

Departmental Organisation and Craft, Design and Technology

Why is it that many Craft, Design & Technology departments have such problems in grasping the opportunities being offered by the current surge of interest in the subject's new conception? Staff shortage, poorly qualified staff, inadequate timetable space, low status and lack of money are all reasons which are commonly advanced. There is truth in all of these but I believe that many of them are of our own making (albeit indirectly) and that the first steps in removing them must be ours however difficult and unjust this may seem. A convincing demonstration of high professional standards being applied to all aspects of our work puts the onus on our critics to say why status, money, time, etc should not be increased. One such area in which I have always felt CDT to be weak is in departmental organisation and this article follows out of our attempt at North Westminster School to correct this.

The structures and practices of a teaching department may be developed and organised in a variety of ways. They may be dictated arbitrarily by strong individuals (though not irresponsibly); they may follow historical precedent; they may adopt a pattern widely used within a school; or they may have evolved informally and be so loosely constructed as to appear non-existent. These are approaches which can be found within departments. A more systematic method is to contrive them by some rational process. The advantage is that the meaning and utility of an organisation based on an explicit rationale is more clearly communicated, understood and evaluated. This last approach has been used to generate the system proposed here.

The rationale for the organisation being proposed begins with the observation that CDT departments are in a constant state of flux or change; an assumption which may be questionable in view of the widespread resistance to change. However the validity of the assumption is largely a matter of perspective. Clearly departments are different today than they were at the turn of the century, and departments in inner city schools differ from those in provincial centres or rural settings.

Currently, I would suggest, this state of flux or change is being produced by forces which can be characterised as operating at three levels.

Firstly internal to the subject. Arguably the new centre of CDT focused as it is on the 'design, make, evaluate' conception, cannot be handled adequately by many existing organisations. Nor will the situation be improved by piecemeal restructuring or the grafting on of new practices. The new conception demands a new approach, a demand which has perhaps been obscured by the need to retain the teaching of basic craft technology as an enabling device for design based activity. Team teaching and individualised, resource-based, learning schemes may be essential to meet the requirements of genuine problem-solving approaches. Isolated teachers operating didactically can no longer be expected to cope with the increasing complexity of the work.

Secondly there are pressures external to the department from the need to establish coherent schooling rather than a series of isolated subject units. CDT is being required to accept much wider curriculum responsibilities. It now has an important role to play in the development of library use and study skills; in supporting the work of maths, science and the visual arts; and in encouraging critical and contextual understanding of the man-made world. It is no longer enough just to make things – however important this is!

Thirdly there are the pressures exerted by the need to keep the curriculum relevant in the face of a rapidly changing technological climate beyond the school. The need to be 'contemporary in thought' (1) remains with CDT. Government papers (2) identify major technological changes likely in this decade within micro-electronics; information, energy and materials technology; and biotechnology. Does the organisation need to respond to these? How will it cope with them? Is it flexible enough to respond to increasing application of semi-conductor technology to the complete sequence of designing products – from customer specification, to design and production stages, and marketing? How does the department keep pace with developments, assess their implications for education and innovate accordingly without upsetting on-going work or plunging recklessly into uncharted waters?

However subtle and slow these forces are to appear a department needs to be geared to meet them. Strategies other than blind reaction or rejection must be devised for responding to them. Establishing systematic, flexible and explicit organisation is an important preparatory step. Not only does it help to keep pace with change and make adequate response, but it also allows us to influence the forces of change ensuring that we react on our own terms. To operate an organisation which ignores these forces is to sacrifice the quality of our educational offering to students and to detract from the increased credibility being achieved for the subject. CDT cannot hope to take up its new place as a core subject if it does not attend to the implications of these forces.

At North Westminster School we have tried to produce an organisation which reflects these forces by satisfying six criteria:

- Embrace the new conception of CDT wholeheartedly.
- Encourage a team approach.
- Produce stability and flexibility.

