

3 : DEVELOPING EDUCATIONAL MATERIALS

Before launching any distance education course, it is necessary to be clear about the audience, about the aims of the course and about the conditions under which the participants are working and will study.

As we saw in the first chapter, we can distinguish between a number of different potential target groups. They vary according to their background education, their experience of teaching, and their role either as ordinary teachers or as specialists who need continuing education in a particular area of work. And so the first move to make in planning a course is to ask about the audience and their educational needs and then to ask whether there is a role for distance education in teaching them.

The answer to that question will depend upon the existing facilities for teaching them and upon their numbers. If there already exists a well organised network of colleges of education or teachers' centres this may provide an alternative and better way of providing continuing education. It is only after one has reached a clear decision about the nature of the audience and the appropriateness of distance teaching that one can start serious planning.

Then there are two further basic questions, about the facilities available for our students in the field and about potential course writers. As we are interested in what teachers do in classrooms, we can have little confidence in a method unless it ensures that its teaching is tightly related to classroom activities. And that means that central activity in the way of course production needs to be tied into local activity

in terms of supporting and supervising teachers' classroom practice. The Tanzanian teacher training programme gives an example here. Trainees there spend three days a week at work in their schools and two days attending a local study centre. The study centre co-ordinator, with the head teacher, also supervises their work in school.

Who should write the courses?

Once we are sure that we can provide some kind of field support to trainees the next question is about course writers. If we have educational staff appointed to our organisation, with the job of writing courses, then we need look no further. Our only difficulty now arises when we have somebody appointed to write who proves not to be very good at it. (And this suggests that if writing is to be a central activity for our staff, then we should test their writing capacity before they are appointed.)

Otherwise there are three other main ways in which we can get the courses written. The first is to avoid the problems by using courses that have been developed elsewhere. Athabasca University in Canada, for example, uses a wide range of courses which have been developed by other institutions. Where suitable courses are available, the cost of acquiring them is often lower than the cost of developing courses anew. In its early days, the Botswana Extension College was able to make use of correspondence courses developed in Zambia in order to widen its own range of courses more rapidly than it could through the use of its own writers. The guide to Correspondence Institutions in the Commonwealth in Appendix 1 will show you whether there is an institution which may have produced courses similar to what you want.

Second, it may be possible for course writers to be seconded to you from their own institutions or departments for a limited period of time. In Tanzania, for example, staff of teacher training colleges were seconded to write materials at the National Correspondence Institute. Such an arrangement has the advantage that the writer is working full-time while he is on secondment, but is not permanently committed as a writing specialist for whom there may not always be work. It has the disadvantage that it may be difficult

for another institution to release the person with the best background and the greatest skill in writing.

The third possibility is to arrange for people to write courses as an extra activity over and above their regular jobs. Organisations in rich countries, with well developed educational systems, have found it relatively easy to find writers of this kind. The National Extension College in Britain, for example, uses part-time course writers, and has no difficulty in recruiting them. In many developing countries, on the other hand, the pressures on the time of the smaller number of potential course writers is so much greater that it is difficult to get courses written in this way.

Planning the course

A good course will use a variety of educational media. The exact choice of media will depend partly on educational principles but much more on practicalities. At the stage of making preliminary enquiries about a course, therefore, we need to find out what facilities will actually be available to our students. To take an extreme example, it is absurd to suggest using television if the majority of our students live in villages without mains electricity.

The value of different kinds of educational media has been widely debated and a summary of their characteristics appears as Appendix 2. But nobody has yet developed a coherent theory of educational media which will determine that, for a particular educational task, one medium should always be used rather than another. In the absence of such a theory, there are two principles which can guide us. First, where carefully controlled comparisons have been made, no one medium has been found to be more effective for teaching than any other. In other words, we can use any medium for teaching any subject without assuming that one medium is inherently superior or inferior to another. Differences between the subject matter and between audiences are more important than differences between media in determining whether people will learn effectively or not. We can see this finding as a liberating one, which allows us to make use of the particular media which best suit our own circumstances and the needs of our students.

