

OPEN Forum 83
1983

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FINAL TRANSCRIPT

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O P E N F O R U M

83

Series Producer.....Roger Tucker
Assistant Producer.....Glan Thomas
Designer.....Richard Booth
Production Assistant.....Jane Tillman

PRESENTED BY:

Wynne Brindle

TRANSCRIPT OF EDITED PROGRAMME

Opening Title Sequence + Music

FILM - Glan Thomas on
telephone

GLAN THOMAS:

"Hello, Aberystwyth 3464. Oh yes hellow Howard, yes I got the notes you sent me through the post and I've had a go at the questions. Questions one and two no problem with but I've a bit of difficulty with Question three part B."

STUDIO

WYNNE BRINDLE:

Perhaps not new technology, but the use of telephone tutorials was pioneered by the OU and they are proving increasingly successful.

That's the theme of this programme, to look at the impact of technological devices on OU teaching and the way they are being used and developed for learning at a distance.

To start off, we'll look at the video recorder. Five years ago, they were exotic luxuries. Now they're commonplace. In fact, the OU are now putting video recorders into each of the study centres.

As video recorders have become more common, the OU has not been slow to recognize the advantages of video cassettes as a teaching resource. EM235 for example, is a course for teachers, or anyone with young children, who is interested in the way mathematical concepts are developed. Well instead of the usual transmitted television programmes, material is recorded on a video cassette which is designed to be viewed in small segments at group tutorial sessions.

VIDEO - extract from EM235/7

Opening Title Sequence +
schoolroom fx

Folded Paper

MAUREEN GALVIN (OOV):

" "Shade-in" is a game played with a piece of paper folded to give 16 rectangles, and a fraction die.

The players have to shade-in the appropriate number of squares and justify their action to their opponent."

Classroom

SAM:

"Is that $2/8$ ths?"

REBECCA:

"No, it's not."

SAM:

"This is $2/8$ ths ... that's one and that's two ... $2/8$ ths."

REBECCA:

"But you can't shade it in."

WENDY:

"You can then you go on the next one."

John's sheet

MAUREEN GALVIN (OOV):

"What's in dispute is John's sheet. How much to shade in for $2/8$ ths? The children, however, went on playing and we rejoin them half an hour later."

Classroom

JOHN:

" $2/8$ ths."

GEOFF ADAMS:

" $2/8$ ths. Where's $2/8$ ths?"

JOHN:

"This."

GEOFF:

"The whole thing."

SAMANTHA:

"Yes."

GEOFF:

"Is that, is the whole thing is 2/8ths is it? Show me one eighth then."

JOHN:

"1, 2, 3, 4, 5, 6, 7, 8, there's one eight and there's the other eight."

GEOFF:

"That's one eight. Is that one eighth?"

JOHN:

"That's one eight."

SAM:

"That's one eighth. Yeh, that's one eight and that's two eighths."

GEOFF:

"Which is one eighth, show me again."

SAM:

"That one."

GEOFF:

"That's an eighth?"

SAM:

"No, that's one eighth and that's two eighths."

JOHN:

... gone wring here ...

GEOFF:

Think you've gone wrong. Why do you think you've gone wrong?"

JOHN:

"'cause I think that's one eighth and that's one eighth."

MAUREEN (OOV):

"Now to Rebecca and Wendy."

(Rebecca and Wendy chattering)

STUDIO

WYNNE:

~~Well, Rebecca and Wendy play for~~
another trthree minutes. Then there is an instruction to stop the tape and the unit picks up with a discussion topic on the extract just viewed. And there are questions to answer before continuing with the next extract.

WYNNE Cont'd:

Other courses currently in the pipeline go a stage further. MST322 is a third level mathematics course on fluid mechanics with a large element of experimental work. As fluid flow experiments invariably require bulky equipment and lots of water, so it's easier to send every student on the course a video cassette of the experiments this effectively becomes their home experiment kit.

VIDEO - extract from MST322
Flow over a weir expt.

GLAN THOMAS (OOV):

"The character of a flow over a weir can be described in terms of a Froude number. The Froude number is related to the speed with which a surface wave can travel against the flow. For flows with Froude number less than one we can send a wave upstream. This is called sub-critical flow. When the flow has Froude number greater than one we have super-critical flow and we can't send a wave upstream, all disturbance is carried downstream. Now the next experiment is to calculate the Froude numbers above the weir, below the weir and at a point at the peak of the weir. The figures we need are the depth of water at three places. We make a start at point A. Lower pointer until it just touches the surface.

