

https://dspace.org/

Programmed learning and closed circuit television

Leedham, John

1970
Johannesburg College of Education
https://hdl.handle.net/10539/27489
Leedham, J. (1969/1970). Programmed learning and closed circuit television. Symposium: A Journal of Education for Southern Africa, pp. 103-105.

Downloaded from a DSpace repository. https://dspace.org/

Programmed Learning and Closed Circuit Television

by J. LEEDHAM

A method of feedback and enrichment

THE USE OF TELEVISION as an educational medium has become well established over the past years. The advantages of using a 'third eye' are obvious; it can be used to explore physical environments on behalf of the viewer, it can expand the field of audio-visual presentation and can give a large number of people a close up view of a particular technique which would otherwise be available to only a few people at a time.

Each of these aspects is one of *demonstration* which takes no account of the learning speed of the viewer. With a large network one can only present the material at a rate which one imagines will suit the viewing audience, but if one can provide feedback, in other words, allow the audience to stop the broadcast and ask questions and have things repeated, then we have gone a long way to improving the learning value of the medium.

One means of achieving this aim is by the use of closed circuit television which covers a smaller network and will allow feedback from the audience. By the means of C.C.T.V. we then have a flexible means of presenting material into a learning situation.

A way of using this flexible medium could be to provide each individual learner with a self-pacing programme in textual form but to enrich and expand the material by closed circuit broadcasts capable of accepting feedback and modification during the broadcast.

First Trial

With these ideas in mind a programme was attempted during a course in programmed learning at Loughborough recently to apply the idea to a real situation.

A number of teachers from primary and secondary schools who had experience of programmed learning but no experience of C.C.T.V. prepared a programmed text suitable for C.C.T.V. presentation. With the experience of the team in mind it was decided to concentrate on: the material to be presented, the manipulation of the material and the feedback from the audience rather than try to produce a technically perfect television programme.

However, some instruction and practice in the use of the medium was necessary before the material could be presented. It was decided to modify the programmed book "Area and Volume" by John Leedham and D. Parker for the script of the T.V. presentation. The second part of the programme, that on 'Volume', was selected for presentation, mainly because it was felt that the programmed material alone would not establish the concepts of volume and capacity because of its possible isolation from the child's experience. The television presentation was intended to be an extension of the programmed material which would reduce its isolation and bring it into the region of the child's experience.

The programme objectives were re-analyzed in terms of visual-aural content and plans made to illustrate the objectives with experiments and comments on the television screen. This led to a great deal of re-writing, but also to a crystalization of aims. Finally, a script was drawn up and response sheets duplicated. It is worth noting that during the process of programme compilation, rehearsal and adaptation for the television programme, the script progressed nearer to the original text of the programmed book. This was after early doubts as to its suitability. The very nature of preparing such a programme determines a close adherence to programmed learning principles — so long as one anticipates feedback during the broadcast.

The transmission was by the customary studio system of cameras linked to caption displays and illustrations, with free camera work as a demonstrator. The main focus was on the face, voice, hands and experiments performed by the teacher-demonstrator.

Feedback facilities were provided by telephone hand sets monitoring in the viewing room. Thus, replies or questions were re-broadcast via the C.C.T.V. network. The arrangements proved satisfactory especially as it enabled the other viewing points to take part in the feedback experience. Viewers were at three points of the college 16 point system. All viewers were in possession of a programmed text and specially prepared response sheets.

The programme followed the programmed text and dealt with points of possible difficulty. Thus the idea of capacity as against volume was clarified by using a balloon, the idea of conservation was dealt with by using contrasting containers to hold liquid so that discrimination between which held the more became increasingly difficult.

Assessment of First Trial

The programme proved worthwhile from the point of view of those participating in it. The viewers participated without difficulty. The feedback by the learning groups was technically effective, in that the demonstrator was able to amplify points. Satisfaction was general enough to demonstrate that the idea was workable.

WORK WITH A SCHOOL

Second Trial

The next stage was the presentation of programmed material to classes of school children.

The programmed book "Area and Volume" in the 'Discovery Series' is designed for children between the ages of 10 and 13 with a minimum reading age of 10 years. To be able to use this programme with children and complement it with C.C.T.V. material two factors had to be considered: 1) The children were within the age range and 2) The school in which the children worked was connected in the network by land-line. The school answering these requirements was the Mountfields Junior School.

To be able to assess the effectiveness of additional material by C.C.T.V. as well as using the programmed book, two groups of children were required. One group to work with the programme and C.C.T.V. and the other group to work with the programme only.

