Continuing education for general practice — a learning system*

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SUMMARY. A learning system for continuing education for general practitioners is described and illustrated by examples from educational programmes held in Doncaster. The work that needs to be done by organizers in planning, organizing, implementing, and evaluating educational programmes is outlined. I hope that this will help other organizers of continuing education.

Introduction

THERE are encouraging changes afoot in formal continuing education for general practitioners as the newly acquired educational skill of general-practitioner teachers derived from experience in vocational training spills over into the general educational activities of postgraduate centres.

General practitioners are becoming involved in organizing their own continuing programmes of education. Of course, the tradition of the clinical tutor putting on programmes consisting of topics he considers appropriate for local practitioners, usually in lecture form, lingers on in many centres. In others the addition of general practitioners and consultants to form local committees may result in more relevant content, a few more heads are bent to the task, but this still tends to remain at the level of choosing "good speakers" and topics which will "interest general practitioners".

However, in a small but increasing number of centres there is a purposeful move to examine the activities of general practice critically, to identify more objectively the educational needs of local general practitioners, and to select from the variety of teaching strategies available those most likely to achieve the objectives the organizers have identified. Some general practitioners are now tutor-organizers for continuing education and a few centres have made formal appointments. This evolving pattern developed in Doncaster earlier than in most centres, hesitantly, haphazardly, and still with a long way to go. Some of the innovations ended in near disaster. Nevertheless there is now evidence that educational events, planned with specific objectives in mind, have led to observable changes in clinical practice.

Requests for advice from other centres about how organizers should set about the task of planning and organizing continuing education led to the production of a lengthy paper, the most useful part of which proved to be a description of a learning system with illustrations of its application in Doncaster.

The concept of learning systems is well established in education and derives from modern organization theory (Davies, 1971). The system described is a simple application to continuing education; it has been found in practice to provide a useful framework for the planning organization, implementation, and evaluation of educational events.

A learning system

A learning system is simply a sequence of activities. In Figure 1 activities 1 to 7 are the main concern of the organizer and it is useful to consider his role which is essentially management with four broad functions.

1. Planning

This is the work done in establishing learning objectives and involves activities 1, 2, 3 and 7 in Figure 1. It includes analysis of the job of the general practitioner, identifying training needs, selecting learning objectives, and identifying new objectives.

In planning continuing education an essential first step is to state its aim. If organizers plan merely in terms of selecting good speakers or choosing topics that will interest general practitioners this is likely to be the limit of their achievement, and it is arguable whether this common activity justifies the expenditure of time, effort, and money.

*A much shortened version of a paper presented by Dr Taylor to a Conference of Regional Advisers in General Practice in 1975.

Purpose. The purpose of continuing education should be to bring about changes in medical care in general practice. The changes sought should not be merely improved quality of care, but should involve the more efficient use of resources.

a) Analysis of job of general practitioner. This does not involve either a simple job definition nor a monumental analysis of every facet of a general practitioner's work as an essential prerequisite to organizing education. The job of the general practitioner has to be considered at different levels: in broad terms for aims and in detail to identify learning objectives for specific educational programmes or events.

The objectives for the obstetric teaching programmes held in Doncaster are one example. An analysis was constructed in 1971 (partly retrospectively) to assist in planning a programme of educational meetings on general-practitioner obstetrics which local consultants and general practitioners had agreed necessary to resolve many shortcomings in both general-practitioner and shared care. The difficulties at that time threatened not only consultant/general-practitioner relationships, but the very future of the general-practitioner maternity unit.

This was an example of identifying group training needs from deficiencies in performance recognized both by consultants and general practitioners. These deficiencies were mainly in knowledge. Obstetric policy had considerably reversed over the years from a 'hands-off' policy to one of emphasis on early recognition of abnormality in pregnancy or labour to avoid and anticipate complications. Failure to progress in labour now had clear criteria for active management. These were understood by consultants, but not by some general-practitioner obstetricians. Obstetric practice had changed but some general practitioners had not. Acute training needs were identified and formed the key learning objectives for the programme and were supplemented by detailed analysis of the knowledge, skills and attitudes required by general-practitioner obstetricians.

