

# In from the cold – the rise of vocational education

In the first of two essays for the *Journal*, Professor Sir Graham Hills, project champion of the RSA's Visions of a Capable Society programme, argues for the return of practical, vocational skills as the strongest foundation for a truly capable population

WORDS BY *Professor Sir Graham Hills*

The search for ways to educate people to create a capable population is not new. It has recurred repeatedly in the past, prompted by public disappointment with almost every aspect of education. In this essay, I will propose the essentials required for a better quality of education, knowing well that the best of intentions have yet to deliver the looked-for reforms.

Two decades ago, an RSA report entitled *Education for Capability* (1985) concluded that: "A well-balanced education should, of course, embrace analysis and acquisition of knowledge. But it must also include the exercise of creative skills, the competence to undertake and complete tasks and the ability to cope with everyday life; and also doing all these things in co-operation with others."

These words of a dozen or so distinguished RSA Fellows can hardly be faulted, but in 2004 the means of fostering the looked-for capability are no closer. There seem to be some rooted cultural values that get in the way of the capable society. We need to know what they are.

At the heart of capability are transferable skills. They may be forms of dexterity, as in brain surgery, but are now more likely to be intellectual skills such as writing, rhetoric and computer programming. Whatever form they take, they are acquired by experience, by practice under supervision. They cannot be taught in a didactic way but they can be learnt. To learn in this way is to be trained.

But the word 'training' is immediately a problem. Outside, say, sport, music and medicine, it is seen as a downmarket form of education and it takes place in further education, not higher education. It was once the business of polytechnics and technical colleges. The skills they imparted represented

Britain's best endeavours in the field of vocational training. Nevertheless, the high road to success today is not training but education of a decidedly academic kind and in subjects laid down long ago. This is the world of the printed word, of memorising information, all of it second-hand, in preparation for formal examinations. Shaped and standardised by university entrance tutors, it is this academic mindset that determines success in this country.

The promising young person will thus be enticed into the groves of academe rather than the less respected vocational courses. Undergraduates will choose from a myriad of academic options. When numbers were small, this siphoning-off of the classically inclined and the budding scientist was of no great importance to the rest of society, and therefore to education as a whole. But now, as we have mass higher education, it is a serious matter. The nub of this essay is that too much of the nation's talent is being shunted out of training and out of capability. If our best prospects continue to be diverted away from capability and technology, then businesses that depend on them, and they all do, will suffer.

The decline of the training component of education was not an accident. It was the result of an active policy in higher education, which favoured academic over vocational studies. Most of the new universities had been polytechnics and were not slow in seeing where resources and reputations came from. Their enthusiasm to soft pedal vocational studies and to climb the academic ladder was no less than the determination of the older universities to stay at the top of that ladder.

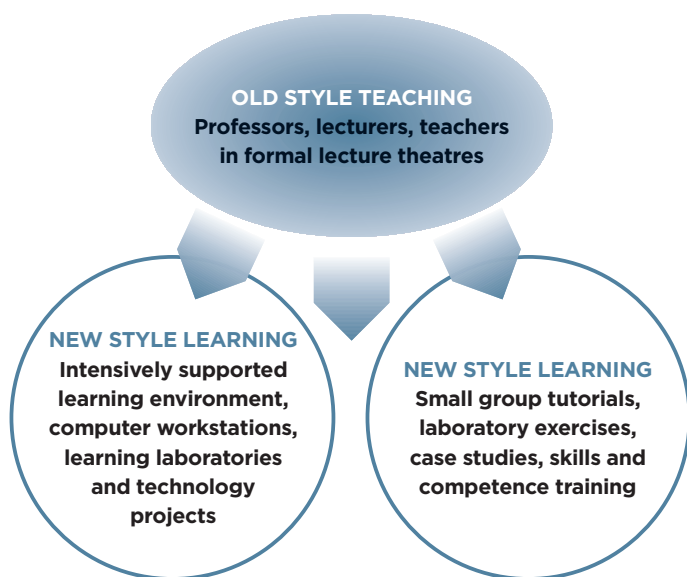
The collective will of the universities, old and new, to reproduce their kind, has meant the perpetuation of the



École Polytechnique, Paris: a physics lecture, 1894

## Figure 1 The New Learning Paradigm

A radical reform of secondary and tertiary education; the most effective way of imparting information as knowledge and generating the opportunity and time to develop skills

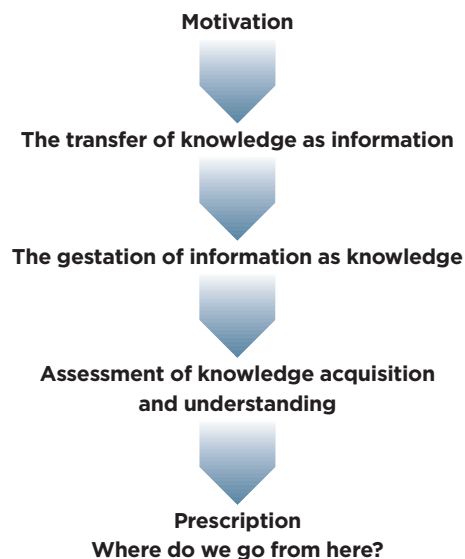


Source: Professor Sir Alistair MacFarlane, *Teaching and Learning in an Expanded System of Higher Education*, report to Scottish Higher Education Principals (now Universities Scotland), 1997

single-subject honours degree, its A-level precursors, the academic criteria of the Research Assessment Exercise, indeed every aspect of the tradition of knowledge over everything – to the detriment, of course, of skills, training, work experience and all the other components of capability. Britain remains a clever nation but woefully incompetent.

