UNIT 5 MATERIALS PRODUCTION

Editors' Note

Curriculum development gives considerable importance to how the materials are developed and produced. There are a few methods/models available to us today. While the practice of assembling a small group of educationists, with experience of designing self-instructional materials, into a course team is widely practiced and well documented, in many instances this practice is not always possible, desirable nor even appropriate. In contrast to the course team approach, three alternative methods of material production termed Personalized Training, Workshop Generated and Text Transformation are described, illustrated and analyzed by Fred Lockwood in terms of the extent to which they do offer viable alternative methods of materials production. The experiences and case studies described by the author shall be extremely useful in designing and adopting appropriate methods of producing self-learning materials.

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ALTERNATIVE METHODS OF MATERIALS PRODUCTION

—Fred Lockwood

INTRODUCTION

The last twenty years have witnessed an amazing growth in the use of distance learning materials. Self study courses, such as those offered by Wolsey Hall in the United Kingdom and other national correspondence colleges have been available for many years. However, the establishment of the United Kingdom Open University (UKOU) in 1969 marked a significant point in the use of self instructional material for adults and in the methods of materials production. Many other national Open Universities have been established (Reddy, 1988) with the growth of several of them likely to be spectacular. For example, it has been estimated (Miller, 1989) that the Indira Gandhi National Open University (IGNOU), India will ultimately enroll 700,000 students. The Sukhothai Thammathirat Open University (STOU) in Thailand was expected to have 500,000 students by 1990 (Daniel, 1988) and the Radio and Television Universities of China (RTVU) 1,300,000 by 1990 (Hawkridge, 1988). The growth of these, and other Open Universities, is not just in terms of the number of students but in the number and range of courses the institutions must produce.

For many Open Universities and Institutions of Higher Education, the method of materials production has been influenced by the course team practice developed by the UKOU and described by one of its founder members (Lewis, 1971, 1971 a, 1971 b). This practice of assembling a small group of educationalists, with experience of designing self-instructional materials, is widely practiced and documented. However, in many instances this practice is not always possible, desirable nor even appropriate. In contrast to the course team approach, three alternative models of course production termed Personalised Training, Workshop Generated and Text Transformation are described, illustrated and analysed in terms of the extent to which they do offer viable alternative methods of materials production. Whilst it is possible for elements of all three models to be incorporated into a particular production process, they are discussed separately so as to focus upon their individual features.

PERSONALISED TRAINING

Personalised Training is designed to equip authors with those skills and techniques they need to deploy when planning and producing self-instructional material at that moment in time when they need them. Unlike those models that emphasis a front-end loading principle, where the skills and techniques are conveyed at the outset, this approach conveys only those that are needed for individuals to progress to the next stage in process. The critical importance of the timing of a device and assistance was evident in reviews of previous training activities undertaken by the UKOU.

In an attempt to provide individuals with advice and assistance on materials production, the UKOU assembled and published a self-instructional course on how to plan, produce and present self-instructional course; it was called P517 Making Self-Instructional Material for Adults (Open University, 1985). This multimedia package specified the stages through which any materials were likely to progress and proceeded to illustrate how self-instructional materials could be devised; it was accompanied by 10 days of seminars and workshops. The format was to commence the process of materials production with a 5-day programme of seminars and workshops on planning and production issues after which individuals would have an unspecified period in which to generate draft material. At a convenient time a second 5-day programme on production and presentation

issues would be conducted. The belief was that momentum created by the first series of seminars and workshops, sustained by the provision of the multimedia package and reinforced by the second series of seminars and workshops, would provide sufficient training for authors.

However, subsequent enquiries within those institutions and groups that had purchased copies of P517 (and who had received the same series of workshops and seminars) revealed, not surprisingly, a variety of factors had influenced the success of their respective projects. Further consideration of these factors revealed the critical importance of three of them: coordination and management of the project, adherence to the production schedule and ongoing advice and assistance to authors.