Second, face-to-face discussion has characteristics which mark it off from the use of print or broadcasts. In a face-to-face session we can have immediate feedback. If a student has got something wrong, the teacher can immediately put him right. If the student is puzzled, somebody, who may be another student or the tutor, can help him straight away. Perhaps more important, in a face-to-face session we can have dialogue and discussion which moves in a direction that was not predicted at the beginning. None of these things are possible through print or through one-way broadcasts. As dialogue, and help with individual student difficulties, are of great value to us and to our students, it follows that we must make the best possible use we can of the limited face-to-face study which is available for many of our students.

In planning the use of media, therefore, it may be helpful to begin by defining just those parts of the educational process which most need face-to-face contact. Then we can determine how far that kind of education can be organised by having groups of students meet together, and how far students need to meet with a tutor. If we find any part of our educational activity which does not demand that kind of face-to-face contact, then we can leave it to print or radio.

Choosing which medium to use for which purpose is only part of the whole activity of planning a course. Figure 6 sets out a systems approach to course planning which can help in the planning and writing of lessons. The figure suggests that we look at course development in two stages. In the first stage we plan the course as a whole. In the second stage we go through a rather similar set of activities but for each unit at a time. As we plan an individual unit, we may need to reconsider some of the decisions made at the course planning stage and revise them: the feedback box linking the unit planning section to the course planning section shows this.

In planning a course we need to start with a broad definition of the educational need which we are trying to meet. This definition will include a statement about the audience for the course and about the educational aim. It might, for example, be in terms of improving the skills of a particular grade of teacher in teaching mathematics to first and second year

