programme construction 3

the teaching-learning concept and programme construction

This third chapter deals with the *planning of teaching programmes* and learning activities It attempts to bring out the change which is now taking place, i.e the tendency to be interested more in what the student receives, perceives and assimilates than in what the teacher presents, gives or does. It shows that this change can be of benefit to all (the teacher continuing to learn and the student taking over part of the teacher's role)

It deals with the teaching-learning *process* as part of a teaching-learning *system*. It stresses the effectiveness of methods which place the student in an *active* situation. It proposes a relevant and student-orientated plan of action taking into account the (traditional) obstacles to change.

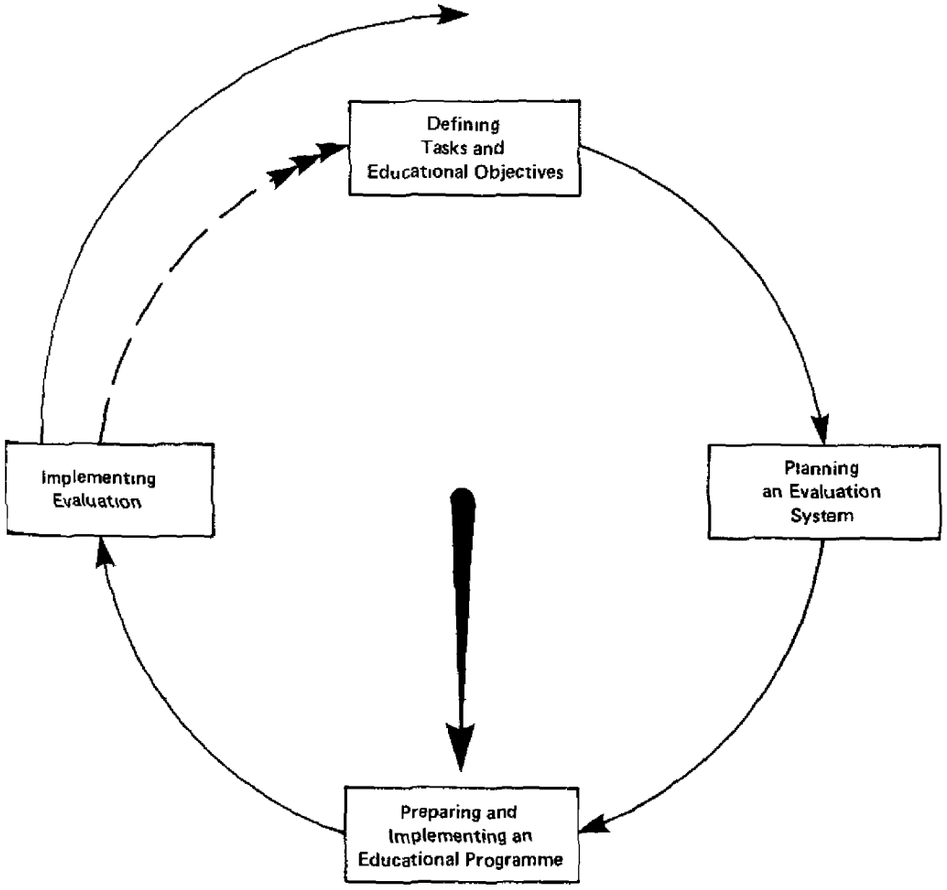
Those with a deeper interest in these problems are strongly advised to consult the following publications:

- Public Health Paper No. 52, WHO, "Development of educational programmes for the health professions", 1973
- Public Health Paper No 47, WHO, "Aspects of medical education in developing countries", 1972
- Public Health Paper No. 61, WHO, "Educational strategies for the health professions", 1974
- Technical Report Series No 489, WHO, "Implications of individual and small group learning systems in medical education", 1972
- Technical Report Series No 521, WHO, "Training and preparation of teachers in schools of medicine and of allied health sciences", 1973

After having studied this chapter and the references mentioned, you should be able to:

1. Explain the differences between "education", "teaching" and "learning", and describe the new trends in the teaching/learning system and the various learning situations.
2. Define the concept of relevance of a programme
3. List 10 conditions which facilitate learning and evaluate a learning activity.
4. Indicate the aims and general methods of teaching
5. Specify at least two advantages and two disadvantages for each technique and medium used in teaching.
6. Select a teaching method that will make an educational objective easier to attain. Compare the alternatives in a specification table
7. Indicate the steps involved in constructing a programme.
8. Construct a programme or decide whether a programme or course needs revision, using a specification table
9. Construct a self-learning package
10. Define the role which, as a teacher, you would like to assume in order to motivate and facilitate the learning of students for which you are responsible
11. Identify the obstacles liable to be encountered in setting up a competency based curriculum geared to the health needs of the community, and describe strategies for overcoming them

the educational spiral



It was felt useful at this mid-point of the Educational Handbook to attempt to **summarize the major concepts presented so far** and place in perspective the two following chapters. We felt the following article would very well serve this purpose.

You will find later the name of the author and, what is more significant, **when** it was written.

distinctive attributes of education for the professions

Educational ferment characterises schools and colleges throughout the world New responsibilities, new definitions of educational aims and new programmes are emerging at all levels of the educational ladder. At first glance, these new developments appear to have no common elements but to be highly individual, unrelated incidents of educational change

It is helpful to *consider first the essential characteristics of a profession* and, second, the *major tasks involved in planning and conducting an educational programme*. In the light of these two factors, the significant elements of effective education for the professions can be seen more clearly.

A profession based on a code of ethics

From the standpoint of the education required, there are two essential characteristics of a true profession. The first is the existence of a recognised *code of ethics*. This ethical code commits the members of the profession to certain *social values above the selfish ones of income, power, and prestige*. In the case of medicine, for example, its code of ethics dedicates the doctor to the *saving of lives* and the *protection of the patient's health* above all material and personal considerations.

A professional code of ethics not only *professes social values* that are above selfish ones, but it expects the individual member seriously to *dedicate himself to these higher values* Furthermore, a profession establishes some form of group discipline in support of these values A doctor who violates the ethical code of medicine receives the disapproval of fellow doctors and is subject to discipline by the state for malpractice One of the indications that an occupation is becoming a profession is a concerted movement among members of the occupation to establish and maintain *group discipline* in order to uphold the ethical values to which the group gives lip service.

