Instructional Development in Medical Education

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Introduction

INTEREST IN MEDICAL EDUCATION was stimulated in Malaysia by the foundation in 1963 of its first medical school, the Faculty of Medicine in the University of Malaya. Two conferences on medical education were held in the Faculty, one in 1965 focusing on medical education in Malaysia and the other in 1968 having as its theme the place of the university hospital in medical education in a developing country. With the formation of a second medical school at the Universiti Kebangsaan in 1972, medical education has come once more to the forefront. The subject has engaged the attention not only of medical educationists, but also of the government, the medical profession both as individuals and as representative associations, and the public.

Discussions have centered on philosophical concepts and general objectives of medical education in relation to the needs of the country; on evolving patterns of curricula, including the need for working in the community and the inclusion of new disciplines; on difficulties and problems in organisation-staffing and professional training. General objectives have been formulated by experienced physicians and leading authorities in the field of medical education in accordance with needs and concepts and these have been translated into the curriculum. A pyramid has evolved (Fig. 1).

It seems to the writer that there are two defects in this pyramid; firstly, it does not reach down to its true foundation, the students, and secondly, it actively involves relatively few persons, who most often are the senior teachers.

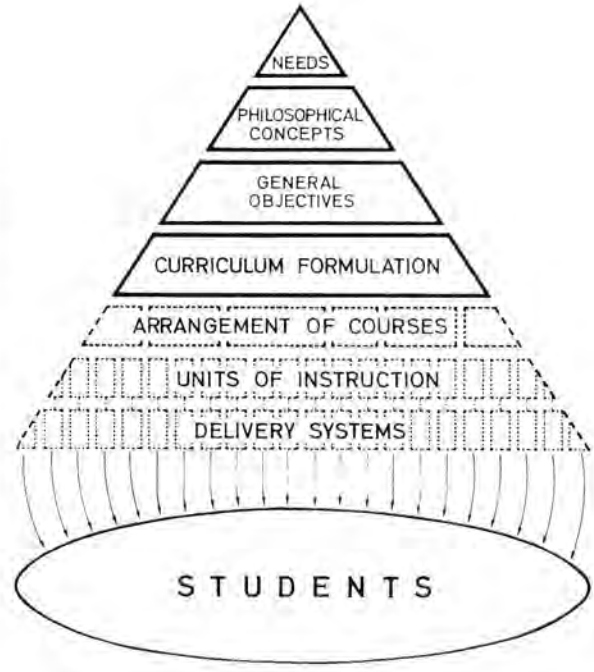

Figure 1

Transformation of the curriculum into courses and further into units of instruction has not been sufficiently stressed in the context of medical education.

The lecturer to whom a course or unit of instruction is allocated is often a physician who has qualifications and clinical experience in his chosen

specialty or a basic scientist with research interests and experience. When he joins a teaching department, he is expected to teach, even though he has had little or no experience or training in instructional technology or instructional development. In such a situation the lecturer tends to fall back on his own learning experiences and to use methods similar to those to which he was subjected when himself a student. Thus in medical schools, teaching methodology becomes largely self-perpetuating.

How should units of instruction be devised so that the stated objectives of each unit and course will be achieved? More importantly, how should delivery systems be selected so that the student can learn effectively? Answers to these questions may be sought in the educational field of instructional development, which in this context may be defined as a planned series of inter-related procedures which aim at the creation of suitable learning situations or experiences so that a maximum number of learners (students) will achieve the stated objectives of a particular unit of instruction.

This paper proposes a scheme for instructional development which may be of assistance to the lecturer who has to plan and develop a course or unit of instruction. It is hoped that the creation of effective learning situations for the student will assist in achieving particular course objectives, a small step towards the general objective of developing an efficient and socially responsible physician.

The Scheme

The proposed scheme of instructional development (Fig. 2) consists of procedures that fall into two categories in relation to a framework of requirements and resources:

The **framework:** the situational characteristics under which the unit of instruction is to be designed, evaluated, modified and finally delivered.

The **design:** the main instructional development process by which the unit of instruction is designed and developed under the influence of the framework characteristics.

Evaluation: has to be planned and developed as a parallel process to the design, so that the progress of students towards the achievement of stated objectives can be monitored.

When a course or unit of instruction is assigned to a lecturer, the first step in instructional development, the recognition of a need, has already taken place. The next step is the formulation of objectives for each unit of instruction.

