Developing a Professional Teaching Force in Design & Technology: an Active Role for Industry and Commerce

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I was invited to give this paper as a result of certain views I discussed privately with members of the DATA Executive about how industry and commerce could do more to support Design and Technology teaching in schools, particularly through helping teachers of D&T develop their professional standing.

My views are based on my ten years' experience of managing Unilever's involvement with education; the understanding this has given me of both the politics of education and the realities of life in schools; and my and my company's particular interest in Technology. My personal mission with regard to education is best described as *'seeking to bridge the gap between rhetoric and reality'*.

In the area of Technology education, as you know, that gap is still considerable and gives great cause for concern. And those of us who are interested in ensuring that every child has access to a quality Technology education need to work hard and, I would argue, *collaboratively* — to close the gap.

World Class Technology

I start with the thesis:

1. If the UK is to have world-class technological skills we need to make Technology teaching in our schools world class too.
2. We cannot have world class teaching without a properly trained and well-motivated teaching force.

In the Technology area, clearly such a teaching force does not yet exist.

It is worth pointing out that the CBI has already taken a lead in identifying teachers as the key element of its strategy for achieving the 'Skills Revolution'. The CBI has further observed, with some concern, that issues surrounding teaching quality and training, particularly the need for national standards, remain unresolved.

Industry's Role

There is no doubt that industry generally is interested in working with education. Indeed, interest has never been greater, and this is a result of concerns about the availability of technological skills, our international competitiveness, and also a deeply felt desire by many industrialists to see that young people are equipped to make their way in a world where available jobs will require higher skill levels.

There is not time to catalogue the help that industry already gives Technology education, or how it could help further. It is enough to say first that industry is uniquely placed to help because it has the relevant knowledge and expertise; and schools need industry's support if they are to provide a modern and challenging curriculum. And second that manufacturing industry, in particular, has a considerable self-interest in seeing more young people developing technological skills as a basis of careers in industrial design, technology and engineering.

Instead I want to focus on the barriers which are preventing companies from doing more and how we can remove those barriers.

There are five main constraints in my view.

The first is in a different category from the others. We need to be aware that schools — urged by Government — are making increasing demands on business. And they are doing so at a time when we are just coming out of recession (I think!), and are experiencing structural changes which are putting more and more pressure on fewer and fewer employees within companies.

We have to ensure, therefore, that demands on business are well thought out, reasonable and cost-effective. This is critical in the case of Technology because here we need a step-change in business involvement. Indeed, it could be our last chance to get it right in this decade.

Other constraints are:

- Confusion over the definition of Technology
- Ambivalence in Government policy on Technology education
- Confusion over the multiplicity of initiatives
- General ignorance within business about the actual state of Technology education in schools.

I will say a few words about each.

What is Technology?

We start from a poor position since many people in business regard Technology as the practical application of Science rather than a discrete, holistic area of study concerned with 'designing and making'.

Business has been confused by the various proposals during the last few years to change the scope of National Curriculum Technology and, as you know, the situation is still not resolved. Since teachers are also confused, you can imagine the position of people in business, most of whom have no detailed understanding of the workings of education. An example close to home is the uncertainty over the role of food in National Curriculum Technology. Unilever is one of the country's leading food manufacturers and could be expected to help support the teaching of food technology in schools. However, we are not convinced we should commit major resources of money and people's time to supporting food technology in schools if its place in the curriculum is uncertain.

Government ambivalence

Like those who have to teach Technology, business people are also bemused by the inconsistencies in the Government's policies on Technology education. National Curriculum Technology, as I understand it, was conceived as a foundation subject — *that is an entitlement for all pupils* — and still has that status legally.

As we know, the standard of Technology education which any pupil receives mainly depends on the priority Technology has in the school's curriculum, the dedication and skills of the teachers involved and the resources available for accommodation, equipment and materials.

Government funding currently favours institutions providing Technology as a *specialism* and who are prepared to become *'grant maintained'*. This is neither in the spirit of the National Curriculum nor an effective use of resources. Furthermore, many companies wanting to support Technology in schools will not give support if it can be construed as party political, which is the case with the City Technology Colleges and Technology Colleges programme which is linked to the GM movement.

The Government has yet to provide a credible explanation of how specialist Technology Colleges equate with Technology as a National Curriculum foundation subject, and how its policy of specialisation serves the national interest. This raises serious doubts about the Government's commitment to improving the quality of Technology education universally.

The vast majority of Technology teachers, of course, are outside the CTC/TC programme. When they see the funding disparities, we should not be surprised if they think the Government regards them as 'second class citizens'.

Multiplicity of Initiatives

Many business people find the education system confusing and this often deters them from becoming involved. The Technology area is particularly confusing.

There is a surprising number of initiatives which either have Technology in their title or support Technology education in some way. We have CTCs, TSI, Technology Colleges, TVEI, DATA, SCSST, SATROs, CREST, NCET, TEP, NDTEF, the Design Council, RCA, Young Engineers, Young Engineers for Britain, Neighbourhood Engineers, and so on. With all these initiatives, we should not be surprised therefore if people in business get the impression that Technology in schools is well supported. Of course, teachers from their position see it differently.

Greater coherence would be helpful all round.

The Actual state of Technology teaching in Schools

Most industrialists would be alarmed if they knew the true state of Technology education in the nation's schools. However, they need to be told the facts and I'm sure this would spur them to action.

