UNIT 1 COURSE PRODUCTION: SOME BASIC PROBLEMS

The Open University has now started to teach its first nation-wide intake of close to 25,000 students. During the 18 months ending December 1970 a large number of people (academic staff, media production specialists, BBC personnel, and numerous other helpers and advisors) have been racing against time to produce the 1971 teaching materials. The aim of this paper is to highlight some of the problems that arise when such materials are produced as part of a collaborative team effort, and under acute time pressure.

Some background information

The Open University is the newest and most unusual of British Universities. In consequence it may be the least understood. It has the same legal status as any other British University. But its Royal Charter was granted less than two years ago (in 1969), and its public teaching has only just begun. The Open University is an ambitious project. It will try to come to grips, at one and same time, with a whole cluster of pressing educational problems. It will rely for its success on the novel deployment of a wide range of educational and mass media resources, being, in fact, the first full-scale multi-media system of higher education. Through the provision of correspondence materials, radio and television broadcasts, home experimental kits, and the like, the university will enable a large number of adults to study for degrees (and other higher education courses) in their own homes, and on part-time basis. It aims to do this for adults who may have none of the usual entry qualifications.

Degrees will be obtained by accumulating 1-2 course credits per year. Each course credit will call for about 10 hours of study per week (sustained over a period of about 36 weeks). Six course credits will secure a general (BA) degree, and eight course credits will secure an honours (BA) degree. In certain cases, students may be exempted from some of the lower-level courses, and this will reduce the time needed to qualify. In the first year of operation, the university has initiated degree courses in Arts, Sciences, Social Sciences, and Mathematics. In the second year of operation (1972), degree courses will also be started in Educational Studies and Technology. In subsequent years, professional training and 'up-dating' courses may be run. The exact nature of these courses will be determined by public demand and available resources. It seems likely that they will be of shorter duration (requiring, say, accumulation of only 2-3 course credits), and will lead to award of certificates and diplomas. A postgraduate programme, leading to the award of higher degrees, is also planned. Everyone of the university's courses will use essentially the same kind of 'teaching at a distance' through multi-media approach. To strengthen its home study programme, the university has set up some 200 study centres where students can meet to
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study, and to discuss their study problems either (a) among themselves, or
(b) with specially appointed tutors and counsellors. As a further
strengthening of the overall tuition programme, short residential courses
such as summer schools will be mounted in different parts of the country.

In its efforts to offer higher education to as many adults as possible the
university has waived many of the traditional entry requirements. It will
therefore cater for a large number of people who might otherwise be
discouraged (or prevented) from pursuing degree courses. These include
adults in full-time employment, housewives who find it hard to leave their
homes, persons who are physically handicapped and persons who live, too
far away from already existing colleges of higher education. Among the
fully employed part-time students, there should eventually be a significant
number of adults who will be looking to the Open University (a) to provide
qualifications for an alternative career, or (b) to provide special purpose
training and up-dating of courses already mentioned.

The nature of study materials

Study materials will be parcelled up and sent through the post to the student,
at intervals of about 4-6 weeks. each package will contain a sequence of
correspondence and other materials, accompanied by study notes, private
exercises, and self-administered tests which the students can take to help
satisfy him/herself that s/he has understood the main teaching points. Also
included will be a set of written homework assignments which the students
will be expected to return, within a specified time period for marking. So far
as possible, each package will be self-contained entity. It will provide the
student with everything that s/he needs, in order to advance his/her studies
for a further 4-6 weeks. From time to time it may be necessary to refer the
student to 'set books' i.e., selected books that students require to read,
besides study materials and readers which s/he will be expected to buy or
borrow. But the study packages will, in general, constitute the core materials
of the course.

