

Evaluating the CDT Series

This article evaluates the first transmission of 'Craft Design and Technology'. This new series is Year 1 of a five year commitment to 'Craft, Design and Technology', which advisers have regarded not only as an important contribution to a newly emphasised approach to the curriculum, but also a demonstration of partnership with curriculum planners, publishing and teacher training.

The report is based on evidence collected from five main sources:

- (1) prepaid Report Cards returned to Thames by individual teachers who passed on their views as to the usefulness of the programmes, the appropriateness of content and describing classroom use; an appendix gives a full analysis of 'Craft, Design & Technology' report cards;
- (2) visits to schools to watch the programmes with pupils in the classroom or workshop;
- (3) talking to groups of teachers on in-service courses, including both presentation and 'workshops';
- (4) talking to advisers and inspectors;
- (5) responding to comments made by individuals.

Actual Use of the Series in the Classroom

The programmes seem to have a wide range of uses in practice and are being shown to a wide age and ability spectrum, according to different kinds of teacher input. For example, the programme about the design department at Fords, Brentwood, has been shown to a first year class who were designing and making and powering a toy car, to contrast their own approaches to design with those of the "professionals". The same programme was shown to a third year group as an introduction to technical drawing and also to an 'A' level group as background to a discussion of a question in a theory paper. Many teachers commented that although the programmes were all right for the age group intended, they were sufficiently strong in visual impact, topics chosen, ideas covered, to be of more use as propaganda for 3rd year options, or better, for 4th year examination classes who are asked to spend more time on the design process than basic craft skills, than starting points for beginners to carry forward especially as the vocabulary was hard in some programmes for mixed ability 11 year olds.

Schools are using the series to gain pupils' interest and to stimulate them, relating the programme to classroom experience and to wider experience; to provide ideas for projects in the department; to open up the pupils to design situations one meets in the real world, the problem and how it was solved.

"Enthusiastic, different, distinctive, good quality stimulus materials" (ILEA teacher).

"Its firm roots in the 'real' world are very important, provides as many teaching points in the pictures as in the commentary" (ILEA inspector).

Some schools had used the programme to promote staff development: "important for staff to discuss these, reminds us of why we are working in

schools in the first place, it keeps an overall perspective in the front of our minds, where we should be going" (Cardiff teacher).

Only one school sampled had exploited the considerable potential of the series in a planned cross curriculum way and were using the programmes in Art and Home Economics as well as Technical Studies.

Some Problems Inhibiting Use of the Series

Many teachers, especially as workshops are often isolated from main school buildings, reported considerable problems with access to VCR equipment. This is a disincentive to use the programmes unless there is a good curriculum match. More than 50% were using the VCR for the first time in their lessons, and the utilisation of the series is 'poor', not only were some teachers unfamiliar with film and television but were unused to structured class discussion methods. In the classes I, and some inspectors, observed it was common to show the video straight through, often in a separate room with no preparation, little follow-up and then straight back to the workshop. The teachers' notes were often left unread and little attempt was made to relate viewing to other activities or set a task e.g. either school based or homework. This points out the importance of the textbook in helping develop programme use.

Teacher and Pupil Response to the Series

"My original training was in Industrial Design, I feel that the support of this series will at last enable me to teach what I was really trained to teach" (Scottish Teacher).

"Sums up ethics of the subject very well" (Participant DES Regional Course).

According to the audience research figures approximately 30% of secondary schools are taking the series. The response to the series has been generally favourable but does vary in enthusiasm, e.g. when three programmes were shown to participants on a DES Regional Course at the end of a week of "awareness" raising, the prospective take up of the series for next year was nearly 100%. After a showing of the same programmes to an audience of HODs in a South London borough, only 25% of them said they intended to use the series. Their inspector commented afterwards that he "felt our approach was in advance of many of his teachers who did not want to make the required adaptations to teaching styles, curriculum etc. that were needed if the programmes were to be used effectively. This, together with the fact that the applications of the programmes to workshop practise have to be thought out by individual teachers rather than being spelled out more clearly in the programmes, are reasons for the lack of enthusiasm. However, I would rather you were curriculum leaders than followers of what teachers say they want now, especially if the programmes are still to be valid in five years time". The feedback we have gained so far would endorse that the

overall approach is right and it should take a lot more negative response in quality and quantity from teachers and pupils to influence a change of direction at this stage than has been received.