The school is located in a middle class catchment area but classes of the same ability range were available as the school maintain unstreamed parallel entry.

	N	Mea. I.Q.
Class A, using C.C.T.V. and Programme	42	106
B, using Programme only	41	104

All children in both classes were included. The teacher of class B administered the programme and was free to assist the class in any way.

Reading ability in both classes was above the level required for satisfactory working of the problem.

Time Occupied

Class A 6 periods of 45 minutes including 4 television broadcasts of 20 minutes.

Class B 6 periods of 45 minutes during which children finished at various times.

Testing

The tests in the programme were used as a basis of comparison. There are three of these.

Test 1 of 4 problem type questions on area.
2 of 4 problem type questions on area.
3 of 4 problem type questions on volume.

A pre-test situation based on two questions from each of test set to the children showed comparable knowledge between the classes, with a correct response of 12% for A and 10% for B.

Discussion of results

On a raw % score basis it can been seen that the C.C.T.V. class did considerably better. This

---

Post test scores

	C.C.T.V.	*Control.*	*% Difference in favour of C.C.T.V.*
AREA TEST 1.			
Q. A.	100 % correct	65 % correct	35 %
B.	100 % „	52.5% „	47.5%
C.	100 % „	57.5% „	42.5%
D.	95.5 % „	52.5% „	43 %
Average Correct	*99%*	*57%*	
AREA TEST 2.			
A.	97.75% correct	97.2% correct	0.55%
B.	86.4 % „	61.0% „	25.4 %
C.	70.5 % „	64.0% „	6.5 %
D.	72.75% „	64.0% „	8.75%
Average Correct	*82%*	*71.5%*	
VOLUME TEST 1.			
A.	79.7 % correct	56% correct	23.7 %
B.	52.75% „	36% „	16.75%
C.	60.7 % „	52% „	8.7 %
D.	52.75% „	12% „	40.75%
Average Correct	*61.5%*	*40%*	

was, of course, to be expected; but the types of problems solved give some indication of possible benefits. For example, the high % performance in Test 1 of the C.C.T.V. group, could be ascribed to the careful demonstration of the concept of area and its measurement given on the overhead projector in the studio with the studio children working problems of the same nature before the programme proceeded.

The last question, Volume, Test 1, D. concerns the method and result of assessing the volume of an empty plastic square jar previously filled with liquid. The result showed that few of the 'programmed-book-only' learners had been able to solve the situation. Although the results were much better in the C.C.T.V. group there was a definite fall-off in performance. This is in line with the generally accepted theory of volume concept for children below the age of 11. Nevertheless it could be argued that further C.C.T.V. illustration could have limited the errors.

Other results appeared in that the C.C.T.V. class produced a very lively set of models and art work based on the Volume Programme. In discussion the teachers pointed out that the novelty value had some significance, although they agreed that, the children were very used to C.C.T.V. cameras in other activities.

The Headmaster considered the result of C.C.T.V. and programme in terms of time occupied was about what he would have expected from class situations of the normal type.

The children talked a good deal about their work but, since this is part of a normal approach little claim could be made on either side.

It is clear that objection can be made that one class receiving so much visual and practical enrichment was bound to profit. The point could be made that other types of C.C.T.V. lesson have not been so successful. During the broadcasts under review, the constant feedback between groups of children in the studio and groups of children in the classroom gave much opportunity for enlightenment of the programmed material.

It should be borne in mind that the same programme could have been put to sixteen classes simultaneously on the network, but the question of feedback would have been difficult to manage. It has proved possible to handle up to three separate student groups all pursuing different topics from one studio simultaneously using this type of approach. The question turns on the amount of programming the producers have time to organise and inter-relate.

Perhaps the point to make is that now is the right time to encourage an experimental attitude towards the use of C.C.T.V. and programmed learning. There is much to suggest that imitation by each other of C.C.T.V. networks and adherence to verbal prompts in programming is already limiting what could and should be a vigorous development.

PLAYROOM AND SCHOOLROOM (PTY.) LTD.

8 TYRWHITT AVENUE ROSEBANK JOHANNESBURG

P.O. Box 52137 Saxonwold, Tvl. 42-5350

STOCKISTS OF EDUCATIONAL AIDS OF EVERY DESCRIPTION

SPECIALISTS IN MATERIAL FOR:

PERCEPTION TRAINING

REMEDIAL TEACHING

MATHEMATICS

SCIENCE

ARTS & CRAFTS

READING & WRITING

BOOKS, TOYS, STATIONERY, RECORDS, EQUIPMENT