Thinking Skills for Schools

Joseph Chandler

Earlier this year, the British government made an announcement that appeared finally to assign philosophy a key role in compulsory education. Education minister David Blunkett announced the central role of the teaching of thinking skills in the education of 11-14 year olds. 'I am very impressed by the growing evidence of the impact on standards of systematic teaching of thinking skills,' he said. 'This is not about some loosely defined or woolly approach to study skills. It is about the ability to analyse and make connections, to use knowledge effectively, to solve problems and to think creatively. It is about developing mental strategies to take on both academic and wider challenges.'

'All the evidence shows,' he continued, 'that systematic teaching of thinking skills raises standards. So, this autumn we will pilot a professional development programme designed to ensure secondary teachers know how to teach thinking skills through their specific subject areas.'

It seemed that this was the culmination of a protracted attempt to highlight philosophy's 'USP' - its unique selling point - as an inculcator of critical thinking skills, useful in whatever its students went on to do in life. Indeed, one national newspaper interpreted the news as 'thousands of teachers are to be given training in the mental skills of the philosopher.' However, a look behind the headlines reveals that the victory was not for philosophy at all, but psychology. The scheme is indebted not to Plato, but to Piaget.

Blunkett's announcement served as a ringing endorsement of the work of the Centre for the Advancement of Thinking (CAT) at King's College, London. Professor Michael Shayer and his team have been working on their 'cognitive acceleration' programmes since 1983, but the theoretical grounding for it goes back to the work of the Swiss Jean Piaget and the Russian Leo Vygotsky.

The CAT programme focuses on ten 'reasoning patterns' or 'schema' identified by Piaget. These are very different to the basic critical thinking skills of philosophers, which tend to focus on notions such as validity and soundness of deductive arguments and so forth. Rather, they identify the 'thinking patterns by which different aspects of scientific thinking are performed'. These are control of variables, exclusion of irrelevant variables, combinatorial thinking, notions of probability, notions of correlation, co-ordination of frames of reference, multiplicative compensation, equilibrium of physical systems, proportional thinking and physical conservation involving models. (*Towards a Science of Science Teaching*, Shayer and Adey, 1981)

Not only do these sound very unfamiliar to philosophical ears, at first sight they seem to be describing patterns of thought very specifically required for scientific thinking. They seem to lack the general applicability which philosophical rules of thought seem to have. However, years of research have suggested that it is precisely by focusing on these Piagetian thinking skills that students' general cognitive abilities can be improved.

In 1983, Shayer began five years of applied research on cognitive acceleration, first at Chelsea College, then at King's. Between 1989 and 1991, Shayer completed the work, fully specifying the teaching skills required.

Early studies were very encouraging, though the methods were only used in one class each in nine different schools. These promising signs, however, enabled Shayer and his team to launch a more extensive set of trials which would track students' achievements from age 11 - the first year of

secondary school - through to their school leaver's exams (GCSEs) at age 16.

The programme they had developed was called CASE - Cognitive Acceleration through Science Education. The word 'through' is important. The goal was not just to improve thinking skills in science studies, but to improve the learners general abilities by the skills learned in CASE-based lessons.

In November 1996, Shayer was able to publish a report, 'The long-term effects of *cognitive acceleration* on pupils' school achievement'. The achievements of 4,500 pupils from CASE schools were included in the data and results were compared with those of control schools. Given this wide sampling, the report's conclusions were striking. 'CASE methodology,' wrote Shayer, 'even when tried for the first time, has produced an average increase of the order of half as much again in the percentage of pupils obtaining C-grade and above at GCSE (e.g. an increase from a national average of 44 to 63% for science in 1996, and an increase from 43% to 57% in science for 1995)'. Results for mathematics showed similar improvements, and even in English, there was a smaller but significant increase in the proportion of students attaining higher grades - from 50 to 66%. There were even more impressive results at key stage 3 (14 years old). Here, maths results showed an improvement equivalent to raising the national average number of passes at level 6 and above from 33 to 66%, and in English from 20 to 54%. Shayer suggested that this even more dramatic improvement is the result of the teachers having had experience of using CASE methods, thus increasing their efficacy.

More than 400 schools are already using CASE and CAME - the equivalent mathematics programme - methods. Now the government has adopted CASE as the blue-print for critical thinking teaching in the new citizenship lessons, in which students will address moral, social, political and environmental issues. So has philosophy once again found itself out-flanked by the scientists?

The problem seems to be that scientists operate in an environment where empirical studies and proof of efficacy are all. Hence progress in cognitive acceleration research yields tangible evidence of its success. The development of critical thinking in philosophy departments, however, is not accompanied by such hard-nosed empirical research. Philosophical critical thinking is measured against the standards of higher logic. Psychology's critical thinking is measured against the standards of improved performance in closely controlled cognitive tasks. It is obvious which is going to be more likely to attract the interest of a government committed to raising educational standards.

Perhaps this reveals a deeper problem. Philosophical logic, the parent of critical thinking, is an *a priori* discipline. That is to say, the validity of logical arguments is determined by recourse to the laws of logic, not by reference to the way the world actually works. In this sense it is like mathematics: $1+1=2$ not because adding one object to another object gives you two objects (try adding two drops of water together and you'll see the point) but because, given the meaning of the numbers and symbols used, $1+1$ must equal 2.

Given that this is the case, why should anyone assume that learning logic will make you better at solving problems in the real world? Why should studying this very specific kind of reasoning boost your general brain power? These 'why' questions may have perfectly good answers, but they can only be given if the evidence is there for them. At the moment, it just seems to be an assumption that the philosopher's thinking skills can boost our general cognitive abilities.

It could be that the moral of the story is that there is a fallacy committed by those that emphasise how philosophy can improve thinking skills. What philosophy teaches you are the rules for logical and coherent thinking. It teaches you when an argument is valid, sound, self-defeating or fallacious. In this way, it is rather like a rule book for the game of thinking. But what it doesn't necessarily teach you is how to become a good player. Just as I can know all the rules, tactics and strategies of football, yet be a dismal player, so I can know all the rules of logic and yet be a pretty poor thinker. Obviously, learning the rules is bound to help my thinking in some ways, but it is a mistake to suppose that it will be the best way of improving it. For that you need a different kind of coaching, perhaps that offered by the psychologists.

Whatever the moral of the story really is, the success of CASE is sobering for philosophers who thought that critical thinking was going to be the attractive USP of philosophy in the twenty-first century. Unless philosophers can show by empirical studies that philosophy actually does improve the transferable thinking skills of those who study it, the future of critical thinking belongs to the psychologists. Yet as philosophy has become institutionalised as firmly belonging to the humanities, it is hard to see how philosophy departments are going to be able or ready to undertake this kind of study. So will we see another example of what E O Wilson described as 'philosophers surrendering

their franchise to the scientists'?

Suggested Reading
Towards a Science of Science Teaching, Michael Shayer and Philip Adey (Heinemann Educational)

Directly Related Articles
n/a
Keywords
Applied philosophy

[Return to Main] [Articles] [Connect to TPM Online] [About The Philosophers' Magazine] [Thanks To]

The Philosophers' Magazine CD-ROM is edited by Dr Jeremy Stangroom and Dr Julian Baggini

©The Philosophers' Magazine - 21 Parkhurst Road, London N22 8JQ United Kingdom - Tel/Fax: +44 (0)181 643 1504

[Episteme Links] [APA Online] [Noesis: Philosophical Research Online] [The Stanford Encyclopedia] [Philosophy At Large]
[Aesthetics Online] [Arts & Letters Daily] [Internet Encyclopedia of Philosophy]