Originally there was little idea of how the subject should be treated by ETV. There was no consensus of what was wanted. The decision was taken for the series to be a catalyst for change, to make the subject a talking point, to make the subject area exciting, to demonstrate that it was for the full ability range including the most able. That although the series was seen as talking directly to the pupils as the "customer" rather than being a series for teachers or parents, it should also have a strong inspirational value for teachers, especially as it is teachers rather than pupils who control access to classroom video. Judged by these aims then the first ten programmes have been successful, however, teachers have commented on aspects of the series that they would like to see improve and develop. These are discussed below. However, at the present time it is the role of the series' Advisers, their evaluation and reflection on the first series, that is seen to be most influential in shaping the producer's decision as to present and future directions rather than the results of any liaison work.

Implications of Liaison Feedback for Future Directions?

1. Relationship to "Workshop" CDT

Many teachers commented that although the programmes were a good introduction it was difficult to relate them to what the pupils are doing in classrooms and workshops e.g. "doesn't help teachers with the mundane, they wanted things covered in the plastics unit they could get down to and relate directly to what could go on in workshops. They were disappointed, for example, they can't do extrusion processes in schools". (ILEA Inspector).

"could some problems/questions/challenges be set to the pupils in the last two minutes, if we don't like them we can always edit them out with the VCR". (Coventry teacher).

"would like to see more about those industrial processes and technology that *can* be mirrored in schools e.g. control technology, mechanics, gearing, electronics". (ILEA teacher)

However, the claim that they are remote from workshop practice should be contrasted with the views of a young ILEA teacher who commented "the pop video programme provoked a lot of pupil discussion on the meaning of design and the thinking that has to be done to produce an overall effect." Parallels can be drawn between the large scale industrial processes and small scale classroom machines and activities but of course it is the teacher who needs to draw these parallels and I viewed a teacher extend his first year class with the plastics programme criticised above by skilled and careful use of the video, with careful preparation and follow up it was effective.

Is this more of a problem for teacher training and INSET or can it be partly solved by linking the programmes, teachers' notes and textbook more closely together? We have attempted to do this in the teachers' notes this year, with more on follow up, what sort of activities can be done in workshops, creative classroom use of VCR's and structured discussion techniques, how to fit the programmes into an overall curriculum framework across the five years of secondary school, making the overall plan clearer. We need to help teachers plan how to structure the programmes into their curriculum. We should outline the overall strategy in terms of concepts, methods and content so that all three aspects are appropriate and positioned in the "best" place to use them. Hopefully, the chance of re-using and up-dating the teachers' notes should help work this one out.

One benefit of using television is that it can provide insight into technological processes you can't do in the workshop, it is the only way children can gain experience of them. It would be a mistake to firmly root the series only in these areas of classroom experience, a major aim should be to extend their areas of experience. However, we should take note of the feeling that we are too concerned with stimulus and awareness raising. Do we need to impart more hard information, especially as we move up the age range?

2. The general approach of the first ten programmes

The first ten programmes were wide ranging and general in nature. Some teachers interpreted this as a strength, using the flexibility it gave them to teach to a wide ability and age range, teaching to the pictures as well as the commentary, finding enough in each programme to link at least one thing with a class project, thinking the topic covered was more important than the right "level". Others thought we should be looking at particular concepts, processes and skills in more depth, that the aim of the programme was not always clear and the individual programmes themselves and the topics chosen looked general and unstructured. This was not helped by the late arrival of both the teachers' notes and textbook. It was difficult to identify key features and concepts, some programmes could be overwhelming in scope. The pupils were sometimes not clear what they'd learned, what was new and specific to their learning. Because they had seen films that covered similar topics before they assumed they knew about it, they did not develop insight into the teachers' concepts of what they should be learning. Although they appreciated our concern not to dictate, "the programmes should be less passive, pupils were being fed with information but not challenged even in the 'throw away' questions during the programme. The impression given was of an academic rather than intellectual/practical approach". (Coventry teacher)

The language and its technical nature posed a problem to many first and second year pupils when so much ground was covered so quickly,

"programmes too short", "they never explain words like 'extrusion' or 'injection moulding' or show it", "too much talking", "too many long words". The teachers sometimes assumed pupils had made links between strands in the programme or their own experience which had not been made in practice. There is a need for a creative use of the medium by teachers, question and answer, getting the pupils to interact, freeze framing on a particular drawing, superimposing their own or a pupil's commentary on a short clip etc. However, if the programmes require a lot of preview/preparation/follow up, how realistic is this when there may be only 1 or 2 lessons in a week and the pressure is on for teachers and pupils to finish practical activities? Are we expecting too much?

