

This item was submitted to [Loughborough's Research Repository](#) by the author.  
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

## **Journal of National Association for Design Education, No. 1, April 1994**

PLEASE CITE THE PUBLISHED VERSION

PUBLISHER

© Loughborough University

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Unknown, Unknown. 2019. "Journal of National Association for Design Education, No. 1, April 1994". figshare.  
<https://hdl.handle.net/2134/2423>.

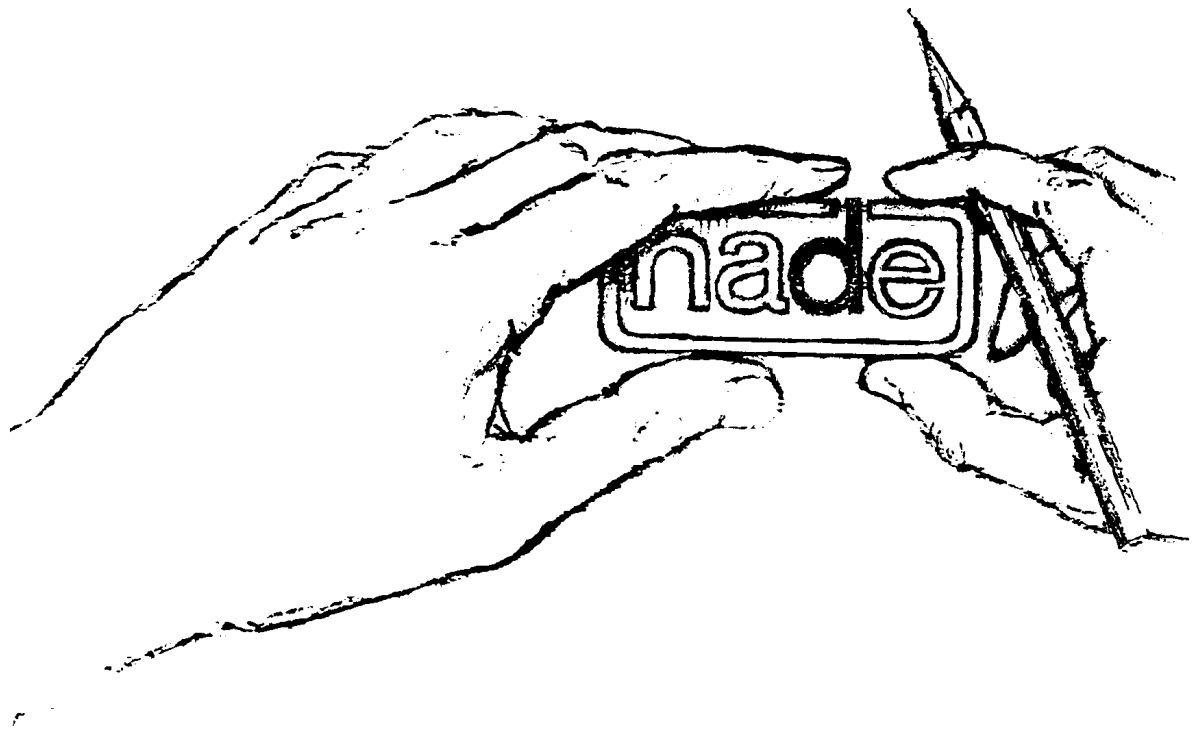
This item was submitted to Loughborough's Institutional Repository by the author and is made available under the following Creative Commons Licence conditions.



For the full text of this licence, please go to:  
<http://creativecommons.org/licenses/by-nc-nd/2.5/>

Issue Number 1, April 1994: £5.00

ISSN 1354-408X



*Journal.*

The Journal of  
The National Association for Design Education

# The Journal of The National Association for Design Education

Number 1: April 1994

---

## Contents

Editorial	Nigel Zanker	1
Charman's Address NADE AGM, 11 <sup>th</sup> December 1993	David Buchan	3
Design Education and the Anti-Research Culture	Don Baines	5
<< Ways Backwards? <<	Tristram Shepard	10
In Search of Quality	David Buchan	12
STEP Design and Technology 5-16: Review of 'Food for Thought', 'That's Nice!' and 'Hindsight' Books for Key Stage 3	Nigel Zanker	14
Damnation, Damage Limitation and the Bishop	David Buchan	20
Application Form for NADE Membership		

---

## Officers

President:	Bernard Aylward
Chair:	Professor Phil Roberts
Secretary:	Francis Zanker
Treasurer:	John S Smith
Publications:	Nigel Zanker

---

## Editorial

Nigel Zanker

Welcome to this, the first issue of the NADE Journal for 1994. In the editorial for the last issue I considered the function of the journal, and a way forward for its development:

‘NADE is a small organisation, but one of national importance in that it contributes, at every opportunity, to the debate surrounding the endless proposals and changes in education. Its members, from every sector of education, represent all aspects of Design and Technology education. Whilst meetings are held approximately four times a year it is appreciated that not all members can attend because of travel distances. Yet, in spite of this, there is a good turn-out to meetings and convivial debate ensues. Therefore it is important that the Journal not only informs non-members and members living in far flung corners (including those overseas) of proceedings at meetings but also the views of members. I feel that in this latter respect we need to encourage a greater diversity of contributions; in effect to add a greater news element to the Journal (rather than mainly responses to Government proposals and reforms).’

‘We need to use the Journal as an instrument to communicate more to each other, and about each other.’

This issue, then, represents the start of this development, and for a change it does not consist mainly of responses to Government proposals and reforms. It does contain six articles that reflect the diversity for which I believe we should be aiming. As a departure from the usual editorial style of providing a commentary on each article, I merely commend each contribution as a ‘right rivetting read’. Instead, I shall devote this editorial to encouraging contribution to the Journal with some notes of guidance.

At the last NADE meeting, it was agreed that, as NADE members, we need to write articles for a wide range of publications - initially for the Journal. These articles may relate to individual’s interests or part of an on-going commentary relating design issues, and especially design education, to the philosophy of members as portrayed by the NADE Statement. Incidentally, the Statement is currently being revised and, hopefully, will be published in the next issue of the NADE Journal.

