

INSTRUCTIONAL MATERIAL FOR DISTANCE TEACHER EDUCATION

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ABSTRACT

Distance education is institutional concept of education centered round self-directed learning by means of correspondence courses with an integrated element of communication technology and facilitated with tutorial sessions, seminars, etc. to meet need for enlargement of teaching force, improved professional standards and modernization of teaching methods, distance learning system provides alternative ways of gaining established qualifications. The content of such courses cannot depart from the normal; the difference of learning experience arises from the presentation of the course materials and from the situation of students and, therefore, different pedagogic skills are required. The term instructional material is used for the specific items used in a lesson and delivered through various media formats such as video, audio, print and so on. This paper discusses the presentation of instructional material for distance teacher education.

GROUPING OF INSTRUCTIONAL MATERIAL

A wide range of teaching media are employed in distance education; their effectiveness consists in organic relationship between the planning of course content and the planning of teaching methods. Broadly speaking classified the instructional material fall into the following groupings:

1. Printed Materials

Guided study assignments, specially written textbooks, packets of pictures, directed reading, using the resources of libraries, assignment of work for tutorial comments or for computer assessment, self-assessment problems, exercises and questions, material related to other modes of teaching used, e.g. notes on broadcast programmes; instructions for the use of scientific kits.

2. Audio-Visual Material (other than print)

National or local radio or television broadcasts, various audio-visual aids (slides, film-strips, tape recorders etc).

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3. Practical Activities

The use of home science kits, directed work in local laboratories, research activities (e.g. social surveys) or field-work.

4. Face-to-Face Teaching and other Interpersonal Activities

Counseling (as method of study etc), study by correspondence, lectures and seminars, supervised professional activities (e.g. teaching, and the preparation of teaching material), attendance at summer schools.

The following are the main postulates involved in developing and application of instructional material:

SELECTION OF TEACHING MEDIA AND IMPORTANCE OF PRINTED MATERIAL

All teaching media are being used in distance learning but there is no standard or ideal combination. A valuable function of the different media in a multi-media system is to provide precisely this degree of redundancy, by presenting the same material in different media, on the assumption that some students learn more effectively from television or film, and others from print. Variety in media use can certainly allow for this, as well as making a course more interesting, providing for alternative modes and 'styles' for learners, and encouraging learners to think 'about' the material rather than just memorize.

Working within the limits of the practicable and economically possible, each teaching organization is, however, obliged to allocate particular media to particular purpose. An open university of developing country can neither of course, afford to have a close-circuit TV, Studio, nor a wide spectrum of a large number of course which make provisions for expansive broadcast coverage for distance learning.

Of all teaching media, printed material is an important and significant. The stimulus to learning which it offers depends primarily on the teaching skills which it incorporates, and on the sense of progressive mastery of the subject which the student derives from it. Further, the printed material can provide the nucleus round which an integrated sequence of broadcast programmes, of directed activities, of discussion groups and face to face teaching can, as resources allow, be built up. For all these reasons, the package of printed material dispatched to the student at regular intervals is an indispensable component of distance learning systems. Broadcasting is used in some projects in association with the printed materials, either as a general rule or on selected courses. Instead of, or in addition to broadcasts, some projects use audio-cassettes in combination with printed

visuals, with all the advantages of making study easier and more flexible characteristics of effective distance learning course materials are outlined below:

Types of Materials

1. Specially written correspondence texts or lessons.
2. Textbooks: specially written or already published.
3. Supplementary items: notes on broadcasts, assignments, instructions, drawing, photographs, maps, charts, journals, newspapers, periodicals, reading guides, bibliographies.

Pedagogical Functions

To impart facts; to develop skills, to illustrate how knowledge can be organized for learning to provide links to tutors/ other students.

Motivational Functions

Student can work at own pace:

- Self-assessment questions can provide reinforcement
- Provides a permanent record for revision
- Written comments from tutors provide reinforcement

Demands on Students

- Fairly high levels of literacy required
- Motivation for and/or previous experience of independent learning form reading needed

Flexibility and Costs

Generally the least expensive and most flexible of the media. Must be prepared well in advance of use by students. Major updating and revision can be costly, but brief supplementary items (notes, errata etc.) can be prepared quickly in response to student/ tutor feedback.