A common problem in several professions is to distinguish ethical values that are broadly social from a pseudo-ethical code that in reality dedicates the individual to the selfish interests of the group rather than to mankind generally In some programmes for the education of doctors, there has been a tendency to develop a code of ethics in which the doctor dedicates himself to the medical profession and to the interests of doctors rather than to the improvement of the health of mankind

A profession is not a union. Professional ethics must focus upon higher social values than dedication to the selfish interests of the professional group. Yet to attain this high aim is one of the serious problems of the professions.

A profession based on principles

The second distinguishing feature of a profession is the basing of its techniques of operation upon principles rather than rule-of-thumb procedures or simple routine skills For an occupation to be a profession it should involve complex tasks which are performed by artistic application of major principles and concepts rather than by routine operations or skills This is an important differentiating feature A skilled trade, obviously, involves some fairly complex tasks, but the members of the trade are able to perform these tasks through acquiring certain routine skills and through following certain specified rules Many of the problems encountered by a member of a profession are in a certain sense unique To solve such a problem he must draw upon certain basic principles. However, the application of these principles necessitates an analysis of the particular problem to see what are its unique aspects which will require adaptation of the principles. This adaptation is an artistic task; that is, *it involves individual judgement and imagination as well as skill*. A skilled trade does not demand this type of intellectual operation.

In the early days, surgery was not really a profession but was a skilled trade Certain skills, such as those used in bone-setting, were transmitted from one generation of surgeons to another, and the surgeon learned largely as an apprentice how to carry on his trade With the development of the basic medical sciences like anatomy and physiology,

it became possible to gain a more fundamental understanding of what was involved in bone structure and in tissue development, so that a surgeon with adequate scientific background was able to adapt his particular procedures to the specific conditions surrounding a given case He then solved the problem in each case in terms of basic principles rather than simply following rule-of-thumb procedures.

Whenever a member of any profession meets his day-by-day tasks in terms of routine performance, for him the occupation is no longer a profession

A profession not only utilises basic principles rather than depending on rule-of-thumb procedures, but as it becomes more mature it recognises that the principles used in the profession must be viewed in an increasingly larger context and that, correspondingly, ***the science needed by the profession must be continually extended to more basic content rather than restricted only to the obvious applied science*** Thus, increasingly has medicine come to recognise the interrelationship of nutrition, physiology, anatomy, biochemistry, and other fundamental sciences which give a much broader basis for ***understanding a particular medical condition of a given patient.***

In general it can be said that as a profession becomes increasingly mature, it not only develops members who carry on their work through principles rather than rule-of-thumb procedures, but it also ***encourages members to gain an understanding of these principles in a much larger context than that afforded by the usual confines of the occupation.***

I have emphasised these two major characteristics of a profession – the development of a code of ethics, and the use of techniques that are based on principles – both because they are the most significant differentia of professions from other occupations and because they help to indicate some of the fundamental tasks of professional education

Tasks in planning and conducting an educational programme

Shifting our attention from the essential characteristics of a profession to the tasks involved in planning and conducting an educational programme, we find it possible to classify these tasks into four major types, namely.

- deciding on the objectives,
- selecting learning experiences that will contribute to the objectives,
- organising the learning experiences to maximise their cumulative effect, *and*
- evaluating the effectiveness of the educational programme in attaining its objectives through appraising the educational progress of the students.

Education is a process for changing the behaviour of students in desired directions. The term ***"behaviour" is used in the broad sense and includes thinking, feeling, and acting.*** When a student is educated he has acquired ideas, habits, attitudes, interests, ways of thinking, and professional skills which he did not have before he went to school, his behaviour has changed.

From this definition of education it is clear that the ***educational objectives are the behaviour patterns that the school tries to develop in the student*** The knowledge, the skills, and the ways of thinking that the student is expected to acquire are examples of these objectives. The task of deciding on objectives is an important one because these are the aims and purposes which can and should be used to guide the entire educational programme. ***The only rational basis for selecting learning experiences and devising evaluation procedures is in terms of their relation to the educational objectives***

The second major task of education is to select learning experiences that will contribute to the objectives This raises a previous question how do people acquire these desired changes in behaviour patterns? ***"People acquire them by practising them"*** is a simple but fairly accurate answer Getting students to practise the desired behaviour, however, is not the easiest thing in the world.

A student develops understanding by ***recalling*** ideas, by ***explaining*** them in his own words, and by ***finding illustrations*** of them Skill in ways of thinking are developed by ***practising problem-solving again and again*** Manual skills and habits are also acquired by ***practice.*** ***An attitude is acquired as the student looks repeatedly at the phenomenon from a new perspective.*** Interests are acquired by getting satisfaction from certain kinds of experiences so that the experiences become increasingly satisfying. For all of these kinds of behaviour, ***students acquire new behaviour patterns by practising them***

One fact clearly emerges from this analysis – ***the teacher cannot learn for the student.*** Whether or not the student develops an understanding will depend upon what is going on in his mind, not what is going on in the teacher's mind ***To plan learning experiences is to outline the activities that will give the students a chance to practise the behaviour implied by the*** objectives. Thus, planning a particular course will mean ***providing situations in which students will encounter problems to solve so that they can gain understanding and develop critical thinking*** Planning may also involve providing tasks which require the students to practise manual and intellectual skills and habits, and so on

The third major task in education is to organise the learning experiences to maximise their ***cumulative effect*** We can increase the cumulative effect of learning experiences in two ways through sequential organisation and through integration When learning experiences are arranged so that the students begin with simpler concepts and skills and go on to broader and deeper applications, far greater learning results than with a random arrangement of learning This is ***sequential organisation Integration involves relating what is taught in one part of the educational programme to what is taught in another part.*** Effective organisation of learning experiences involves ***planning both for sequence and for integration.***

The fourth major task in education is to ***evaluate the effectiveness of the educational programme in attaining its objectives, through appraising the educational progress of the students*** This requires ***evidence of changes in students' behaviour*** during the time they are taking part in the educational programme. ***It means appraisal early in the course as well as near the end.*** It involves ***evidence relating to all of the important objectives which will*** help us to ***identify those aspects of the curriculum that are effective and those that need improving***

With this brief review of the essential characteristics of a profession and the major tasks in planning and conducting an educational programme, we can identify more easily the distinctive attributes of education for the professions

Objectives of professional education

The existence of principles and of a code of ethics in a profession points to several kinds of educational objectives which are important in educating for a profession The development of an ethical practitioner who has an adequate understanding of the ethical code of the profession, who applies the ethical principles intelligently to the varied particular instances that arise, and who is sincerely committed to the highest ends of the profession, requires an education programme which consciously aims at several major types of objectives.