Some suggestions as to the nature of contributions include:

- ‘scholarly’ or ‘academic’ articles relating to members interests -research or otherwise;
- views on educational issues, including reform and change;
- comments, including reviews about educational resources;
- letters to the editor;
- examples of curriculum practice and innovation;
- forthcoming events that may be of interest to members (but please remember the three to four month gap between each issue);

- news from, and about, members (ie recent appointments, achievements);
- comments on articles in the journal;
- original cartoons.

Collaborative authorship, first drafts or just initial ideas are acceptable, especially where members feel unsure or inexperienced about writing for publication. There is help, advice and experience available to provide assistance in editing drafts and notes into publishable material.

Contributions are welcome from both members and non-members of NADE. For articles please send a synopsis, to the address below, for discussion by the Editorial Board before submitting the final material. The deadline for inclusion in the next issue of the journal is 3 June 1994.

Preferably, materials, excluding synopses should be submitted on disc. Either IBM PC/compatibles or Apple Mac disc formats are acceptable provided text is saved in 'Word' or ASCII format (text only or RTF). Where it is not possible to submit on disc, ie because a different computer or word processor is used, then printed copy is acceptable. If printed copy is provided then please do not use a 'non-standard' or calligraphic font. The optical character reader can only read fonts similar to Times Roman or Helvetica (ie 'the quick brown fox jumped over the lazy dog' (Times) or 'the quick brown fox jumped over the lazy dog' (Helvetica) but not '*the quick brown fox jumped over the lazy dog*' (Script)). Graphic material, including photographs, is encouraged and should be sent as hard-copy (unmounted) for optical scanning. When providing print-out from dot-matrix printers please use a ribbon that is not worn out. All this might seem pedantic - but following these simple rules saves time and effort later.

All correspondence relating to the journal should be sent to: Nigel Zanker, NADE Publications, Design and Technology Department, Loughborough University, Loughborough Leics, LE11 3TU.

## **Chairman's Address: NADE AGM, 11 December '93**

David Buchan

Time off is precious, especially at this time of year and at this time of change with its massive increase in paperwork, official documentation and, of course, meetings. To attend yet another is an indication of considerable fortitude and dedication. Those involved in education seem to be bearing the brunt of society's problems whilst being blamed for causing them.

I am grateful to Francis Zanker for organising today's excellent programme as well as for his work as secretary during the past four years.

I must begin by expressing my appreciation to him and to all those whose support I have enjoyed during my chairmanship.

John Smith has managed our finances and, at the beginning of his period of office, coped with banking obstacles, which, more than usual, accompanied the transfer of funds.

Nigel has succeeded in increasing annual publication of the Journal, the main contact with members, to three issues.

Each has devoted considerable time and effort to the running of NADE.

It has been encouraging, also, to have the support of members whose regular attendance and contributions have enlivened our discussions throughout the period. In particular, my thanks to Don Baines for his talk on the drift of design and technology education away from designing activity.

We were foiled in our attempt to debate primary design and technology by John Reeve's unfortunate and painful illness. He was to introduce the subject but was prevented from doing so by shingles: a particularly debilitating disease. It was gratifying to find him at our last meeting much recovered and reverting to his former robust health. We postponed the discussion on primary design and technology and turned our attention to a consideration of quality in design and technology.

I am indebted also to Phil Roberts who has provided both intellectual support and accommodation for our meetings.

Above all I would like to thank Bernard Aylward whose continuing support, energy and wisdom keeps NADE alive and - kicking.

Speaking of kicking - we have again acted upon the several documents and proposals issuing from the DFE and other sources. For example:

- the proposed revised version of the Order for Technology;
- Mum's Army;
- quality in D&T;
- the Engineering Council's 'Getting it Right';
- GCSE Criteria document (Phil Mason);
- and, the Review of the National Curriculum and its Assessment.

Sir Ron Dearing's invitation to make comment prior to publication of the consultation paper appeared in the press and I missed it. I wrote later, directly to Sir Ron Dearing.

We also responded to the consultation paper: 'The Government's Proposals for the Reform of Initial Teacher Training'. It proposes, among other things, the separation of ITT from other HEI funding. It is feared that this partial treatment could lead to serious erosion of academic freedom in this area.

The resulting reduction of professional status would further discourage 'first choice' good quality entrants to the teaching profession.

Our attention has focused - and is likely to continue to focus to a considerable extent - on education up to age 16 where mention of academic freedom might well raise a wry smile or two.

A year ago, almost to the day - and here at the Design Council North we discussed, and distinguished between, design - and technology.

School design and technology is in danger of moving ever more closely towards a severely limited body of technical information, per se, and away from the activity of designing as the overarching concept in the education of children in this age group.

The instrumental purpose of mechanical, electronic and control technology in a culture whose life style and commercial success appear increasingly dependent upon it, is appreciated well enough.

But the use we make of technology, our choice of technologies AND OTHER RESOURCES, both material and conceptual, is at least as important.

It was pointed out, by Bill Morton last year, that Mr Akio Morita, the Sony Corporation Chairman, claimed no new technology in the extremely successful: it was an imaginative use of existing technology.

Further (aside from their potential market advantage) in an educational and social context, concepts of 'use' and 'worth' must go far beyond immediate commercial issues.



The development of imagination and the ability to decide what is worth doing must apply to far more than instant commercial success. There is a need for people who, taking a long and thoughtful view, can make things and can make things happen - beneficial things. People who can cope with change, bring about change, and meet new challenges. People with the ability to cope, take a long view of our use of resources and a broad view of social notions of cost, economy and success.

The National Curriculum, with its concern for the 15-16 year olds, should direct attention to the future these young people will play their part in shaping.

Our present 16 year olds will reach their 20s in a changed world. Who knows what the 5 year olds will face? Their needs in terms of kinds of technology and specific skills are impossible for us to assess. Be assured however, that they will need to be able to take action in a GREAT MANY fields and to do so with ingenuity, adaptability and a capacity to make moral and social as well as commercial judgements. Be assured, also, that they will need to acquire a desire to learn, and a perception of their own education as a lifelong affair.

We must guard against any movement towards redefinition of the subject (and its assessment) in terms of technological information per se and away from considered action in contexts not limited to commercial. Where commercial projects are undertaken they need to be enterprises which are identified and applicable by pupils.

