



Prof. Antonio M. Battro

Professor



Most important awards, prizes and academies

Awards: Premio Nacional de Ciencias, Psicología y Educación, Argentina (1970); Premio Mira y López, Fund. Getulio Vargas, Rio de Janeiro (1979); Premio Konex, Psicología, Buenos Aires (1986). *Fellowships:* Centre International d'Epistémologie Génétique, Geneva (1967-68); Guggenheim Fellow, Brain Research Laboratories, New York Medical College (1968); Fulbright Fellow, Project Man and Biosphere, UNESCO, Massachusetts Institute of Technology (1972); Directeur Associé, École Pratique des Hautes Études, Laboratoire de Psychologie Expérimentale et Comparée, Paris (1979); Centre Mondial Informatique, Paris (1983); Eisenhower Fellow (1986); Robert Kennedy Visiting Professor, Graduate School of Education, Harvard University (2002-03). *Academies:* Academia Nacional de Educación, Argentina (2000); Former Chief Education Officer, One Laptop Per Child; Former President IMBES, Mind, Brain and Education Society; Director of the International School on Mind, Brain and Education. Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Sicily.

Summary of scientific education

My scientific work has covered three areas. The development of basic cognitive and perceptual processes in children: we applied mathematical models (catastrophe theory, fractals, non-Euclidean geometries) to understand some visual illusions in large open fields, eye movements

and memory. We also studied moral development in children. The deployment of computers and communication devices in education in developing countries: in particular, with the OLPC One Laptop per Child program we are actively promoting the use of computers by students and teachers of elementary schools around the world. The new field of neuroeducation: the interaction between mind, brain and education. We are working on the unfolding of new digital skills in the developing brain.

Books: *Dictionnaire d'épistémologie génétique* (avec une préface de Jean Piaget), Reidel, Dordrecht, Presses Universitaires de France (Paris, 1996); Battro, A.M., *El pensamiento de Jean Piaget*, Emecé (Buenos Aires, 1969); Battro, A.M., Cruz Fagundes, L., *El niño y el semáforo*, Emecé (Buenos Aires, 1979); Battro, A.M., *Computación y aprendizaje especial*, Emecé (Buenos Aires, 1986); Battro, A.M., Denham, P.J., *Discomunicaciones. Computación para niños sordos*, Fundación Navarro Viola, El Ateneo (Buenos Aires, 1989); Battro, A.M., Denham, P.J., *La educación digital*, Emecé (Buenos Aires, 1997); Battro, A.M., *Half a brain is enough: The story of Nico*, Cambridge University Press (Cambridge, 2001); Battro, A.M. (with Denham, P.J., col.), *Aprender hoy: Una colección de ideas*, Papers Editores (Buenos Aires, 2002). **Articles:** Battro, A.M., Acerca de una estructura poco conocida del sistema nervioso central: el órgano subforniano, *Acta Neurologica Latinoamericana*, 8, pp. 15-20 (1962); Battro, A.M., Morphogenèse des limnées, adaptation vitale et théorie des catastrophes, *Bulletin de Psychologie*, 30, pp. 141-149, (1976); Battro, A.M., Réflexions sur une psychologie écologique expérimentale, *Psychologie expérimentale et comparée. Hommage à Paul Fraise* (G. Oléron, ed.), Presses Universitaires de France (Paris, 1976); Battro, A.M., Visual Riemannian space versus cognitive Euclidean space, *Synthese*, 1, pp. 45-74 (1977); Battro, A.M., Ellis, E.J., et al., *Growing up in cities. Studies in the spatial environment of adolescence in Cracow, Melbourne, Mexico City, Salta, Toluca and Warszawa* (K. Lynch, ed.), MIT Press (Cambridge, 1977); Battro, A.M., Reggini, H.C., Kart, S.C., Perspectives in open spaces. A geometric application of the Thouless index, *Perception*, 7, pp. 583-88 (1977); Battro, A.M., Hemispheric lateralization in the development of spatial and logical reasoning in left and right-handed children, *Archives de Psychologie*, 49, pp. 83-90 (1981); Battro, A.M., Logo, talents and handicaps, *Logo et apprentissage* (J.L. Gurtner, J. Retschitzki, eds.), Delachaux et Niestlé, Neuchâtel, pp. 167-173 (1991); Battro, A.M., La temperatura de la mirada: esbozo de un modelo fractal de los movimientos sacádicos, *Procesos sensoriales y cognitivos. Laboratorio de Investigaciones Sensoriales* (M. Guirao, ed.), Conicet, Dunken (Buenos Aires, 1997); Battro, A.M., The computer in the school: A tool for the brain, *The challenges for science: Education for the twenty-first century*, Pontifical Academy of Sciences (Vatican City, 2002); Battro, A.M., Digital skills. Globalization and education, *Globalization: Culture and education in the new millennium* (M. Suárez-Orozco, D. Baolian Qin-Hilliard, eds.), California University Press (San Francisco, 2004); (With Denham, P.J.) *Hacia una inteligencia digital*, Academia Nacional de Educación, Buenos Aires, 2007; (With Fischer, K.W. & Léna, P.J., eds); *The educated brain. Essays in neuroeducation*, Cambridge University Press, 2008; Battro, A.M., *Homo Educabilis*, A neurocognitive approach, *What Is Our Real Knowledge about the Human Being?*, Pontifical