To reinforce and supplement the packaged study materials, the university is
collaborating with the BBC to produce a regular series of radio and
television programmes. At the present time, facilities exist for the
production and transmission of one radio and one television programme per
week, in respect of each of the four 1971 Foundation Courses that the
university is planning to run. Transmissions will occur mostly at near-peak
listening and viewing times — with repeat broadcasts, once a week, at off-
peak times. This is a substantial undertaking which should greatly enhance
the effectiveness of the written study materials, and which may well be
expanded in future years should make radio television channels become
available.
Some problems of course writers

How is all this material produced? It is difficult for an outsider to appreciate just how abnormal are the problems that confront the Open University's academic and administrative members of staff. The planning and production of correspondence materials, home experiment kits, student activities, multiple-choice tests, radio and television programmes and the like, make demands on staff which are unlike anything they have ever experienced before. All are expected, in fact, to learn something of educational technology. For example, the writing of correspondence units is not just a matter of converting ordinary lectures into print. In the ordinary lecturing situation, it is usually possible for students to question the lecturer on points of difficulty. In the case of correspondence materials, this safeguard is missing. Since the authors of correspondence units will never be physically present for questioning, extra care must be taken to ensure that each unit is sound piece of exposition. The main teaching points must be fully explained. Misleading statements and irrelevant scholastic displays must be eliminated. There must be no mistakes, non sequiturs, gaps or other defects in the argument. All written materials need in fact well-structured and self-explanatory and pitched at the right level of difficulty. Even this may not be enough. Unfortunately it is all too easy to be clear and accurate and, at the same time, intolerably dull. It is also possible to be clear and accurate with respect to subjects that most students regard as being irrelevant and unimportant. Some effort must therefor be made to arouse in the student a sense of excitement and purpose. In the very act of imparting knowledge, the instructional material must explain why the knowledge is worth having and how it fits into the broader scheme of things. Ideally, all the university's teaching materials should be clear and exciting and to the point. To use a popular idiom, they should turn the student on. They should generate in the average student a sense of direction, and a feeling that what he is learning is relevant and worthwhile. Unless these conditions can be met, learning at a distance will tend to become a burden rather than a pleasure. It need hardly be said that very few people can write self-learning materials. Just a few writers seem to have the gift of writing in a way that is both intelligible and exciting. Their materials have personality. They are well-structured and self-sufficient, and they are subtly enriched in a variety of ways. However, there are not clear-cut prescriptions for designing such materials. And many academicians are not even convinced that it is necessary to go to so much trouble.

The whole operation is, in any event, time-consuming. If an academic wants to write a really effective piece of exposition—one that will either stand on its own, or serve as essential reading to a prescribed textbook—it could easily take him/her 2-3 weeks to plan and produce an adequate first draft. His/her first draft should then be tried out, along with an appropriate test of some kind, on a representative sample of potential students, to see whether it achieves what the author wanted it to achieve. Feedback data from these students can then be used as a basis for revising the original draft, and for
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polishing it up into more final form. Ideally, of course, the revised draft should also be tested (preferably on a different representative group of volunteer students) to make sure that the revision process has been effective, and has not inadvertently introduced further defects and obscurities. In fact, the test-revise-retest cycle should be repeated as many times as is necessary to satisfy the author and his colleagues that the correspondence unit really does teach. However, each new cycle adds at least 3-4 weeks to the overall production time.

In addition to writing the basic correspondence unit, author must devise appropriate homework assignments. If the homework is to be marked by computer, s/he must specify exactly the marking scheme that the computer must use. At the very least, s/he must say how many marks must be added for each correct answer, and how many marks must be deducted for each wrong answer. (In addition, s/he may call for the award of bonus marks for special combinations of correct answers. And s/he may request the computer to provide him/her with some detailed information on differential patterns of right and wrong answers).

If the homework is to be marked by correspondence tutors, the author must provide these tutors with appropriate guidelines and check lists. And s/he must tell the computer how to handle the marks or grades that these tutors eventually award. Since the correspondence tutors may often be called upon to explain points of difficulty, the author must also circulate adequate briefings on the overall aims and objectives of his units. In some cases, s/he may wish to provide the study centre tutors with special discussion materials. And s/he may want the students to perform experiments, or engage in certain kinds of group activity or field work. All of these activities greatly add to the overall production time. And all of them ideally need to be put through test-revise-retest cycle to make sure that they are (a) unambiguously clear, and (b) likely to have the effects intended. The preparation of concomitant radio and television programmes is no less arduous. Administrative and economic constraints make it difficult to put these programmes through test-remake-retest cycle, so even greater efforts must be made to see that they are right first time. Experience has shown that even the simplest looking programme can take several weeks to plan and produce—especially if it has to be carefully integrated with the correspondence materials, or if anything out of the ordinary (e.g., a special sequence of visual effects) is required.