Since the Reformation, the competition between academic and non-academic studies has therefore been won by academia. The consequences have been dire except where ‘rude mechanics’ and the self-made men of the first Industrial Revolution ignored the self-regard of both arts and science. There would then arise another kind of genius more attuned to useful knowledge. Their struggle for the limelight would reach its zenith in Harold Wilson’s plea for the “white heat of technology” in the 1960s. But that came to nothing and all trace of the formal pursuit of know-how, as opposed to know-what, has disappeared. Britain still makes money from its service industries but its allegiance to the discipline of materials and manufacture continues to wane. Correlli Barnett’s *The Audit of War* and Martin Wiener’s *English Culture and the Decline of the Industrial Spirit* both tell the same story of the vanquish of substance by intellect. Both were written at the same time as the RSA education report in the mid-1980s. Both, like it, have been lost to sight. There is just one bright light on the horizon, in the shape of the report on 14-19 education, prepared for the government by Mike Tomlinson and published in October. From the information available at the time of going to press, it proposes a national diploma that will give equal weighting to vocational and academic studies. Hopefully, this will be implemented in full and help to lead the country in the right direction.

## Figure 2 The Virtuous Cycle of Learning



Source: Richard Hooper, private communication, 1995  
(now deputy chairman of Ofcom)

In the bigger picture, the arrival of the computer and the internet has transformed the way education can be delivered and helped to make the case for a more training-based education. The PC is not only the knowledge harvester, it is also the knowledge manager. It can edit, organise, retrieve and simulate every conceivable thought in real and virtual time. Nobody now needs to remember information but only where to find it. If the value of knowledge was once a measure of its scarcity, then knowledge as information is now free and valueless. Immediately a seam opens up between explicit knowledge, which is machine-readable, and implicit knowledge, which is not.

Implicit knowledge is the fruit of experience, as described in *Personal Knowledge*, the classic work by the scientist and philosopher Michael Polanyi (1891-1976). This kind of information belongs to a person in a way that explicit knowledge never can. The value of explicit knowledge lies not in its ownership but in its application. If explicit knowledge is the basis of the human intellect, then the implicit kind is surely the basis of human intelligence.

It follows, therefore, that capability is much closer to implicit knowledge. To rescue someone in immediate danger needs not a book of ready reference but a quick-thinking person of experience. The spur of the moment is, like capability, always anticipated in the implicit knowledge of previous experience. How then is this ready wisdom to be imparted to the young? Like all other skills, it cannot be taught in the classroom. There are no notes to be taken, to be remembered and regurgitated. The post-internet response to this challenge is shown in Alistair MacFarlane's model, the New Learning Paradigm shown in figure 1 (see p23).

This breaks the mould of the centuries-old recitation of facts and figures, dates and formulae and laws and theories by consigning that labour to the PC. Because rote learning is then an unnecessary chore, time and energy is released for more rewarding activities, aimed at enriching the experience of students and enlarging their implicit knowledge.

The ways of so doing are many and attractive. They range from actual experiments in real laboratories to the emotional experience of narrative literature. The case study is the best example of second-hand experience of heroic events. Ethics and morality sit well in the arena of rhetoric and debate. Other skills, of analysis, of decision making and of risk taking are best honed in projects. Problem-based activity is now the learning tool of the future.

The essence of learning is illustrated in figure 2 (opposite). Here the role of the teacher is confined to two of the five stages: the motivation by face-to-face inspiration and the shoulder-to-shoulder stance of mutual comprehension. The internet can handle any kind of information and complexity. Since the entire range of explicit knowledge is available and equally valuable, the choice of which subjects to pursue is arbitrary. There is no virtue in an irreversible commitment to any particular aspect of this comprehensive database.

On the other hand, the personal accumulation of skills, experience and know-how, which are not accessible on the internet, remains as a lifetime asset to be used in any range of circumstances. Unlike in previous days, the internet has now made the acquisition of practical skills the dominant feature of the landscape. It also follows that the traditional classroom is no longer the only learning space. If the objective of education and training is the acquisition of intellectual skills, this is best achieved in social spaces.