In terms of knowledge and understanding, a programme of professional education needs ***to develop in students a broad and clear concept of the social role of their profession.*** This includes understanding of the social functions the profession serves and how these functions are related to the total functioning of society and to the functions of other major specialised groups. It also includes an understanding of the various kinds of relations which exist between the profession and society at large and between the profession and other specialised groups, including the expectations which these groups hold regarding the members of the profession.

Also, in terms of knowledge and understanding, professional education aims at developing a deep ***understanding of the persons to whom the professional service is rendered*** including particularly insight into personal motivations, feelings, needs, and the interrelation of physical, psychological, social, and emotional aspects of human behaviour. Furthermore, professional education needs to include among its objectives the development of ***self-understanding*** in the students. Obviously, in no sense can complete self-understanding be attained by the time of graduation from the professional school, but a sufficient beginning

can have been achieved *to provide for continued development* as he pursues his professional career

In terms of effective thinking or problem-solving, the objectives of professional education which are derived from the importance of ethics include the *ability to recognise ethical problems, the ability to identify the ethical principles at issue,* and *the ability to work out appropriate courses of action in terms of ethical principles.*

In terms of attitudes, education for the professions aims at developing loyalty to the social well-being of the persons who are served by the profession, concern for a truly social role on the part of the profession, a sense of self-respect for the social contributions of his profession and of his own work, and a warm, accepting, yet objective attitude towards his clients. This involves *developing in professional students a considerable degree of emotional maturity so that they are free to express and receive emotionally charged communication and at the same time can act intelligently as new problems arise.*

The foregoing objectives clearly represent a large task for professional education, but these are not all the important objectives. The requirement that the professional practitioner operate on the basis of principles rather than rules implies certain additional objectives if the educational programme is to aim consciously to develop students who can operate in this fashion Some of the purposes outlined above contribute to the *performance of professional duties in terms of principles* In addition, in terms of knowlege and understanding there is need to *understand the structure and functionmg of the institution in which the profession operates,* whether this be school, church, hospital, court, or other institution Only with such a broad view can a professional practitioner operate with intelligence and on the basis of principles adequate to produce desired consequences.

Finally, of course, every professional school needs to aim consciously *to develop an understanding of those principles, concepts, facts, and procedures which are basic to professional operations* In medicine these include principles of physiology, anatomy, chemistry, physics, bacteriology, and psychology The tendency, however, is to limit these basic principles too narrowly In a very real sense, doctors deal with problems in their normal professional work which are psychological and require an understanding of relevant psychological principles if they are to operate intelligently.

In terms of effective thinking of problem-solving, it is clear that the foregoing objectives involving knowledge imply *the development of some skill in recognising professional problems, in analysing the problems in terms of the relevant principles, and in working out courses of action by applying these principles*

In terms of attitudes, the use of principles, rather than rules, in a profession requires as objectives in professional education the development of broad, rather than narrow interests in the fields on which the profession draws, and the *development of the student's interest in continuing his own learning long after graduation from a professional school.*

Planning learning experiences

The previous section outlines characteristic objectives of professional education What about the learning experiences which the professional may use to attain these objectives?

The *most common problems* in professional schools in connexion with the learning experiences used are:

- the failure to select learning experiences in terms of the objectives to be attained;
- the failure to utilise consciously appropriate learning procedures for developing problem-solving skills, attitudes, and interests; *and*
- the failure to develop effective motivation for learning.

These are serious deficiencies.

Since *learning is an active process,* in which the learner himself is definitively involved, *motivation is essential.* Since the learner learns more than knowledge of content, and *he actually learns what he is doing, what he is feeling, what he is thinking,* it is important to make conscious plans for students to learn to solve problems, to develop attitudes and interests. Since objectives represent the aims of the professional school and learning experiences are the means of reaching educational aims, the latter should be planned in terms of these aims.

An essential factor in planning learning experiences in terms of the objectives sought is to have clearly in mind what the objectives imply, both as regards behaviour to be developed and content involved For example, if the objective "understanding the social functions the profession serves and how these functions are related to the total functioning of society and to the functions of other major specialised groups" is to serve as a guide for planning learning, *we must have a clear idea of what is meant by "understanding"* as a type of behaviour to be developed and what content is included in the phrase beginning "the social functions the profession serves". Most instructors who have sought to define "understanding" indicate that it is a mental process that is more active than memorisation, since it involves not only *remembering* but also the ability to explain the concept or principle in one's own words, the ability to *interpret*, to *illustrate,* and to *compare* and *contrast* it to related ideas. Such a definition clarifies the behaviour that the student is expected to develop and, as pointed out earlier, it suggests the kind of learning experiences that are required to attain the objective. These would be *learning experiences which give the student opportunity to explain, to interpret, to illustrate, and to compare and contrast it to related ideas.* By defining the content implied by the phrase beginning "the social functions the profession serves", we are able to identify what the principles and concepts are which the students will be given opportunity to explain, to interpret, to illustrate and to compare and contrast with related ideas

Correspondingly, *as we define each objective in terms of the behaviour and content implied, it is a much easier step to select learning experiences* that give students a chance to practise the behaviour involved and to utilise the relevant content. In this way, learning experiences are planned in terms of the objectives sought

The fairly common practice in professional schools of giving almost exclusive attention to knowledge and to technical skills may be partly due to the failure to recognise that effective thinking, attitudes and interests are also learned and can be consciously developed in programmes of professional education. Skills in ways of thinking are acquired by practice of solving problems A new attitude is acquired by repeatedly observing and reacting to certain phenomena from a new perspective. *Interests in certain kinds of activities are developed as the student gains satisfaction from participating in these activities.* For each of these types of objectives, definite learning experience can be provided so that students are practising problem-solving, they are projected into situations from a new perspective, they are able to gain satisfaction from certain kinds of activities In short, professional schools can plan learning experiences for developing effective thinking, attitudes and interests.