Already Home Economics is being redefined as training in the design of mainly hypothetical commercial products. Art and Design, irrationally in my view, has been separated from Design and Technology. Craft is hardly mentioned. These are areas of the existing 'practical' curriculum whose traditions and approaches to teaching design (and applying technology) have made valuable contributions to design and technology education in schools.

The potential for developing common ground through a practical approach to other subject areas, too, is strengthened by greater emphasis on design and purpose. Language, for example, not commonly recognised as such in the context of design and technology, though not material, is, in terms of its power to resolve real life problems, undeniably practical. Properly devised design education has much to offer all children whatever their future careers may be.

I now arrive at the end of my two years as Chairman of NADE: an enjoyable experience as well as an honour and a privilege. In fact as Treasurer, Publications Officer, Secretary and Chairman, it has been an enjoyable 'ten-plus' years of office.

Unfortunately I cannot say as much for the travelling involved!

I am succeeded by Phil Roberts whose commitment and contribution to NADE and to design education in general is widely known and respected. His support has been invaluable. The Association is in good hands and I wish him, and his team, well.

We are once again indebted indeed to Bill Morton and his staff for their kind hospitality. We are grateful for that, for their interest in our work and for the contribution they, too, make to design education at all levels.

## **Design Education and the Anti-Research Culture**

Don Baines

### **Introduction**

The recent history of 'design education' as a significant educational paradigm shift is not well documented, but a few useful pointers do exist. Aylward (1973) identified the importance of the development of comprehensive education in the 1960s to the radical curriculum theorising (and necessary associated building projects) which followed. Some early examples of teachers grappling with new ideas may be found in Baynes (1969) and Harahan (1978).

Such innovations did not grow from centrally funded research projects (the Schools Council, for example became trapped by its powerful subject committees, and proved unable to develop any form of meaningful cross-curricular support). The culture which did pertain in innovative schools was that of action research, and in an education environment of rapid social change reflective teachers had unprecedented freedom to develop curriculum content and process which made children's learning relevant, and appropriate to an increasingly diverse culture. NADE provided a useful forum where teachers, lecturers, advisers and inspectors from a variety of subject backgrounds could meet (on 'neutral' ground) and share professional insights and practices. Of course, the downside of teachers' professional freedom was a fragmented curriculum, and a lack of 'entitlement' to a relevant curriculum for many children. An early NADE journal (Baines, 1972) highlighted the danger of a multiplicity of Mode 3 CSE syllabuses in 'Design', and called for a clearly argued rationale.

The RCA Report of 1976 attempted to pull together elements of good practice, and made many clearly argued recommendations for a re-alignment of official thinking on what was identified as 'the design area' of the curriculum. However, the spirit of the age was against such broad vision. Education entered the 80s against a background of political revisionism, 'conviction politics' which destroyed the consensus enjoyed since the 1944 Act, and a publicly articulated philosophy, which extolled the individual and decried the communal. An aspect of this 'denial of the communal' was the marginalisation of professionals working in the caring professions, including education, and the deliberate refusal to consult with those who had first-hand experience and insight. Thus, instead of consolidating the curriculum innovation gains of the sixties and seventies in design education, the eighties heralded a new era, and one that I have defined as 'the anti-research culture'.

### **The Anti-Research Culture**

Over the past decade 'official' educational policy making has been increasingly premised on 'common-sensical' and 'taken-for-granted' views of educational processes. The 'Rational/Managerial' model found deficient by Reid (1978) has dominated educational planning throughout the eighties and into the present decade. Indeed, its contemporary origins may be traced to the utilitarian Ruskin College speech (1976) of James Callaghan, and the instrumental character of the present National Curriculum may be found in the simplistic notions presented in 1976 as a 'Great Debate' on Education.

One noteworthy feature of the 70s was the transatlantic exchange of preoccupations in education. At the same time as American researchers (Bruner, Eisner, Walker, Barth, et al.) were eulogising the creative freedom (as they perceived it) of the English educational system, and highlighting the operational deficiencies of the American assessment-driven behaviouralist model, so, perversely, government ministers in the UK set about introducing a whole range of American-inspired 'reforms', and introducing to the English educational vocabulary such words as 'accountability', 'performance', 'attainment', and 'competence'. The model was very much one of central control, and antithetic to the design education action research, grass roots culture.

Whether or not these 'reforms' were necessary need not concern us here. Although it could be observed in passing that many on the 'inside' of education had become critical of a whole range of issues that a succession of governments, both Labour and Conservative, had succeeded in avoiding in the past. The introduction of nursery education, the abolition of selection, a common system of examination at 16+, reform of the A-level examination, the poor state of many school buildings, overcrowded classes, shortages of books and equipment, opportunities for professional development, were all concerns that educationists repeatedly paraded in the political arena.

What is of interest, and of concern, is the lack of any research or empirical data on which the 'reforms' were introduced. The DES (as then was) became increasingly proactive in the final years of the Callaghan government, working increasingly in tandem with HMI to produce a series of curriculum documents commencing with the 'Green Paper' of 1977. That these documents, and associated ministerial statements, lacked any empirical evidence was noted by Reid (1978). A change of government (though not of style) was marked by 'A Framework for the School Curriculum' in 1980. This three-year period witnessed an increasing tension between HMI and the DES (Holt, 1983), and culminated in the resignation of Sheila Browne as Chief HMI in 1982. From this point onwards any independent informed input to governmental planning in education became increasingly rare. Those educational researchers, tutors, teachers, advisers, inspectors, and administrators with experience to offer were marginalised by the government as 'being in the education biz', and educational policy-making then moved inexorably away from the empirical: analysis - proposal - research - pilot - evaluation - implementation model to the ideological: Centre for Policy Studies - 'consultation' paper (usually in the summer vacation period) - NCC - Statutory Act.

The 1980s, then, became a decade of 'anti-research culture' in education in England and Wales. The most important reform - the adoption of a national curriculum - was mismanaged by its lack of real consultation (Kelly, 1990) and adoption of a subject-based structure, which 'education-biz' researchers had strongly advised against. The involvement of Dearing (1994), and frequently contentious re-writes of the English, Mathematics, Science, History and Technology programmes of study and assessment suggest that the researchers' call for caution in 1988 was justified. In place of research, political cabals such as the Hillgate Group gained tabloid headlines with dubious claims of 'falling standards' (such claims then being quoted by the Centre for Policy Studies as 'researched facts'). One interesting fact is that membership of the two bodies are almost interchangeable (Brighouse and Moon, 1990).

