

**EXTRACT** From “Teaching in the Lifelong Learning Sector” (2<sup>nd</sup> Ed) by Peter Scales

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## Learning styles

Learning styles of various kinds have been prevalent in the lifelong learning sector for nearly 20 years. The most widely used are VAKT (Visual; Auditory; Kinaesthetic; Tactile), Kolb’s learning cycle and Honey and Mumford’s variant of Kolb. One of the main attractions of learning styles is that they seem to offer a 'magic key' to unlock the mysteries of each individual's learning style thus allowing teachers to use the matching teaching style so that everybody in the class would learn.

Coffield et al (2004) carried out a comprehensive review of learning styles in which they identified 71 different models of learning style and evaluated their effectiveness. They concluded that in nearly all cases learning style methodologies had limited or no effect and, further, there was very little evidence to support their effectiveness. In addition, they point out that most learning style methods are tied to expensive training and resource packages and that there is, in effect, a 'learning styles industry' which is more concerned with selling products than enhancing learning.

Coffield particularly singles out VAKT for criticism and he is worth quoting at length, if only to get a feel of the passion with which he expresses his views.

“There is **no** scientific justification for teaching and learning strategies based on VAKT and tutors should **stop** using learning style instruments based on them. There is **no** theory of VAKT from which to draw **any** implications for practice. It should be a dead parrot. It should have ceased to function.” (Coffield, 2008: 32. Original emphasis).

Teachers are busy enough without being asked to administer and analyse learning styles questionnaires. It might be more appropriate to rely on the professional expertise of teachers at a local level to understand their learners and discover the best ways to help them learn rather than buy in expensive 'solutions' which have the appearance of scientific rigour but are of dubious value.

## Learning styles – evidence from educational neuroscience

Initially, learning styles were seen a part of the 'brain-based' learning movement along with other activities such as 'brain gyms'. The claims for the success of these methods were frequently based on evidence from neuroscience. The rapid recent growth and development of neuroscience based on functional Magnetic Resource Imaging (fMRI) has, however, provided evidence to undermine learning styles theories.

John Geake (2009) is critical of learning styles theorists' claims that the way in which we receive information through a particular 'sensory modality' is the same as the way in which we store it. So for example, the belief that things learned kinaesthetically are stored in a 'kinaesthetic' part of the brain and that things learned visually are stored in a 'visual' part of brain is false. Geake (2009:2) states that:

"No improvements in learning outcomes have been found from teaching approaches which focus on differences in pupils' learning styles, save for an initial positive rise due to teachers' enthusiasm for a new approach. Importantly, there is no neuroscientific evidence for the existence of learning styles."

A major international research project carried out by the Centre for Educational Research and Innovation (CERI) centred on the development of educational neuroscience. This report also questions the uncritical use of learning styles, in particular the tendency to label learners according to their supposed style of learning: "Labelling people as particular types of learners or as having particular learning styles is likely to limit rather enhance learning. (CERI, 2007: 201)

### **Do we still need learning styles?**

Should we abandon learning styles? The balance of evidence suggests that we should. Learning styles might be useful as tools for learner self-development, rather than as a means of categorising learners as particular 'types'. "A reliable and valid instrument which measures learning styles and approaches could be used as a tool to encourage self-development, not only by diagnosing how people learn, but by showing them how to *enhance* their learning." (Coffield, et al 2004: 51, original emphasis)

The most valuable message teachers in the lifelong learning sector get from learning styles is that people learn in many different ways; consequently teachers should have a wide, and continually developing, range of techniques to draw on for long and short- term planning.

### **Educational neuroscience**

Increasingly, educators are looking to neuroscience for the latest developments in understanding learning. Blakemore and Frith (2005) present an overview of recent research on the brain's development at various stages of life.

