The Cox Report and the Key Stage 3 Review: creativity, design and innovation in the UK

Dr Eddie Norman, Loughborough University, UK

At the time of the 2005 UK Budget Statement the Chancellor of the Exchequer decided to commission a report concerning how to exploit the nation's creativity skills more fully in order to ensure long-term economic success. The consequent report by Sir George Cox was released in December 2005 and makes very interesting reading, particularly when considered against the review of the Key Stage 3 (KS3) UK curriculum (for 11-14 year old pupils). Many DATA members will have already read the views that the association has presented on behalf of its members, which were published in November 2005. It is clear that the challenge of sustainability in its full sense – economic, social and environmental – is now firmly on the national agenda, and driving the review of economic and educational structures, and rightly so. It is equally clear that the design and technology (D&T) education community must correspondingly review the contribution that D&T makes to sustainability agendas, facilitating change where it is needed, and resisting change where it is misdirected.

Because it is so wide-ranging, it is inevitable that the Cox Report will be quoted selectively in order to support particular positions, and it should be read in full, but with that proviso, consider the following passage.

> *Creativity needs to pervade the whole organisation and, for this reason, the nature and value of creativity needs to be an integral party of all learning. Some businesses, such as Unilever and John Lewis, are starting to work with organisations like Arts & Business, to create specific improvements in their skills base and employee attitudes. Indeed, understanding creativity should be part of equipping everyone for life and work in the 21st century. It is pleasing to see that this is increasingly being recognised; there is no doubt that there is much more creativity in primary and secondary education nowadays.*
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> *Recently, the drive has been boosted by the Arts Council's* ***Creative Partnerships*** programme*, which uses creativity and the arts to improve learning and delivery of the wider curriculum. The programme, which started in May 2002, has already been introduced to over 5,000 schools, reaching 400,000 students.*
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> *More is planned. The Department for Culture, Media and Sport (DCMS) and the Department for Education and Skills (DfES) are running a review of Creativity in Schools. It is focussed on primary and secondary education and considers how education can further encourage pupils to become creative, innovative and enterprising. Turning to further education, I very much hope that the current* ***Foster Review****, and the work of Creative and Cultural Skills and the other Sector Skills Councils, will result in similar developments. I have therefore concentrated my own review on higher education, or more especially those aspects of higher education with a direct impact on getting more creativity into the smaller business. (Cox, 2005:28)*

There has been a long-standing professional debate within D&T education concerning creativity. It was the theme of DATA's International Research Conference in 2004. It has certainly become well-established that there are major issues to resolve with the assessment structures that have been been driving the D&T curriculum and not to good effect. The relationship between the curriculum and assessment requirements in D&T clearly needs to be 'put into reverse', and it must be hoped that the research being carried out at the Technology Education Research Unit (TERU, Goldsmiths' College, University of London) can initiate this movement. Their research is funded by the Qualifications and Curriculum Authority (QCA) and their work to date, findings and future plans are reported by Professor Richard Kimbell here in the published version of the Keynote Address presented at DATA's 2005

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International Research Conference. The vital matter is that D&T education plays its full part in developing the creativity, as well as the other knowledge, skills and values, which must sustain all our futures. If we can get some sound measures of that contribution, then that is all to the good, but the distortion of the curriculum which has resulted from current assessment strategies must rapidly become an unfortunate phase in the history of the subject's development. This is undoubtedly the spirit in which TERU are approaching their research, and we must wish it all possible speed.

Inevitably my own views concerning creativity and D&T education must be strongly influenced by my role in teaching undergraduates in the Design and Technology Department at Loughborough University. It is clear from the portfolios brought to interviews that the best of the students rise above the assessment requirements and demonstrate their creativity in spite of them. The 130 students in each cohort represent some of the best D&T students, mainly from the UK but some international students, and the evidence of their talent is displayed annually at the Degree Show, as, of course, will also be the case at other universities. Assessment strategies in support of creativity and innovation are no less a problem for us, but staff and students alike are aware of the fundamental need for these to be elements of all the students' projects. Crucially, in this context, I am presented annually with evidence of the creativity and innovation of which students are capable, and it is not perhaps then surprising that I would support the general concerns of the Cox Report, which are focused on implementation. Or, as stated by Sir Christopher Frayling (Rector of the Royal College of Art) in the Cox Report:

> *We need to equip all students with an understanding of business and technology – in addition to the creativity at which they already excel – if they are to use their skills to the full. (ibid, insert, 31)*

One of the major recommendations of the Cox Report is the establishment of centres of excellence combining creativity, technology and business teaching. The report is essentially referring to teaching at Masters level, e.g.:

> *I accept that it is not always easy to establish links between different faculties and institutions, but we already have highly successful models of joint courses such as the Imperial College and the Royal College of Art (RCA) offering an MA in Industrial Design Engineering. These courses prove that effective collaboration between institutions can be achieved and I believe the prize to be worth the effort. (ibid, 33)*