This leads to consideration of the primary significance of motivation. Since the learner learns through his reactions, unless he can be involved in the situation, unless he can be guided to think, feel, and act in ways appropriate to the situation, it is not possible for him to learn. *Practice alone, even when carried to unusual limits, does not take the place of the learner's being involved in what he is doing.*

Organising learning experiences

There are not only problems involved in the selection of learning experiences but also in their organisation As the programmes of professional education have become more complex and involved larger staffs, they have become more disintegrated Yet significant changes in behaviour, that is, fundamental learnings, require a long time to develop It is necessary that what is learned this term builds upon what was learned last term, that what will be learned next year builds upon what is learned this year. This is sequence learning.

However, effective sequence is not simply a series of repetitions from one year to another. Rather, it includes *variety in the learning experiences, so that each subsequent term emphasises the main things to be learned, but in varied contexts* In this way, ever broader and deeper learnings are achieved.

Furthermore, effective organisation provides for relating one course to another and one field to another, which reinforce the learning in each course or field This is done both by ***helping the student to use things learned in one course or field in another, and by helping him to perceive differences as well as similarities in the concepts, principles, attitudes and skills utilised in the various courses and fields***. This is called curriculum integration.

Sequence and integration are essential to programmes of professional education, but because of the tendency towards specialisation and separation, conscious efforts are required to plan for and develop effective organisation.

One significant development in working out a better organised curriculum is the building of a closer and more appropriate connexion between theory and practice, between the art and the science of the profession Many institutions are not only teaching general principles but also helping students to apply these principles to particular cases ***so that it is possible for them in practice to use the principles as they deal with particular cases.*** Effective professional education requires this close connexion between theory and practice. Without theory, practice becomes chaotic, merely a collection of isolated, individual cases Theory gives meaning and unity to what would otherwise be specific and isolated cases.

On the other hand, without practice theory becomes mere speculation. The realities of practice provide a check upon pure speculation, a test of the adequacy of theory; and practice provides the problems which must be dealt with by any comprehensive theory. Hence these ***efforts to connect theory and practice more closely are important contributions to professional education***

Another illustration of this development is the ***increasing use of the case method*** The case method involves the student in the study of a conrete and particular case However, for him to understand this case and deal with it effectively, he must bring to bear the theory, the concepts and the principles that are basic to the issues raised by the case The internship provides concrete experiences which are interpreted in terms of basic theory in the accompanying seminars This shuttling back and forth between general and specific aspects of a profession helps to build an increasingly adequate context of concepts and principles by which a member of the profession can understand the operations to be performed in relation to the values to be attained An adequate theory helps him to relate particular activities in an individual case to the larger social issues, to see the connexion between the activities of the daily operations of the profession and the welfare of society generally.

However, for these types of educational programmes to be effective, more than superficial experience and explanation must be provided The student needs many opportunities ***to deal with situations on the basis of a careful analysis of them, to identify the values and*** principles involved, and ***through practice to develop artistry in devising means to deal with the situation in order to preserve these values***. This is the aim of efforts to knit theory and practice more closely together.

Another effort at extending the sequential organisation of professional education is the ***working out of definite plans for continuing education after the member of the profession has completed pre-service training and has been inducted into the initial activities of his work.*** Fifty years ago medical schools felt that their work had been done when their graduates had been admitted to initial professional activity. As the years went by it became increasingly clear that many members of the profession did not grow after they began their work and that in some cases the older practitioner was much less competent than those currently beginning their profession. Few doctors made any effort to continue their education after graduation

Now there is a marked tendency for professional schools to develop programmes of continuing education, in some cases bringing the work of the school to the practitioner in the field, in other cases setting up short courses, institutes, or long-term seminars for practitioners to take on the campus

Evaluating effectiveness of educational programmes

The final attributes of professional education are those involved in the task of ***evaluating the effectiveness of the educational programme in attaining its objectives, through appraising the educational progress of the students*** Four important attributes are too often neglected in current educational programmes.

The first of these is ***conducting an appraisal in terms of all of the important educational objectives of the professional school*** The common practice is to appraise the knowledge of the students and certain of their technical skills. In addition, many professional schools appraise the student's ability to solve problems as these are presented in verbal form Few institutions provide for careful, systematic appraisal of problem-solving in the professional situation, and appraisal of professional interests and attitudes Hence the school does not have a comprehensive picture of the achievements of its students in terms of its own purposes

A second attribute, often neglected, may partly account for the shortcomings in the first. A comprehensive programme of evaluation uses ***varied devices*** for obtaining evidence regarding the educational progress of students These devices include not only written tests and examinations, useful as they are, but also observations, interviews, questionnaires, reports from the field and samples of the student's work; in short, any device which gives valid evidence regarding the significant behaviour of the student Few professional schools consistently evaluate their effectiveness in such varied ways. They tend to limit their appraisal to written examinations and to rating forms. This does not provide adequate means for comprehensive evaluation

Appraisal of the progress of students toward the objectives of professional education requires evaluation at several points in his career. This is a third essential attribute To get evidence of progress requires at least three appraisals, ***one early in his attendance*** at the professional school, ***one near his graduation***, and ***one after several years of service in the profession*** Some schools attempt annual appraisals during the student's enrolment The changes made while in the school throw light on the immediate effectiveness of the school's educational programme, while the appraisal after the student has spent several years in the profession provides evidence of the permanence of learning and the extent to which it has achieved some continuity with professional experience Unfortunately these studies of progress are quite rare. This may be partly due to the lack of appreciation of the way in which systematic sampling of students and alumni is small enough to permit the use of individual interviews yet at the same time sufficiently representative to permit valid generalisations regarding the populations from which the samples were drawn

The last attribute to be mentioned here is ***the use of evaluation in improving the educational programme as well as in providing information to guide work with individual students*** Too often, what little appraisal of student achievement is conducted results only in grades for the students. Actually an evaluation programme can serve as a helpful means for continued improvement and development of the professional school. The results of appraisal indicate the respects in which students are making substantial progress and the respects in which expected development is not taking place. These suggest aspects of the educational programme which need re-thinking and replanning to provide for improvement Furthermore, as revisions are made in the programme, subsequent evaluation indicates the relative effectiveness of these revisions Hence, ***appraisal provides a sound basis for planning.***

The evaluation data also indicate the progress made by individual students and bring to attention both their strength and their difficulties This information thus provides a sound basis for the guidance of individuals and gives a more substantial foundation for the individual student's continued planning of his own education

In summary, the distinctive characteristics of a profession, namely its ethical code and its operating basis on principles, suggest the distinctive attributes of education for the profession From these characteristics, important educational objectives can be derived Because these objectives are complex and involve understanding, problem-solving, attitudes and skills, they require clear definition in order to develop effective methods for their attainment The difficulty of attaining the goals of professional education makes motivation of prime importance and effect-

ive organisation of learning experience a necessity Finally, a comprehensive evaluation programme is required to guide the continued development and improvement of the educational programme and to provide information for constructive work with individual students. *The building of an effective programme of education for a profession is not easy but when attacked intelligently, systematically, and enthusiastically, it can be done*

The author of the preceding pages* is Ralph W. Tyler. He obtained his doctor's degree from the University of Chicago in 1927 . . . *more than half a century ago!* He wrote these lines in 1951 . . . *more than a quarter of a century ago!* yet his vision is still valid today and still remains to be acted upon.