Difficulties in course production

As already indicated, each complete course consists of up to 36 correspondence units accompanied by weekly television and radio broadcasts, and supporting materials such as set books, offprints, audio-visual aids, experimental kits, self-administered comprehension tests, homework assignments, occasional discussion notes, field work activities, and so on.
When the university was first established, attempts were made to predict the number of academic members of staff that would be required to produce such a course within the space of one year. After allowing for the fact that academic members of staff would be actively supported by a variety of expert advisors (BBC producers, educational technologists, graphic designers, copyright experts, trained editors, computer programmers, and the like) it was estimated that 8-9 academic members of staff would be able to produce such a course without undue difficulty. This estimate supposed that each member of staff, with the possible exception of the Dean, could produce 4-5 weeks' work for the student (out of 36 weeks' required) and still have enough time to spare for the kinds of postgraduate and private research activities in which academics normally like to engage.

The estimate proved to be wildly optimistic. From what has been said so far, it is clear that production time mounts up. By adding together the weeks taken to perform various tasks already discussed it is easy to see that just one week's teaching materials can take 12-15 weeks (working 5 days a week) to produce. If the academic members of staff were to insist on conditions of service comparable to other universities, the production of one week's teaching materials could occupy well over half of the normal academic year. Experience has shown that it takes at least a dozen academics, working virtually full-time, to produce a complete 36-week course. And, even then, they are too rushed to do a really good job. It would indeed be more realistic to set the estimate at 18-20 academics per one year course.

To obtain some insight into the practical and logistic difficulties of course production, let us consider a situation in which nine academic members of staff (call them A₁,A₂,...,A₉) agree to collaborate on the production of a 36-unit course. To simplify the initial discussion, we shall focus solely on the problems of producing 36 correspondence units. And we shall suppose that each academic agrees to write just 4 of the 36 units. As a further simplification, we shall assume A₁ agrees to write the units 1-4, and A₂ agrees to write units 5-8, and A₃ agrees to write units 9-12, and so on.

After several weeks of joint discussion on the aims and objectives and content of the course, the academics go away and start writing. If we accept the kinds of time estimates mentioned earlier, and if we assume that each academic writes his/her units in numerical order, it follows that after a lapse of several weeks the first 'in extenso' draft of units 1, 5, 9... will be nearing completion. Unfortunately, this natural-looking arrangement rules out the possibility of testing the draft units, in a systematic manner, on volunteer students. Unit 1 can, of course, be tested. But units 5 can be meaningfully tested only on students who have worked through units 1-4. And units 2-4 have not been written.

This is a very considerable difficulty. If the academic members of staff are trying to achieve good continuity from one unit to the next, A₂ will have written his unit 5 as a follow-on to what s/he expects to appear in units 1-4.
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For example, A₁ might have said that his units 1-4 will introduce some basic concepts in statistical analysis. In preparing units 5, A₂ will therefore feel free to build upon the statistical knowledge that s/he believes A₁ will impart in units 1-4. Insofar as A₂ takes this statistical knowledge for granted, his unit 5 may be largely unintelligible to the volunteer student who has previously seen only unit 1. Difficulties of this kind tend to increase over successive units. A₉, who has bravely agreed to do units 33-36, is engaging in a tremendous act of faith if his/her unit 33 tries to build upon, or summarise, material that eight different colleagues have not yet written.