The "style" of the programmes

Many teachers and pupils reacted quite strongly to the way the programmes had been made. Most criticism attached to the use of presenters although some teachers thought that given the wide ranging nature of the first series, the presenters were important to give continuity and offer a large amount of information in a short time. For some pupils one of the presenters had lost credibility through being associated with the children's television, teachers felt they did not put over the right image, they also felt they were a visual intrusion, standing in front of things that pupils and teachers wanted to look at more closely. They gave the impression of talking down even though what they were actually saying was quite demanding. Because the need for an interpreter was assumed, they appeared to be unsure of their material. Each presenter had their supporters or detractors vis a vis the other so it cannot be assumed that changing one of them would end the criticism. Some thought the use of presenters was inappropriate anyway in a "real world" series and ought to be replaced by a voice over linking commentary. "We want to hear more from the people who are being filmed, the actual designers, makers and customers of the products, more "overheard" conversations." (ILEA Inspector).

"There is no need for an 'overkill' approach in stressing the relevance of CDT, let the ideas speak for themselves, if you keep going on about it pupils suspect there's a problem."

It is likely that the technique of presenters will be modified slightly in the next series and attempts to raise enthusiasm by telling about what CDT is or ought to be will be toned down.

Teachers were concerned that the series and interaction between the male and female teachers should be free from any "sexist" bias. Some of the jokes between Roy and Vilma were thought patronising by some pupils and teachers and both men and women wanted us to indulge in more role reversal.

"Science and technology has a strong masculine image and, rightly or wrongly, is perceived as abstract, unemotional, divorced from social issues

and unfeminine. CDT is the most polarised subject of all in terms of exam entries, therefore, there is a need for programmes to stress social relevance and concern, feature positive models of women and careers potential for them". (Teacher trainer).

Should one programme be classroom based?

This issue was raised by teachers at every meeting. "Can we have a classroom based programme that shows some designs made by pupils (not complex or demanding of resources) that they made which worked well or were socially useful. Could you get them to talk about why they did it that way, what ideas they rejected, how they learned from their mistakes?" They referred back to examples of this in the preview programmes, wanting models of good practice and wanting to help pupils articulate their thoughts by listening to the planning, success and failures of their own peers. They wanted this mirrored by some professional designers doing the same thing.

Although this is an issue that could be looked at again, the feeling of the producer is that this would be a difficult programme to do well and make a viable positive view, not wanting people to copy or feel either inferior or superior. The design briefs in the textbook may be a much better place to answer this.

Which topics might be popular?

"More on technology, teachers are more secure now with 'design' but need help in making links from craft into technology". (ILEA teacher).

"More on technology, including alternative technology and low tech./intermediate technology, these projects are often within the scope of classrooms which some of your high tech. programmes are not". (Yorkshire teacher).

There was no shortage of suggestions as to which aspects of technology individuals wanted but no real consensus, all were passed on to the producer and series advisers for further consideration.

There were a lot of requests for more graphics, design drawings and more animation and for the work of one designer (especially graphics) and one design project from 1st stages through to the finish.

"The kids wanted to see how it worked, the presenters telling them without visual back-up about technical problems was over their heads. Can we have more close ups to get inside machines, processes, designs etc."

Many teachers wanted a more specific in-depth approach as the programmes moved up the age range but as one LEA inspector commented:—

"As well as specific programmes about approaches, concepts, processes etc. a pivotal programme is needed now and then to deal with general considerations e.g. style, function, energy, selection and properties of materials, the relationship between scientific research/theory/technology."

In response the programmes may get more specific and there will probably be more about

technical communication, graphics and more drawings shown. It is unlikely animation will be used as it is not "real" and this sort of drama, sectional type of explanation has more of a place in the series textbook. Teachers may need to be encouraged to look at the "package" of programmes, notes and textbook as a whole. Although the wide age and ability range is probably not worrying in a "general" programme, given teacher modification, and it is probably better to treat the topic in-depth rather than feel constricted by a model of an "average" 12 year old especially as the more able need extending too if we are to support examination work in the last three years of the series the match between age and curriculum has to be more exact.

Has Liaison Work been influential?