Cox also mentions link courses at undergraduate level, e.g. the Product Design Engineering course run by the Glasgow School of Art and Glasgow University. However, perhaps understandably, there is no mention of the research conducted concerning the issues and difficulties of such courses (Ewing, 1987, Myerson, 1991). And most disappointingly there is also no mention of the integrated undergraduate courses, which have been long-established (since at least the 1980s) in order to tackle such agendas. Notably for me of course, Industrial Design and Technology programmes at Loughborough, but also the courses at Brunel University, which have a similarly long history and there are now similar courses at a number of other universities. However for the majority of readers of this journal, the failure to mention D&T courses at all would perhaps be the greater concern. Creativity is apparently being identified with Art & Design and one of the solutions to the implementation issues as cross-curricular co-operation. Those concerned with D&T education at all levels would expect to be seen as amongst the major contributors concerning creativity and innovation. With the apparent lack of regard for the contribution of D&T being displayed by the QCA at the start of the KS3 review, it has to be asked whether the recent focus on the problems and issues generated by the structure of the National Curriculum in England and Wales has deflected attention too much away from the subject's successes. It is certainly time for the positive messages to be heard.

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This issue of the journal contains some of those positive messages. Computer Aided Designing (CAD) is often identified with the evaluation and implementation of design concepts, however, just like any other technology, there is much more to know and understand in relation to designing. Tony Hodgson's is the second Keynote Address published in this issue from DATA's 2005 International Research Conference and explains that know-how in the use of CAD modelling facilitates its creative use. The corollary will also be true. If students are not taught good practice in the use of CAD in order to model their designs appropriately, then the opportunity to exploit this new technology creatively will be lost. This is but one example of the benefits that an integrated approach to 'design' and 'technology' can bring, where the capability to exploit the technology is 'in the hands' of the designer. There are many examples of parallel opportunities provided by appropriate pedagogy for other technologies within the established good practice of D&T education.

And what might be lost if KS3 D&T in the UK was reduced in some way as a result of the review? Of course, there is no way of making such predictions at this point, but consider the following examples from the current Programme of Study for KS3.

> ***Developing, planning and communicating ideas***
> *1. Pupils should be taught to:*
> *…*
> *g prioritise actions and reconcile decisions as a project develops, taking into account the use of time and costs when selecting materials, components, tools, equipment and production methods*
>
> ***Evaluating processes and products***
> *3. Pupils should be taught to:*
> *…*
> *c identify and use criteria to judge the quality of other people's products, including the extent to which they meet a clear need, their fitness for purpose, whether resources have been used appropriately, and their impact beyond the purpose for which they were designed (for example, the global, environmental impact of products and assessment for sustainability). (DfES, 1999:136-137)*

These would appear to be precisely the kind of implementation issues which the Cox Review would want to see addressed, and for which good practice at KS3 has been developed within D&T education.

But it is not only the economic and environmental aspects of sustainability to which D&T education can make a contribution, but also to social issues such as inclusion. This quotation is taken from DATA's views on the KS3 review.

> ***DATA advocates that the Review should:***
> *…*
> • *Support pupils with special educational needs. Currently they make better progress in D&T than in any other subject and D&T teachers could provide advice to other subject teachers of the approaches and strategies they use to achieve this. (5)*

The paper in this issue by Michael Thomas and Dr Howard Denton is a contribution to this process. The paper reports on an action research programme carried out in a comprehensive school by the Head of Design and Technology to explore in detail one factor (relevance) to which such improved performance can be attributed.

Much good practice has also been developed relating to primary D&T. In the Reflection article, Professor Clare Benson considers current issues concerning the primary curriculum and the abstracts from the CRIPT (Centre for Research in Primary Technology at the University of Central England, UCE) Conference have also been published here, indicating the latest research contributions. This was the fifth biennial international conference held at UCE. Of course issues

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remain, and the paper by Dr Alan Cross, discusses one of them, the difficulties and need to effectively document the D&T teaching activities in primary classrooms.

The roots of the Design Education movement can be traced to the 1960s and 1970s and the work of the Design Education Unit at the RCA. Key papers concerning this early period have recently been published by DATA in a joint publication with the Design Education Research Group (DERG) at Loughborough University (*A Framework for Design and Design Education: a reader containing key papers from the 1970s and 80s*). This publication is reviewed in this issue by Dr Stephanie Atkinson. It is actually remarkable that the country in which the Design Education movement started many decades ago, and which was the first to establish D&T as part of its National Curriculum, and in which much of the currently known good practice in D&T education was developed could be considering any reduction in the important part D&T plays in our schools. The arguments for D&T remain as strong as ever, and if they need revisiting, then the DATA/DERG publication provides that opportunity. There is always scope for continuous improvement, and that is as true for D&T education as anywhere else. That is the essential reason for all of the research and curriculum development that has taken place over the decades, but there is also a case now for ensuring that the full weight of those efforts is brought to bear on current thinking.

To further support the discussion of the value of D&T education, the next issue of this journal will have a Guest Editor, Steve Keirl, from the University of South Australia. All of the major contributors will also be from outside the UK. D&T education is a world-wide phenomenon that many governments are looking towards to play an increasing role in relation to the sustainability of their countries, and the Special Issue will provide an international context for the review of the importance and place of D&T in national curricula.

E.W.Norman@lboro.ac.uk

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