Should A₂ send off his/her completed unit 5 to Media Production Department, with the request that it be set up and printed? If A₂ does this, he will place A₁ under a strong moral obligation to work into his remaining units (2-4) all the knowledge that unit 5 has taken for granted. And if A₁ now refuses to co-operate (claiming, for example, that A₂ misunderstood what s/he, A₁, had undertaken to do), then unit 5 will partly be unintelligible unless expensive alternations are made at the galley proof stage (at galley proof stage, the materials will be printed on long sheets of papers. These long sheets of papers will be divided into pages, after having carried out the corrections on the galley proof). And A₂ is likely to feel that A₁ has let him down. At the same time, A₂ will only have 3 units left (namely, units 6-8) in which to accommodate the demands of A₃, and other colleagues. Instead of arranging for units 1,5,9,... to be printed without further delay, it is tempting to stack them away on a shelf so that they can be altered, if necessary at a later date. As more units come off the assembly line, everyone gets a clearer idea of what his/her colleagues are trying to say. Earlier units can then be taken off the shelf (so the argument goes) and adjusted to harmonise with the later ones.

But it is a mistake to suppose that 'mutual adjustment' of units becomes easier as more and more units are produced. (As time goes by, most academics become clearer and firmer about their aims and objectives—and this tends to make them less willing to alter the direction in order to accommodate to the needs of their colleagues.) Moreover, the retention of units leaves the Media Production Department with almost nothing to do at the beginning of the writing year, and with too much to do at the end of the year. To provide the Media Production Department with a steady flow of work, each academic member of staff may have to finalise his first unit before s/he has even started to write the detailed in extenso drafts of his/her follow-up units.

In practice, the situation often seems to be less serious than it really is. For example, it is open to each academic to dash off rough outline drafts (1,000 words or so) of all 4 units, and to circulate these among his 8 colleagues. This can be somewhat a unnerving procedure, because it requires everyone to display materials which, because of their rough and ready form would not normally be allowed to see the light of day. It is, moreover, difficult to respond to such material in a constructive way. There tends to be rather a lot of it. And, because of its tentative nature, harsh or detailed criticism always
seems to be out of place. There is patently nothing 'final' about the rough outlines produced and everyone tends to think that, when the time comes, s/he will have very little difficulty in accommodating to the wishes of his colleagues. Unfortunately, these hopes are rarely justified. When the time comes, it may be very difficult indeed to adjust to one's colleagues in a satisfactory way. In some cases, an academic may even cite his first outline draft as 'evidence' that certain adjustments are impossible. 'If you wanted me to incorporate that sort of material into my unit, you should have made your requirements clearer weeks ago....'.

This kind of comment is made in perfectly good faith. At the root of all these difficulties is the failure to communicate intention and requirements. However, well-meaning and co-operative the 9 academics might be, they habitually fail to see, in the first instance, the force of the points that their colleagues are urging. For example, A₁ might fondly imagine that s/he can meet the requirements of A₂ by adding a sentence here, a footnote there, and a paragraph somewhere else. In reality, the knowledge that has been presupposed in unit 5 might, if taken seriously, call for a radical restructuring of units 1-4. By the time A₁ realises this, it is too late to do anything about it. And unit 5 will therefore be building on skimpy and inadequate foundations. Instead of using outline drafts as a first basis for communicating intentions and requirements, it might be thought that longer drafts (e.g. 5,000 words or so) would be more appropriate. This is not the case. Longish drafts, when produced in a hurry, tend to be discursive tours around the kinds of topics that the writer is hoping to cover, just as soon as he gets down to the business of writing seriously. When the serious writing begins, the inadequacies of each person's first thoughts will become apparent. Certain topics will be dropped, others will be introduced, and just a few may be selected for treatment in greater depth. Alterations may also be made to improve the structure and format of the initial rough drafts. It follows that the drafts are likely to undergo considerable change and, in consequence, do not deserve to be taken too seriously.