So far, this essay has sought to reinstate the value of personal knowledge and to give it at least parity of esteem with academic knowledge. This is not to polarise the spectrum of knowledge and learning. Explicit and implicit knowledge are complementary but need to be distinguished, which is made clear in a recent book, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies* by Michael Gibbons, et al (Sage Publications, 1994).

## Figure 3 Weaknesses of Mode I: Flaws in the Academic Ethos

- 1  
**Fragmentation of knowledge**
- 2  
**Internal referencing, peer review, cronyism and social corruption**
- 3  
**Absence of context, flight from reality**
- 4  
**Objectivity taken to extremes, dehumanisation of science**
- 5  
**Authoritarian attitudes to knowledge and behaviour**
- 6  
**Competition between knowledge bases leading to internal uniformity and external conformity**

## Figure 4

# Mode 2: Contextualising Knowledge. The World of Reality and Technology, outside Academia

- 1  
**Holistic, not reductionist**
- 2  
**Context driven, not subject driven**
- 3  
**Mission-oriented research, not blue skies**
- 4  
**Teamwork, not individual scholar**
- 5  
**Multi-authored publications, heterogeneous knowledge bases**
- 6  
**Divergent not convergent thinking**
- 7  
**Reflexive philosophy rather than objective statements**
- 8  
**Decisive criterion: does it work?**

In distinguishing between knowing and doing, between knowledge and skills and between science and technology, Michael Gibbons and his colleagues divide the field of education into two categories: category one (the authors call it Mode 1) and category two (Mode 2). The dividing line between them is even richer in scope and meaning than that between explicit and implicit knowledge. Thus, Mode 1 remains the comprehensive world of systematic, largely scientific understanding, and is one of the greatest achievements of humankind, a triumph of the human intellect.

But figure 3 (see p24) suggests it has some flaws, intrinsic weaknesses in the Platonic mind, and can be the source of a certain aridity in scientific publications, not to say in scientists themselves. The archetypal Mode 1 person is best described in George Eliot's novel *Middlemarch*, in which Dr Casaubon knows so much about so little. Hermann Hesse's *The Glass Bead Game* gives a similarly compelling description of an academic institution tuned to an academic exercise, the content of which is of no consequence.

The authors of *The New Production of Knowledge* thereby delineate another kind of knowledge as in figure 4 (see above). It is a more attractive world, remarkably similar to the one we live in. Its characterisation is that of purpose. It is a world defined by its context and its contexts. It is the cradle of capability. The first category of knowledge, Mode 1, defined only by its content, has no context except the human brain. This is the virtual world of the human imagination, guided but not ruled by reality. It is the world of hypotheses and theories. To sustain the internal discourses of each of its knowledge bases, the language of each must be clear and

therefore homogeneous. Digging deeper into each segment of knowledge requires sharper tools and esoteric language, distancing it from those of its neighbours. The educational drawback to early specialisation is therefore its premature commitment to a particular knowledge base whose future value is unknown.

The first category, Mode 1, is far from the concept of capability. It is the acme of scholastic achievement, a civilised, safe world of no surprises and no contingencies. Salaries are low but the lifestyle is rich in possibilities. Books will still have a future and it will be some time before examinations become, as they should be, entirely oral.

If Mode 1 is the enemy of capability, Mode 2 is its faithful friend. This then is a paradox in the effort to create a capable society. Mode 2, which is largely concerned with the application of academic, Mode 1 knowledge to useful purposes, is inherently different from Mode 1 itself. Mode 2 requires its knowledge to have a context, which implies it must be based on reality. Mode 2 is then the knowledge of the real world whereas Mode 1 is the knowledge of the imaginary, ideal world described by Plato.

The irony of this is that formal education at all levels is concerned only with the mastering and remembering of the esoteric knowledge of Mode 1. Everyone reading this article will have been educated in this mode. All their examinations will have been based on this deliberately detached and non-utilitarian knowledge. Does it bear any relationship to capability? It is the thesis of this essay that it does not.

All activities at any time will, of course, involve a mixture of Mode 1 and Mode 2. Civilisation is, after all, a confluence of these two alternative viewpoints. But if life is necessarily a mixture of the two categories of thought, what is the point of separating them? Perhaps the most important point is that capability, the ability to act effectively in the face of new circumstances, is as epistemologically respectable as any other kind of knowledge. There is no longer a need to apologise for vocational studies. They are an integral part of education that can now come in from the cold.

If society has accepted the need for the changes proposed here, the key issue is how to implement the reforms. ■

*Professor Sir Graham Hills' second essay on how to implement the educational reforms he proposes will appear in the January issue of the RSA Journal*

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## WHERE TO FIND OUT MORE

**The RSA recently initiated a project to investigate whether our education system effectively delivers the skills that people need to be successful in the modern world. Visions of a Capable Society is being developed in collaboration with Professor Sir Graham Hills. For further information, or to contribute suggestions or comments, visit the RSA website [www.theRSA.org/projects/visions\\_of\\_capable\\_society.asp](http://www.theRSA.org/projects/visions_of_capable_society.asp)**