- d. Remain forward looking.
- e. Be rigorously managed and administered.
- f. Support the whole school curriculum.

Tasks

At this point I should like to digress slightly and consider nine tasks which are important for the successful running of any department and can form the backbone of a coherent organisation. While their exact form, emphasis and interpretation would vary between departments it is contended that failure to include all of them must render a department deficient in some respect. It is not coincidence that they are couched in general terms applicable to any subject, they become specific to CDT only when applied to its unique aims, content and methods etc. It is all too easy to think that CDT is wildly different to other subjects when close analysis reveals many striking similarities. CDT can help support the whole curriculum by adopting an organisation which reflects general educational concerns as well as subject specific ones.

1 Curriculum & Management Information

The success of a department in remaining forward and outward looking depends on maintaining a wide perspective on educational matters. This will involve keeping abreast of current writing and debate from a wide variety of fields – educational and otherwise. The subject's own journals are important but they are not the only source of useful insight. Thus the main feature of this task is keeping the department well informed in a variety of ways and from a range of sources. Preparation and presentation of discussion papers, verbal reports from conferences and meetings attended and the circulation of pertinent books and articles are all ways in which insularity and ossification can be avoided. Our ideas need to be fed by, and blend with, those from other sources. Information might focus on language development, student referral problems or the education-industry interface but in all cases its purpose is to develop the personal and professional awareness of team members.

2 Team Creation, Development and Performance

In a hierarchical structure this is a task which falls to the head of department. The benefits of team work are well known and a department in which this is not achieved will be severely handicapped. Very occasionally a team can be created by skilled advertising and interviewing. More often it will have to be developed from existing personnel through placements on in-service training courses, opportunities for responsibility within the department, rotation of teaching groups and subject disciplines, etc. The achievement and maintenance of high professional standards requires careful monitoring of individual and team performance over a wide range of activities. This is perhaps the hardest task facing a department as many teachers see it attacking their autonomy and bringing unwelcome criticism.

3 Information Resources

This task is concerned with the importance of information and its skilled use in the work of a CDT department. Students and teachers need to collect information on existing work in an area of study, understand its implications, know where to look for new ideas/inspiration, know the sources relating to practical skills and processes and then be able to collate and make relevant their findings. Thus the primary aim is to help students gain practical knowledge and experience of the organisation, management, selection, evaluation and presentation of information in relation to their work. A secondary aim will be to ensure that adequate information is available to members of the departmental team engaged on innovative projects. Unlike the first task this one looks inwards at the specialist knowledge involved in CDT but will promote library, reading and study skills at the same time.

4 Environmental Resources

Often it seems that students 'catch' more than we teach, but how often is this turned to educational advantage? This task involves the creation and maintenance within the department of a visual environment which stimulates imagination, invention and enthusiasm; conveys accurate information and encourages high standards; and generally makes CDT base areas attractive, friendly, and welcoming places. This is associated with CDT's contribution to the development in students of visual literacy and might be expected to involve links with the visual arts department.

5 Educational Technology

The work associated with this task has three main functions:

- a. increasing the impact of teaching
- b. increasing the effectiveness and efficiency of the learning process
- c. stimulating and motivating students

Thus it involves co-ordinating the use of hardware (OHP, VTR, etc), advising on the sequencing and structuring of new teaching material, and ensuring that students have the chance to feel a sense of personal achievement and responsibility. With this in mind it will clearly require close liaison with other learning support services within the school. The way in which student interest and attention is gained and focused is essential to the success of any educational activity. At a simple level how many departments, I wonder, make full use of the OHP's potential?