Later in the programme, Gordon Warren, will be reporting the results of the DATA surveys of Capitation Allowances and Teacher Training Needs in the Design and Technology area. Without wanting to steal his thunder, I am going to quote some of the main findings from the survey reports.

In the Primary schools surveyed, the average annual allowance per pupil for D&T work is £2.40 from a range which varies from £0.04 to £12.76. While in the Secondary schools the average per capita allowance for D&T is £5.19, from a range which extends from £0.82 to £18.23.

The average capitation figure for Secondary schools from the DATA survey equates well with OFSTED's earlier findings. You know what £5.19 will buy, but for those in doubt the DATA report explains that such a basic item as one square foot of acrylic sheet with the necessary adhesive would absorb the total per capita allowance for a pupil for a full year. Incredible but true!

I was told by one headteacher that the resources required to implement National Curriculum Technology are about five times those required for Science and eight times the average for all subjects.

It is clear from these figures that many schools are failing to provide pupils with their entitlement to a Technology education of a reasonable standard.

Turning to the skill needs of D&T teachers, only 20 per cent of teachers surveyed felt that, overall, they had been adequately trained to teach Design & Technology as required by the National Curriculum. Furthermore, fewer than half had attended a course in the past four years.

This picture is confirmed by OFSTED's report on Technology at Key Stages 1, 2 and 3 for 1992-93, which says 'in about half the schools there was insufficient equipment for D&T and often the range of D&T materials was limited' and 'about two-thirds of the schools needed enhanced accommodation'. And on teachers' skills: 'A great many primary, secondary and SEN teachers need INSET in this relatively new area of the curriculum'.

Partnership

Unilever has been involved from the early days in encouraging industry to be actively involved with Technology in schools.

In 1990, when the National Curriculum Technology Order was published, we joined forces with SCSST and the Engineering Council to produce a leaflet aimed at industry. Simply, it said that it is important for industry's future success that the Technology Curriculum is introduced in schools effectively, and that this is unlikely to be achieved without support from companies. We suggested various ways in which companies could help.

The task we face today is as great as it was four years ago; indeed it is probably more complex now because of the loss of confidence among teachers buffeted by apparently pointless change.

I share the view — eloquently expressed by Rhona Seviour, Technology Advisor for Hertfordshire, in her recent article in *Design and Technology Times* — that the state of Technology in Schools is such that nothing short of a 'Marshall Plan' is required to provide what the nation needs.

I am convinced there are enough influential groups and individuals committed to the success of Technology in schools in this country to enable success to be achieved, provided we are prepared to work in partnership. This means putting children, teachers and the national interest first. It also requires strong national leadership and vision.

I believe we need what I am calling a *Partnership Plan for World Class School Technology*. This will need the support of school managements, technology teachers, teacher trainers, government, business, professional bodies, support agencies and those charitable trusts such as Gatsby, Nuffield and Smallpeice who are committed to Technology.

Technology teachers need to:

- organise themselves under a professional body — which I believe should be DATA — and develop a strong voice to promote their interests.
- take ownership of the Technology curriculum
- set minimum standards of accommodation, equipment and teacher skills
- tell Government and business the true state of affairs in schools and what needs to be done to make Technology in UK schools world class.

Government needs to:

- demonstrate by deeds, ie. its funding decisions, that it is committed to raising standards of Technology education universally
- acknowledge that Technology, as a new subject in schools, has special needs
- show leadership in the area of Technology education.

The professional bodies and support agencies need to:

- co-operate more closely to develop a coherent framework within which they can give schools more targeted help
- engage the active involvement of business.

Business — an Agenda for Action

Finally, here is my agenda for action for the business community.

- Make support for Technology a priority for education involvement. Lead from the top; inform your employees, especially those who are school governors.
- Find out what schools are required to provide under National Curriculum Technology and what are minimum national standards.
- Visit local schools and talk with headteachers and Technology co-ordinators. Find out what provision there is for Technology at the various key stages, and how they compare with minimum national standards.

In particular, look at:

— schemes of work, continuity and progression

— specialist accommodation and equipment

— whether work challenges and stimulates pupils

— equality of opportunity for girls and boys and those pupils with special needs

— use of IT

— investment in the professional development of teachers

- Tell heads what you think of the standard of provision and offer to work in partnership to tackle deficiencies, and to help monitor progress.
- Raise the issues with appropriate local/regional partnership organisations — the Training and Enterprise Council, for example to generate a local plan of action to raise standards and maximise resources available. Consider a consortium approach to make optimum use of specialist equipment and expertise.
- Where there are blockages to progress, raise the issues with your local MP, the DTI, CBI, locally or nationally.
- Devise a company support programme within a local/regional partnership framework

  Consider providing:

  — relevant and challenging activities for pupils

  — placements for teachers focusing on modern technology as a contribution to their professional development

  — employees to work in schools on technology projects alongside teachers

  — access to modern equipment where appropriate

  — consumable materials
- Above all, show you value the work of teachers and applaud achievement by teachers and pupils.

Conclusion

Clearly, there is an enormous job to be done before we can claim that Technology education in UK schools is world class. In conclusion, I want to say I am prepared to play a full part in encouraging the business community to be actively involved in the partnership approach which I believe is required. I see this conference as a vital first stage in bridging the gap between rhetoric and reality and making a dream come true.