A second filler of the 'research vacuum' has been those individuals and higher education research departments that have gone along with the reigning ideology, have accepted the 'reforms' without question, and have published research findings that take as given the new

context in which schools, teachers and pupils operate. Examples might be Bennett (1976, 1984), Alexander (1984, 1991), Hargreaves (1990), and Furlong (1988). Such 'research' may be classified as 'operational' rather than 'professional' or 'academic' and, I would suggest, is of a lower order than we should aspire to. Winter (1989) defends the professional principle in his process model of appraisal:

Whereas bureaucratic workers draw on authority for their decisions from above - ultimately from the state, which gives them their powers and duties - professional workers possess a personal licence to practise, having demonstrated their mastery of a body of knowledge. Their allegiance is therefore not upwards but downwards - to their clients - and inwards - to the specialism which they practise.

In NADE the specialism we practise is education. Our allegiance is to the principles of education (in contrast to indoctrination, exploitation, coercion or direction), to the personal and intellectual development of the children in our primary and secondary schools, and to the professional development and understanding of those teachers who are trying very hard to develop actual curricula (ie ones that work in practice, rather than idealised ones that are prescribed by people working some distance from actual classrooms).

### **What Next?**

NADE's 'ginger group' function is somewhat different in the current anti-research culture climate from that with which it started. Post-Dearing, the National Curriculum will continue to be subject-based, with separate criteria for 'Art and Design' and for 'Design and Technology', (with curriculum areas like 'craft', 'home economics', 'architecture and planning' - to name just some - left out of any meaningful equation). Reflective and innovative teachers in design departments or design areas will continue to try to plan activities that stimulate, challenge, make thoughtful their pupils. Primary teachers will try to marry the separate subject programmes of KS1 and KS2 into an appropriate integrated whole for the young minds in their charge.

At the end of the fairly predictable SCAA Conference, Towards the New National Curriculum' (Queen Elizabeth II Conference Centre, Westminster, 7 February 1994), Michael Barber spoke eloquently of the 'known universe'. Apparently, all that we can see, or detect with instruments, in the whole universe represents less than 10% of what calculation suggests is actually 'there'. His wry observation was that the past five years of centralised government planning in education has concentrated on organising and re-organising the 10% oblivious of the 90% plus which offers such rich ground for enquiry. His plea to SCAA was to start planning for five years ahead now, even though Sir Ron had just recommended his five year moratorium on any further curriculum change.

NADE's dual function might be to support innovative design teachers over the next five years, while at the same time joining in with the exciting conversation hinted at by Barber. (And, of course, our conversation will contain 'things, places, messages' that set designerly thought apart from the merely literary).

## **Bibliography**

- Aylward B (Ed), Design Education in Schools. Evans, 1973
- Baines D S, 'Towards a Philosophy of Design Education: a Need for Precision', NADE Newsletter (East Midlands Group), Spring 1972
- Baynes K (Ed), Attitudes in Design Education, Lund Humphreys, 1969
- Brighouse T and Moon B, Managing the National Curriculum, Longman, 1990
- Callaghan J, 'Towards a National Debate', Education (Vol. 148, No. 17), 1976
- DES, Education in Schools - A Consultative Document, Cmnd 6869, (The Green Paper), HMSO, 1977
- DES, A Framework for the School Curriculum, HMSO, 1980
- Dearing R, The National Curriculum and its Assessment, COM/94/039, SCAA, December 1993
- Harahan J (Ed), Design in General Education: Eight Projects, The Design Council, 1978
- Holt M, Curriculum Workshop, RKP, 1983
- Kelly A V, The National Curriculum - A Critical Review, PCP, 1990
- Royal College of Art, Report on Design in General Education. 1976
- Reid W A, Thinking About the Curriculum: The Nature and Treatment of Curriculum Problems, RKP, 1978
- Winter R, 'Problems in Teacher Appraisal: An Action-Research Solution?', Simons H and Elliott J (Eds), Rethinking Appraisal and Assessment, Open University Press, 1989

## << Ways Backwards? <<

Tristram Shepard

The 1989 National Curriculum Design and Technology Working Party's recommendations proposed a series of fundamental changes to the way in which a number of subjects would be delivered in schools. What the Government have been unwilling to recognise was that successful change in education is a slow, evolutionary process, and that expecting the revolutions in Design and Technology to happen almost overnight was bound to be a recipe for frustration and failure.

Back in the Summer of 1991, at the end of just the first year of delivery, it began to become apparent that the Orders weren't working very well, and finally, in June 1992 the NCC officially admitted that D&T was in a 'mess'. Although an 'urgent' review was initiated, it will now be September 1995 before the new Orders will be implemented.<sup>1</sup>

Meanwhile, the other day, the 1994 non-statutory KS3 Tests arrived in schools. How do they compare with the 'back to the '50s', gender-specific approach of 1993, which directly contradicted many of the statements of the original order?

Suddenly, in almost complete contrast, here is a sensible, deliverable range of tasks, likely to inspire most 13 year olds:

- a copy-stand for a computer;
- an alarm for a bag;
- a range of food products for places of entertainment;
- packaging for training shoes;
- a carrying device for sketching equipment.

The absurd over-prescription of when and how the tasks must be worked, which included the specification of the size and number of sheets of paper which could be submitted, has now disappeared. Here instead is an opportunity for pupils to work on tasks which are appropriate to their needs and interests, and which are not an insult to the large numbers of teachers who had spent three years of professional development preparing for.

I am optimistic that all schools could easily and positively use these optional tests, integrating them naturally and easily into the final year of the KS3 programme. The results would, I believe, demonstrate that an increasing number of schools are now coming to terms with the aims and objectives of the original orders.

---

<sup>1</sup> Tristram wrote this article before Sir Ron Dealing's Final Report had been published - Revised Orders not taking effect until Sept 1994 (unless schools make an application under Section 16 of the Education Reform Act to follow the draft Order beforehand). [Ed]

And then we must seriously consider whether in 1995 we really need to throw away five years of evolutionary change to confront another new agenda? Will a diet of over-engineered DMAs and design-disassemblies really serve to make things better?