Both the broad view of general practice and the more detailed analysis are concerned with an idealistic model which the organizer has as his goal, never quite attainable and, in any case, changing and evolving and different in different places. The training needs which the organizer identifies derive to a large extent from the gap between the reality of general practice and this ideal.

b) Identifying training needs. Training needs may be sought in three main ways: deficiencies in performance, new medical knowledge and skills, and changing requirements of general practice by society, for example, contraceptive services.

Deficiencies in performance do not equate directly with training needs; failure to carry out a particular task satisfactorily may not be due to lack of knowledge or skill but to lack of resources, or to attitudes about the task. An educational programme, for example, for improving the management of urinary tract infections by the use of routine bacteriology, would fail if the basic problem was difficulty in getting urine samples cultured. It would also fail in the face of an attitude that considers it to be an unnecessary exercise.

Deficiencies occurring through lack of knowledge, skills, or positive attitudes, i.e. deficiencies of execution, require organizational solutions, in this example the provision of dip slides to general practitioners with specimen collection and laboratory services.

Having identified performance deficiencies the organizer must then determine the underlying causes in order to identify true training needs.

Many deficiencies in performance may be identified by simply asking practitioners what they are bad at and why, and what training they would welcome. A few practitioners may be persuaded to undertake audits of their work. This direct approach presents an opportunity to consider and plan for the needs of individuals as well as for a group.

Performance deficiencies may also be identified by examining the use of hospital services, acute admissions, outpatient referrals, or use of diagnostic services. A simple enquiry of consultants or trainee general practitioners undergoing their hospital training will provide much material. The latter may be effectively involved in presenting the results of simple studies at postgraduate meetings. Information about prescribing may be available from the Department of Health or from a practice audit.

In time the range of general-practitioner activity should be tabulated in the five areas defined by the Royal College of General Practitioners (1972).

c) Selecting learning objectives. In selecting and writing of learning objectives, there is confusion about the difference between aims and objectives; the former are general statements of intent and direction and are better than nothing. An objective is more precise, it is a proposed change: what the learner will do as a result of a learning experience. Ways of writing objectives have been described by Mager (1962), Miller (1962), and Davies (1971). According to Mager an objective should:

1. Identify the terminal behaviour by name.
2. Further define the behaviour by describing the conditions under which it should occur.
3. Specify criteria of acceptable performance by the learner.

How should organizers select objectives for their educational activities? They should consider training needs already identified, balance the need for variety and, in the long-term, cover the main needs comprehensively over the five areas. Objectives intended to