For those concerned in curriculum planning this clearly means that the order of the day is *patience and perseverance*.

*The paper was presented on 30 January, 1952, in New York at the Annual Meeting of the American Association of Schools of Social Work and printed in the *Social Work Journal*, April, 1952.

programme describes

- a series of planned educational activities a student is to go through with the assistance of teachers

integration (of a curriculum)

- coordination of different teaching/learning activities to ensure the harmonious functioning of the educational process for more effective training

the four c's of curriculum planning

cooperative — A programme prepared jointly by a group of persons will be less liable to error than one prepared by a single person.

continuous — The preparation of a programme is not a one-shot operation. In planning it, provision should be made for its continuing revision.

comprehensive — In an approach which accepts the interaction of all the programme components must be defined with the requisite precision.

concrete — General and abstract considerations are not a sufficient basis for drawing up a programme. Concrete professional tasks must constitute the essential structure of a relevant programme.

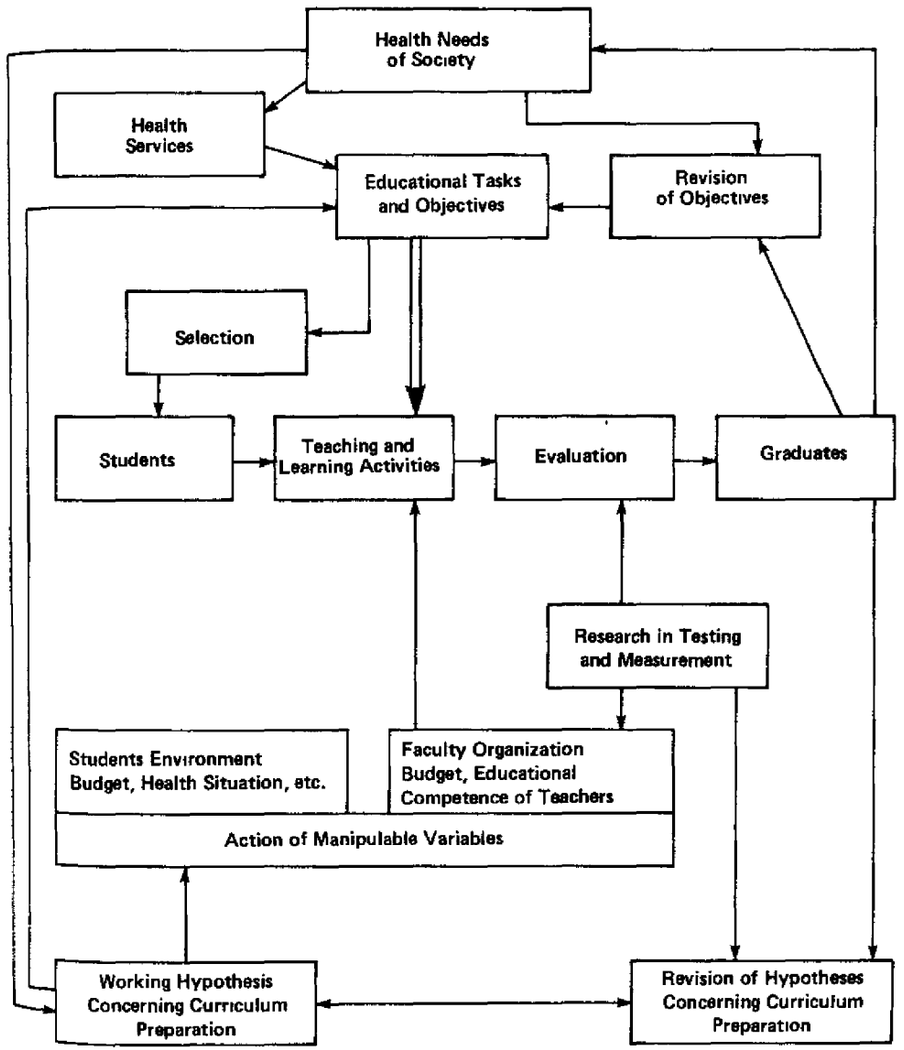
from E. Krug.

plan of action for preparation of a teaching programme

Chronological order	Definition of objective	Executing body	Advisory body
1	Prospective study to evaluate the country's requirements (quantitative and qualitative) in respect of health personnel, taking into account what is available and can be absorbed	Ministries of Planning, Health, Education, etc.	University staff, national and international experts
2	Definition of the educational objectives of the school of health sciences in accordance with the tasks to be accomplished by each professional health worker	Ministries of Education and Health	Special faculty commission
3	Organisation of an information group on education planning for health sciences	Faculty staff	Faculty of Pedagogy, Education consultant
4	Acceptance by the faculty staff of the goals established in the light of the country's requirements; training of teachers in education planning		
5	Development of a system of evaluation. ■ certifying tests ■ continuous formative evaluation indicating whether the goal has been attained	Evaluation committee	Department of Education Education consultant
6	Modification of teaching programme and selection of methods by which to attain the goals	Programme committee	Faculty of Pedagogy Education consultant
7	Organisation of a group for research in education	Faculty staff	Faculty of Pedagogy
8	Periodic re-evaluation of goals and methods in response to changes in the country's needs and in the light of evaluation	Ministries of Planning, Health, Education, etc	University staff, national and international experts

Personal Notes

Diagram showing factors influencing curriculum design



the purpose of teaching is to facilitate learning[1]