Perhaps instead we should turn back to the future that was presented in 1989? The original orders do still need simplification - very much along the lines of the format of this year's tests but surely not changing to a more prescribed, narrow and still largely undeliverable formulae.

## In Search of Quality

David Buchan

The question of what constitutes quality in Design and Technology is of the utmost importance. Where do we look? Is quality a characteristic of design (for example) or technology?

Does technology admit of qualitative evaluation or is it, like grammar and vocabulary, a resource: useful as a means by whose application objects and systems of varying degrees of quality may be produced?

The uses to which technology is applied and the objects that result may certainly be qualitatively assessed - and often are. But, aside from such application of technology, can the same be said of the technology itself?

It might be argued that particular technologies become obsolete and that modern (higher quality?) technologies take their place. The compact disc and the compact disc player, are together qualitatively superior to the not-so-compact gramophone record with its even less compact gramophone. The latter, however, would certainly be more effective in the absence of an electricity supply. The gramophone and the compact disc are creatures of their respective times, each is the product of ingenious combination of a number of known technologies. They are inventions that make use of various technologies: mechanical and chemical, electronic and optical. The technologies remain as effective principles for which future uses may be found.

Though particular applications of a technology may become obsolete the technological principle per se does not; it is there - and available for use. It may well be used in other contexts and in other objects. It is the object, in relation to its period and place, which becomes regarded as obsolete and not the technology it employs.

It is in human motivation, imagination, activity and thought that we must search for quality - in the actions, in part manifest in their products, which give rise to objects and systems and which bring about change to life and society.

Technology is neither solid object nor action; it is information.

Designing is a purposeful activity. Technology, in itself, is not confined to specific purpose. Like science (with which it is sometimes confused) it is, of itself, unassessable qualitatively. It can, however, be applied to the serving of purpose - designing. Indeed, it is in the meeting of purpose that much technology has evolved.

The quality of designing activity can only be assessed in terms of the quality of the purpose and the quality of the thought and ingenuity, aesthetic sense and moral integrity which have gone into meeting it. The quality of thought and sensitivity of the activity of designing are reflected in functional consequences aesthetic affect and total meaning of the material outcome.



The overarching concern in D&T education, it has been said, ought to be designing: the activity of conceiving and meeting purpose. I believe this is right and that, to educators in the field of general education, the thought processes and the development of their potential in pupils are of paramount importance. It is only by attending to this development in pupils that quality will become manifest in what they do. Technologies (and techniques) of various kinds serve the purposeful activity of designing and are learned in the process - not the reverse. To regard designing, simplistically, as a means of demonstrating or exercising technological principles is a perverse inversion of its true nature and an emasculation of its educational and social potential. It is to discard quality, of thought, action and sense, as a serious and all-important element in this field of education.

If this is allowed to happen, the search for quality may have to be directed elsewhere.

## **STEP Design and Technology 5-16: Review of 'Food for Thought', 'That's Nice!' and 'Hindsight' Books for Key Stage 3**

Nigel Zanker

Many readers may be familiar with the work and publications arising from the Staffordshire Design and Technology Education Programme (STEP: Design and Technology 5-16, publ. Cambridge University Press). The variety of publications, as books and resource/activity cards (Datafiles), covers a considerable range of topics, subjects and issues relating to each Key Stage for Design and Technology Capability. In particular, I personally find the STEP Key Stage 2 Datafile cards invaluable for use on Primary INSET and ITT courses - that is when I can prise them away from the last student to use them.

Recently published, and received for review, are three books for Key Stage 3; 'Food for Thought', 'That's Nice!', and 'Hindsight'. This article, then, will review each book with some first impressions.

A striking feature of each book, and indeed previous STEP books, is that they are 'slim-down' or 'Dearing' proof. At present, and quite rightly, there is a reluctance to purchase National Curriculum resources that have in-built obsolescence because of 'curriculum streamlining'. These books are auto-immune from this agent of change. The material provides good coverage of the requirements for Key Stage 3 for both existing and proposed Technology Orders.

The authors' philosophy would appear to align with Phil Roberts' propositions in 'The National Curriculum is an Agenda for Action, not a Blueprint' (NADE Journal; Number 2, 1990; p44). The material 'leaves teachers responsible for its translation into curricular activities' (*ibid*) by providing appropriate knowledge and starting points for design and technologically related activities.

My general impression is that the material is based on a firm bedrock of established good-practice. The exemplars, though often using the 'standard' toys (such as Lego and Fischer Technik) are replicable without being dependent on such kit. A problem with material based on 'good practice' is that activities should be replicable in all schools. In such cases, 'good practice' is controlled by the lowest common denominator, which is often availability of resources. In the case of the STEP project, however, this has been overcome as the ideas are replicable in most schools using the resources available.

Each book reviewed here is teeming with information presented in an attractive, colourful, free-form layout designed to encourage participation. On some pages the text is difficult to read because of the 'wallpaper' backgrounds; personally I prefer plain backgrounds and 'white space'. Use of wallpaper may be fashionable but it leads to restlessness on the eyes. It would be interesting to observe whether the same kind of visual disturbance is experienced by young readers.

The language level and style are clear, accessible and appropriate to most Key Stage 3 students; some difficulty may be encountered by pupils of levels 3 and 4. Three random

samples of text for each book were checked for readability using the Grammatik IV grammar and style checker. This can be a particularly useful piece of software because, amongst other functions, it allows a quick check to be made on the reading age of a document using the Flesch reading ease score. Table 1 shows the approximate relationship between the Flesch reading ease score, based on a scale of 0-100, and UK school year.

<b>Flesch Score</b>	<b>Reading Difficulty</b>	<b>UK School Year</b>
90-100	Very easy	4
80-90	Easy	5
70-80	Fairly easy	6
60-70	Standard	7 to 8
50-60	Fairly difficult	9 to 10
40-50	Difficult	11 to 13
30-40	Difficult	Higher Education
0-30	Very difficult	Post-graduate

Table 1: Relationship between Flesch Score and UK School Year

From Table 1, for pupils in years 7 to 9 (Key Stage 3), the Flesch reading ease score should be in the range 45 to 85 according to ability; a score of 60 representing that of an average pupil. A below average pupil (NC levels 3 to 5) should be able to read and understand text with a score of approximately 60 or greater, and for an above average pupil (NC levels 5 to 7) text with a score of 45 or greater.