6 Course Organisation and Management

Once a department has laid its plans these must be structured and implemented. Every department will have a variety of courses each one of which will need someone to organise and manage it whether it leads to public examination or not. The task of organising and managing a course involves preparation and regular monitoring of internal and

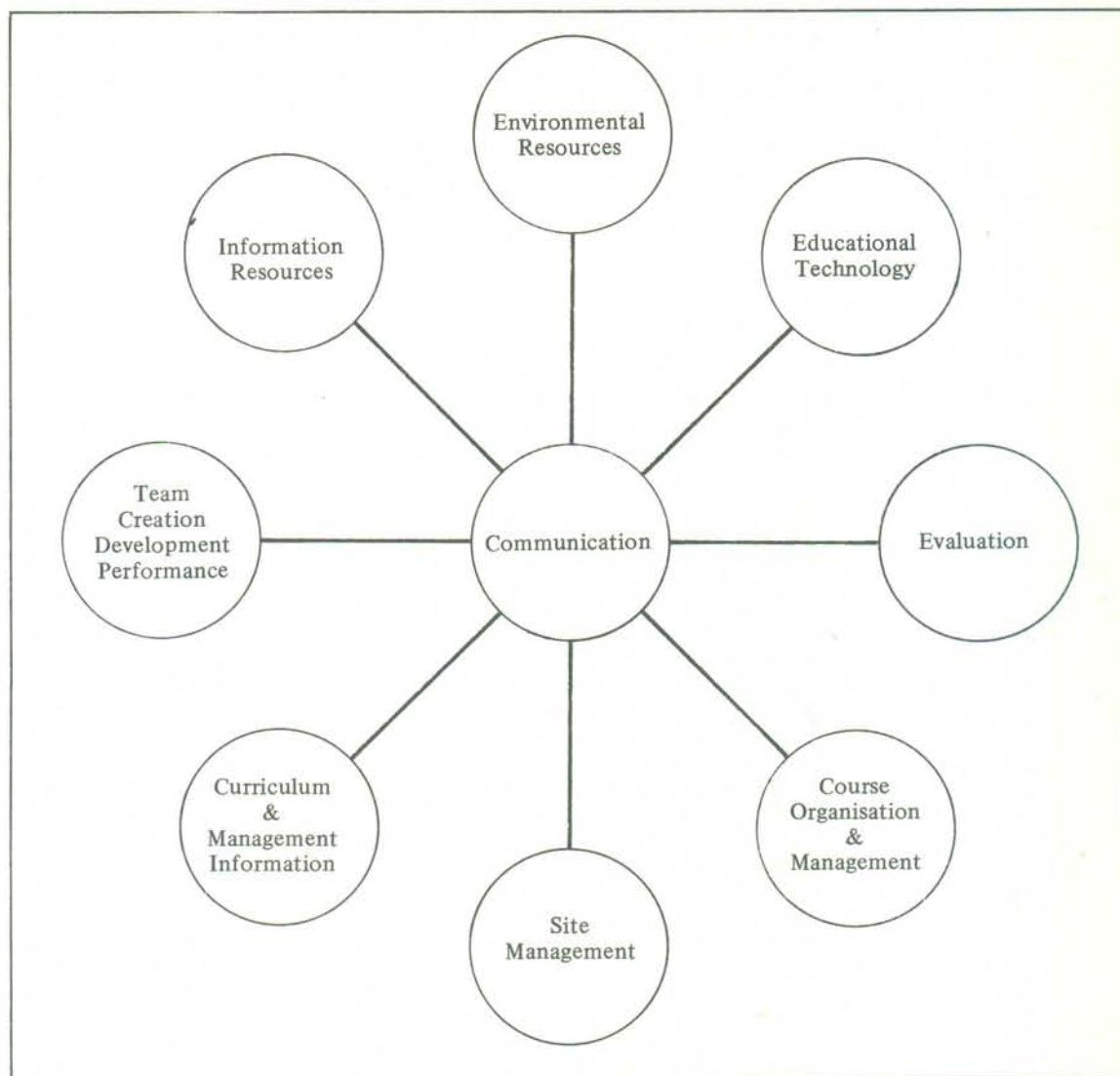


Figure 1

external syllabuses, provision of suitable schemes of work and teaching materials, organising back-up resources, developing adequate homework and advising on financial and other related matters. The coherence which CDT offers to many aspects of design and technological understanding learnt elsewhere in the curriculum requires a different level of course organisation and management than is commonly found in CDT.