The literature on the philosophy of education is rich in theories, which tell a story of timid steps forward, backward leaps and rediscoveries. It would be very gratifying to have a reliable general theory, firmly seated on a scientific basis and making proper allowance for social variables, which could serve as a guide for every teacher and enable him to resolve the "real" problems of teaching the health professions Unfortunately, such a universally satisfactory general theory does not exist On the other hand, by means of the *systematic approach suggested, hypotheses can be formulated regarding the process of acquiring a satisfactory level of performance that can be evaluated empirically and the choice of learning activities facilitated.*

The contemporary trend is to stress the "teaching-learning system" as opposed to the preponderance previously given to teaching alone There is a tendency *to be interested less in teaching than in learning, less in what the teacher presents and more in what the student learns.* Lawrence M Stolurow has criticised what he calls the "communication-learning fallacy" which assumes that the information transmitted to the student is *always* learned. Doubtless this is obviously fallacious, and known to be so when it is expressed so crudely, but discussions of teaching methods are often still inspired by it and it has even been carried over into the initial stages of research into new methods. Much of this research, by concentrating on problems of the presentation of stimulating materials and utilising some of the more rudimentary concepts of communications theory, *dealt too much with the manner in which information was transmitted to the student without investigating very closely what was learned and by whom, at what speed and, in particular, for what purpose* Understandably, this approach led to a passive attitude towards students' response, the student was seen in a dependent situation, relying upon information directed at him, whether through modern audiovisual communication techniques or the more traditional forms of the lecture and the text book

Learning, however, is a dynamic and interactive process in which the behaviour and experience of the student are vital components; the student must not only receive but also contribute, his perception of what is happening is just as important as the perception of his teachers and *the assessment he makes of the value of a learning activity may be more relevant than that of his examiners* Good conventional teaching, of course, has always sought to take account of the learner, but its structure and methods have greatly inhibited it. The rigid style imposed by large numbers, timetable requirements and the availability of teaching space, by the conventional practices in designing courses and by teaching conforming to an accepted academic discipline, have led to the "teaching" aspect again dominating over the "learning" aspect. If it is accepted that the starting point must be the *acquisition of knowledge rather than its communication* then we must ask some different questions and intensify our investigation of *non-directive* methods. Using the same approach as Jerome S Bruner we can consider what experiences will motivate the student and enable him to learn, in what ways knowledge can best be structured for a given student or group of students, what sequence and in what form the material can be presented most effectively, what should be the nature and the frequency of rewards or penalties, and how we can gradually lead a student to give less thought to extrinsic rewards than to the personal satisfaction of having achieved a desired degree of skill

The body of knowledge possessed by a group of teachers or set out in a series of authoritative volumes is the fruit of intense intellectual activity. Teaching a so-called basic science is not a matter of getting the student to memorise it, but rather of helping him to participate in a process that renders the acquisition of a body of knowledge possible A subject is taught not to produce little living libraries on that subject but rather to get the student to think for himself in accordance with the laws of physics, to consider problems from the same angle as the biologist and to assimilate the process of acquiring knowledge Knowing is a process, not a product

If the revision and renewal of the programme is regarded as part of the teaching-learning process, a change must also occur in the roles and interrelationships of teachers, students and others who are concerned. The system becomes much more complex than the conventional linear model and it demands much more from those who have to design, manage and operate it To put it epigrammatically, *the teacher becomes a learner himself, and the learner undertakes some part of the teaching role* This is because the teacher learns more about teaching and the student begins to assume a greater responsibility for his own progress The roles of other participants also change and new roles must be added to the old. Some of the new methods at present under trial, for instance, not only require librarians to emerge from their traditional sphere into a more dynamic type of activity; they also call for the services of highly qualified personnel, such as artists, photographers and technicians, as well as educational technologists and psychologists In fact, *the ecology of a teaching institution changes once its primary function is redefined,* namely to facilitate the acquirement of competence by the student.

[1] Adapted from Norman Mackenzie et al *Teaching and learning* Paris, UNESCO, 1970, pp 44–50

In the following pages a certain number of definitions, epigrams and lists are proposed whose aim is to serve, where appropriate, as a starting point for reflections or discussions on the methodology of education. These elementary concepts are derived from various systems, and none of them is regarded as embodying an absolute and final truth.

Always assume that a teaching activity is ineffective unless there is evidence to the contrary.

Adapted from A.L. Cochrane

teaching

Interactions between **teacher** and **student** under the teacher's responsibility in order to bring about **expected changes in the student's behaviour.**

purpose of teaching

to help students to

- **acquire, retain and be able to use knowledge**
- **understand, analyse, synthetize and evaluate**
- **achieve skills**
- **establish habits**
- **develop attitudes**

teaching approaches

- talk to students
- talk **with** students
- have them talk **together**
- show students **how**
- **supervise** them
- provide opportunities for **practice**

S. Abrahamson

Teaching methods which place the student in an **active** situation for learning are more likely to be effective than those which do not.

G.E. Miller

The activities composing a training programme must be organized so that students can acquire their professional skills under conditions similar to those in which they will later practise.

If only ideal or model learning situations are used, the student will be deprived of the stimulus of having to face realities and will have less opportunity to propose improvements with the help of his fellow-students and his teachers.

Learning is both an emotional and an intellectual process.

learning

A **process** resulting in some **modification**, relatively permanent, of the way of

thinking,

feeling,

doing,

of the **learner.**

the characteristics of learning

learning is

- producing a behavioural change in the learner
- leading to a relatively permanent change that is also gradual, adaptable and selective
- resulting from practice, repetitions and experience
- not directly observable

some principles of learning

- learning is individual
- motivation is the key
- relevance of learning experience should be clear to the student*
- "feedback" to learner is important

* see paragraph 2 page 2.14

conditions to facilitate learning

An atmosphere which

- encourages people to be **active**
- emphasizes the **personal** nature of learning
- accepts that **difference** is desirable
- recognizes people's **right** to make mistakes
- tolerates **imperfection**
- encourages **openness** of **mind** and **trust** in **self**
- makes people feel **respected** and **accepted**
- facilitates **discovery**
- puts emphasis on **self evaluation** in **cooperation**
- permits **confrontation** of ideas

G.P. Pine & P.J. Horne, Principles and Conditions for Learning in Adult Education – Adult Leadership. Oct. 69

learning

- **is primarily controlled by the learner**
- **is unique and individual**
- **is affected by the total state of the learner**
- **is cooperative and collaborative**
- **is an evolutionary process**
- **is a consequence of experience**
- **is not directly observable**

G.J. Pine & P.J. Horne (ibid.)