For each book covered in this review, the scores are summarised in Table 2. The size of each sample consisted of a paragraph of four to six sentences.

<b>Book</b>	<b>Sample</b>	<b>Flesch Score</b>
Food for Thought	p24	36
	p50	63
	p74	77
	Average	59
That's Nice!	p26	54
	p41	61
	p74	75
	Average	63
Hindsight	p22	72
	p39	46
	p75	62
	Average	60

Table 2: Analysis of samples of text for language level, using Grammatik IV software.

From table 2, the average Flesch scores for the samples of text show that these books can be read and understood by most Key Stage 3 pupils. Some samples, ie those with a Flesch score of less than 60, indicate that less able pupils will need help in reading and understanding some sections in these books.

### **Food for Thought**

Authors: STEP team - Joan Morecroft and Jonathon Smith  
Publisher: Cambridge University Press ISBN: 0-521-40636-6  
Price: £5.95 Publication date: 6 January 94

From the description on the back cover:

Food for Thought explores the various stages in the development of 'new' food products in a way which mirrors the commercial process. Creative ideas with food are then developed with the design of systems for the batch production of food products, including the modelling of production lines.

The book provides many opportunities for design activities which are explored in depth, as well as taking a structured approach to key content areas such as design of food products, research techniques, advertising, systems design, finance, modelling with systems and electronics and biosystem design.

The content is organised as 7 sections (96 pages). The material is well structured across and between sections, but there is no index to allow ease of cross-referencing:

- 1 'It's New, It's Improved' provides a good introduction to development of food products and sets the scene for the product development process.
- 2 'Bright Ideas' covers generation of ideas, market research techniques and data analysis. The pupil is quickly engaged in activities to collect, analyse and present findings.
- 3 'Developing a Food Product' covers the packaging, advertising and labelling of a food product - but not the product itself. Planning techniques such as critical path analysis are explained. This section provides a good background to issues relating to packaging such as the design of the 'box', information to be printed for the consumer (labelling, nutritional, keeping conditions, etc) and techniques, such as vacuum forming, for making the 'insides'.
- 4 'The Final Stages' covers the first production run, the advertising campaign and the product launch.
- 5 'Is it a System'. This section is essential for teachers trying to wrestle with the NCC guidance and its failure to explain artefacts, systems and environment. Perhaps heavy going for pupils but an excellent coverage of the terminology associated with systems - short of using the term 'cybernetics'.
- 6 'Designing Your own Food Production System'. In this section pupils are presented with opportunities to design a working system for producing a food item in quantity. There are

good, cross-referenced links with the previous section on systems. Quality, safety and business considerations are well covered. Control technology, as pneumatic and electronic sub-systems, is mentioned with some opportunities for using Lego and Fischer Technic. Links with IT, for control of production lines, are not covered.

- 7 'Bug, Beads and Bubbles'. A section on biotechnology and its significance to the food industry. Pupils are invited to design and build a yoghurt maker. Again, control technology, short of computer control, is covered.

### **That's Nice!**

Authors: STEP team - Peter Branson  
Publisher Cambridge University Press ISBN: 0-521-40638-2  
Price: £5.95 Publication date: 6 January 94

From the description on the back cover:

That's Nice! focuses on the various stages of designing a product, from initial ideas through to building a prototype. These stages include creating original images and developing and presenting ideas, with attention being given to the aesthetic aspect of design. The book contains many suggestions for project and activities in different areas.

The content is organised as 6 sections (96 pages). The material is well structured across and between sections, but there is no index to allow ease of cross-referencing:

- 1 'That's Nice!' provides a good introduction to designers, designing, designerly thinking, and designerly activity. This section sets the scene for the rest of the book by stating from the beginning that: designers need to have ideas; sometimes designers use other people's ideas and develop them; designers need to try out their ideas in different materials; designers need to know about the materials they use; and, many aspects of good designing can be learned. This section alone untangles ATI!
- 2 'Creating and Developing Original Images and Designs' is an appropriate and alternate wording to replace AT1. This is a short section that quickly engages pupils in creating original ideas, exploring images and feelings by asking the question 'Where do new ideas come from?'
- 3 'Presenting Design Ideas' builds on the experiences and explorations from the previous section. This is a detailed section in which various graphical techniques and designs are examined, and supported by visual examples. Pupils are invited to comment on their feelings, appropriateness of techniques used and the impact and appeal of the style used. Further on in this section techniques and media, such as pencil, crayon, pastel and marker, are explored in greater detail with supporting exercises for pupils to start to develop a variety of presentation techniques.
- 4 'Modelling and Prototyping' is another detailed section, this time devoted to modelling techniques available to designers. The different techniques are introduced, contextually,

using examples such as: toys for small children; small and large electrical household appliances; garden equipment; fashion clothing; transport; and, housing estates. This is an excellent way of introducing the techniques, and much better than the usual, trite 'this is the technique and this is where it's used', approach.

- 5 'Case Studies' is a section that links together, using illustrative examples, the previous sections. The case studies are well supported with opportunities for pupil interaction through focussed activities.
- 6 'Design Situations'. This final section provides situations, from different starting points, for pupils to develop. The three starting points used are setting a scene and asking pupils to develop their ideas; suggesting a range of design ideas as solutions to design tasks; and, presenting a solution to a design task which pupils are asked to evaluate. The situations covered are computer-controlled lighting effects; gobos and colour wheels; the shop front and foyer to a new hairdressing salon; the market place; toy tents; and, garden centre.

### **Hindsight**

Authors: STEP team - Gill Almond and Howard Bagshaw  
Publisher: Cambridge University Press ISBN: 0-521-40639-0  
Price: £5.95 Publication date: 3 March 94

From the description on the back cover:

Hindsight focuses on the way technology develops through history using examples from many ancient civilisations as well as many periods of British history. The technology discussed covers the areas of: building materials; components which make a home; hygiene; clothing; communication; transport; power.

Hindsight contains a range of practical activities related to the text including design-and-make tasks. Biographical details of key people are included and the book is fully indexed.