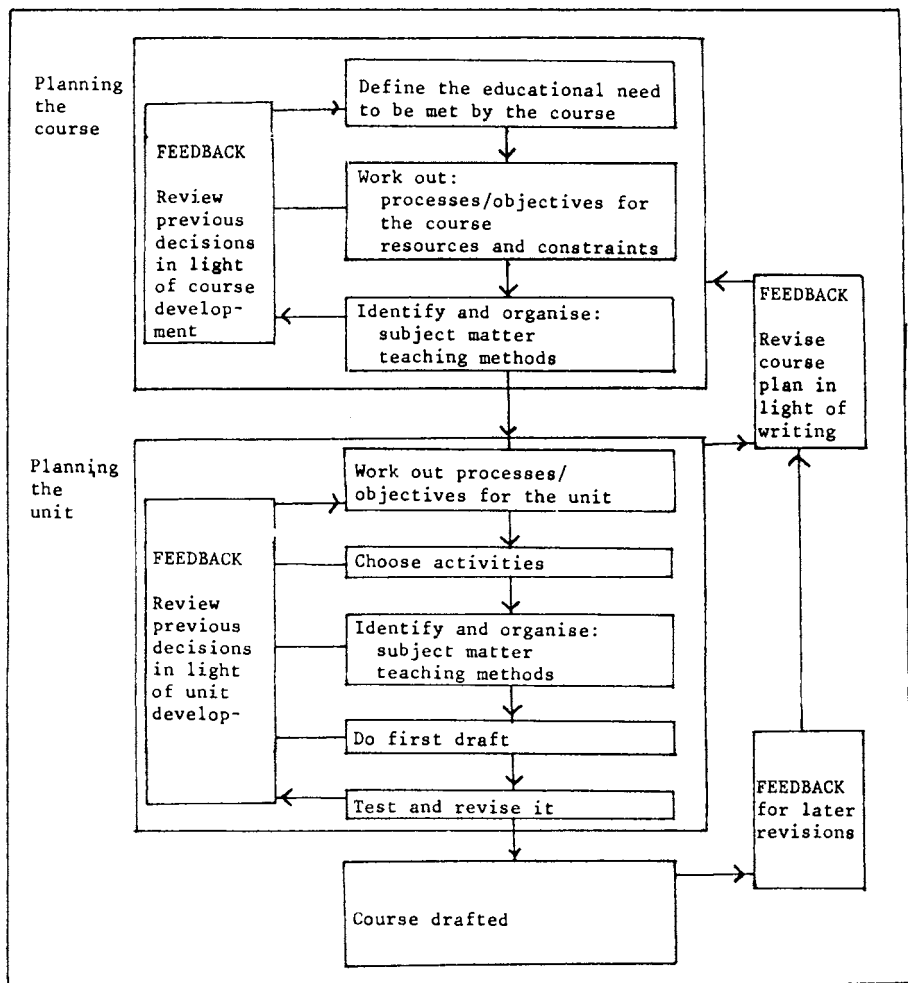


Figure 6: A systems approach to course development

primary school children. Next, we need a more specific definition of the objectives of the course or the classroom activity or process which it is designed to encourage. The more specifically we can define just what we want students to do as a result of the course, the easier it will be to write and to evaluate the course. But, in education as in many other fields, there are dangers in suggesting that all objectives can be narrowly defined or stated in terms of behaviour.

Having defined, as best we can, the objectives or processes which the course is designed to further, we need next to consider more practically how we can achieve them. To do this we need to list all the resources which are available to us which might include broadcasting time, the services of colleges of education near our students, our own printing press, the writers we can employ and so on. Along with these we need to set down the constraints within which we operate, which will usually be in terms of time, money, and physical shortages.

Then it is possible to make two sets of decisions about organisation. The first set concerns the intellectual organisation of our course. We need to decide the order in which topics will be presented, the relationships between them, and the way in which they relate to what our students already know. In this we are carrying out a process of curriculum development which is comparable to what is done for education generally. The second set of organisational questions concerns the organisation of the teaching media which we are using. We need to consider how the course is taught and, in broad outline, what each medium will be used for. In making those decisions we need to think particularly about the links between print or radio on one hand and face-to-face work by our students.

As we go through each of these stages, we will probably find that we need to revise some of the decisions made at an earlier stage. This process of course development is thus cyclical as well as sequential. It is also something which usually needs to be done by a team of people rather than by a single writer working on his own.

We then go through a similar set of activities at the level of each individual lesson. But the process

suggested in Figure 6 contains one heresy. We suggest there, that at a very early stage in writing a course one should define the activities which a student should undertake - things he should do beyond reading the text - and actually make that decision before the exact subject matter is determined. This is in contrast with many ordinary processes of curriculum development in which the subject is determined first and student or teacher activities worked out in the light of that definition.

This reversal is quite deliberate. Learning at a distance is always difficult. It demands concentration and self-discipline and it lacks the control and the stimulus which we get when we are working in class. As a result, correspondence students often see their central activity as being one of reading through their correspondence lessons. Unfortunately, when we read, it is very easy to get the impression that we are learning something while in fact we are not. A good correspondence lesson therefore involves a variety of activities which the student must undertake over and above the reading of the text.

These activities may be of many different kinds. They may involve the student in solving problems in the text, or completing a half-finished diagram, or leaving the printed text to do an experiment, or simply stopping to work out the answer to a problem which has been posed to him. These activities are so much at the heart of his learning that it will help the correspondence student if the writer begins by working out a series of student activities which will lead towards meeting the objectives or mastering the process at which the unit is aimed. Once the activities have been determined in that way, we can then see what information needs to be presented to the student in order that he can carry out the activities. In this way we can reach a definition of the subject matter which fits with the aims of the lesson and takes account of what the student already knows.

For that reason we have set out in the later part of Figure 6 the stages of working out how an individual lesson is organised in terms both of its intellectual and of its organisational structure.

Writing good educational materials will be an unaccustomed activity for most of our writers. It is therefore particularly important that, if possible, a first draft is produced and tested. If there is time and the resources to do it, it may be possible to test a whole unit on a sample of students comparable to those who will take the complete course. If this is not possible, then it may still be possible to test some parts and some aspects of the unit. It is possible, for example, to test the difficulty of the language. Where illustrations or pictures are used it may be possible to test these on a small sample of people in order to make sure that they do convey the information which was intended.

Writing

Writing is often seen as a lonely and individual activity. But even where we have a single correspondence course writer, he is not alone in quite the same way. Many distance teaching institutions have appointed editors, or educational technologists, or course co-ordinators, who play an active role with the author in developing a text.