The first was the need for a person to coordinate the administrative aspects of the whole project and fulfill a management role. Without such a person, individuals either duplicated tasks which added to their overall workload, slowing progress and dissipating effort or overlooked tasks which eventually proved to have major production implications. The second was the need to formulate and agree a realistic production schedule for all contributors and their· components. Slippage in one part of schedule invariability has knock-on effects for others which eventually raise questions of financial support and viability of the project. The third, which is inextricably linked to the previous two, is the need for on-going advice and assistance to authors. It appeared that many authors, working in isolation, became preoccupied with a particular problem or aspects of materials production which brought progress to an abrupt half. When advice and assistance was readily available these problems were resolved with little loss of momentum and enthusiasm. When the problems were left they appeared to grow in importance to the detriment of the whole project.

For example, the production of a multimedia package designed to up-grade primary school teachers in Hong Kong (Grantham College of Education. 1989) was fortunate to have a staff member who not only took academic and administrative responsibility for the whole project, and ensured the schedule was maintained, but also facilitated the provision of advice and assistance to individual authors. In contrast, the production of various undergraduate modules within the Chinese Radio and Television Universities (Lockwood, Fames and Marr, 1989) was not coordinated, did not operate within an agreed schedule and failed to provide on-going support to authors; the initially proposed self-instructional packages have not been assembled. A similar pattern was observed within those British institutions that had purchased P157 and completed the programme of seminars and workshops.

When the UKOU was asked to provide training for members of the National Association of Clinical Tutors (NACT), who were planning to assemble a self-instructional training package for Clinical Tutors; the appropriateness of the previous methods was questioned. (Clinical Tutors are those senior medical staff who provided the postgraduate medical education for hospital doctors.) Rather than group all the training seminars and workshops into two programmes and leave participants to coordinate the project to their own schedule, a personalised form of training was devised. It involved constituting a small task group, devising a realistic schedule in which a member of the UKOU would not only coordinate the whole project but who would provide the personalised training that was necessary for materials production.

A task group of six individuals was assembled. It consisted of four medical representatives who had considerable experience as Clinical Tutors but none of writing self-instructional material, (these doctors agreed to contribute to the project at the same time as they fulfilled their normal medical and clinical roles in hospital), an educational technologist from the UKOU who had considerable

experience of producing self-instructional material, but who did not have a medical background, and a representative from the Joint Centre for Educational Research and Development in Medicine to advise the group and to provide liaison with the Department of Health who were financially supporting the project. The educational technologist was to act as Task Group coordinator, administrator and be responsible for briefing and training; the four medical representatives were to draft the training material. A detailed course schedule was devised for the production of the training package. It specified the dates of all Task Group meetings, the period allowed for materials production, deadlines as well as the turn round time for the circulation of materials if everyone was to be informed prior to the following meeting. On the basis of previous experience of designing similar self-instructional material, and advising and assisting other authors, a series of briefing and training workshops were devised and conducted at the time of course team meetings. They were designed to equip team members with the skills and techniques they needed to complete current tasks. A telephone hot line was instituted for any author in need of immediate advice or assistance; it was used infrequently.

This method of material production may be attractive when small budget is available for the task in hand, a short production schedule is envisaged and the training investment in the authors is judged to be worthwhile. The NACT Training Package (National Association in Clinical Tutors, 1990) was assembled on schedule, within the budget and met the training needs that had been identified. The exercise demonstrated that it was possible for a small group of medical specialists, with no previous experience of writing self-instructional material, to be equipped with the necessary skills and techniques at the same time that materials were being produced. The product of the exercise was not only a training package but specialist medical staff who had acquired valuable additional writing skills to be used in other projects at some future time.

WORKSHOP GENERATED

When appropriate teaching material is not available, or doubt is expressed as to its existence, *it can be readily generated in a workshop context by subject matter specialists*. A group of specialist educators, with a specific goal and product in mind, working with a limited timescale and budget can pool their experience and expertise to generate a set of teaching materials that would be beyond the resources of a single person. This method of materials production does have similarities with that of course team production in that it embodies a collective responsibility to the input but differs in the speed by which materials are generated and the roles of the subject matter specialists and editor in the project.