7 Evaluation

As curriculum demands become more complex and dynamic, and course and organisation change in response, better methods of monitoring and assessing what is being achieved and the interaction between the various influences on it have to be found. The function of evaluation is the improvement of the quality of teaching and learning within a department. Too often this task is associated only with the internal and external examinations used by a department rather than wider curriculum and management interests. Without wide-ranging and systematic evaluation it is difficult to see how cohesive progress can be made – decisions will always be based on intuitions rather than more objective indicators.

8 Site Management

Site management is the task which keeps our design suites or workshops and drawing offices running smoothly on a day-to-day basis. Technician work has to be prioritised, allocated and monitored; maintenance schedules and safety checks prepared; student referral procedures implemented; cover for absent colleagues provided; and a host of other small but not insignificant details covered. If this

task is not carried out properly then teachers can find themselves quickly reduced to the role of technician as they struggle to set up equipment and find materials, etc.

9 Communication

Finally there is the problem of communication. Establishing and maintaining regular, reliable and effective communication within a department facilitates the success of all the other tasks. It ensures that team thinking and policy making proceed in agreed and definite directions and that the minutiae of implementational directions and that is passed efficiently to all concerned. Achieving open, concise and prompt communication must receive high priority at all times.

I am aware that these statements offer only a brief sketch of each task and its intention leaving many unanswered questions and contentious issues, but I hope to have said enough to persuade colleagues to look beyond immediate subject concerns when thinking of departmental organisation patterns. Inevitably this type of analysis creates false theoretical divisions. All the tasks will overlap and the departmental team must function collaboratively, adopting a shared responsibility which blurs these distinctions. Also it is likely that other important task areas may arise as a department develops and the team will need to adopt a flexible approach allowing their absorption. Nor do any of these statements provide sufficient detail for a job description though they can be easily expanded with a little imagination.

The analysis may be presented visually with communication as the connecting hub. (See Figure 1).

Structure

Having identified some major tasks facing a department, the next step is to structure these into a workable organisation. This must include consideration of such variables as personnel, physical provision, wider school organisation, school and department curriculum, teaching methods, etc. Three sources for structuring an organisation to meet desired objectives are:

1. Criteria which specify what the organisation is to achieve.
2. A selection of alternative possibilities for achieving the desired outcomes.
3. Assessments of the advantages and disadvantages of these alternatives.

At this stage a task analysis such as the one previously presented may need to be modified because of realistic limitations on available resources. For example it may be desirable to introduce team teaching right across the department. While many teachers might support this objective in theory, a large number of them would reject the complete achievement of it as impractical. Workshops might be too isolated from each other, students might be unsuitable, teacher personalities might clash, etc. However a compromise based on a team approach to curriculum planning coupled to limited team teaching with senior students might be agreed as workable. The resulting effect on the structure might be a pairing of teachers to cover some responsibilities. As this example illustrates, the relative acceptability of available alternatives and their implications can modify structure significantly. Ends determine means, and vice versa.

An organisational plan or structure is a comprehensive statement of aims to be achieved, resources to be deployed and work to be done. It will have many components — structural analyses, job descriptions, line-staff organisational plans, procedural specifications, evaluation schemes, etc. Space does not allow all of these to be discussed directly in this article but collectively they provide the operating guidelines needed to respond effectively to the major forces identified earlier. Essentially they are concerned with *how* to meet departmental objectives rather than with what these are. Before describing the structure we are working towards at North Westminster (for the school is not yet fully planned) here is some background information necessary to help understand it.