Now we want to take this reading. And because we'll be dealing with the fairly shallow water depth later we'll use a Vernier scale for greater accuracy. Now this reading is 17.9 something and we can use the Vernier scale, these marks coincide so that the last figure must be nine also."

WYNNE:

That experiment continues with several more readings which the student must take and use in later calculations. As the experiment develops there is less help given until at the end the student is on his own to decide which readings to take and how to use them. Of course, there is the opportunity to replay, and also to compare the results of calculations with the reality of the experiment.

Another device that's made its appearance in recent years is the micro computer. The cheapest models are now available in the High Street for less than £100.

To look at the impact of micro computers on the OU, we spoke first to Darrell Ince and asked him about OU courses that are specifically designed with micro computers in mind.

VIDEO - Darrell sitting at desk with HEKTOR & monitor

DARRELL INCE:

"Well this is HEKTOR. It's a micro computer being developed at the OU for use on some of its courses. TM222 is about the architecture of a digital computer and we use HEKTOR to get over concepts about the machine and about programming.

They're also a pair of courses which were financed by the Department of Industry. There's PT501 which is really a course for managers, telling them what a micro computer is, what software is, how it can be used in their products etc.

DARRELL Cont'd:

And PT542 which is a course for engineers, the sort of thing they would do would be use as part of a monitoring system which might monitor the temperature of a blast furnace.

Fourthly, there'll be industrial applications of computers. Now this is a proposed master's course which has been financed by the Science and Engineering Research Council. And what ... who this is intended for is engineers and technical managers who feel they've been slipping behind or there's big gaps in their knowledge; they're seeing micro computers come into their work and they don't know what to do with them. And so a student on this course will use either HEKTOR or something very similar to do two types of computing. You'll either use the computer in a stand alone way or use the computer as a terminal using the 'phone link that he has in his home to do the sort of very big computing, the computing that requires lots of space and lots of power which a micro computer couldn't really handle."

STUDIO

WYNNE:

Micro-chip technology may have been the stimulus for those new courses. But it has also been a source for devices used directly as teaching aids. Nowhere has this been more apparent than in aids for disabled students. Paul Hawes takes up the story.

FILM - Paul Hawes demonstrating PAUL HAWES:
Vistel

"This device enables people with no hearing whatever to use the telephone by typing instead of speaking. There's no permanent connection the 'phone, it's portable and runs on rechargeable batteries. All you need to use is a telephone which you place in here, switch the device on and you can start typing messages."

(PAUL TYPES MESSAGE)

FILM - Tom Vincent and the talking micro computer

TOM VINCENT:

"Blind students have a particular problem using a computer. The normal output from a computer is visual, therefore it's for this reason that we looked at the use of synthetic speech as an alternative output medium. Here's an example of what I mean."

COMPUTER:

"1. PRINT QUOTATION MARK HELLO QUOTATION MARK."

TOM:

"Whereas here we have a visual record there is now sound equivalent, but I can get the computer to repeat this by typing list."

COMPUTER:

"1. PRINT QUOTATION MARK HELLO QUOTATION MARK."

TOM:

"In this case the computer has assembled the individual letters into words and is speaking the words back to me. I can now run this programme."

COMPUTER:

"HELLO."

TOM:

"I can simply press the space bar to hear it again. This is particularly important if there are many lines of output, so that we can step through hearing them one at a time.

For example here is a simple programme that prints out the numbers from one to nine."

COMPUTER:

"RUN RUN 1 2 3 4 5 6 7 8 9."

TOM:

"And in this case I've stepped through by pressing the space bar to hear each line of output in sequence.

Let me give you an example of making a mistake and how the computer responds to that mistake."

COMPUTER:

"2. PRYNT RUN SYNTAX AIROR IN 2."

TOM:

"An interesting feature of this is where the word error is not correctly spelt but is how the voice synthexiser pronounces it best and it's spelt A I R O R in this case for that better pronunciation.

There's no difficulty adding speech to a computer, what is the problem is getting it to say the right thing at the right time and transforming what normally appears in visual to a spoken output."

COMPUTER:

"LIST 2. PRINT 1."