Hindsight is suitable for work at all levels of Key stage 3, and with years 5 and 6 at Key stage 2, of the national curriculum for design and technology

The content is organised as 8 sections (96 pages). The material is generally well structured across and between sections, there is an index to allow ease of cross-referencing:

- 1 'We have the Technology'. This is an introductory section which through consideration of design, as form and function, and technology, as the use of science and mechanics to solve practical tasks, looks at the nature of change. Change is examined in three basic ways, with examples, as linear progression, major leaps and cyclic.
- 2 'Building Blocks' covers the use and properties of different materials in constructing buildings. Pupils are set design and make as well experimental tasks to investigate structural strength.
- 3 'There's no Place like Home'. This section looks at a large variety of topics, such as

pottery, heating, lighting, furniture and decor. The influence and impact of designers is discussed with examples of their work. This is set alongside, and to good effect, the inventions and discoveries of scientists.

- 4 'Keep it Clean' is a short section (3 pages) devoted to clean bodies, clean clothes and getting rid of waste. This section, whilst interesting, is superfluous.
- 5 'What shall I Wear' is a section that briefly covers the history and techniques in designing and making clothes. There are little opportunities for pupil activity. This section might make an introduction for a separate book on fashion design. In this book it lacks sufficient detail to be useful, other than providing basic information.
- 6 'Staying in Touch' is a section tracing the history of communication. Although this is a well-detailed and informative section there are few opportunities for pupil activity.
- 7 'Let's get Moving' covers the history of transport. Once again, a detailed information section. Opportunities have been missed to engage pupils in practical activity - other than the catch-all pencil and paper intellectual exercise of 'as you read through this chapter, try to identify those needs and the changes they produced'.
- 8 'We've got the Power' covers the increasing need for power and energy. This is another informative section, which could serve as an introduction to a separate book, with missed opportunities for engaging pupils in practical activity.

As a primer to the history of design and the nature of technological change this book is good. However, the claim of a 'range of practical activities related to the text including design-and-make tasks' is an over-exaggeration - many tasks are pencil and paper. The further claim of suitability with years 5 and 6 at Key stage 2' can only be applicable to the brightest pupils who enjoy reading and learning facts. As a teaching resource this book is recommended.

## Summary

These books will quickly and readily engage Key Stage 3 pupils in design and technologically related activity. The material is presented in an inviting, attractive, well illustrated format. Less able pupils will find difficulty in reading and understanding the text; though the illustrations may help in this respect.

In 'Food For Thought' and 'That's Nice!' the material provides a good balance of knowledge and values relating to design issues with many opportunities to engage pupils in practical activity using resources typically found in schools. In 'Hindsight' the range of information covered is considerable and the book provides an excellent and well-informed background to the history of design and nature of technological change; there are fewer opportunities for engaging pupils in practical activity.

These books are highly recommended, along with other materials produced by the STEP team. They represent excellent value and will not become out-dated during National Curriculum streamlining.

## **Damnation, Damage Limitation and the Bishop**

David Buchan

According to media headlines my favourite bishop opines that there is no Hell (- with a capital 'H' implying that it is a place). To many, who may not have already suspected as much and who feel they have not, perhaps, striven sufficiently strenuously to escape eternal damnation, this must come as welcome news indeed.

Removal of eventual divine retribution and establishment of what seems like universal amnesty, might even encourage energetic intensification of antisocial, criminal, or sinful, behaviour.

But wait ...

... before succumbing to an orgy of self gratification, and before making any false assumptions, note that this is not quite all he said. In The Right Rev the Bishop of Durham's belief, hell is something we create within ourselves and within the world, through human weakness, neglect and error: a state or condition, (- lower case 'h').

I have no wish to turn the NADE Journal into a Sunday School reader and whilst not wanting to exaggerate (how could I?) the effects of upbringing, environment and education, I have to confess to a certain sympathy with the Bishop's view.

Evidence abounds. In destructive and regressive action, sheer bigotry and opportunism, Hell (the place) and hell (the condition) are manifestly and perpetually 'under construction' - not 'down below' but 'here'.

Reversal of the process would appear to be constructive and progressive moral and social motivation and action: cultivation of the 'better nature' in the human race. The ultimate brief for educators is how best to treat others, especially the young and impressionable, so as to ensure the optimum maturing of their moral and collaborative will and capability.

In this way we may contribute to social amelioration.

Sadly there are obstacles. For example, impatience, the desire for quick results and the mistaken belief that a predetermined and specific end justifies the means by which it is perceived to be attainable. (Here lie the seeds of authoritarianism.)

Educationally, fundamental difference about 'means' is not, of course, confined to the area of design and technology. Moreover it dates back further - beyond the 'The Great Debate' (so called) when reactionary opinion, about how the education of the young ought to be conducted, became public.

Though a teacher at that time, apart from in staffroom arguments, I can not recall ever having been involved in the 'Great Debate', even indirectly. My impression then was that there was much less concern with the ideas of educators than those of economists, industrialists and other employers upon whose advice and opinion a higher value appeared to be placed and



whose hands, given a suitably prepared 'work force' would drive the machineries of economic success.

It would be all too easy to assume that herein lie, neatly identified, the opposing sides: wrong and right, training versus education, 'industrialists' versus 'educators'; the former, anxious to have potential employees quickly trained in the skills perceived as necessary for employment - the latter favouring a personal development approach. Quick fix training on one hand - careful nurture of individual potential on the other. One regarding human study, the other perceived industrial need, as the primary concern of education.

Such facile categorisations mislead. The process is more complex than a simple separation of sheep from goats. There is no shortage of educators sceptical of other than formal instruction or employers (and possibly politicians for all I know) who recognise and value the benefits of education (as distinct from training). Besides, what are often assumed to be two distinct, separate and opposing views are really extreme ends of a spectrum of many views. The majority, to continue the allegory, lie between the ultra violet and the infra red.

To incline to formality is not necessarily to exclude well-timed, enabling instruction involving groups as well as individual pupils. To favour a designing-learning approach, in which pupil initiatives are encouraged, is not to belittle the acquisition of knowledge technical or otherwise.