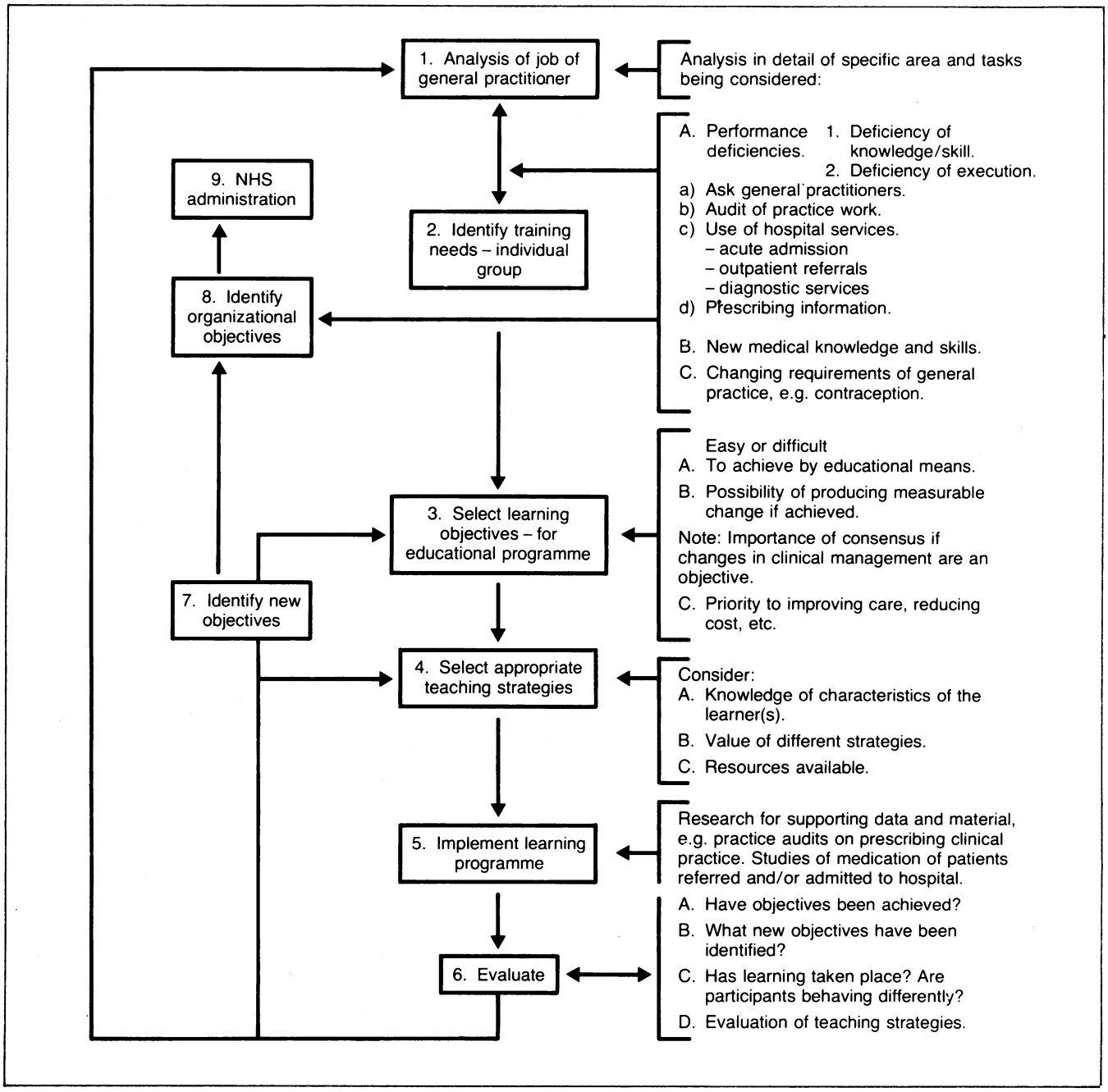
lead to improved care of patients, reduced cost, greater efficiency, and increased job satisfaction are particularly important.

Whilst learning the job of organizing it would be sensible to settle for objectives which are not too difficult to achieve, and encouraging to select objectives which, if achieved, are capable of measurement. It is important to classify training needs in terms of knowledge, skills, and attitudes before selecting and writing objectives. Many of the needs will relate to clinical skills, best learned on the job, for example, in clinical attachments, and it is unrealistic to include these in objectives for postgraduate meetings. Producing changes in attitude is particularly difficult. It should not be attempted on a large scale by the beginner. It is important to identify objectives for attitude changes before selecting teaching strategies as different tactics are involved.

2. Organizing

This is the work done by the organizer to enable him to achieve his objectives by producing conditions in which learning will take place. It involves activities 4 and 5 (Figure 1). In doing this the organizer considers what resources he has and what new ones he must try to acquire. His resources will include visual aids, or the library, and people who can teach—specialists, community physicians, general practitioners, and trainees.

Figure 1. *A learning system.*



From his knowledge of the process of learning, the characteristics of the learners, the value of different teaching strategies, and his resources, he will select the most suitable way of teaching for his programme. When the programme is to be implemented he will be concerned with the practicalities of delegating responsibilities, recruiting resources, seeking Section 63 approval, deciding venues, advertising, and catering (Steel, 1972).

Selecting appropriate teaching strategies. Selecting teaching strategies (methods of teaching) depends upon an understanding of the process of learning, the characteristics of the learner, and what different strategies (methods) can be expected to achieve.

Formal education is only a small fragment of the learning experience of the individual practitioner; except for the need to fulfil a small number of attendances for seniority payments he is a volunteer and our programmes are in competition with family life, television, and golf.