If long drafts are produced, there is in fact a very real danger that chaos will ensue. Accusations will be made that certain colleagues are planning to pack too much material into their units. Predictions will be made that styles will clash, and that units will lack continuity. Suggestions will be made that the whole course needs to be 're-thought', and that the order of presentation of certain units should be changed. A deeper problem arises if some academic members of staff fail to understand each other's subject matter. If A₁ and A₂ come from different disciplines, A₁ may do his/her best to make helpful suggestions to A₂—but his/her comments may nevertheless strike A₂ as being naive and irrelevant.

In general, the production of hurriedly-written long drafts is not such a good idea. It is irksome to have to read so much material, especially if everyone believes (a) that it is going to be radically changed, and (b) that it fails to do justice to the potential abilities of the writers. It can also provoke endless worries and arguments. And any attempt to alleviate such worries (e.g. by
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the production of hurriedly-written amendments) may well have the opposite effect of hardening resistance and/or generating yet another crop of anxieties. In this respect, the breathless activity of writing, circulating, and re-writing does not lead to rapid convergence of opinion. The procedure is not self-correcting.

Constraints of time and money

It might be thought that all the main difficulties and stresses and strains could be avoided by means of appropriate forward planning techniques. As might be expected, careful planning can greatly facilitate the production of correspondence and other materials. But it is important to realise that the nature of the operation, and the time pressure under which everyone is working, are such that planning cannot possibly solve (or even foresee) all the problems that can arise.

Suppose, for example, that the academic members of staff decide to strengthen their course by the addition of the prescribed background reading materials. The most economic way of getting such materials to the students is to arrange to have them published, on the open market, as a 'Reader' in paperback form. However, it takes time to negotiate with publishers. And it takes time to select the contents of the Reader, and to secure copyright clearances, and to agree editorial changes with the original author and publisher, and to insert editorial comments and summaries, and to arrange for the whole volume to be set up, proof read, printed and distributed. The entire venture is impossible, in fact, unless arrangement to publish are put in hand in the very first quarter of the writing year. It follows that the academic members of staff cannot have their Reader unless they are prepared to finalise its contents well before most of their correspondence units have actually been written. This is a frustrating situation which no amount of forward planning can resolve. In the course of writing a unit, it often becomes clear that the ancillary reading material, which was chosen in all good faith at the 'course planning' stage, is not after all the most suitable choice. But there is no possibility of substituting a better selection because, by the time the mistake has been discovered, plans for the Reader are irreversibly advanced.

In addition to have to work under acute time pressure, the Open University is also labouring under severe economic constraints. This is a further source of frustration. If money were less important, academic members of staff could afford, for example, to drop the idea of hurriedly concocting a one-volume Reader. They could arrange, instead, for the last-minute inclusion (in the student's correspondence package) of carefully selected offprints. Such an arrangement would give them more time to select the best possible background reading material. But the cost would be very much higher.

Because of the financial restrictions under which the university is operating, academic members of staff are therefore obliged (at some risk to their professional reputations) to dash-off a one-volume reader which, for the
reasons given above, is bound to be far from optimal. Even now, we have touched on only a few of the many background pressure and irritations that academic members of staff encounter from day to day. Moreover, our discussion has been grossly over simplified. In practice, academics do not normally agree to write just 4 successive units. Instead, they want to be involved in the entire course writing one or two units here, and few more there. Quite often, they want to write than they have time to write—and each may feel that the 'ration' of the course is too small to enable him to do a worth-while job.

Another fact of life is that different academics have different working methods, and different views of the educational enterprises in which they are involved. One member of staff might be enthusiastic about computer-marked objective tests, whereas another might deplore them. One academic might prefer to write in a friendly and egalitarian manner, whereas others might adopt an impersonal approach. There are literally dozens of ways in which differences of approach and opinion can arise. If the differences happen to reflect strong underlying convictions, then the possibility of open conflict is never far away.

All these differences proliferate if we start to consider the additional problems of television and radio production. Suppose, for example, that an academic agrees to write 4 successive units. This generally means that s/he has also committed himself to preparing 4 successive television and radio programmes. Unless, the whole operation is carefully scheduled, s/he will therefore be rushed off his feet trying to prepare 4 pairs of programmes in rapid succession. If he wishes to 'spread the load' s/he may be well advised to avoid this kind of commitment. S/he may, in any event, find himself having to prepare television programmes before he has finalised the concomitant correspondence units. And this poses a further budget of problems.