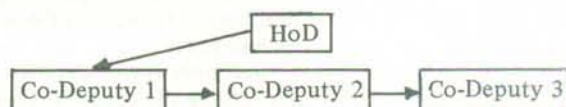
North Westminster is a multi-campus school having two separate lower legs catering for the 11-14 age range and one upper leg for the 14-19 age range. Eventually there will be a set of workshops

on each site — those for the upper school have been designed but not yet built. Currently there are seven teaching staff and two technicians. The final staffing will be three technicians and sufficient teachers to meet the departments curriculum commitment when this is finally settled. A generous initial allocation of eleven responsibility points was made to the department.

To begin with the multi-campus arrangement suggests an approach of centralised planning and decentralised activity. Clearly the three workshop suites must develop common goals but cannot be 'locked' together because of their physical separation. Also there will be some differences in the nature of the provision on each site which preclude identical organisational patterns. From this it follows that the head of department's (HoD) major responsibility is to ensure common purposes and procedures, and to monitor and assess their implementation and outcomes. As the HoD cannot be on three sites at once the day-to-day running is delegated to teachers designated as 'site managers' and having co-deputy status. These teachers teach most of their timetable on one site.

The co-deputy responsibility is for creating a 'good working atmosphere' on an agreed site. This is linked to a wider role in the organisation of the department. The job is divided into three aspects, site management, course organisation and management, and departmental development. Each co-deputy has a standing responsibility to lead the department in a particular area but may be asked, from time to time, to lead work in other areas as agreed at department meetings. The co-deputies have many of the responsibilities normally associated with the HoD so the position offers good preparation for promotion. Currently the three co-deputies have accepted responsibilities as shown. (See Figure 2).

Whilst it is desirable for 'authority' in relation to the development of the department to be based on weight of argument rather than formal position, some formal division is necessary to avoid confusion. A second example of this is the process of deputising. Thus the formal line of authority within the department is agreed as:



This is only for the purpose of covering absences, in all other cases the HoD is 'first among equals' and the co-deputies 'equal'.

Co-deputy 1	Co-deputy 2	Co-deputy 3
Site Management Information Resources Course Organisation	Site Management Environmental Resources Course Organisation	Site Management Educational Technology Graphics Courses & Elements

Figure 2

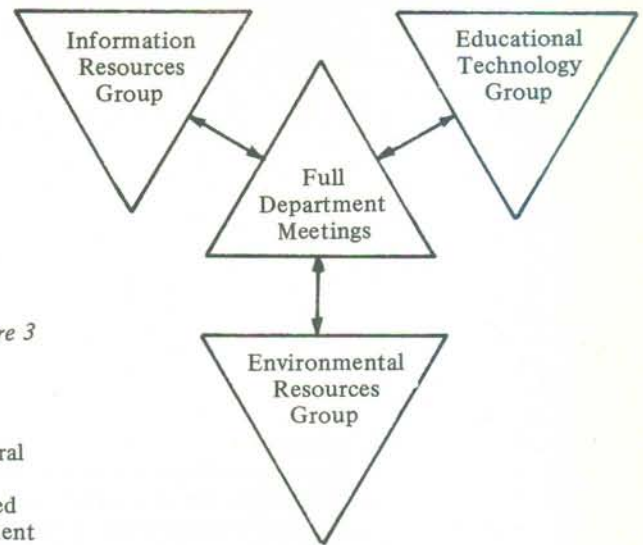


Figure 3

The course structure outlined below has several implications for the organisation. Firstly the co-deputies managing the lower legs have a shared responsibility for the organisation and management of the foundation course. This is coupled to an individual responsibility for a course(s) in the upper leg. Secondly the nature of the course must reflect its position in the overall plan – what it builds from and what it leads to – each course has a distinct position in a seven year curriculum plan but is not isolated from other courses. Certain common elements (study skills, reading, library use, etc.), will appear in all courses and others will be dictated by the requirements of courses which might be taken subsequently by students. Hence the inclusion of general tasks such as 'information resources' etc. Thirdly, since no individual can reasonably be expected to do all the work associated with course development or revision there must be widespread participation and occasional intensive help. Two organisational devices have been used to achieve this.