Personal Notes

EXERCISE

1 Complete in less than five lines the following sentence:

"I learn best when I _____

_____

_____

_____

2. Ask several of your colleagues to do the same exercise; make a list of all the situations

3. Note the diversity of situations and compare it with those provided for students by the educational institution to which you belong.

In the educational institution to which I belong, the following learning situations are provided for students:

4. If the comparison shows that changes are needed in your institution, read the following pages which describe the teacher's functions, and do the exercise on page 3.39

Personal Notes

teaching: a complex but challenging task

The teaching of health personnel has become more complex than it used to be, especially if it is accepted that the teacher should consider the benefit of the learner and not only his own satisfaction More than a dozen of the teacher's functions are described below. A teacher should feel satisfied if he fulfils only a few of them, because the present educational environment does not greatly help him along this road. Nevertheless, he will do well to improve his performance by training as an educator.

It is sometimes thought that a teacher's activities are so intricately related to the local culture in which he functions that the description of his tasks should differ if he teaches in Antwerp, Dar es Salaam or Leningrad. However there is no support for this concept in reality. Data concerning teachers' behaviour during teacher training workshops organised by the World Health Organization over the last 10 years with participants from a great variety of geographical or socio-political backgrounds clearly indicate that teachers are more like each other than they are like the people of the community to which they belong The worldwide academic community seems to be one cohesive entity modelled on nineteenth century Western European concepts of academic freedom, exclusiveness and detachment

Most teachers in schools for health personnel conduct scientific research, write reports and articles, plan and supervise laboratory or clinical units and, finally, teach, in that order of priority To teach means, in most instances, to prepare and deliver lectures, to supervise students during laboratory and clinical work, to decide which questions should be asked at examinations, and to score papers and oral examinations. Added to all this is attendance at numerous scientific or administrative meetings

Instructional duties are sometimes called "teaching load", an expression which clearly conveys the attitude to that function. Teaching staff are jokingly depicted as secretly believing that academic life would be much easier if there were no students. As in all jokes, there is much truth in this

Some teachers are seldom seen by students while others spend many pleasant hours in stimulating discussion with their students.

Rather than pursue this description, in which no teacher would ever want to recognise himself, let us consider what are the teacher's functions in the light of present-day educational concepts.

1 To be available

The teacher should be available to give students constructive criticism of their working objectives and methods. The key-word here is "available". It contrasts sharply with the habit of the traditional academician who proclaims "I am always happy to meet students . . . my door is always open", but who, in fact, is so rarely in his office that only very stubborn and highly motivated students manage to catch him once he has left the lecture hall. Really available is the professor who has a notice on his office door saying "I am at the disposal of students in this office every Tuesday and Friday from 10 to 12 a.m.", and who is actually there at those times.

2 To provide constructive criticism of learning objectives and methods

It is of the utmost importance that the student's working objectives and methods should be exposed to constructive criticism as, after training, health personnel should be able to relate their own professional goals to the organised system of health care, and to develop their own tactics for achieving those goals

It is also important to develop the student's desire to seek criticism, supervision and advice from teachers and fellow-students

3. To analyse and evaluate health problems

Generally speaking, clinical teachers are able to guide students in solving patients' particular problems, but students should also collect and use relevant information for the solution of community health problems. It is less certain that all teachers have enough understanding of epidemiology and of health manpower planning principles and methods to assist students in that respect This is especially true of teachers of the so-called basic science subjects

It would be an advantage if all teachers had sufficient competence to ensure that whatever they teach is relevant to the community health situation. The teacher should be able to analyse and evaluate health problems raised by students, as well as proposed solutions

4 To define learning objectives

The teacher should be able to define the abilities that students need to acquire in order to solve a given health problem. For example a teacher should be able to define explicit and relevant learning objectives so as to help students to understand a problem Moreover, when programmes are being constructed, it is preferable to indicate clearly the standard of performance to be acquired by students than to state only the amount of time to be spent teaching the subject. It is well known that the time needed to master a subject varies from student to student depending on his ability, motivation and drive, and on the availability of teachers and educational facilities. What is important for the average person is not the length of time during which teachers teach or students learn, but the ability of the person providing health care to perform a given task. If my son needs a hernia operation, I do not wish to be told that the surgeon has graduated from a six-year course in an institution in the WHO *World Directory of Medical Schools*. What I want to know is whether he is competent to perform that operation in the best and safest way As for the nurse who will comfort him in this strange and frightening hospital world, I do not care whether she has had 72 hours in a psychology course as long as she is able to give him the reassurance he may need

5 To assess students' work

The teacher should be able to define criteria for assessing students' work and measuring their abilities Such criteria need to be carefully drawn up, and teachers should share the task of preparing them with their students. The sad state of most examination systems in faculties and schools is largely the result of the absence of such criteria, which could serve not only for certification purposes but also in guiding the students' learning, a point that is certainly no less important Everybody in the health professions should cultivate this ability to define criteria, as it is essential that they should be able to audit their own performance and that of their colleagues

6. To prepare learning aids

The teacher should prepare learning aids and materials, provide information that will facilitate students' independent work, and evaluate the usefulness of such materials. Most of what is usually transmitted by traditional lecture courses could be better acquired by students working independently and studying books, scientific journals and duplicated texts in self-learning format, with or without audiovisual aids In such cases, students should be aware of related learning objectives, and feedback evaluation exercises, based on those objectives, should be available.

The preparation of such materials may well be a joint effort among colleagues from several faculties It calls for a lot of work, but may be considered as an investment that wil' pay off during several years through setting up banks. It should help to eliminate passive learning which is often all that is required of students. The assessment of the usefulness of such materials, which requires a level of educational competence some teachers do not yet have, may call for the collaboration of specialists in education

7. To select professional activities for students

The teacher should select professional activities of graded difficulty appropriate to the student's level of progress during the whole of his learning curriculum There is agreement among professional educators that students should acquire professional competence through the practice of real (or, if that is not possible, simulated) professional activities Even students fresh from secondary school are perfectly capable of drawing valuable lessons from the study of real cases.