Organisational aids to efficiency

The planning and production of Open University course materials is patently beset with difficulties and pitfalls. It calls for the kinds of combined skills (in writing and broadcasting and administration) which very few people possess. And almost every decision that is made can have hidden and unexpected implications. Because of the constraints under which the university is operating, there is neither the time nor the money to indulge in trial and error experimentation. If the right decisions are not made at the right times, productions plans may be held up and quality of the course materials will suffer. One way of easing the burden on academic members of staff is to employ a variety of judiciously-chosen assistants. There is a pressing need for assistance who can engage in literature searches— e.g., to locate background reading materials, and suitable illustrations for proposed correspondence units. There is also a need for people who can handle copyright problems, and who can help to coordinate the diverse activities in which different members of staff are likely to be engaged at any
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given time. In addition, there is a need for more specialised assistance in the form of editors and designers and artists—people who can proofread, and advise on problems of format and layout, and create special purpose illustrations, and so on. Finally, there is an all-pervasive need for professional advice on the overall strategy and tactics of the whole operation. Within its limited resources, the university has in fact secured a modest number of assistants and advisors, of the kind required. It has also established its own Institute of Educational Technology to advise on the design and evaluation of the teaching materials that are produced, and to make practical recommendations that will help the university to become a rapidly self-improving system.

What else can be done to facilitate the planning and production process? Well, there are some, rather obvious precautionary measures that production teams can take. For example, most teams find it convenient to organise themselves, at an early stage, into small working groups of about 3 or 4 members. Within each working group, one member has primary responsibility for writing a unit (or preparing a broadcast), and the other members have merely an advisory or watching role. As a further safeguard, the working groups overlap in their membership—so that everyone can function as the main author in some of the groups, and as an advisor or observer in other groups. It follows that each academic can remain in close contact with those colleagues (those writing adjacent units, for example) whom he is most likely to have to accommodate. In this way, incompatibilities of approach have a good chance of being picked up at an early stage.

There are, of course, limits to what this kind of arrangement can achieve. It is easier to detect disparities of approach than to decide what should be done about them. (Imagine, for example, difficulties that can arise if three scientists, in overlapping working groups, all start writing in different ways about ‘theories and models’.) The setting up of overlapping working groups also tends to produce only limited, rather than extended, continuity. There is still a danger of conceptual drift occurring from one sequence of units to the next. To secure some sort of macro-control over the whole 36 units, it helps to have an overall Chairman and Arbiter who is a ‘generalist’—in the sense that he can span the various disciplines of his colleagues—and who has the knowledge and vision and charisma to keep everyone moving in the same direction. Needless to say, this is easier said than done.

In order to plan and produce a complete course of 36 units, it turns out that several hundred quite complicated decisions have to be routinely taken and acted upon. As a further aid to efficient action, special charts are needed to enumerate, as exhaustively as possible, what these decisions are, and who should take them and why and when, etc. Supporting tables are also required to point out the major implications (financial, organisational, psychological, etc.) that particular decisions are likely to have—both in the short term and in the long term. If several seemingly-equivalent procedures present themselves, further guidelines are necessary to arbitrate among them.
some cases it may be difficult to assess the relative merits of alternative courses of action, especially if the cheaper courses of action involve other people in heavier work loads. Once again, hard information is required on the likely consequences of making one choice rather than another.

At the present time, the Open University does not have well-established planning and production system. There are too many unknown factors that still need to be investigated in greater depth. Nevertheless, a substantial number of useful documents—activity networks, specimen time tables, cost analysis charts, question and answer checklists, and the like—have been developed. An operation room has also been set up to monitor the flow of work through the university as a whole. It seems likely that, during the next few months, the experiences gained during the first year of operation will be sufficiently definitive to allow a set of well-integrated planning and production schemes to be established. A full discussion of these matters is therefore deferred for the time being.