

NEUROSCIENTIFIC KNOWLEDGE AND EDUCATION

The Quiz

Talking about the brain often arouses our interest. We all want to understand at least a little about how our brain works. Did you enjoy testing your knowledge about the brain? Were you sure about most answers, or did you have many doubts? Are you curious about the answers? Here you are: All the 15 items are neuromyths! Surprised? How many did you get correct?

Neuromyths - Misconceptions among teachers

A recent study (Dekker, S. et al, Neuromyths in education: Prevalence and predictors of misconceptions among teachers, 2012) investigated the prevalence and predictors of neuromyths among teachers in selected regions in the United Kingdom and the Netherlands. Results showed that, on average, teachers believed 49% of the neuromyths, particularly myths related to commercialized educational programs. Around 70% of the general knowledge statements were answered correctly. Teachers who read popular science magazines achieved higher scores on general knowledge questions. More general knowledge also predicted an increased belief in neuromyths. These findings suggest that teachers who are enthusiastic about the possible application of neuroscience findings in the classroom find it difficult to distinguish pseudoscience from scientific facts. Possessing greater general knowledge about the brain does not appear to protect teachers from believing in neuromyths. This demonstrates the need for enhanced interdisciplinary communication to reduce such misunderstandings in the future and establish a successful collaboration between neuroscience and education.

Factors that may predict high susceptibility to believing in neuromyths

1. Information accompanied by brain images and neuroscience explanations, even when these are incorrect. The perception of a poor explanation may become more positive when neuroscience is included, even though the neuroscience is irrelevant.
2. Lack of neuroscience literacy.
3. Reading popular media.

Implications for education - A bridge too far?

The research conducted by Dekker et al increases concerns about the proliferation of neuromyths in the field of education. It emphasizes that teachers who are highly interested in brain research are susceptible to neuromyths. This is troublesome, as these teachers in particular may implement wrong brain-based ideas in educational practice.

To avoid the occurrence of misconceptions in the future, Dekker et al suggest improving the communication between scientists and practitioners, in addition to enhancing the neuroscience literacy of teachers. Incorporating neuroscience courses into initial teacher training could enhance neuroscience literacy among teachers. In addition, initial teacher training should include the skills needed to evaluate scientific research. This would enable teachers to develop a critical attitude toward the information they receive and examine scientific evidence before including neuroscientific findings into their teaching practice.

It might seem that the bridge between the neurosciences and education is a bridge too far. In the 2010 Annual Meeting of the Society for Neuroscience, neuroscientist Stanislas Dehaene stated exactly the opposite: “It’s NOT a bridge too far. Important progress has already been made in bridging the gap between the two fields. Human

cognitive neuroscience has made enormous strides in understanding the specific cerebral circuits underlying particular domains of education, such as mathematics, reading and second language acquisition”. Dehaene also said that he was convinced that empowering teachers with the appropriate knowledge of the principles of human neuroplasticity and learning will lead to better classroom practices. Educators can greatly benefit from cognitive neuroscience research, as it begins to provide an understanding of how the learner’s brain works and how it is changed by schooling and experience.

Nonetheless, we should be careful about transposing brain research findings directly to the education domain, misleading to the prescription of misconceived best education methods. Fortunately, many neuroscientists are willing to engage in talks with educators, just like many teachers are interested in interacting with neuroscientists. Interactions between the neurosciences and education can certainly enrich both fields with credible data.