Academy of Sciences (Vatican City, 2007); Battro, A.M., Reflections and actions concerning a globalized education, *Charity and Justice in the Relations among Peoples and Nations*, Pontifical Academy of Social Sciences (Vatican City, 2007); Battro, A.M., Digital Intelligence: the evolution of a new human capacity, *Scientific Insights into the Evolution of the Universe and of Life*, Pontifical Academy of Sciences (Vatican City, 2009); Battro, A.M. (2009), Multiple intelligences and constructionism in the digital era; *Multiple Intelligences around the World* (H. Gardner, ed.), Jossey-Bass/Wiley, San Francisco; Battro, A.M. (2010), The teaching brain, *Mind, Brain and Education*, Vol. 4, 1, 28-33; Battro, A.M, Fischer, K.W. and Léna, J.P. (Eds): *The educated brain: Essays in neuroeducation*. Cambridge University Press and Pontifical Academy of Sciences (Cambridge, 2008); Battro, A.M., Dehaene, S. and Singer, W.: *Human neuroplasticity and education*. Pontifical Academy of Sciences (2011); Battro, A.M., Calero, C.I., Goldin, A.P., Holper, L., Pezzatti, L., Shalom, D.F. & Sigman, M. (2013). The cognitive neurosciences of the teacher-student interaction. *Mind, Brain and Education*, 7, 3, 155-181; Battro, A.M., Potrykus, I. & Sánchez Sorondo, M. (Eds). (2015). *Bread and brain. Education and poverty*. Pontifical Academy of Sciences: Scripta Varia 125. Vatican City; Battro, A.M. (2015). Science is friendship. In *Mind, Brain and Education at Erice: Ten Years*. www.mbe-erice.org; Battro, A.M. (2014). The art of fencing and painting with a half brain. In (Kornhaber, M.I. & Winner, E. Eds.) *Mind, Work and Life: A Festschrift on the occasion of Howard Gardner's 70th birthday*. Cambridge, MA; Battro, A.M. (2016). Prólogo. En *Pensar en las TIC desde la ciencia cognitiva y la neurociencia*. (S.J. Lipina, M. Sigman y E. Fernández Slezak, Eds). Gedisa, Barcelona; Battro A.M. & Fuzatti, M. (2017). Children and robots. In Battro, A.M. & Dehaene, S. (Eds). *Power and limits of Artificial Intelligence*. Scripta Varia 132: Vatican City; Battro, A.M., Léna, P. von Braun & Sánchez Sorondo, M. (Eds) (2017). *Children and sustainable development. Ecological Education in a Globalized World*. Springer & Pontifical Academy of Sciences: Vatican City; Battro, A.M. (2018). Education for a sustainable digital environment. In *Transformative roles of science in society: From emerging basic science toward solutions for people's wellbeing*. Pontifical Academy of Sciences: Vatican City.