### **Brain 'plasticity'**

One of the key points which emerge from recent research concerns the brain's 'plasticity', which refers to the brain's physical changes and adaptations to new circumstances and new learning. This brain plasticity is a factor right through our lives, an idea which has clear implications for lifelong

learning in that everyone can learn at any stage of their lives. It used to be thought that brain development was rapid during childhood and adolescence but before the age of 30 the architecture of the brain was fixed for life. It now seems clear that the brain is constantly changing and everything we do changes it. "The brain's continuing plasticity suggests that it is well designed for lifelong learning and adaptation to new situations and experiences, and such adaptation can even bring about significant changes in its structure." (Howard-Jones, 2007:9)

A recurring question in human learning and development concerns the extent to which we are affected by our environment and how much is genetically or biologically determined – the so-called 'nature-nurture' argument. This is, perhaps, becoming a redundant argument, mainly because it is not possible for an organism to exist outside of an environment, so how could we ever tell which has the greater effect. More importantly, do we really need to know? As much as neuroscience can provide certainty, it now seems the case that the brain, to use an eloquent metaphor, "is a sculpture carved by experience." (CERI 2007: 191). Learning is part of how this sculpting occurs and, as a recent report by The Royal Society suggests, "education is a powerful form of cognitive enhancement." (2011:4)

### **Educational neuroscience – a note of caution**

Neuroscience has helped us to debunk several myths about the brain and learning. As we have seen, above, learning styles theories have come in for serious criticism, some of it from neuroscience. These theories are not dead yet but they are looking distinctly unwell. CERI (2007) provides a detailed unpicking of a number of other 'neuromyths', including;

- left brain/ right brain dominance
- the belief that we only use 10 – 20 % of our brains. The whole of the brain is active
- 'brain gyms'
- male and female brains are different

We must, however, be wary of replacing one set of myths with another. Teachers, their managers, politicians and commercial educational organisations are very keen to find the latest 'answer' to a problem, often a non-existent one, and to use the latest body of research and theory uncritically. It is tempting to believe that because neuroscience is 'scientific' and undertaken by 'scientists', then the results will be infallible. Howard-Jones warns against expecting a 'new' science of learning:

"There has been much enthusiasm amongst policymakers for the creation of a 'new' science of learning... This may be because neuroscience seems a more secure basis for learning theory, with its images of blood flow appearing more concrete than abstract psychological concepts... A science of teaching and learning which is chiefly based upon the brain is unlikely to develop in the foreseeable future..." (2008:15)

Most serious neuroscientists and commentators provide caveats to the effect that this is still a young science and practical applications are a long way off; some even suggest we never will, and can't, know all the 'answers'.

### References

Blakemore, S-J., and Frith, U. (2005) *The Learning Brain: Lessons for Education* Oxford: Blackwell

CERI (Centre for Educational Research and Innovation) (2007) "Understanding the Brain: The Birth of a Learning Science." OECD

Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004) *Should We be Using Learning Styles?* Learning and Skills Research Centre

Geake, J. (2009) "The Brain at School: Educational Neuroscience in the Classroom" Maidenhead: Open University Press

Howard-Jones, P. (2007) *Neuroscience and Education: Issues and Opportunities, Commentary by the Teacher and Learning Research Programme*. London: TLRP. Available at <http://www.tlrp.org/pub/documents/Neuroscience%20Commentary%FINAL.pdf>

Howard-Jones, P. (2008) *Potential educational developments involving neuroscience that may arrive by 2025* Beyond Current Horizons: Technology; Children; Schools and Families. Available at <http://www.beyondcurrenthorizons.org.uk/potential-educational-developments-involving-neuroscience-that-may-arrive-by-2025/>

Royal Society, The (2011) *Brain Waves Module 2: Neuroscience: Implications for education and lifelong learning* London: The Royal Society. Available at <http://royalsociety.org/policy/projects/brain-waves/education-lifelong-learning/>

### **Further evidence**

Coffield, F. (2012) Learning styles: unreliable, invalid, impractical and yet still widely used. In P. Adey and J. Dillon (eds) Bad Education: debunking myths in education Maidenhead: Open University Press

Dyslexics.org.uk [www.dyslexics.org.uk](http://www.dyslexics.org.uk)

Reiner, C. and Willingham, D. The myth of learning styles *Change* (September-October 2010) 42:5