A SCHEME OF INSTRUCTIONAL DEVELOPMENT

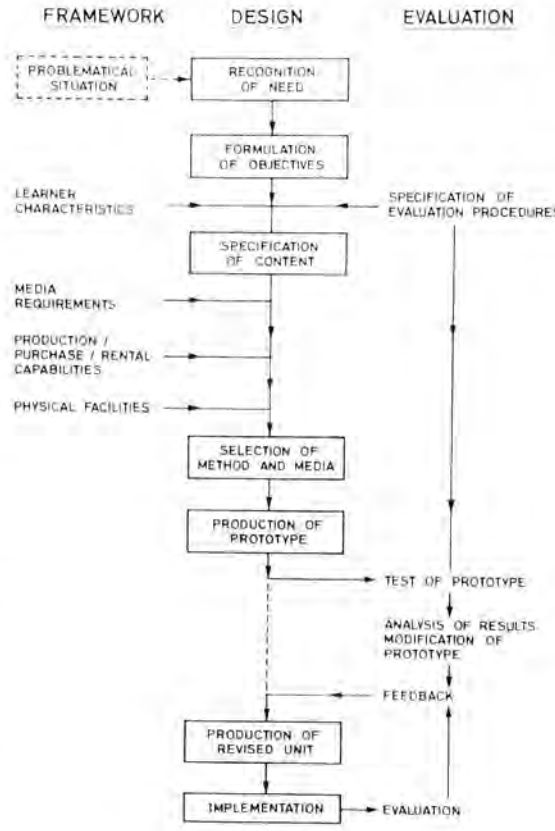

Figure 2

Objectives for units of instruction, unlike general objectives for the medical curriculum, should be stated in terms that allow both lecturer and student to understand what is required of the student at the end of the unit of instruction and clarifies for the lecturer what he has to impart. The who? (audience), what? (behaviour), and how? (condition and degree) should be clearly specified. In educational terms, behavourial objectives should be written. For example, the behavourial objective for a unit of instruction dealing with the use of food composition tables by Year III medical students may be written as follows:

> After the unit of instruction on the use of food composition tables, a **Year III medical student** should be able to: (audience)
>
> **Calculate** the nutrient composition of five local foodstuffs (behaviour)

when **given** a list of such foodstuffs, a set of Malaysian food composition tables and a calculating machine. (condition)

He should be able to do this in **half an hour** and should make **no mistakes** in his calculations. (degree)

At this stage, the characteristics of the learner have to be considered, such as whether the background knowledge (or entry skills) of the student will allow him to be introduced directly to the subject of whether some preliminary reading or instruction is necessary. At the same time, procedures of evaluation should be specified to ensure that the test taken by the student truly measures the achievement or failure of achievement of the objective and is not a test of some skill or knowledge outside the unit of instruction or is not required by the objectives of the unit. In the example cited above, the evaluation procedure has been indicated within the objective itself.

The next step is to specify the content of the unit. This is the subject matter, block of knowledge, or skill that is to be learnt by the student.

Possible systems of delivery should now be considered. Although the methods and media required to create the most effective learning situations are desired, constrains within the framework play an important part in the final choice of a delivery system. Are the production, purchase or rental capabilities of the school adequate to meet the needs of the proposed system? Are the physical facilities of the school capable of accommodating the system? It may be difficult to engage in small-group teaching if small seminar rooms are not available and futile to rent a good videotape series when no playback machines are within reach. A well-prepared traditional lecture may be ruined by poor acoustics or faulty amplifier systems within the lecture hall.

The delivery system having been selected and co-ordinated with the specified content material, the prototype of the unit of instruction is ready for its trial run. This tests effectiveness and efficiency and permits modifications to be made before it is offered to the student. This step is seldom possible and revisions are usually done as the class proceeds or before the next class is assigned. Upon the implementation of either the prototype or the revised unit of instruction, adequate procedures of evaluation which were built into the unit will generate enough feedback for both the lecturer and the student. For the lecturer, the feedback allows him to see weaknesses in his unit of instruction and indicates where corrections, refinements or other alterations may be made, and for the student, allows him to monitor his progress towards the achievement of the objective.

This process of implementation — evaluation — feedback — modification should continue if the lecturer — student relationship is to be a profitable one.

Where educational back-up or support facilities such as media production units or instructional development services are available (Teoh, 1972), medical lecturers can easily utilise these services in order to follow the steps in this proposed scheme.

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Reference

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