Furthermore, it is often useful to have more than one person writing a course. The Open University in Britain developed the idea of having a course team, in which a group of people worked together on a course over a number of years. In this case the educational technologist was one of the team along with subject specialists. While few other institutions will be able to afford the time or resources which that University devoted to course writing, there will often be advantages in having a group of people working together in course writing.

They may do so quickly or slowly. One variant of the course team approach has been called a "course-writing circus". Mathematicians, preparing courses for Botswana, Lesotho and Swaziland, worked together in three intensive workshops, each lasting about 10 days. During that time they wrote the whole of a correspondence course for the equivalent of one year of Junior Secondary mathematics teaching. The advantage of working as intensively as that is an administrative one: you can get people released for a short time and

you get a course produced very quickly. The disadvantage is that it puts heavier demands on the editor, as many details of wording, organisation and layout of the text will be left for the editor at a later stage.

No matter how the authors are working, they will need guidelines on what they are to do. One of the early duties of a new distance-teaching institution will be to agree the format within which writers will produce materials and draw up guidance for their work. Writers will need to write simply: it is always important to remember that our students are probably working by themselves and, if confused by difficult language, have no one to turn to for help. Simple and direct prose is the best possible help for them. Then the lessons need to be coherent and easy to use. The student needs to be able to see how the various parts of a lesson relate to each other and how they relate to other media and to his practical classroom work. He needs to see how one lesson relates to another and to the course as a whole. At the same time, lessons need to be divided up so that in any one working session, he feels that he has made some progress through the lesson. Lessons need to have a beginning, a middle, and an end so that there is no uncertainty for the student as to how they work.

We can sum up by urging that any correspondence lesson should include

- a title and a number
- an introduction outlining the ground covered by the unit and possibly its objectives
- a list of any special equipment needed to follow the unit
- reference to the use of other media
- a main body of text based on appropriate activity and with the subject matter ordered into reasonably small steps which have a coherent relation to each other
- adequate advice about work to be done and sent to a tutor

- a rounding off at the end including a summary of the lesson as a whole.

Producing radio programmes

As we saw, there are advantages for our students in using radio along with other media. Radio reaches our students instantly and can provide a liveliness and stimulation which it is difficult to achieve through print alone. Radio programmes can be made cheaply. And radio has particular educational advantages from which our students can benefit. In making radio programmes however, a distance teaching institution is most likely to co-operate with a broadcasting station or educational broadcasting service. Much of the production work which is done by the editor for correspondence lessons will be done by a producer, who may be on the staff of the broadcasting organisation rather than the distance teaching institution. Conflict between the educator and the broadcaster may be the result, and students and programmes will then suffer. If we are using broadcasts we need an organisational structure which will minimise or resolve such conflicts. We also need to plan broadcasts and other media together so that the relationships between them are clear. It is very confusing for students if, in a course, correspondence lessons say one thing, radio programmes a second and teachers in a face-to-face session a third.

This book is not a handbook on producing radio programmes. (For advice on that see Appendix 1.) We assume that any distance-teaching institution using radio, or for that matter television, will get detailed advice and help from the educational broadcasters with whom they are working. That advice is likely to include at least three elements.

The first is to remember that one can cover only a limited amount of ground in any one radio programme. Detailed exposition, where all the detail must be mastered and remembered by the student, belongs better in print than in radio. It is necessary always to bear in mind that our listener cannot turn back the radio, if he has missed something or listen to it a second time if he does not quite understand. In many countries, too, reception conditions may be poor so that our students may not even hear the programmes clearly.

Next, any radio programme needs variety. Programmes which consist of a single voice giving a lecture are unlikely to be effective or the most interesting stimulus for a student. Radio lends itself to variety. If we can include different voices, dialogue, drama and discussion, field recordings, and music where this is appropriate, the programmes will be more attractive to our students and will speak more clearly to their condition.