Creation, Production and Distribution

- Special skills required for preparation of self-instructional written material (implications for staff training, use of consultants).
- Technical production skills needed; editing, design, illustration, printing storage).
- Distribution arrangement; post, bulk deliveries to local centers, road/ rail, air transport.

COURSE DESIGN

Each of the countries which have adopted the multi-media approach, has made certain adaptations, not only in the curriculum but also in the use of various media involved in the training programmes, to fit the conditions prevalent in their countries and to meet the special or unique needs of their teachers such as offering of refresher or re-orientation courses or specialization in some distance education system modular credit approach is followed which provides flexibility courses for in-service teaches. It is however, preferable that pre-service training course leading to attainment of recognized qualification should be based on the established curriculum of a sponsoring university or other educational institutions, especially in a country where the educational system is highly centralized with a single obligatory curriculum and detailed syllabi, and prescribed textbooks.

In some distance education systems modular credit approach is followed which provides flexibility in reaching definite national standards. Each module has a distinct training element, including practice and experience. A recognized level of proficiency or a qualification can be achieved through the completion of a series of modules.

ORGANIZATION OF COURSE

System Approach

As a general practice, the training courses are organized in terms of units (18 for a full credit course) prepared by the course team. The teaching task of the course team is to set teaching operation drawing on different media, by using a system approach with the learner as the key figure. To adopt a system approach to teaching is: to specify educational objectives; to break down the student's task into component elements, or successive stages; to identify the learning process involved; to consider the appropriates of the teaching methods available in relation to each stage; to combine to that they make an integrated whole; and finally to provide for feedback, validation and assessment.

Correspondence Tutor

The heart of training course lies in the packaged correspondence material organized in weekly work units, accompanied with guidelines, indicating the learning outcomes at the end and directing to a limited number of textbooks, references, self-assessment question papers, problems, exercises and assignments of work to be either computer marked or tutor marked. The course books of the students is further supplemented by notes on television and radio broadcast and instructions for carrying out home experiments. Wherever it is possible, the

precise educational objectives in terms of learning outcomes related to the prescribed topics are clearly set out.

To sum up, the learning material development needs to respond to the following concerns related to course coverage, standard to be achieved and media to be used:

- a. The objectives of the course stated in terms of training outcome.
- b. Course contents or syllabus divided into units comprising related topics.
- c. The learning experience and activities designed to help the trainee achieve the designated result through specific media or channels of training.
- d. The methods of evaluation and feedback appropriate to the course.
- e. The organization of the course (i) during a training year (in terms of a schedule of self-study assignment related seminars, various practical training activities, action research, periodic tests etc) and (ii) during the summer vacation (in terms of summer course activities and end-of-the-year written examination).

The Issue of Credibility

The credibility of distance education as a method no longer needs to be proved. The argument rests basically on two features: the quality of the learning materials and the responsiveness of the system are providing feedback and individual help to students over learning and study problems. Learning is essentially an individual activity – to learn something effectively, the learner has to internalize the knowledge, attitude or skills. In distance learning situation, the primary information channel – lectures or classroom teaching – is usually replaced by specially prepared self-instructional materials and the students are provided guidance on study methods planning study time and study strategies, developing study skills involved in learning from reading, viewing group discussions and practical work. Research findings indicate that the student may apply a different approach in studying a course unit, such as:

- to start straight away at the beginning and to work through the material section by section and in the sequence it is written;
- to skim through quickly, then dip into particular sections in a sequence different from that envisaged by the course team;
- to read the assignment questions first, then selectively to study the material on the basis of questions.

Research on student study habits and workload suggest, that many students have great difficulty in working to a prescribed study pattern, especially more complex sequence (e.g. read text, listen to audio programme, carryout experiment,

view TV, complete activities, answer self-assessment questions). Students find this integration difficult and generally pace themselves primarily on assignment return dates, rather than broadcast dates, and intensive work occurs around assignment cut-off dates. Since assignments are assessed, there is temptation on part of students to cheat. Hence periodic tests may be given, ensuring full coverage of the course.

SOME OPTIONS FOR INSTRUCTIONAL MATERIAL

Using Existing Materials

Textbooks as a medium of instruction have two distinct functions – that of a reference source of information and that of a sequenced medium of instruction or learning. Few standard textbooks are approximately sequenced for independent study, and written in a self-instructional style. So, those access devices, study guides, self-assessment materials, recapitulations, learning objectives and so on will be needed? When the student is studying will be needed to have both the text and the supplementary material side by side and continually oscillate from one to the other. This may be inconvenient and frustrating. If the student is required to read large extracts of the book before and after parallel comment, at what stage does he get a chance to practice his learning by trying out self-assessment questions and exercise?