To propose designing activity as primary is not to devalue technology; it is to recognise the power of self-owned activity as an educational approach by which technology as well as other knowledge, practical and social skills, may be acquired. Importantly it is also to recognise the need to exercise pupils' perception and ability to think and to relate their skills to purpose. Danger, too, lies in the loss of self-discipline and self-motivation by crude attempts at outward imposition of compliance or by substitution of an extraneous reward for real interest and desire for knowledge and skill.

Though important to all aspects of education, where the development of designing capability - or creativity - is the aim (as it must surely be in design and technology), the preservation and nurture of the will and capacity to act with initiative and imagination becomes crucial. Fortunately, children are resilient beings, nevertheless outward domination inhibits creative thought and action.

In Technology Programmes of Study and Attainment Targets: Recommendations of the National Curriculum Council, Sept 1993', the modified description of 'technology' is as follows:

'Technology is the creative application of knowledge, skills and understanding to design and make good quality products.'

As Tristram Shepard has pointed out in his timely and useful article (The Return of the 'C Word', NADE Journal: Number 3 1993) 'creativity' has re-entered the agenda. He also expresses a concern (which I share) that the words like 'design' and 'technology', is widely misunderstood.

Since technology (for example) is not an activity, it cannot be a 'creative application of knowledge'. It is, itself, an aspect of knowledge: something which might be applied, not a process of application. Substitution of 'designing' for 'technology' would be less confusing eg.

'To design is creatively to apply technical and other knowledge, skill, initiative and understanding in purposeful activity.'

'Design', in the latest, Sept '93, description (it cannot be regarded as a definition) is used in such a way as to suggest 'a preliminary to making' and, rather than 'the meeting or satisfaction of a conceived need, opportunity or discrepancy', 'products' are seen as the ultimate aim.

Technology is a resource; designing a learning and 'creative' activity in which deliberate, considered action is taken. Design education is concerned to develop, in pupils and students, capability and responsibility in directing and coping with change in the environment and, concomitantly, in oneself.

Adherents of this description of the subject area place process at its heart and see the primary discipline as that of development of capabilities and faculties. It largely corresponds to cognitive psychology and aims to strengthen and nurture a pupil's ability to think and to form ideas. Ideas about self, what is sensed in the surrounding world, and how perceived interrelationships are built. It proposes that this is an active learning process. That is to say, it regards the child, from birth, as an active participant in the surroundings and that learning is by experiment. The conducted experiments produce feedback. Children learn that actions actually have an effect - intended or otherwise. With maturity, actions become more calculated and the areas of awareness, and consciousness of the effects (and possible effects) and actions, expand.

The kind of things learned are, evidently, influenced by the nature of the learner's whole environment, its quality, ethos, people and things and the construction he makes of their treatment of, and relationship to, each other and himself. The home and the school workshop, studio, classroom and Home Economics room are examples; here the inhabitants, objects and activities, discussions and general ambience, encourage enquiry, observation, interaction, cooperation - and learning.

Such nurture of the social, moral and aesthetic self-discipline of its future citizens are essential to democratic society. Quality of life in any environment is a function of its quality and contents. That, in turn, depends upon the emotional, critical and intellectual qualities by which individuals interpret it, relate to it and construct it.

Critics of the above scenario appear to ignore the language, mathematics and other areas of knowledge and understanding in which pupils immerse themselves when encouraged to work individually, or with others (including teachers) on projects they have had a hand in devising.

The dictum 'back to basics' implies 'let's get down to brass tacks and cut out the nonsense'. It has little to do with the real fundamentals of how people learn, the importance of attitude and motivation, or of encouraging autonomous thought, responsibility or community spirit. They have not noticed, or having noticed have disregarded, a baby's uncanny ability to take action to satisfy needs or the repeated experiments a two-year-old will carry out on people

and things to assess results. They cannot have watched children at play. They cannot believe that an infant school child is capable of self-initiated action.

Except in the playground.

Mr Stuart Sutherland in his letter to the Secretary of State for Education (which precedes the contents page in the Oct '92 proposals) recalls, in the second paragraph, that one of the principal objects of the revision was

‘...to increase teachers’ expectations of children’s abilities ...’

It is a particular irony that Nursery and Infants teachers now find that it is no longer ‘expected’ that their pupils will be able to initiate activities as in Attainment Target 1 of the original Order (June 1989).

The December 1992 Proposals were commissioned...

‘...because evidence had shown that teachers had experienced significant difficulty in interpreting the detailed statutory requirements associated with [these] attainment targets.’

The September ‘93 Proposals, so far from providing a clarification, have sought to simplify by the introduction of further prescribed ‘Design and Make Tasks’ whilst claiming (p3 para 1) to retain ‘the conceptual approach used in the existing Order’. The apparent ambivalence:

- 1 presents pupils with ‘tasks’ designed to teach specific technological knowledge - which will be the subject of the tests;
- 2 encourages children to take initiatives by identifying problems and opportunities and deciding on ways to meet them - which will not.

This can only be resolved by skilful and sympathetic liaison between teacher and individual pupils in an environment designed to provide opportunities for the encouragement and acquisition of the specific skills and knowledge required by the adoption of means of examining designing capability.

The resolution of this difficult task would be greatly eased by:

- 1 a considerable broadening of the acceptable knowledge base from which choices (of materials, tools, technologies and other areas of knowledge) might be made. (Removal of a stipulated limit altogether would be preferable though, given the apparent need for national assessment of ‘technical knowledge’, this would be difficult if not impossible.);
- 2 much greater reliance upon continuous assessment, by teachers, of children’s progress, based upon an observation guide relating to development of their designing capability;
- 3 action on the part of the DFE to assure teachers and others, including parents, that genuine designing capability in the real world, is highly valued.

During the past decade we have found ourselves carried along in a reactive process, devoting our energies to damage limitation, responding to documents issued by the DES and, latterly, the DFE. We ourselves, as well as those ultimately involved in the work of producing these documents, have been engaged in trying to make the best of given, non-negotiable briefs whose underlying philosophy is ambivalent and whose source remains, to me, a mystery.

Patch-up, respray, jobs do nothing to improve the function of the vehicle so long as technology is conceived as the vehicle instead of part of the tool kit.

Designing activity is the vehicle whereby children may acquire knowledge whilst, with imagination, practising its purposeful use. We may thus exercise those faculties that will equip them to face, and build, the future.