Third, most programmes are made on the assumption that the listener simply listens to them and does not himself undertake any activity until after the programme has finished. There are good reasons for this. It is, for example, difficult for students to write notes while a radio programme is continuing. Some radio programmes, however, are designed for students to respond at frequent intervals during the broadcast. Programmes teaching mathematics to schoolchildren in Nicaragua, for example, contained frequent pauses in which the children had to respond to the problem posed over the radio, or which they read in their workbooks. Similarly programmes broadcast by radio schools in Latin America have often posed discussion problems for groups of students and then provided background music while listeners discussed the question and came up with their response before the broadcast continued. While this technique will not appeal to the casual listener, it may be suitable for some programmes for teachers.

Radio can be used for several distinct purposes: to provide subject teaching, to give examples of classroom practice, to illustrate a variety of alternative views through discussion, to encourage group discussion to offer advice and information to students, especially on difficulties and through, programmes based on feedback, to encourage dialogue between our institution and our distant students.

In subject teaching we may find that there are some parts of the subject which particularly lend themselves to radio. In Kenya the Correspondence Course Unit found that radio was particularly useful for their courses on Swahili and English. A subject like poetry lends itself to radio; in other subjects where a voice can lead people through the text it can have particular advantages. It is useful, too, when it can bring

resources to our students which would not otherwise be available to them. It can bring examples of reality, which would have much less impact through other media, even when this were possible. And there are some parts of many subjects which lend themselves to dramatisation and, for this, radio can be of particular value.

Although there are technical difficulties in recording classroom sound, radio enables student teachers to eavesdrop on more experienced teachers and so learn something about classroom skills which they could not readily learn without sitting as an observer in the classroom.

One of the difficulties of correspondence education is that it forces students into a heavy reliance on the printed text. There is a danger that they will regard the correspondence text as being gospel rather than its being one of a number of different possible views on any subject. And yet the analysis, comparison and criticism of different views lies at the heart of education at this level. Radio lends itself to discussion, and for our students, there is particular value in presenting discussions with alternative views presented by alternative voices.

Where several students, from the same or neighbouring schools, are following the same course, then radio programmes can be used as the basis for group discussion. There are clear educational benefits from such discussion but it puts extra administrative burdens on a distance-teaching institution.

In studying at a distance many students need help which goes beyond teaching about a particular subject. They need advice on techniques of study, as well as information about practical questions like entering for examinations or attending residential centres. They may need to be told about changes in arrangements, about misprints in their printed texts, or about other events or activities which may be of interest to them. Radio can perform a valuable service as a noticeboard in giving such advice and information.

Finally, a drawback of distance teaching is that it is very much a one-way process. There are often fewer opportunities for students to respond to their teachers than there are in a classroom or seminar. There is

therefore particular value when radio programmes made on the basis of feedback from learners and feedback programmes become part of a regular radio series.

Summary

1. In developing materials, start by considering the needs of the audience and by asking what role, if any, there is for distance education and how it can be integrated with classroom work.
2. Courses can be developed by:
 - 2.1 academic members of your own staff;
 - 2.2 borrowing or adapting materials from other institutions;
 - 2.3 getting writers on secondment from other institutions;
 - 2.4 employing suitably qualified people part-time.
3. In choosing between media we can be guided by practical convenience, by the knowledge that any medium can be used to teach any subject, and by the unique value of face-to-face study for dialogue.
4. A systems approach is helpful in planning distance-teaching courses.
5. In writing correspondence lessons it is helpful to work out the activities which students must undertake before doing a detailed specification of the subject content.
6. Course material should be tested in order to see how far people can understand and learn from it.
7. A good correspondence lesson will be simply written, coherent, easy to use, and give students the assurance that they are making progress as they work through it. It will be centred around student activities.

8. Radio programmes:
 - 8.1 will generally not try to convey a lot of detailed information;
 - 8.2 will be varied in their style;
 - 8.3 may demand student activity and response while the programme is being broadcast.
9. Radio may be used for:
 - 9.1 subject teaching;
 - 9.2 giving examples of classroom practice;
 - 9.3 illustrating alternative viewpoints by means of discussion;
 - 9.4 encouraging discussion groups of students;
 - 9.5 providing advice and information to students both on their courses and on practical arrangements for study;
 - 9.6 programmes based on feedback from students.