Using other Institutions Courses

The option might exist of adopting other institutions' distance learning materials for study by one's own students. But there is a more basic question, related to the instructional quality of the materials. The best distance learning materials are:

- Developed with a specific target audience in mind;
- Highly integrated across sections, components and media.

It is evident that the more closely a particular course is based on these two criteria, the less easy it is going to be adopted for use in a different situation. It is unlikely that a carbon copy of course produced elsewhere can be adopted without the need for any supplementary materials.

STRATEGIES FOR COURSE CREATION

Models

Model-1

The conventional system provides one model where one academic/content specialist works alone to produce a course. Its advantages are outlined below:

- It is relatively easy for the content specialist to maintain control over the process of course (no problems of communication, no discussion or argument about structure);
- The course will hang together, teaching style and language will be consistent;
- The media used (though necessarily limited in number) are likely to be well integrated with the main method of presentation;
- The level of personal motivation to prepare a high quality product as quickly as possible will be apparent;
- The content specialist will be able to adapt it to suit students and update it as and when necessary because he is familiar with the entire course.

But the model has limitations in a distance-teaching situation:

- The tasks of researching, designing, preparing, checking and re-writing printed course materials may be too much work for the time scale envisaged by planners;
- He may need specialist's help in instructional design, in illustrating and editing;
- He may not in fact produce the course that was expected;
- He may fall ill or take leave at a crucial stage in course production and someone else taking over may radically alter his work.

Model-2

To resolve the problem inherent in the one author model, two or more academics could work together, thus offering support and criticism and more than one viewpoint to the student and possibly sharing out the work load. An editor or instructional designer could be brought in where necessary.

Model-3

This model is based on integration of the role of educational technologies, media producers and editors and also of unit authors as they polish drafts. The model proposes that subject specialists should discuss and compile the content to be covered, and prepare some outline of the exposition. They would then hand-over to media experts, whether in print, aural (radio, tape) or visual (TV, wall charts etc) that would transform the content into suitable material. Everyman's Open University of Israel operates on this pattern. The university has a core of full time academic staff and also makes considerable use of external academic consultants and writers. External writers need to be chosen carefully. It has not been proved wise

to approach the most senior or renewed expert; senior academics are some times less flexible, resist changes to their material and are often too busy to meet deadlines or too removed from teaching to adapt t this very different mode of instructions and students audience. In general, it seems more successful to choose good teachers rather than research oriented specialists, unless it is thought that well known names will built up a good academic reputation. The use of external writes as a cheater and more flexible approach does not preclude the need for a small internal academic staff:

- to draw up course curricula;
- to devise a system of course design;
- to brief and, if necessary, train writers;
- to draw up comprehensive contracts with penalty clauses for late or unsuitable material;
- to advise and coordinate writers and their outputs (the different elements of the course they are producing);
- to assess and critically review course materials;
- to carry out course maintenance functions;
- to ensure maintenance and renewal of course creation.

Model-4

Another model is instructional design approach to course development. External writers are contracted to develop content from a brief devised by a team of educational technologists, curriculum designers and internal academics or subject-matter experts. This small team designs and maintains control over the development of courses. Authors are required to submit first drafts of the lessons to the team for critical appraisal, or external subject experts are employed to give their professional opinion of the academic standard of work. Authors prepare a second (or third) draft, which may be developmentally tested or again externally assessed. This draft then goes to the technical staff, including broadcast producers, for production.

Model-5

This is a course team approach devised by the UK Open University, London. It gives academic freedom in designing and developing courses. It requires academics to be employed full time to ensure availability, coordination and continued maintenance of courses. This model needs a very democratic atmosphere.

Unit Plan/Lesson: A Balanced Coverage

An online

Most academic concern themselves with academic content, laying it out in some sensible order. Others concentrate on the specific objectives, which the students will be invited to undertake, developing the course around important experiences. The educational technologies, on the other hand enquire about aims and objectives of the course and assumptions being made about the students' prior experience. A balanced coverage of all these inter-related aspects – (content, objectives, assessment and activities) is essential to prepare a first draft in the form of a lesson or unit plan as outlined below:

Study Time: Time required for study of lesson or unit, including any associated activities (e.g. tutorials, assessment etc)

Aims: A brief statement of the main aims of the lesson or unit.