The appropriateness of a *Workshop Generated* process of materials production is illustrated by the production of the medical training material' Standards in Rheumatology' (The Medicine Group, 1987) and 'Seeking Standards in Practice - Coronary Heart Disease Prevention in Primary Care'. The North of England Faculty of the Royal College of General Practitioners became increasingly aware of the need for guidelines for standards in General Practitioners (GPs).' (It was noted that relatively little time is devoted to such problems in medical school and yet pains in the arm, knee and back are amongst the most common in general practice.) The solution was to organise a residential weekend in which three groups of GPs worked concurrently, in a workshop format, in generating three parts of the training material which would constitute the 'standards in care'. Their task was to formulate a set of guidelines by which GPs could institute high and consistent standards in care, in particular to consider:

- how to recognise the presenting problem;
- how to examine the patient;

- what questions to ask in order to make diagnosis, wherever possible;
- how to develop the most appropriate personalized management plan for individual patients;
- how to make rational use of all the available resources;
- how to aid the patient by making optimum use of medical and non-medical services; and
- what follow-up and aftercare could be necessary" (The Medicine Group, 1987: 1).

The resultant training booklet, assembled by a medical writer, has been widely distributed and found to be a valuable source of advice in setting standards of care in rheumatology. Indeed, the success of the initiative persuaded. The Medicine Group to employ the same materials production model in a subsequent project when a small group of medical specialists including GPs, a Practice Nurse, a Practice Manager, Medical Educationalists and Medical Writers (editors) met over a weekend to generate a training module entitled "Seeking Standards in Practice - Coronary Heart Disease Prevention in Primary Care". Workshop participants attended the weekend workshop and contributed those outlines they had prepared in response to their brief and generated others. Not only were detailed notes taken during the group discussion, with a tape recorded account made for subsequent review, but summaries of discussion points were agreed and recorded. The intention was to pool the experience and expertise of all the participants and to create a composite of their knowledge. The materials generated included evidence as to the scale of the problem, practical management procedures, examples of protocols, worthwhile tasks or activities for the primary care team to undertake and sources of information for advice and assistance. The outcome was a resource pack containing a self-instructional booklet of core training material, a series of 'activities' presenting a series of worthwhile talks to be undertaken prior to the institution of :1 Coronary Heart Disease Clinic, and 'resources' which provided refere; materials or information on how to obtain them.

Workshop Generated model, as a method of materials production, has two attractive features. The first is that it can be obtained extremely quickly. The actual process can be accomplished in hours even through planning the workshop, coordinating the input of participants and following up the suggestions and sources made by participants may take several weeks. Whilst the task of the medical writer (editor), to present the pooled infom1ation, has similarities to that of an author in a course team, it is completed in days and weeks rather than months and years. The second is that it creates a collaborative rather than competitive environment, asking practitioners to share their experience, skills and abilities with others, acknowledge their worth and place them in a context where they feel valued. If the context also provides an opportunity for participants to benefit from the experience, skills and abilities contributed by others - to create a resource for the mutual benefit for colleagues, it fosters a collaborative rather than competitive working environment. It exploits the strengths and expertise of individual contributors with others responsible for representing the information in a communicable form. It does, however, place a major emphasis upon detailed prior planning, the allocation of briefs and operation of the workshop to a tight schedule and with a particular product in mind.

