

A paper presented to the Equal Opportunities Commission Conference on CDT Teacher Training, June 1985 and reprinted with permission.

CDT Why Do We Need the Teachers?

Before we consider why we need teachers of CDT, perhaps we should make it clear to ourselves just exactly what we mean both by Craft Design Technology, and by technology, and what is its place in the curriculum. Although all CDT teachers are teachers of technology, not all teachers of technology are necessarily CDT teachers. Technology should permeate all aspects of the curriculum, and technological studies may bring together teachers of science, home economics, art and history with teachers of CDT contributing to a technology course.

When HMI visited schools to see the teaching of technology in 1982, they found that two-thirds of the schools visited had no written definition of technology in their schemes of work or syllabuses. Perhaps we might start therefore with looking at what I believe to be one of the more explicit and useful definitions, with my apologies for its length. The East Anglian Examination Board defines technology thus:

'Technology is concerned with the identification of the needs of man and the endeavour to satisfy those needs by the application of science and use of materials, resources and energy. It is concerned with solving problems where there is no right or wrong answer, only good or bad solutions to a problem. Technological behaviour requires activities that are creative and demanding, where the laws and principles of science, the constraints of society and economics are applied to the problem of satisfying human needs. Technological behaviour involves approaches and techniques such as system analysis, problem identification, decision making, planning, idea communication and solution evaluation, that are more than pure science or craft'.

That definition is my favourite, because it brings together the wide range of curricular activities which may contribute to the pupils' development of technological understanding. Technology is not just science, nor does it belong in a corner of the curriculum by itself: it permeates the whole of our thinking about our society.

So you will clearly understand why we need teachers of technology in the schools. We cannot afford to raise another generation of children who feel divorced from their environment, as so many of my generation, most particularly the women of my generation, were encouraged to feel by their education and socialisation. I remember well my feelings of deprivation when I first went to live in the United States at the age of 20, and discovered how comfortable American young women of my own age felt with tools and machinery, and all the manifold technological aspects of modern life, from which my own background and education had alienated me. We now live in a society which is technological: children born in the end of the 20th century must, as their birth-right, acquire technological understanding through all aspects of their education.

Secondly, we need teachers of technology to meet the Government initiatives for a broad and balanced curriculum for *all* pupils. The recent initiative for TVEI generates demand for teachers of technology to contribute across the curriculum in all schools, and a conservative estimate of TVEI at its present level of expansion is that it would generate a demand for 225 extra teachers of CDT over the next 5 years: any faster rate of expansion (and we must surely hope for this) would increase that demand many times.

Perhaps most important of all, we need technology in the curriculum in order to give recognition of *all* varieties of skills and talents. My primary colleagues have recently told me a most moving story of a 12 year old boy called Danny, who had been retained in his primary school because he was classed as severely backward. Despite his slow progress in reading and writing however, Danny was able to demonstrate brilliantly to HMI a home-made vehicle which he had put together from waste materials, and spoke eloquently of the complex scientific and engineering problems that he had solved and was still solving, in order to make it deliver all that he had designed. A curriculum which does not recognise a talent of this kind is seriously deficient: an education system which does not give recognition to the Dannels of this world is failing our society.

The present routes to training in CDT all provide however a dispiriting picture of under-recruitment. We have 4 year BEDs, shortened BEDs, 1 year certificates and PGCE courses, none of which have recruited up to target. Last year the university BEDs recruited 51 out of their target of 90, and 22 for PGCEs and 1 year certificates out of their target of 30: the public sector recruited 225 out of their BED target of 265, and 189 of a PGCE target of 205. This under-recruitment has to be seen not only against the educational needs for technology teachers which I have been describing, but against the raw figures of reported vacancies in England and Wales, of which 9.3% of all secondary vacancies in 1984 were for CDT teachers.

It is easy to wring our hands over the difficulties of recruitment, but we are here today to try and find some practical solutions. Certainly we must look at the base on which recruitment is currently built. Perhaps for BED we are accepting too narrow a definition of the 'A' levels which are acceptable. Institutions who have widened the range of 'A' levels which they will accept have found improvement in recruitment. At the post graduate level, I believe we must also look more widely at the degrees which would form an acceptable base for training teachers of design technology. What matters in the degree of the student is not so much the title as the total experience of process, analysis and skills which their degree has provided: some three dimensional design degrees may be appropriate as a basis for a PGCE while others would not: some engineering degrees may be just

what is needed, while others would be quite unsatisfactory.

The secondary curriculum at present is unbalanced, and pupil choice within that curriculum all too often inclines away from the science and technology end of the spectrum. Recent Government initiatives for improvements in the curriculum, including TVEI, should over the years improve the position. It is reassuring to know that the sex balance in TVEI participation is being closely monitored, and there is encouraging evidence that where girls do participate, some are 'blossoming' within the programmes. HMI have however been saddened to find that of the first 14 projects, all of which have been visited by HMI and on which the report is due to be published in the near future, only 5 schemes achieved approximately equal numbers of girls and boys, and in the others boys outnumbered girls by 2 to 1. It is HMI's view that girls are more likely to participate in the schemes, and to benefit when they do, if options are mixed so that there is no obvious gender bias in the titles, nor in the content. It is particularly helpful if early specialisation, often based on conventional gender differences, can be avoided,

and schemes where pupils have been encouraged to take short 'taster' modules across the range of options available, have encouraged girls to pursue the science and technology modules which they would have avoided without the taster experience.

The EOC's excellent report documents vividly how little of the pool of ability which resides in women is being tapped for recruitment to training as teachers of design technology. Although the gender differences in curricular choices may be mainly the result of home/society influence, I am not inclined to believe that nothing can be done by the education service. The initiatives and climate of schools and of teacher training institutions *can* make a difference, and we are here today to ask your views on what more can be done. I would only ask that in our discussions, we emphasise that we do not wish to lower standards of recruitment to meet supply, whether for mature students, those from industry, or for women. The teachers we recruit must be as good as possible. You would not expect me to believe other than that there are women able to train who are of the highest standards we could wish, if we could only find ways to reach out and bring them in.

One of the 110 winners in the 1985 Young Electronic Designers Competition — Pictured are Joanne Weeks and her colleagues Rachel Sennett and Angela Banfield of Falmer High School with their project, a washing day alarm.

