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THE STEM PROGRAMME IN ENGLAND

Help or hindrance for design & technology education?

INTRODUCTION

This chapter is in four parts. It is deliberately and of necessity descriptive. And the author has to acknowledge that in reporting this very short history of an episode of curriculum politics that he was actively involved in the machinations. The author is the STEM (science, technology, engineering and mathematics) consultant for the Design & Technology Association and was given the brief to develop the profile of design & technology within the National STEM Programme with particular reference to links with science. In Part 1 the chapter reports on the rationale for and progress made so far in the national STEM programme. Part 2 describes the efforts made by the Design & Technology Association, the professional association for design & technology teachers in England, to enable the school subject design & technology to be considered as an essential part of the “T” in STEM. Part 3 describes the in-service programme for design & technology teachers that is emerging as part of the National STEM Programme and the infrastructure that is supporting this. Part 4 discusses the implications of the unfolding developments within the National Stem Programme for the future of design & technology.

THE NATIONAL STEM PROGRAMME

The National STEM Programme has its roots in the report to the Government by Sir Garth Roberts SET for success The supply of people with science, technology, engineering and mathematics skills, April 2002, and the report by Lord Sainsbury of Turville The Race to the Top: A Review of Government’s Science and Innovation Policies, October 2007, both of which indicate the need for more pupils to gain qualifications in science and mathematics.

Scientists, mathematicians and engineers contribute greatly to the economic health and wealth of a nation. The UK has a long tradition of producing brilliant people in these areas, from Isaac Newton and Isambard Kingdom Brunel, to Dorothy Hodgkin and Neville Mott last century, and most recently to Andrew Wiles who proved Fermat’s Last Theorem. The challenge we face is to continue to attract the brightest and most creative minds to become scientists and engineers. (Roberts, 2002 p..iii)
Demand for science, technology, engineering and mathematics (STEM) skills will continue to grow. The UK has a reasonable stock of STEM graduates, but potential problems lie ahead. There has been a 20-year decline in the number of pupils taking A-level physics. The Review recommends a major campaign to address the STEM issues in schools. This will raise the numbers of qualified STEM teachers by introducing, for example, new sources of recruitment, financial incentives for conversion courses, and mentoring for newly qualified teachers. The Government should continue its drive to increase the number of young people studying triple sciences, and consider entitlement for all pupils to study the second mathematics GCSE (due to be introduced in 2010). (Sainsbury, 2007 p. 6)

In direct response to these reports the government produced a report The Science, Technology, Engineering and Mathematics (STEM) Programme Report (Department for Education and Skills and Department for Trade and Industry (DFES & DTI), 2006). As the following quote reveals the government had decided to rationalise the range of STEM initiatives and initiate a national strategy.

However, at the current time we have far too many schemes, each of which has its own overheads. The original STEM Mapping Review in 2004 revealed over 470 STEM initiatives run by DfES, DTI and external agencies and subsequently, the STEM cross cutting programme examined around 200 of these. They are not, therefore, in total either efficient or effective and do not give a complete coverage of all schools. We need, therefore to rationalise those supported by the Government and build on the best ones. By doing so, we believe we can achieve a much better result for the same amount of money. Our proposals work towards a vision that aims to ensure that STEM support is delivered in the most effective way to every school, college, learning provider and learner. For the first time we will have: One high level STEM Strategy Group that will join up STEM across all phases of education and make recommendations to Ministers about national STEM priorities; and a National STEM Director who will drive delivery forward. (DFES & DTI, 2006 p.3)

The report makes sorry reading for the design & technology community. The report had virtually ignored design and technology. The only reference to the subject was as follows:

It should be noted that engineering and technology are not typically considered as curriculum subjects in schools – though design and technology and ICT may count as such – but they are often college subjects. (DFES & DTI, 2006 p.10)

On what planet did the authors of this report reside, one wondered? To compound the situation the Report did not mention the Design and Technology Association as a partner which might take part in developing the T aspect of STEM. This was not an auspicious start.