

Peter Gowers
Edge Hill College of Higher Education

What do we mean by Graphics?

The more I looked at the title 'Graphics in CDT', the more certain I became of the need to first of all define what is meant by the word 'graphics'. Technical graphics and graphical communication can be regarded as developments of traditional technical drawing where highly accurate and predominantly two-dimensional finished drawings are produced. We need, however, a much wider definition relevant to the whole of CDT. I would therefore suggest that a working definition could be taken to mean methods of visual communication, both two — and three-dimensional, which are used to aid the developments and mock-ups. I would also include methods which are used to communicate the final solution such as sequence drawings, presentation renderings, production drawings and prototypes.

Our main aim must therefore be to enable pupils to communicate ideas and information visually through their use of graphic media. To achieve this aim requires us to create situations which encourage and develop in pupils:

- a visual awareness and appreciation of the natural and man-made world through direct observation and drawing;
- the ability to analyse, record, organise and make decisions;
- a knowledge of, and fluency with, media;
- the ability to evaluate work at all stages in an objective way.

If our aim is to enable pupils to communicate visually through their use of graphic media, we must realise that what we are teaching is of relevance to the pupils in most areas of the curriculum. Teachers of all subjects are relying more and more on methods of visual stimulation, using slides, film, TV, and video, and pupils are increasingly being used to record and communicate information visually in both two and three dimensions. The concepts, knowledge and skills developed on a visual communication course will therefore be of use in all their work. Visual literacy must be recognised as being equally as important as literacy and numeracy. The role of the teacher of visual communication is therefore

central to the needs of all pupils and the curriculum in general.

The question that has to be asked is, who should teach visual communication? Is it the teacher of CDT or the teacher of Art? CDT and Art are creative disciplines linked by the process of visual communication which each presently teaches in some form, but more often than not in isolation. It therefore comes as no surprise to find that pupils do not recognise the close relationships between the areas.

The demands of CDT have left many of the more traditionally trained in the unenviable position of being asked to teach aspects of visual communication of which they have little practical knowledge. There are, however, many aspects of visual communication that have been taught in Art and Design for many years which have direct relevance to CDT. The teacher of Art has therefore much to offer the CDT teacher.

There has, however, been a lack of communication between teachers of these areas in many schools, a situation which in some cases has not been helped by advisers of Art and CDT who themselves hold entrenched views or by HMI documents such as the recently published 'Design and Communication: an approach for schools', in which it is recognised that:

'Pupils develop their ability and confidence to apply design concepts by analysing the work of others and by observing the forms and structures of the natural world. Through careful observation and the use of appropriate recording techniques, they are enabled to increase their perception and understanding of the form, purpose and functional principles of both manufactured and natural objects'.

What is not recognised is the value of links with Art to help pupils develop their perception and understanding in this way.

Teachers of CDT and Art must work together to develop foundation courses which, although separate, are mutually supportive and which re-inforce rather than simply repeat. There would seem to be an obvious need for INSET courses which will bring these teachers together to develop areas of common ground.

