

# From Brain Scan to Lesson Plan? Why teachers should be wary of bad science in the classroom

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From electricity in Mary Shelley's *Frankenstein*, to radiation in 1960s Marvel superhero comics, emergent technologies are often fertile fields for fictional MacGuffins and fantastic claims. Educational neuroscience, the current darling of classroom innovators, may well be seen by our successors as being similarly fantastical.

At first, the apparent potential of neuroscience to inform education seems irresistible: learning is indisputably a mental activity, and such processes surely originate in the neurological spaghetti junction of the brain, or at least supervene on them in some mysterious way. Neuroscience, that debutante discipline, is pregnant with possibility as the brain submits slowly to the careful inquisition of MRI.

But, like many sciences in their infancy, expectations often fall short. Nowhere is this more common than in education, a field whose history has been dogged by the devils of quack science and snake oil. Education is a social science, which is to say, not a science at all, and attempts to marry it with the natural sciences are constantly forced to confront the challenge of integrating



two potentially non-overlapping magisteria.

## Neuroscience

Neuroscience has been dealing with the consequences of early, zealous over selling for decades. The fact that so many of its early advocates made so many spectacular claims of efficacy, led to a backlash so sharp you needed a neck brace and a lawyer.

So too in neuroeducation, where many early claims about the structure and operation of the brain have ended up on the cutting room floor. From the classic left/right brain fallacy, through learning styles, brain training, Brain Gym, critical periods and synaptogenesis, turkeys have fallen from the sky, although not before they roosted in schools and classrooms across the world. Like Ambrose Bierce describing phrenology, the swarms of educational consultants advocating neuromyths such as these could be said to be 'picking your pocket through your scalp'.

Ben Goldacre fished Brain Gym neatly in his book *Bad Science*. Brain Gym included the novel idea that 'rubbing

one's brain buttons' aided cognitive processing, and that to avoid the brain drying out, water had to be held to the roof of the palate. Previously, children had been suffering from desiccated brains, apparently. No wonder Friday afternoon maths was such a chore. The scandal of it was that it took a doctor to expose the inanity of it, and thousands of educators nodded along to it without question. At one point, Brain Gym was even a compulsory part of the Fast Track recruitment programme into teaching, paid for by the Department for Education.

The claims of some involved in educational neuroscience are akin to sorcery: reversing the decline of the aging brain; curing ADHD; boosting intelligence, revolutionising grades...it's easy to see why they're often so easy to find on the Internet, home of Sea Monkeys and PhDs in Homeopathy.

Neuroscience may well, one day, offer profound insights into the way we learn; may well direct our interventions with the precision of a scalpel; might guide our children into intellectual Übermenschen. But not yet.