single participant followed the Socratic dialog of some 2,400 years ago. (Goldin, Pezzatti, Battro & Sigman, 2011).

In a digital version already available for the XO laptop, the path of questions and answers is punctuated by a series of elementary but elaborate cognitive decisions that we call “click options,” expressed by YES or NO. We must study this click option in detail because it is one of the simplest cognitive activities that can be decoded at the brain level.

**The Click Option**

In other studies I have shown that the *click option* is a basic unit of human behavior (Battro, 2004). The possibility to use the click option since the first months of life is key to many neurocognitive developmental studies. In fact, “to click or not to click” is a universal proposition of enormous importance. With Percival Denham we have proposed the click option as the core of a new kind of intelligence, a *Digital Intelligence*, which could be included in Howard Gardner’s taxonomy of *Multiple Intelligences* MI (Battro & Denham, 2007; Battro, 2009; Schaler, 2006, p. 304).

A most useful property of the click option is that it can be recorded by a precise neuronal activation at the cortical level (Dehaene et al. 1998). I predict that in the near future many evaluations of a student’s cognitive performance will be done using similar simple settings based on the click option.

**Children also teach**

Parents and teachers have long known that children teach and spontaneously develop teaching skills. Until recently, only a few developmental psychologists have studied this phenomenon. However, as a result of the massive implementation of informatics and communication technologies in education, we now expect much greater interest in this area.

What we all observe is the impressive development of digital skills from an early age, even before a first language is fully acquired. Children seem to speak “digitalese” as a second language. They are eager to use any kind of digital device and happy to transmit the newly acquired knowledge to others, siblings, parents, friends, young or old. Children are naturally eager to teach and can become the best teaching assistants in school and at home under a good guide. And, what is most important, “when we teach we learn,” *docendo discimus* said the ancient Latin expression.

**References**

Battro, A.M. (2004). Digital skills, globalization and education. In *Globalization: Culture and education in the new millennium* (M. Suárez-Orozco, D. Baolian Qin-Hilliard, Eds.). California University Press: San Francisco, 2004.

Battro, A.M.& Denham, P.J. (2007)*. Hacia una inteligencia digital*. Academia Nacional de Educación: Buenos Aires.

Battro, A.M (2009). Multiple intelligences and constructionism in the digital era. In Jie-Qi Chen, S. Moran and H. Gardner (Eds) *Multiple intelligences around the world*. Jossey Bass: San Francisco.

Dehaene, S., Le Clec´H, G., Cohen, L., van der Morteele. P-F., Poline, J-B. & Le Bihan, D. (1998). Inferring behavior from functional brain images. *Nature Neuroscience*. 1: 549-550.

Goldin, A., Pezzatti, L., Battro, A.M & Sigman, M. (2011). Socrates’teaching brain: The Meno experiment. *Mind, Brain and Education*, 5, 4,180-185.

Schaler, J.A (Ed.) (2006). *Howard Gardner under fire: The rebel psychologist faces his critics*. Open Court: Chicago.

Strauss, S. (2005). Teaching as a natural cognitive ability: Implications for classroom practice and teacher education. In D. Pillemer and S. White (Eds*). Developmental psychology and social change.* Cambridge University: Cambridge.