TEXT TRANSFORMATION

When materials are already in existence, but are considered to be inadequate for their intended purpose, *they can be transformed into high quality distance teaching materials* by the process of Text Transformation. This process differs

fundamentally from the course team process, mentioned earlier, in which a course team typically commences with the specification of broad aims, refines them over a period of time into detailed objectives as contributors move towards a consensus and the final product. In the course team process authors typically remain responsible for their own material and its development. In contrast the Text Transformation process typically starts with materials that have been developed to the extent of authors' ability. The task, through a process of negotiation, is to determine the degree of change that would be acceptable to the commissioning body and to differentiated between those changes that are desirable and those that are feasible; either within the time scale or due to possible acceptance by original authors. The attributes needed by the transformer, a skilled professional communicator who mediates between author and reader, have been identified and described (MacDonald-Ross and Waller, 1976). The transformers distinguished between the content of the message emerging from the author and the form it should take if it was to communicate efficiently. Their initial work and ideas influenced many course developers, one of whom was discussed the role of the transformer, and provided guidelines for the task and examples of the process (Melton, 1990). Melton provides a checklist and proceeds to describe and illustrate how a whole course might be transformed – focusing on the broad aims of the course, the characteristics of the learner as well as the teaching strategies and methods of presentation to be deployed.

An example of Text Transformation, that closely resembles the procedures outlined by Melton, is provided by the Population Training programme (POPTRAN) that was originally developed within the Cardiff University Population Centre, Great Britain in the mid 1980s. POPTRAN was originally a Computer Assisted Learning (CAL) package designed to help users understand more about population statistics and dynamics. It consisted of a series of nine computer simulations of population representations (on disk) and three substantial printed manuals designed to help users explore nearly 200 national populations according to certain parameters. However, prior to publication, funding bodies questioned its adequacy for its intended purposes. A subsequent review of the package suggested that a range of potential changes, from minor to major, could be achieved through the process of text transformation.

The POPTRAN package was dominated by three formidable printed manuals which users, unfamiliar with microcomputers and CAL (for whom English could be a second language), could find extremely daunting. Minor changes included the removal of textual duplication, reduction in the number of examples and relocation of technical material to appendices. Moderate changes included the redesign of certain computer graphics, eliminating examples of the computer being used as an electronic page turner rather than a machine that could store, retrieve and provide dynamic population displays and sequencing of the computer programmes. Major changes involved a complete re-conceptualisation of how POPTRAN could be used as a self-instructional package; there was confusion between its status as a package that was self-contained, complete in it and one that was dependent upon teacher mediation. It was argued that this range of changes could make substantial improvements to the teaching effectiveness of the POPTRAN package.

The CAL package, that had taken seven years to develop, was subsequently transformed into an Introduction and Guide to POPTRAN, a series of nine computer programmes and corresponding Self-instruction Guides and a Technical Manual in a period of six months. Sections of the package were 'mocked up' and piloted in realistic contexts with its overall effectiveness evaluated in field trials (Henderson, Kinzett and Lockwood, 1988).

The task of the transformer has similarities with that of the editor described above. Both play a central, influential role in assembling the academic material generated by others. However, whilst the transformer typically has had no part in assembling the material, the editor may often be heavily involved. Furthermore, it would be far too limiting to regarded Text Transformation as only a remedial activity; one to salvage existing material. An advantage of this process, it is argued (Lewis and Paine, 1986; Rogers, 1987), is that existing material can be adapted for different teaching purposes and even different audiences. In contrast, Workshop Generated materials are typical, dedicated to a particular audience.

CONCLUDING COMMENTS

Each of the above methods of materials production have been successfully applied. The key question was to decide which of the methods was possible, desirable and appropriate. The decision is influenced by a number of factors: the stage of materials development, the writing abilities of authors, decision regarding investments in author training and over what period as well as the skill of prospective course team chairperson, workshop presenter or text transformer.

Given sufficient advance notice, all the three methods are possible, although invariably production deadline are a deciding factor. A major distinction between the process of developing texts (see Rowntree, 1990) and transforming them (see MacDonald-Ross and Waller, 1976) is the investment that one wishes to make in original authors. If it is unlikely that the author of prospective teaching materials will be involved in similar activities in the future it may not be cost-effective to invest considerable time, effort and funds in the process; utilising an experienced transformer may be more appropriate. The availability of specialists may also dictate the method adopted. Contributing to a weekend workshop may be feasible whilst a commitment to a production schedule may not. Needless to say, a skilled individual could probably operate all the three methods, and combinations of them, successfully.

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