FILM - Ann Hanson with Bill Metcalfe demonstrating the microwriter

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ANN HANSON:

"When Bill first came to us at the Open University he'd been involved in a road accident and he found it very difficult, if not impossible to get anything down on paper. The first year with the Open University I went to invigilate his examination and an exam that normally takes three hours took him two days to do. About the same time Tom Vincent and I came across an advertisement for the microwriter.

Instead of all the keys of a typewriter there's just these six buttons. The top five buttons in all sorts of combinations make the letters of the alphabet and various sorts of punctuation. The bottom button acts as a control and does things like spacing and wiping words off the screen altogether. The screen that you can see here is something that Bill's got added on extra and something which is very useful for the student preparing a TMA because they can see all the words that they want to be seen at once.

The information that you input into the microwriter feeds into a mini cassette. As far as we're concerned in the Open University we've now got the facility available that these micro cassettes can be sent to the regional offices and they can be printed up at the regional offices."

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.../cont'd.

STUDIO

WYNNE:

These are the devices of today that are just beginning to make an impact on OU teaching. And for the most part, they are using existing technology and adapting it for specific OU needs.

But that's not the limit of the OU's technological research. Some years ago we reported on this programme a unique OU development which at the time created a great deal of outside interest.

That development was called CYCLOPS. It had several uses, the first of which was a link between a domestic television and an audio cassette. But perhaps it's most valuable use lay in it's ability to be used as a remote interactive blackboard. Here's Graham Read from that programme made in 1979.

VIDEO - extract from OF42
Graham Read at tv screen

GRAHAM READ:

"Well for this second function of the machine you need this clever little gimmick called a light pen and with it you can write on the screen of a normal tv set like this. You just put the thing up against the screen, depress the switch and you get a picture formed. And if you make a mistake well then you just push the switch at the side here and I can selectively erase, I can use it as an eraser and then back to writing again, it flashes because that tells me that the command has been accepted and how I can write on there and correct it.

GRAHAM Cont'd:

Now that's the sort of thing you can do with a light pen but you can actually send that signal down a telephone line and let me show you how that might work. Let's see if there's somebody on the end.

Picks up 'phone

Hello, hello."

On the other end

DAVID LIDDELL:

"Hello."

GRAHAM:

"Hello David, it's Graham. Are you all fixed up for your meeting in Bedford this week?"

DAVID:

"No, I've never been there before actually so if you could explain how I get there that would be very useful."

GRAHAM:

OK fine, I'll try and draw you a little map. I'll have to clear the screen I've something on it this end, you all fixed up at your end are you?"

DAVID:

"Yes, I'm all connected."

GRAHAM:

"Right OK. Well now you should be able to find the bridge over the river in the centre of Bedford and that's the River Ouse and then there's the market square and the High Street and the centre is about there."

DAVID:

"Oh I see. So if I come up here I can get round and get into there can I?"

GRAHAM:

"Well no not really. You have to go round the block because - let me just wipe that over - you can't go that way you have to go round that way because of the one way system and in there."

DAVID:

"I see. Can you tell me is there anywhere to park around there?"

GRAHAM:

"Um yes you can park actually in the centre in there somewhere."

DAVID:

"Oh is that the County Hotel just there on your left?"

GRAHAM:

"Yeh that's right, yes."

DAVID:

"Alright. OK thank you very much indeed then Graham."

GRAHAM:

"OK pleasure see you then, fine."

DAVID:

"Cheers."

GRAHAM:

"Now you can see how the system could work but that was just talking to say one student. In principle you could talk to any number of students and each one of them can write on their own tv screen and everybody else can see what they're writing and you could do that at any distance from here to New York if you like."

STUDIO

WYNNE:

The University body which evaluates technological developments and advises the University planning board is the Media Policy Advisory Group. It's Chairman is Prof. Russel Stannard.

STUDIO

RUSSELL STANNARD:

Well Cyclops is a very exciting project, and one that the OU can be very proud of, and the Media Policy Advisory Group would certainly like to see it being widely deployed in study centres as a remote blackboard, and also in students homes on at least some of the courses.

