

# Creative Intelligence and the education of gifted children

A review of the research literature on the relationships between creativity and high intelligence by Professor John Geake of the Westminster Institute of Education has led to the development of a cognitive neuroscientific / cognitive psychological model of creative intelligence (pictured).

from the cognitive neurosciences, which we validated against the literature on creativity, high intelligence, and giftedness. We also sought practical validation by having the model reviewed by the UK's other two professors of gifted education: Joan Freeman, Middlesex University, and Valsa Koshy, Brunel University.'

manage large amounts of information in working memory, the larger the number of solutions is possible. The deeper the knowledge base, the deeper and more prolific these solutions are likely to be. This enables self-selection of creative ideas.

The model fits well with many of the cognitive characteristics of giftedness, particularly the relationship between intelligence and creativity observed in gifted children. Professor Geake said: 'We suggest that the pedagogic route to enhancing creative intelligence lies in fluid analogical thinking, and in our ideal classroom, students would be motivated to explore how any concept or piece of knowledge is like another, and what insights these possible analogical relationships might afford. The key variable is complexity, and academically gifted students should be pushed to the limits of their working memory capacity for conceptual complexity. Consistent with our neuro-psychological model, student insights need to be explicitly evaluated and selected for their usefulness or plausibility. In these ways we believe that good educational practice can be underpinned by, and promote the development of, creative intelligence.'

The project was supported by a grant of £40,000 from the Sir John Templeton Foundation, USA. Professor Geake reviewed 124 articles and book chapters, which have been brought together in an annotated bibliography.

Results from the project have been presented at the Society for Neuroscience Conference, New Orleans, November 2003, the British Psychological Society Annual Conference, Imperial College, April 2004, the Fifth International Conference on Thinking, University of Leuven, Belgium, July 2004.

An article on the work is to appear in *Gifted and Talented International*, the journal of the World Council for Gifted and Talented Children.

# Research in schools

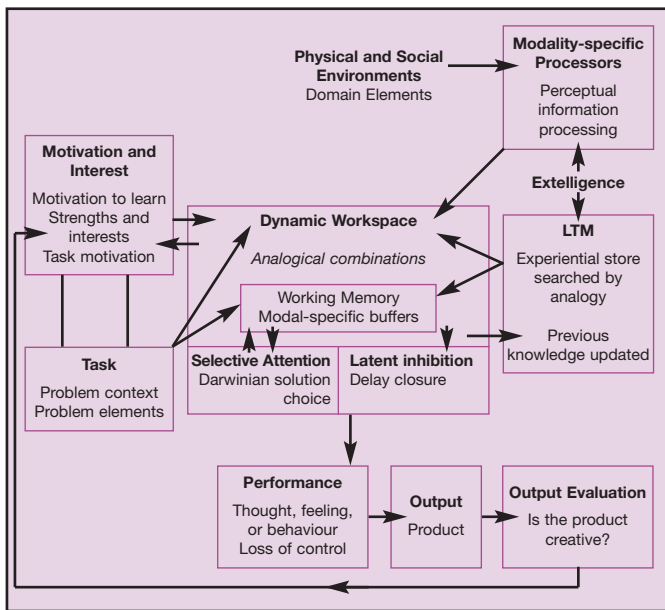


Dr Alison Price of the Westminster Institute of Education is Oxfordshire's first Schools Research Development Co-ordinator working with teachers throughout the county who wish to undertake research in their schools. The post is jointly funded between the University and the Local Education Authority (LEA), with a remit to support the research of teachers at all levels – from nursery to A-level teaching – and in all subjects.

Dr Price said: 'I don't, of course, claim expertise in all areas of teaching. Instead I provide a support framework for the research, suggesting appropriate methodologies and approaches. And when subject or age specific advice is necessary I can draw upon colleagues within the Institute, Oxford University's Department for Educational Studies (OUDES), and the LEA advisory staff.'

Dr Price's role also involves the dissemination of results arising from teacher research, for which she organises the Oxfordshire Research in Practice Conference. In June 2004, the conference was opened by Professor John Furlong, Director of OUDES and President of the British Educational Research Association. At the event, 14 teachers presented their work, in two cases alongside the university staff who had supported their research.

In recognition of her work in Oxfordshire, Dr Price was invited by the National Educational Forum, Department for Education and Skills (DfES), to join a working group on supporting practitioner research in education.



The model was informed by an original neuroimaging experiment that investigated the neural correlates of fluid analogising and intelligence. The rationale for the project lay in the expectation that such a model of creative intelligence might usefully inform the design of differentiated curricula and appropriate pedagogies for the enhancement of creativity in intellectually gifted children.

Professor Geake said: 'There is a vast literature concerning the relationships between creativity and high intelligence. Over the years, various models of giftedness have featured the promotion of creative intelligence in their applications to the pedagogy and differentiated curricula for academically gifted children. What we have done at Oxford Brookes is to develop a neuro-psychological model of high-functioning creative intelligence based on evidence

The neuro-psychological model developed by Professor Geake features the dynamic inter-connectivity of modular brain functions encapsulating working memory within which contextual, perceptual, and experiential knowledge is recruited by means of fluid analogising. High functioning creative people maximise the output of fluid analogising through enhanced selective attention and depressed latent inhibition. Not all possible solutions or insights, however, are necessarily creative. Creativity requires the output to be externally judged as both original and functional. A further feature of the model is survival of the fittest solutions. Possible solutions, ie putative insights or solutions created by analogical combinations, are evaluatively weighted via the prefrontal cortical function of selective attention in accordance with their strength of fit with the problem-context. The greater the ability to