General practitioners are older learners and, as such, have particular difficulties. They are not, as is commonly supposed, too old to learn or to change, but merely like other adult learners resist change and innovation. There are problems of unlearning; the more that is learned and the greater the experience the more difficult it is to unlearn what is inappropriate. There are problems of forgetting; short-term memory remains good but retention is not—particularly for complicated decision-making processes, such as problem solving in general practice. Adults learn best by synthesis and evaluation more by independent methods of study through activity not memorizing, and gain from generous reinforcement through practice.

a) Lectures. The lecture method mainly enables the passive transfer of information, but with only 50 per cent immediate recall, which falls to 15 to 20 per cent after a week. Although not a good way to transfer detailed factual information, it is valuable in providing a framework into which the learner may fit materials from independent study or add to and rearrange his own already acquired knowledge. Success is greater if participants favour this sort of strategy, and general practitioners do. In medicine it is a valuable way of bringing up-to-date information and concepts to the attention of practitioners ahead of the literature. Although not a useful strategy for influencing attitudes, occasionally it can do so with great effect such as when a lecturer inspires an audience with his own enthusiasm and captures its imagination. The problems of forgetting can, to some extent, be overcome if hand-outs, particularly about decision-making, are provided by the speaker; examples of these are job aids such as flow charts. Short presentations are probably of the greatest value.

b) Group work. Group work has been found to be useful in vocational training schemes and to an increasing extent in continuing education. The main advantage is to be found in the changes that can be brought about in motivation, emotions, and attitudes, and it is apparent that many of the problems in general-practitioner care are related to attitudes. It is wise to have precisely written objectives. Questionnaires and reading lists are helpful and the tasks set must be seen to be relevant.

Groups can be set up to examine their own work as individuals, reading the literature, consulting expert sources, for example, consultants, to produce criteria for the management of common conditions, which could either be those relating to conditions shared by hospital and general practitioner or those relating solely to general practice. It is important that they produce conclusions from their work and particularly valuable if they can produce flow charts on management or other simple job aids. Both small groups and the main group in a centre can benefit from the results of practice audits carried out by individuals, for example on prescribing or the management of specific clinical conditions. Groups can undertake random case analysis based on medical records and create modified essay questions.

3. Leading

This is the work the organizer does to motivate and encourage participants so that they will readily achieve their objectives. It involves activities 4 and 5 in Figure 1 and is largely concerned with encouraging feelings of satisfaction in participants and discouraging feelings of dissatisfaction. Satisfaction is encouraged by organizing the task so that participants obtain a sense of achievement, recognition, and responsibility. They are likely to do this if they are more actively involved in the process. Feelings of dissatisfaction arise where the learning environment is so organized that there is lack of direction, where physical conditions are discouraging, i.e. they are uncomfortable or too comfortable, too hot or too cold, or when participants become bored or feel threatened.

The organizer will be concerned to use teaching strategies which are the most effective in achieving his objectives, which means using the lecture method when it is the most appropriate and not discarding it in favour of group discussion just because it is the vogue, but using the latter where it is really most useful in influencing attitudes, and remembering that neither the lecture method nor group discussion are useful in teaching skills.

4. Evaluating

Evaluating involves checking that the first three functions are achieving the objectives which have been set. It also involves identifying new learning objectives during the educational activity which are fed back into the learning system.

Evaluation can be achieved in two main ways, first by

evaluating the outcome, that is, to measure the learning which has occurred or its effects and, secondly, by evaluating the process, that is to examine the learning process. An example of this would be a detailed criticism of a lecturer's performance to enable him to improve his technique. To measure outcome of learning, it is best to administer a test before the study day and again afterwards. A more fundamental evaluation would require demonstrating changes in clinical practice since acquiring knowledge is not necessarily the same as using it.

Example 1. Bleeding in pregnancy. There was some concern in Doncaster about the management of bleeding in pregnancy particularly after a death related to ectopic pregnancy. It was decided to take the opportunity to deal with the management of all causes of bleeding during the antenatal period. Broad aims and specific objectives were defined for the knowledge, skills, and attitudes required to recognize and manage abortion, ectopic pregnancy, placenta praevia, and antepartum haemorrhage. It was decided to use a lecture-discussion strategy by a consultant, preceded by a multiple choice questionnaire. The discussion period, led by the organizer, linked the lecture with discussion of the multiple choice question.