Drawing and Visualisation

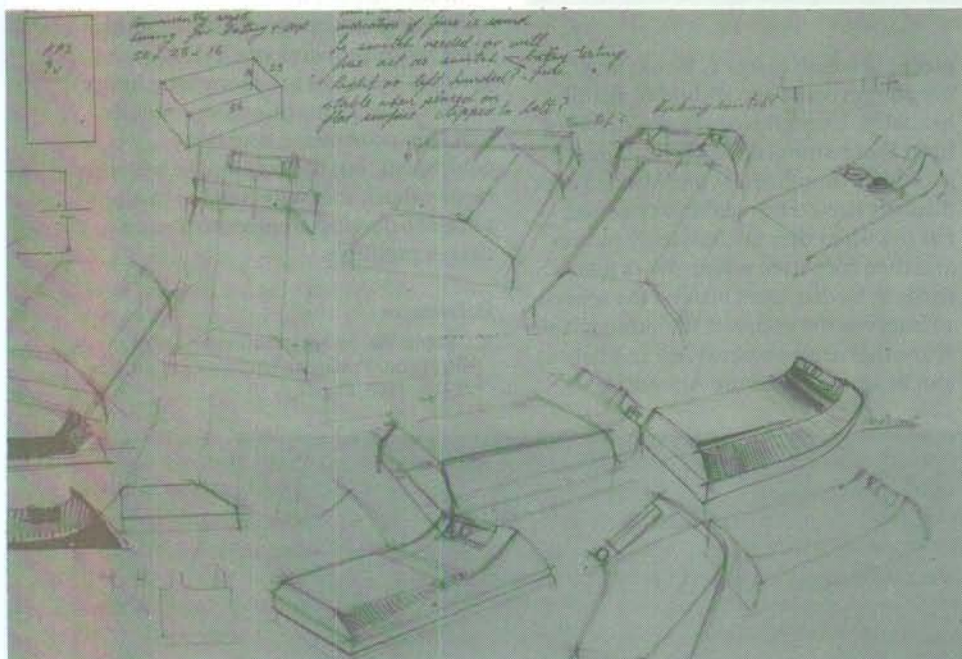
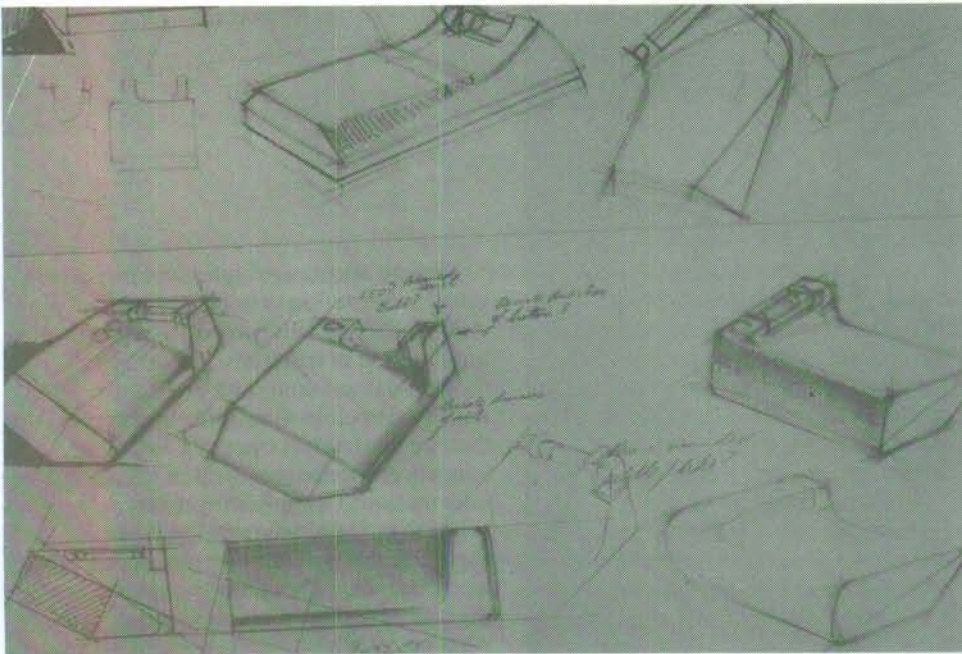
Young children have no fear of failure. For most of them making drawings and models is one of their most enjoyable experiences. Why is it then that when they reach secondary level, many of them begin to utter those immortal words, 'I can't draw'? The main reasons are because they have not been encouraged to observe carefully or taught how to use the media. This creates a lack of confidence in their ability as their perception of the world develops. The ability to draw is not a natural gift. The fact that some pupils will have a greater aptitude than others is applicable to all areas of the curriculum. Drawing and visualising can be taught and go hand in hand with learning to see. As Hanks and Belliston say in 'Rapid Viz',¹

Fear of failure, fear of criticism are among the reasons people don't learn to visualize.



An awareness of the natural and man-made world can be achieved by careful observation and analysis through drawing with a variety of media. Pupils should be encouraged to keep a sketchbook which can be used for both Art and CDT. This will also encourage them to see the relationships between the two areas. The sketchbook should not be thought of as a book of finished drawings, but more as a visual notebook which includes drawings and notes. A superb example of this kind of visual notebook are the sketchbooks of Leonardo. Here again, we can see the direct links between fine artist, designer, scientist, technologist and inventor.

Pupils should also be encouraged to keep a scrapbook of visual images which they find interesting. These images should be kept in an ordered way so that they can be used as a design resource. By keeping both a sketchbook and a scrapbook, pupils will gradually build up a store of visual information which will help them to develop solutions to design problems.



perspective and then use a simple perspective grid as an underlay sheet.

The obvious reason for the early introduction of instruments and isometric grids is that the teachers themselves do not have the freehand drawing skills and knowledge of media required. This again shows the need for links with Art and for more INSET provision.

Media and Money

For many years Technical Drawing has existed largely in isolation from wood, metal and plastics, and it has survived on a shoestring budget for cartridge paper, hard pencils and a few instruments. With the introduction of GCSE and TVEI we have seen vast sums of money poured into Technology to provide sometimes very specialist equipment which may be used by only a handful of pupils. Design and Communication has had very little real input even though it is the area which is fundamental to all work in CDT. If we are going to teach it as it should be taught, large injections of cash will be needed quickly to provide the resources. Specialist equipment for work in both two and three dimensions will be required. Papers (we can no longer exist with just cartridge), card, good quality pencil crayons, markers, airmarkers, compressors, lightboxes, visualisers, photocopiers, modelling materials such as styrofoam, sanders, vacuum formers, spray booths with extraction will all be required.