Tertiary Education		
General Courses	Advanced Level Courses	
Craft Oriented Courses	Design Oriented Courses	Technology Oriented Courses
Foundation Course		
Primary Education		

Firstly positions with floating responsibility have been created at Scale 2 level. These are used to give an extra 'push' in identified areas needing major work. Currently the department has allocated one for 'Lower School Technology' to achieve a rapid strengthening of this component of the foundation course. Floating responsibilities of this kind provide flexibility without affecting stability but require those concerned to accept regular changes of job description (which is of course good career experience).

Secondly the co-deputies standing responsibilities for leading the department in specific areas is implemented through working groups. These allow for the detailed exploration and development of ideas to be carried out without overloading full department meetings or those with leadership responsibility. The basic operating procedure for these is for a proposal to be put to the full department meeting for initial discussion. If it is agreed as worthy of further attention it will be taken by the appropriate group for further examination before being returned to the full department meeting for final agreement and implementation. The groups normally refer to full

department meetings in the case of important decisions, but in some cases it is sufficient for them to report on action taken and have it ratified. By arranging the composition of groups to include a cross-section of experience, seniority and site-based teachers, ideas can percolate through the department without the danger of one site or teacher becoming isolated. Not only do the groups relieve individual workloads but they also help create a team approach. They allow informal discussion, draw ideas and decisions from all levels, further staff development through varying involvement and achieve greater continuity – it is unlikely that all members of a group would be sick or leave at one time.

The group structure is shown below with the standing responsibilities as titles but these might change to suit operating circumstances. (See Figure 3).

The previous discussion indirectly identifies four kinds of responsibility which can be used to categorize the organisation. (See Figure 4).

Scale 1 teachers have no formal responsibility but are expected to become involved and contribute fully through department meetings and working groups. This is necessary both to create a team approach and for their own personal career development. Specific individuals have responsibilities to plan and structure departmental work but all have a responsibility to be flexible so that optimum results can be achieved. Work patterns may need to change, in-service training courses taken, new teaching resources obtained, facilities adapted and extra work in general be put in. Many of these are routine but their cumulative effect largely determines a department's success. Flexibility is important but so too is the stability that the co-deputy position must provide on each site. This is crucial to the achievement of all departmental goals because it is concerned with getting things into practice and making them stick over long periods of time in messy day-to-day conditions.

This account would not be complete without returning to 'communication', hub of the previous task analysis. For the three site department this is vitally important. It is not possible to rely on informal communication through casual staffroom conversations. Timetabling demands may mean that a member of staff does not visit a particular site for several days. There are two principal results. Firstly a great many formal or semi-formal meetings and secondly a lot of paper documentation. The former ensures that everyone has an opportunity to influence events and the latter that adequate records are kept and circulated. Written documents abound in complex organisations and teachers have to develop the skills needed to handle these

Responsibility	Level
General	HoD (Scale 4)
Standing	Co-Deputy (Scale 3)
Floating	Responsibility Allowance (Scale 2)
Participatory	Assistant Teacher (Scale 1)

Figure 4

efficiently and effectively, accepting them for what they are – aide memoires and economic communication channels – rather than as an irksome or unnecessary burden. Without them an organisation cannot easily transmit information internally and externally.

How do the task and structural analyses meet the six criteria suggested earlier?