It would be unrealistic and misleading to suggest that feedback from teachers has been or would be influential in determining the style and content of the next ten programmes or future directions at this stage. It is the producer's ideas which determines what programmes get made and the major influence on the shaping of these has come from the series advisers. The textbook was instrumental and influential e.g. two programmes will enlarge on the sections on ergonomics. However, feedback from all sources was made available to the advisers as well as the producer and series education officer. The advisers commented that the feedback obtained through liaison reflected closely their own opinions on the first ten programmes and some of the suggestions made by teachers for the second series e.g. a programme on the work of one designer, were also close to what they wanted, how far the programmes, when they get made, will match what the teachers hoped they would do remains to be seen and investigated. If the feedback then is critical then teacher response may be more deterministic.

One area where liaison work may be influential is in in-service education for teachers with a series which is attempting to support curriculum change and development and is making demands on teachers to change their pedagogic practice. Local advisers and inspectors have used the programmes to raise questions and issues with their Heads of Department in meetings which featured the series to our considerable mutual benefit. This sort of support has to be ongoing and cannot be simply switched on and off at our convenience if it is to be effective, it has been demanding in time and commitment which my successor may not wish to continue. There has not been time to attempt to make contact with initial training courses though I would hope, in view of some of the comments made in earlier sections about programme use, that this may come later.

Appendix

C.D.T. Report Card Analysis

Inside the teachers' notes we inserted "a personal letter to the Head of Craft, Design & Technology" inviting that teacher to return a pre-paid card and become a reporting panel member for that series. Approximately 4,000 copies of the teachers' notes were sent out and we received 135 replies. At the present time (1st May 1983) only 27 schools report back regularly, others more sporadically, or have returned one card on the whole series. This form of feedback is always particularly poor from secondary schools, most of whom view from a VCR, often many months after the first transmission, (report cards are still being received from these schools). The small size of the sample should be born in mind. However, a good regional cross section and type of school is represented, e.g. the range includes a small primary school in the Hebrides, middle school in Oxfordshire, an inner city comprehensive in Cardiff and a rural comprehensive in Lincolnshire. There seems to be no correlation between the type of school and the pupil/teacher response to the series so far. A sample of two such cards is attached to give a flavour of the type of comments that can be received, often contradictory! Teachers are invited to grade the programmes in order of usefulness and content level on a scale of 1 to 5, and to indicate the age and ability range they showed the programme to. Nearly all the programmes were shown to mixed ability classes so I have not analysed the cards separately for this variable.

I have indicated the age range the programmes were shown to as a percentage of the sample as it is interesting to note how widely the same programme is being used in schools, especially as it was indicated that these first ten programmes would be aimed at first years. There is, interestingly, no correlation between the age range selected by the teacher and the level of content assessed. This would suggest the programmes depend on flexibility of teacher use and mediation rather than have an obvious content or concept level.

Analysis of Comments

Programme 1 – "Need for Capability"

Positive points – Useful for cross curriculum approaches, a good introduction to the subject area and its importance, a good overview of past and present.

Negative points – Rather slow moving, too wordy, concepts advanced and of more interest to teachers than pupils who found difficulty following the argument/ideas/statistics. Remote from classroom C.D.T.

Programme 2 – "Design" (Kitchens)

Positive points – Pupils found it very easy to relate to and largely could contribute from their own experience, it provoked discussion. The diversity of

examples, use of animation and the historical context was liked. Good curriculum match as many projects ask pupils to design kitchen objects.
Negative points – Wide background knowledge of fashion, style, history, was necessary to fully appreciate it. (Textbooks should help here – A.S.). No problem solving.

Programme 3 – “Design & Communication” (Ford)

Positive points – Visually excellent, children liked it especially the computer graphics sequence where they were asked to guess and predict, it held their attention and provoked a lot of discussion. The different stages in the design process came over well.
Negative points – Too much, too fast, difficult to use unless you had access to VCR. Would have liked more on the work of one graphic designer.

Programme 4 – “Design & Vision” (Pop video)

Positive points – Held attention, meaningful to children, it spoke their language and they were engrossed. An interesting variation on CDT which was also a good illustration of the many different skills that go into making one product.
Negative points – Was irrelevant to CDT in schools and didn't relate to it or extend pupils appreciation of the design process.

Programme 5 – “Design & Technology” (Flight)

Positive points – Demonstrated role of technology in design well with good example of how technology can outstrip the capability or how technology sometimes comes before design, invention or scientific theory, good for design concepts.
Negative points – Very verbal, children became bored, would have liked more drawings, needed to be backed up with graphics eg. function using and lift, irrelevant to classroom C.D.T.