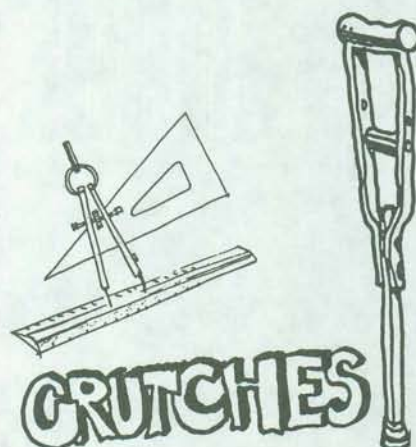
Modelling in a wide variety of media is a most important area of visual communication. Design studios therefore need to be flexible areas where both two — and three-dimensional work can take place. Simple vacuum formers which utilise the heat from a hot air paint stripper can be made which are adequate for small scale prototype modelling.

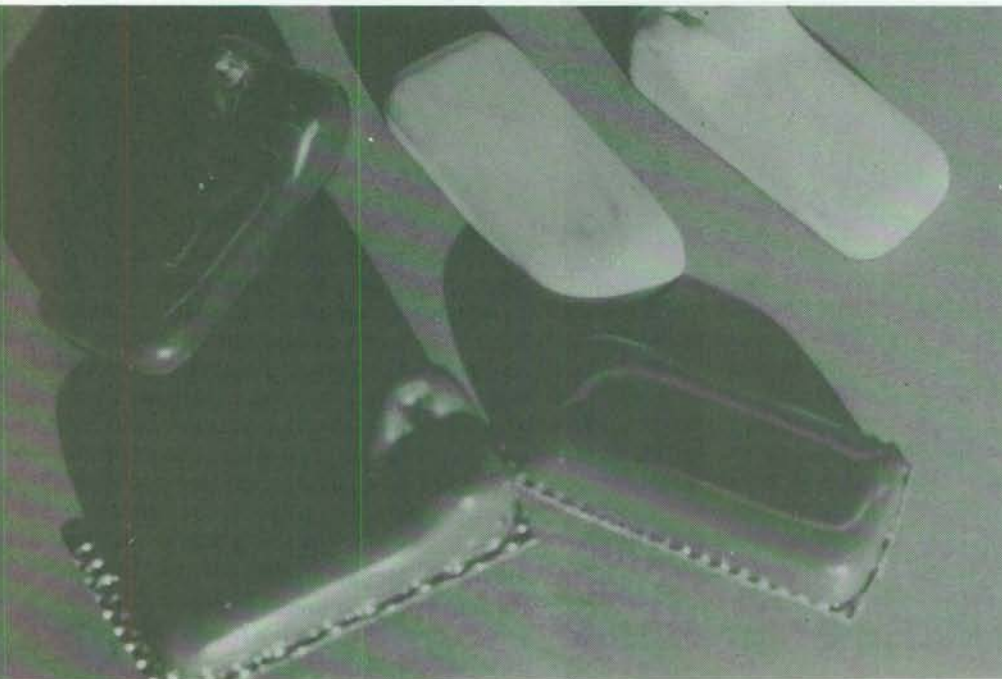
Most CDT departments are introducing computers into Design and Communication. What is worrying is that most of the systems in use in schools cannot cope with true computer aided design. In most cases, pupils are producing computer aided drawings and draughting which could have been achieved far more quickly on paper using traditional media. In an event, the computer is only as good as the person

Fluency with media will enable pupils to visualise their ideas quickly but clearly, but quite often the pupils' creativity is thwarted by the introduction of hard pencils, rules, T-squares and instruments far too early. The instruments become crutches which the pupils rely on. They must be encouraged to draw freehand with a variety of media, such as soft pencils, pencil crayons, fineliners and markers, to cut out and model, until they reach the best solution. Only when an accurate finished presentation, production drawing or model is required should instruments be introduced.

The practice of introducing isometric grid paper for sketching is educationally unsound as it does not allow for foreshortening, thus creating a distorted image. We would not encourage a pupil

to use a flat file for a concave shape because it would create distortion, so why use isometric when perspective will give a truer result? It is much better to teach the basic rules of two point





who is using it. If that person has not been taught how to visualise, the end product will lack real creativity. Its educational value in CDT is then questionable.

Presentation and Display

There is a very real need to improve the overall standard of display and presentation within CDT. Workshops and drawing studios must be stimulating

places in which to work. Books and magazines on design should be readily available. Examples of good practice of both professional designers and pupils should be thoughtfully displayed. These displays should be regularly changed. Far too often they are hurriedly put up and then forgotten about. Work also needs to be displayed around the school to improve the image of the subject. This is another area where advice and help can be sought from the Art staff.

We must encourage high standards of visual presentation in pupils and we must realise that this starts with our own presentation of materials. Sloppy, ill-thought out handouts and briefs are no longer acceptable. One of the best uses that the department can put a computer to is wordprocessing of written information. The only danger here seems to be the insistence of using as many fonts as possible on one piece of work, usually without any thought of the overall design. We must practise what we preach.

In conclusion, it must be said that we still have to get our art together in this most important area of CDT. We are going to have to work many long hours to get things right. Injections of cash will help provide the necessary equipment, but the equipment will only be of value if it is fully utilised to allow pupils to develop creative responses to design problems.

References

1. 'Rapid Viz' by Kurt Hanks and Larry Belliston, Publisher William Kaufman Inc., Utah, 1980, Page 7.