Objectives: Some objectives to show what is expected of the student.

Content:

- List of main topic headings
- Brief content summary (500-1000 words)
- List of new and technical terms used in lesson or unit
- Knowledge it is assumed that the student already possess
- Concept diagram

Materials: List of materials making up the unit (e.g. printed text, audio-cassette, radio or TV broadcast, kit items, set book sections, tutorial class, and any special items)

Activities: Examples of important student learning activities to be incorporated (e.g. a problem to solve, an experiment or observation to undertake)

5.2.2 Student oriented treatment of units

In all stages of preparation of distance course materials, a key requisite of course creators is a student-oriented picture of what learning means. The following points of learning psychology need to be taken to consideration while treating the units.

- i. No student masters an idea on the first exposure. The idea goes past rather rapidly, leaving at most a taste. Further contact with worked examples relating to previously mastered material provides experience with the topic, and at some time will awaken a wish inside the student to master the underlying skill. Then and only then is it reasonable to expect students to have a firm grasp and to undertake the necessary practice.

- ii. Any idea we encounter makes sense initially only to the extent that we can relate it to something we have previously experienced and gained confidence about. By exploring in this way, a sense or image of the new idea can be reached which is pre-articulate. Ultimately, of course, the student must get to an articulated or symbolic expression, which, with continued practice, will become concrete.
- iii. Most people, when contemplating course creation, tend to concentrate most of their energy on the first draft. It is essential to gather critical comments from students, experienced tutors and other academics. This raises a very thorny problem: how to comment usefully, and what to do with the often-contradictory comments. To cope with this situation, it is much easier to work on smaller chunks corresponding to a notional evening's work of 1-1/2 to 2 hours.

CONCLUSION

Any mode that fits the conditions of the country may be adopted/adapted. Emphasis should be on establishment of an internal faculty, feasible use of media and above all, on a group of eminent writers for developing instructional material.

Although there are aids to writing self-learning materials and training can be given to enhance skills, authorship remains a highly personal gift. In theory it would appear that the person best suited to write the package would be one with the subject matter at his fingertips, as he would not need to research the topic. Experience, however, suggests that except in exceptional circumstances the subject matter expert is the last man to write it. Experts fail in three ways:

- Where they have great depth of knowledge and enthusiasm for one particular area of subject, they give this detailed coverage to the detriment of the rest of the package.
- Because they are expert in the subject matter they find it difficult to foresee the difficulties that it presents to the learner are to prone to overestimate his basic knowledge.
- They have no experience in visualization and produce scripts that are virtually impossible to illustrate.

The writers must be deductive, critical, creative thinkers who also need to have good visual creativity and be capable of sympathy with the students. Efforts should, therefore, be spent in searching out those with flair who know how to research a subject with a capacity for logical analysis. It is also essential that the academic content of the course and the ways in which they will be taught must be thought of as a single operation by a simple group of people.

To aid comprehension of teaching points, the text should be sensibly illustrated. If the illustration is not visualized by the writer(s) at the same time it will not be possible to tie up the illustration with the text exactly. Finally the textual material needs editing. The editing process should include:

- i. Technical review, to ensure that the content is technically correct.
- ii. An educational technology review, to ensure that, as far as possible without developmental testing the sequence and structure is likely to enable the students to learn.
- iii. Elimination of ambiguities, repetitions, and errors of grammar and spelling and checking that cross-references are correct.
- iv. Making adjustment on the balance and coherence of course coverage.
- v. If several authors are involved, coordinating their efforts to a single style.

The broadcast media can be largely employed for teaching of mathematics and science and also for transmission of lectures (may be in radio broadcast) which is recognized throughout the world as the principal instruments for the first and basic expository phase of teaching. The activities of the tutorial sessions, seminars and summer school should emphasize the practical aspect of training, such as: demonstration teaching, micro-teaching, panel discussion, experiments in science, construction of test and examination, lesson planning focused on specific aims and their expression in behavioral terms, preparation of self-rating scales for teachers, developing creatively through opportunities for various forms of self-expression etc.

Finally, all the teaching media ought to be integrated into one organic whole.

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