

Neuroscience Mythology Hampers Teaching

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Despite efforts to use fact-based approaches in education, teachers and the public may be incorrect on core assumptions that influence the way educational material is presented.

In a new study, researchers from the University of Bristol wanted to show that educators often fail to heed their own advice as they make assumptions and use methods that are not evidence-based.

The neuroscientists believe teachers innocently adopt or

use strategies that they believe are based on emerging neuroscience findings.

The report blames wishfulness, [anxiety](#), and a bias towards simple explanations as typical factors that distort neuroscientific fact into neuromyth.

Teachers in the U.K., Holland, Turkey, Greece, and China were presented with seven statements and were asked if they were true.

The statements were:

- we mostly only use 10 percent of our brain;
- individuals learn better when they receive information in their preferred learning style (for example, visual, auditory, or kinesthetic);
- short bouts of coordination exercises can improve integration of left and right hemispheric brain function;

- differences in hemispheric dominance (left brain or right brain) can help to explain individual differences amongst learners;
- children are less attentive after sugary drinks and snacks;
- drinking less than six to eight glasses of water a day can cause the brain to shrink;
- learning problems associated with developmental differences in brain function cannot be remediated by education.

All of the statements represent so-called “neuromyths,” said the study authors.

Specific findings included:

- one-quarter or more of teachers in the U.K. and Turkey believe a student’s brain would shrink if they drank less than six to eight glasses of water a day;
- around half or more of those surveyed believe a student’s brain is only 10 percent active and that children are less attentive after sugary drinks and snacks;
- over 70 percent of teachers in all countries wrongly believe a student is either left-brained or right-brained, peaking at 91 percent in the UK;
- and almost all teachers (over 90 percent in each country) feel that teaching to a student’s preferred learning style – auditory, kinesthetic, or visual – is helpful, despite no convincing evidence to support this approach.

The findings have been published in the journal *Nature Reviews Neuroscience* with study authors calling for better communication between neuroscientists and educators. Dr .Paul Howard-Jones, author of the article from Bristol University’s Graduate School of Education, said, “These ideas are often sold to teachers as based on neuroscience — but modern neuroscience cannot be used to support them. These ideas have no educational value and are often associated with poor practice in the classroom.”

Researchers believe the factors that distort fact into myth (wishfulness, anxiety, desire for simple explanations) are barriers for communication between neuroscientists and educators.

Howard-Jones added, "Although the increased dialogue between neuroscience and education is encouraging, we see new neuromyths on the horizon and old ones returning in new forms.

"Sometimes, transmitting 'boiled-down' messages about the brain to educators can just lead to misunderstanding, and confusions about concepts such as brain plasticity are common in discussions about education policy."

The report highlights several areas where new findings from neuroscience are becoming misinterpreted by education, including brain-related ideas regarding early educational investment, adolescent brain development and learning disorders such as dyslexia and [ADHD](#).

Hopes that education will draw genuine benefit from neuroscience may rest on a new but rapidly growing field of "neuroeducational" research that combines both fields.

The review concludes that, in the future, such collaboration will be greatly needed if education is to be enriched rather than misled by neuroscience.

Source;

<http://psychcentral.com/news/2014/10/17/neuroscience-mythology-hampers-teaching/76254.html>