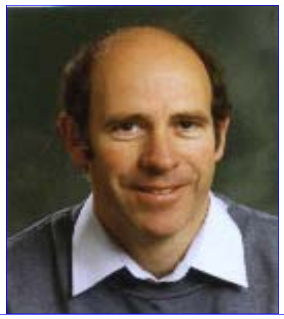
Brain-based learning - is there any other sort?



In May 2004, while in Bangkok, Dr Paul Denley agreed to give a talk to about thirty parents of NIST students. The talk, which included reference to the evolution of the human brain and its structure as well as some findings from 'brain research', is summarised here.

In the past our understanding of learning has largely come from the discipline of psychology. Early behavioural ideas came from experiments with rats and pigeons. Then developmental work, particularly with young children, presented more sophisticated views about how we learn. However, these learning theories said little directly about the brain and how it works, often viewing it as a black box which we cannot see inside but whose inputs and outputs can be studied. Information processing models of learning view the brain as more like a computer, and it is tempting to draw parallels in terms of processing, memory and storage. In more recent years our knowledge about how the brain works has expanded tremendously, through scanning and imaging technologies which mean that we can 'see' what is going on in the brain as it happens. To start with, neuroscientists were only able to map the outside of the brain, identifying areas associated with different functions, but attention has shifted now to structures buried deep within the brain with some interesting findings about, for example, the links between emotion and learning and the inter-relationship between the nervous system, which the brain co-ordinates, and the hormonal system. We used to think about the brain in terms of its electrical activity - perhaps now we should see it more as an electro-chemical system.

But does any of this have relevance for teachers and parents in terms of helping children to learn? A parallel can probably be drawn with the development of a new drug. Before being released for sale, a pharmaceutical company has to go through rigorous trials and safety checks to make sure the drug works and that there are no harmful side affects. We are nowhere near this stage in relating brain research to classroom practice: no clinical trials have been done, no clear-cut solutions are ready to be marketed. A lot of ideas being promoted are labelled 'brain-based learning', but what is the evidence underpinning them? Howard Gardner's theory of multiple intelligences is very well-known and is grounded in brain research, but what about 'brain-gym'? - exercises said to encourage links to form between the left and right hemispheres of the brain. Parents took part in some brain-gym during the talk at NIST - putting up their left and/or right arms while reciting the alphabet: it was quite good fun, but does it do what it is supposed to? It is too early to say – but it probably doesn't do any harm! In fact, it might do some good by stimulating blood flow and restoring oxygen levels.

Perhaps one of the most disturbing findings from brain-research relates to our understanding of changes in the adolescent brain which affect the functioning of the frontal lobes responsible for decision-making and other higher order processing. As one writer puts it, during adolescence the front of the brain is 'closed for construction'. Brain research seems to support the idea that perhaps the least appropriate time for academic learning is during these years - and yet that is when much of it goes on.

Several parents came to speak to me after the talk. A common question was 'What can I do to help my children to learn?' A difficult question to answer: Eat bananas? Chew gum? Play Mozart when they are doing homework? Tell them not to worry about tests and examinations? The truth is we still don't know for sure what will work and what won't, and it is likely that what works for some may well not work for others. There aren't any tried and tested universal methods – but there *are* lots of things to try and test. We are in 'the age of the brain' – so watch this space!