Programmes 6 & 7 – “Materials” & “Using Materials” (Plastics)

Positive points – Good choice of content, relevant, good curriculum match, close to what children are doing themselves, good for design process ethos and they saw people designing and making.

Negative points – Weak script, repetitive, needed more information, e.g. how is polythene produced with different characteristics, more on versatility of plastics. Needed more animation/diagrams/graphics to show how processes/machines worked as the processes were not always clear. Some long, visual sequences could be shortened.

Programme 8 – “How to Make a Washing Up Bowl”

Positive points – Simple and easily understood purpose to the programme illustrating the relationship between design process and the manufacturing methods available.
Negative points – Problem of overlap of subject matter with programmes 6 and 7, do plastics justify 3 programmes? Alternative choice of materials to plastics not handled very well or properties of alternative plastics to polythene, rather simplistic analysis. Superficial treatment of design process i.e. not based on “real” research experience. Needed diagrams to illustrate industrial processes.

Programme 9 – “Nature’s Way” (Artificial Limbs)

Good match between programme and many school design projects. Pupils captivated, interested, a thought provoking programme that is unusual but good example of CDT. No negative comments received.

Programme 10 – “Designing a Life” (Industrial Robots)

Positive points – Caught pupils' imagination, excitement of the future, children keen to follow up with own robot designs. A sight of the “real” world unknown to some pupils. Many varied skills shown.
Negative Points – Mainly useful for awareness arising, no real information for the teacher to build on, difficult to fit into syllabus, would have liked more on electronics/control technology. The programme needed more examples of robots and their uses.

Cards which commented on the series as a whole

These praised the programmes as an excellent introduction into the world of CDT and helped pupils understand where their classroom work may

AGE RANGE SHOWN TO IN SAMPLE

	Primary	Secondary 1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Form
Programme 1	9%	14%	24%	21%	18%	14%	—
Programme 2	12	8	20	24	16	20	—
Programme 3	11	8	19	19	19	16	8
Programme 4	12	8	21	25	21	13	—
Programme 5	12	8	24	20	20	16	—
Programme 6 & 7	11	4	19	30	18	11	7
Programme 8	16	6	17	28	17	16	—
Programme 9	13	5	22	26	17	17	—
Programme 10	16	—	22	28	17	17	—

eventually lead them. The programmes were enjoyable, interesting and stimulating and were a useful springboard for links with other branches of the curriculum.

Although the programmes were suitable for all ages and abilities, the majority thought they would be more useful with the third, fourth and fifth years as younger pupils tended to watch rather than think constructively along with the programmes. Certain aspects of some programmes were a bit advanced and the programmes varied considerably in their level of difficulty both between one programme and the next and within individual programmes.

The use of presenters came in for criticism, some teachers thought that this gave the impression of talking down to students. Others commented on the need for programmes to refer to some experiences the students can relate to, either from personal experience or classroom or practical activities that they might try themselves.

	USEFULNESS					CONTENT				
	Extremely Useful	Very Useful	Fairly Useful	Not Very Useful	Not at all Useful	Too Advanced	Advanced in parts	About Right	Elementary in Parts	Too Elementary
Overall (all cards received)	28%	39%	22%	11%	—	1%	20%	64%	13%	2%
Programme 1 "Need for Capability" (Historical overview)	7	33	40	20	—	—	38	37	25	—
Programme 2 "Design" (Kitchens)	27	55	9	9	—	—	10	60	30	—
Programme 3 "Design & Communication" (Fords)	50	40	10	—	—	—	40	50	10	—
Programme 4 "Design & Vision" (Pop Video)	10	20	30	40	—	—	1-	70	10	10
Programme 5 "Design & Technology" (Flight)	10	40	20	30	—	—	20	70	10	—
Programmes 6 & 7 "Materials" and "Using Materials" (Plastics Unit)	24	53	23	—	—	—	6	70	24	—
Programme 8 "How to Make a Washing Up Bowl"	37	38	25	—	—	—	12	75	13	—
Programme 9 "Nature's Way" (Artificial Limbs)	25	50	25	—	—	—	25	75	—	—
Programme 10 "Designing a Life" (Industrial Robots)	62	13	25	—	—	—	13	87	—	—
Whole Series Cards	46	38	8	8	—	8	23	61	8	—