- 1 The new conception of CDT is embraced wholeheartedly because the organisation is no longer rooted in single material based disciplines, recognising the information base of problem-solving approaches and the implicit need to think in wider educational terms.
- 2 A team approach is encouraged through working groups and the explicit statement of thinking and planning which necessarily involves all members of the department. Also there are responsibilities and opportunities for decision making at all levels.
- 3 Stability is produced by giving each co-deputy a site and course maintenance responsibility. Flexibility by assigning a developmental responsibility and handling rapid changes through the use of floating responsibilities.
- 4 The department remains forward looking by building into the structure a definite responsibility for the provision of information solely with this in mind, by involving everyone in group work, by rotating responsibilities and by regular evaluation of all aspects of the department's work.
- 5 Rigorous management and administration is promoted through clear organisational patterns and detailed, explicit, documentation of responsibilities, policies, procedures, etc. This is supported by regular monitoring of team performance in this respect.
- 6 It supports the whole curriculum because general educational concerns run through the thinking and planning of all department courses directly encouraged by the creation of standing

responsibilities for information and environmental resources, and educational technology. It is no longer technical studies with a few isolated innovations tacked on.

Does it work?

It is not yet possible to give an answer to this question. The school has only been open for four terms. Much school and departmental planning is still to be done. A complete new workshop suite has to be built and the existing ones re-organised. This will take several years and until they are complete no proper evaluation is possible. Nevertheless it already seems likely that the tasks and structures presented here have utility and can effectively support other efforts to produce a dynamic department. They are unencumbered by obsolete positions such as head of woodwork or metalwork; the jobs are real and will be evolving continuously; personal interests can be accommodated but over-indulgence at the expense of student education discouraged; and there are plenty of opportunities for sharing ideas and working together in what can be a very lonely occupation. Accurate evaluation is

made still more difficult because of the dynamic quality of the organisation. I would not expect the department to work or develop exactly as portrayed here, if it did then it would very likely have failed to be flexible – personnel and conditions are continually changing. In five years time circumstances may have changed and new ways of looking at the problems be needed.

This is not an attempt to present a definitive model rather it is intended to offer some ideas on how the various elements influencing organisation may be co-ordinated. Such co-ordination may follow different patterns, depending on the nature of the factors concerned. Despite the importance attached to this co-ordination, it is not considered an end in itself. It is only a means to facilitate the individual student's intentional and unintentional learning throughout his or her time in CDT. It applies primarily to the services established to support learning. A review such as this can only expect to further clarity and realism concerning the meaning and feasibility of possible organisational patterns. It is for the reader to decide what contribution they can make to his or her own situation.

References:

1. Handley Page speaking on 'The Art of Training in 1955. The First Handley Page Memorial Lecture: 'Education of Technology' HRH The Duke of Edinburgh KG (June 1963)
2. Technological Change : Threats and Opportunities for the United Kingdom, Cabinet Office, Advisory Council for Applied Research and Development, HMSO (1980), ISBN 0 11 630812 5

Bibliography:

Most of the ideas presented here can be found in varying forms within the following volumes. They have not been directly referred to because I have not wanted to break the flow of the article or extend its length unnecessarily. Nevertheless all have influenced the thinking to a greater or lesser extent.

Anderson, R.G. (1973) *Organisation and Methods*, London: MacDonald and Evans.

Eyre, E.C. (1979) *Effective Communication Made Simple*, London: W.H. Allen.

Hicks, H.G. (1967), *The Management of Organisations: A Systems and Human Resources Approach*, New York: McGraw-Hill.

Gray, H.L. (1978) *Change and Management in Schools*, York: Nafferton Books.

Marland, M. (1971) *Head of Department*, London: Heinemann Educational.

Nicholson, B.S. (1978) *School Technology: A Position Paper*, Contribution to the annual Conference of The Association of Advisers in Design and Technical Studies.

Management in Education: Readers 1 and 2 (1975) Milton Keynes: Open University.

Morrison, A. (1962) *Storage and Control of Stock*, London: Pitman.

Committee of Inquiry into the Engineering Profession (1980) *Engineering Our Future* (pp.38-41), London: HMSO.

Department of Education and Science (1980) *Craft, Design and Technology in Schools. Some Successful Examples*, London: HMSO.

Design Council (1980) *Design Education at Secondary Level*, London: Design Council.

Davis, I.K. (1971) *The Management of Learning*, New York: McGraw-Hill.