8 To confront students with new problems

The teacher should confront students with a diversity of new problems in order to help them define the terms of the problems and find solutions to them. If it is true that the estimated half-life of medical knowledge is about five years, and is slowly but constantly shrinking, it is absolutely essential that today's graduates, among whom are tomorrow's leaders of health services, should be able *to solve the new problems that arise in new situations* It is here that the basic sciences have an important role to play as they can help the student to acquire a scientific method of inquiry. Such an approach is essential to keep knowledge and skills up to date. The fact that the graduate will have to replace much of what he knows is the least part of the problem; the main difficulty is that we, the teachers, do not know which half.

9. To develop problem solving skills

The teacher should facilitate students' learning by asking questions requiring problem solving skills rather than simple recall of facts. Even the most traditional teacher will agree that students *must acquire basic skills*, either manual (e.g inserting an intravenous drip) or intellectual (e.g. taking a history), should behave in an appropriate manner with the patient and his family, and should *not merely possess theoretical knowledge*

In spite of this, whenever the final examinations used in faculties and schools are analysed, it is found that a majority of the questions test only simple recall and not the intellectual skill of interpreting data and solving problems. No attempt is made to measure practical skills and attitudes. The fact that most examinations require students to recall facts without recourse to books is highly significant Of course, health personnel must possess a large amount of knowledge that they can call upon without reference to books, otherwise their usefulness in an emergency situation would be seriously impaired.

Teachers should therefore test students on their ability to recall those facts that will be needed immediately in emergencies and have been clearly specified as such from the start Apart from this, examinations should confront students with typical individual or community health problems and allow them access to books, in accordance with the sound practice adopted in everyday professional life.

10 To aid the understanding of basic scientific principles

The teacher should endeavour to ensure that students understand the basic principles underlying the activities and tasks they are learning to master Factual details can be readily added to an understanding of basic principles and concepts, but such principles are not easily derived from a mass of facts Students usually learn the so-called basic sciences early in the curriculum before they have met the real-life problems which require an understanding of those subjects. They are thus poorly motivated and soon forget what they have learned It has repeatedly been found that students tested 18 to 24 months after having followed a basic sciences course answered at random, just as if they had never studied the subject.

11 To supervise the student's progress

The teacher should check each step the student takes in solving health problems in order to discover the areas where he fails to take account of the relevant basic scientific principles This role follows naturally from the previous one As mentioned above, in the traditional curriculum students are taught basic sciences in the first two or three years Ideally, a student should be helped to reach an acceptable solution to problems through his understanding of the principles of the basic sciences and by adopting a scientific approach One of the persons best qualified to judge whether the student is thinking in a scientific manner is the basic sciences teacher. In the training of a nurse or of a general practitioner, for example, the role of the basic sciences teacher is not to instruct in a given subject but to ensure that the nurse and the physician are capable of applying basic

scientific principles in their daily work

A physiologist could spend two hours a week in a ward or an outpatient clinic with his students, going through the medical records of current patients to check whether basic principles had been adhered to, and draw the students' attention to unsatisfactory examples Such an association between basic sciences and clinical activities would be of greater value than the present so-called integrated forms of teaching in which teams or panels of teachers endeavour to teach in a coordinated manner

12. To identify the factors underlying health problems

The teacher should make sure that the student identifies and takes account of the psychological, cultural and socioeconomic factors underlying the health problems with which he deals.

In practice, there is no natural frontier between the physical sciences and the humanities, nor between science and art in the broadest sense of the words. Giving courses in the humanities and the behavioural sciences does not automatically ensure that future health workers will be able to relate their daily activity to the culture to which they belong. They are more likely to do so if they are required in practice to define the patient's social and psychological problems in relation to his health problems, and to seek solutions, with the help of suitable specialists

13. To encourage intellectual discipline

The teacher should encourage intellectual discipline by observing students' work and evaluating their activities in relation to defined standards of quality of care

Both teachers and students pass much time, more or less usefully, in large lecture halls A better distribution and use of teachers' time, and the practice of peer-teaching to enliven the course, could improve both the quantity and the quality of the instruction given and allow for more individualised supervision

The quality and satisfactory performance of learning should be the only yardstick or criterion used by the teacher, to the exclusion of the time constant ("the duration of the curriculum is six academic years"). What should vary is the number of different types of task that any given kind of health professional can perform. Every member of the health team, and the physician most of all, is a potent therapeutic agent but a poorly tested one. The least toxic medication listed in the International Pharmacopoeia has undergone more thorough double-blind testing than any health professional anywhere, at any time. Cigarettes are sold with a printed health warning. Does not the university have a social duty to protect all citizens from the potential danger that physicians and the other members of the health team may represent?

14. To set an example

Finally, the teacher should serve as a model of professional conscientiousness, reliability, analytical sense and efficiency We have all met such men in the course of our studies. We have also met the other kind. We tried to imitate the former and sometimes despised the latter. In connexion with students' values and personality, the following quotation from the American Association of Medical Colleges Longitudinal Study, reported by E. B. Hutchins (1964), should be remembered Describing the effects on students of their years of study, Hutchins says ". . . the interest in ***understanding how others feel*** about problems or the need to place one's self in another's shoes ... has, on the average, ***decreased***". To a potential patient, this statement is very disturbing. If it reflects a widespread reality, the cause could lie in the example that has been set

Conclusions

Nostalgic remarks are often heard about the good old days before professional educators had begun to invade the educational black box One could then lecture and enjoy the feeling of satisfaction any good teacher has the right to expect. Nowadays, teaching is somewhat more complex, especially if the idea is accepted that it should be for the benefit of the learner and not only for the satisfaction of the teacher Some teachers have already undertaken some of the functions described in this paper They may feel satisfied even if they fulfil only a few, as the present educational environment is of no great help to their efforts in that direction The conclusion must be that, despite all that has been achieved in the field of teacher training, much still remains to be done Some have more gift for teaching than others, but all have the possibility of improving their performance by training as educators, even though such courses are still too seldom sought after and too seldom available.

How many teachers are really prepared to have students reach conclusions different from their own, giving first consideration to the logic of reasoning rather than the ability to arrive at a predetermined solution?

The student body represents the largest untapped educational resource in most schools

G. Miller (1977)

Personal Notes

EXERCISE

Read, or reread, carefully the description of the teacher's function, (pp 3.33 – 3 37) and circle the numbers of those that you believe yourself able to perform in your present situation taking into account the university regulations and any other local constraints For each function, describe the precise activities that *you personally* will be able to start or continue during the 12 months to come.

Function No.	Description of precise activities for each function