Neuromyth 2

"Enriched environments enhance the brain's capacity for learning"

This myth states that young children should be exposed to rich and diverse stimuli, i.e. an "enriched" environment, during the time they are most receptive to learning, i.e. from birth to three years of age. As a consequence, the common belief is that children who were not fully exposed to an enriched environment will not “recuperate” later on in life and have lost capacities early in life. It is also deemed that full learning takes place only if children are exposed to rich diversity and early exposure is important.

The idea that the most effective education and interventions need to be timed with periods during which children are most receptive to learning has been drawn from influential work on early learning in rats.

This research showed that rats, which were reared in an enriched and stimulating environment, exhibited a better capability to solve complex maze problems than rats that were reared in a deprived environment. When the brain of these rodents, researchers found that neurons in rats, which were reared in an enriched environment, had formed more connections, i.e. synapses and expressed more proteins associated with the maintenance of synaptic contacts (Falkenberg et al. 1992). Thus it seems that experience tunes the wiring diagram between neurons of the brain (see Greenough, Black & Wallace, 1987). However, further research is necessary to be able to transfer these insights from animal research to human learning. As well it should not be forgotten that the human brain shows plasticity throughout the whole life and is not limited to an "enriched" environment phase during the first three years of life.

Explanations by Usha Goswami, Faculty of Education, University of Cambridge, UK, from the article: "Neuroscience and Education", Reproduced with permission from the British Journal of Educational Psychology, © The British Psychological Society (2004) 74, p.11.

More references:
For a full debunking of this myth refer the article entitled: "Neural Connections: Some You Use, Some You Lose" by John T. Brueer in the December 1999 issue of Phi Delta Kappan, pages 264-277.

Refer also to the work by Michael Meaney in the Lifelong Learning report: Parental Care, Environmental Enrichment, and Neurocognitive Development (a Lab Tour Report), and in the OECD Report of the Second Meeting of the Lifelong Learning Network in January 2004, p. 7-8.


Related documents:

- Neuromyth 1 (English)
- Neuromyth 3 (English)
- Neuromyth 4 (English)
- Neuromyth 5 (English)