But it's not just a question of whether it's educationally effective, which it clearly is. There's also the question of what does it cost, now who's going to pay for this thing. Now so far what's happened is that we've had money for the original research and development of the instrument, but we're now moving to a stage of manufacture and we are a University and we're not financed for the production of large scale equipment. So what's happened now is that we've got into collaboration with a private firm which is getting some funds from the Government, and some help from ourselves, and the idea is to produce a mark 2 version of Cyclops, one that will be cheaper, one built around the BBC micro computer, and hope that goes well. And the firm will then go into full scale manufacture and at that stage we hope to get some money to actually buy quite a lot ourselves.

STUDIO

WYNNE:

Well so far we've looked at Cyclops, video cassettes and micro computers, but what about OU television? What direction is it likely to take in the future? To answer that question, Bob Rowland, Head of the BBC Open University Production Centre here in Milton Keynes.

STUDIO

BOB ROWLAND:

Well there are many exciting developments a foot as we've heard. But I believe for the next few years certainly, the role of broadcast television will in fact be immensely important for the Open University, it expresses the openness of the system, it shows the public nature of the teaching, it represents a major national educational resource. But certainly one of the biggest challenges we have, and excitements we have is the development of the video cassette which now has access to many students as we've heard. The role of the video cassette with its non-ephemeral quality, unlike broadcast television, non-linear quality, its relationship to print, its capacity to be indexed, to be replayed to be stored like a book will be extremely interesting for us in the mix of our teaching in the Open University system and a major challenge I believe to us all.

Beyond that we have the video disc which we'll see in a moment, and that has great storage capacity, and of course extremely interesting in terms of it's use with computers.

BOB ROWLAND Cont'd:

Further down the track, a little further down the track is the development of cable, which might have implications for us in terms of it's local capacity rather like local radio, but it will take some time I believe for that to be a national network in any way like the current BBC network channels. And then further still the ~~st~~ellite, which I believe will have some implication for education eventually, but not in the first instance. And has I think dazzling possibilities for communication across countries, and of course in the country at large. But in the immediate future the video cassette is the biggest change we face, but in the context of the continuing and important role of broadcasting on the national networks.

STUDIO

WYNNE:

Bob Rowland there looking into the future. But we don't have to look too far for one of the developments he's already mentioned - the video disc - which is here with us right now. Bob Fuller from the University of Nebraska at Lincoln, who is on a nine month consultancy with the OU explains.

VIDEO - Bob sitting at desk with video disc player and monitor. Video disc excerpts from "World About Us: The Living Forest" copyright OU/F 0427.

BOB FULLER:

"This is an optical video disc. It can hold up to 57,500 individual pictures and two independent sound tracks. This is a video disc player. It's the first consumer use of laser technology. The player spins the disc at 1,500 revolutions per minute. The laser beam reflecting off the bottom recalls the audio visual information

BOB FULLER Cont'd:

When we connect the computer to the video disc player, we have an educational system of tremendous capabilities. Since we haven't developed any specific OU video disc yet let me demonstrate the capabilities of this system using a BBC video disc showing British Garden Birds.

One of the things that we can do with computer software is to provide a variety of levels of educational material for students. Here for example we present this garden birds disc at three levels. Let's say we're advanced bird watchers. The software selects a sequence of pictures.

VIDEO DISC

(BIRD NOISE)

Shows them to us, and then asks us to type in the name of the bird.

Well suppose we think that's a Meadow Lark.

Well we've got it wrong, so now the software can show us that sequence again with a different soundtrack.

DAVID ATTENBOROUGH ON VIDEO DISC:

"It spends a lot of time on the ground feeding and nesting there. It's mainly a seed eater, but takes insects and worms."

BOB & VIDEO DISC

BOB:

OK now we say it's a Skylark. Ah good, we've got that correct.

BOB Cont'd:

Another way we can use a video disc player is to carefully study motion. For example.

VIDEO DISC

(WOODPECKER NOISE)

Well there's no prizes for guessing that bird! But have you ever wondered how fast the woodpecker moves it's head? We can measure that using the video disc player. Turn on the frame counter, and then play forward to the section that we're interested in, and step through it, one picture at a time. Head in, head out, in, out, in, out, in, out, in, out, such we're playing the pictures at 25 pictures per second, the Woodpecker's head goes in and out about 12 times in one second.

BOB & VIDEO DISC

The first experimental uses of the video disc we're planning at the Open University are in Technology Summer Schools this year. One plan we have in mind is when students design and build model dragsters, is to provide a video disc sequence of real ones so the students can compare their models to real dragsters, one picture at a time."

Closing Credits + Music

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