There was a lively discussion between consultants, general practitioners, and midwives about the decision-making problems in these conditions. Participants were asked to complete a questionnaire which sought their views about the organization of the meeting, its value to them, criticisms, suggestions for improvements, and topics for future meetings. It yielded a criticism that insufficient time had been allowed to discuss the answers to the multiple choice question and a substantial list of suggested topics for future meetings (new objectives).

Example 2. Study evening on the management of infectious diseases. The aims and objectives of this meeting were as follows:

Aims

1. To promote discussion between general practitioners, paediatricians, bacteriologists, and community physicians about the incidence, prevention, diagnosis, and management of common infectious diseases.

2. To examine and clarify the part each of these disciplines plays in managing infectious diseases locally, with a view to improving co-operation and identifying ways of improving management.

The participants had specific objectives:

Community physician

1. To improve immunization rates against common infectious diseases.

2. To improve notification of infectious diseases.

3. To test views about the value of extending notification to include other diseases in a simplified morbidity recording system.

4. To draw attention to the changing patterns of infectious diseases, especially a recent increase in meningococcal infections.

Microbiologist

To bring about the more rational use of microbiological services and to discuss their possible extension to virology.

Paediatrician and general-practitioner tutor

To discourage the widespread routine use of antibiotics for respiratory tract and other infections and undiagnosed fevers in children, especially infantile gastroenteritis.

The strategies used on this occasion were varied: a short reading list was provided before the meeting and participants were asked to complete a questionnaire which enquired about the management of some common infections and particularly about antibiotic prescribing. This document was devised so that the individual could retain a copy of his answers to compare with those of the group as a whole when the results were reported back at the meeting. Data about the incidence of infectious diseases and immunization were presented visually in a poster display and time was allowed at registration for this to be seen. The information contained was also referred to during brief lectures by the general-practitioner tutor and community physician.

The paediatrician gave a short lecture preceded by the presentation of a simple piece of research by a general-practitioner vocational trainee working in paediatrics into the management before admission of a series of infants with gastroenteritis, showing that problem cases were apparently related to poor management and to the use of antibiotic mixtures. The microbiologist gave a brief lecture on the problems of his department and the use of services by general practitioners, and the general-practitioner tutor acted as a link man throughout, in addition to giving a talk on the incidence and presentation of common infectious diseases.

This meeting used highly relevant material. A variety of strategies were employed and reinforced by presenting information and encouraging its application in a later strategy. Groups were asked to consider the use of local resources and to explore the feasibility and value of information gathering and to attempt to define acceptable criteria for clinical management of specified conditions. The questionnaire and its reporting back had considerable impact and allowed peer comparison in an unthreatening way. The answers bore out some of the prejudices of the organizers in demonstrating wide variation in the use of antibiotics and their tendency to overuse.

Evaluation. Enquiries at local chemists suggest that the prescribing of antibiotic mixtures for diarrhoeal disease was considerably reduced in the months after the meeting, although there is no doubt that diarrhoeal

disease was continuing and that old-fashioned preparations were still selling.

Immunization rates have not improved (the paediatrician was in conflict with the community physician), but plans are afoot to introduce a limited morbidity reporting service from a number of practices.

Discussion

The step taken of moving from simply putting on a series of lectures to educational activity which is objectively planned and skilfully organized, led, and evaluated, is immense. Much work is involved for organizers, who must inevitably devote several sessions per week in a district postgraduate centre. This work must be done by general practitioners and is complementary to rather than in conflict with the work of clinical tutors. There are many exciting avenues to explore and an imaginative approach is needed. The district postgraduate centre should be the centre of activity but not the only place for it; approved meetings in health centres and group practices have been tried and found valuable, affording opportunities to demonstrate variety in practice organization and facilities, combined with educational activities such as reports on audits, simple research projects, and case analysis. The examination by general practitioners of their own clinical problem solving, their standards of record-keeping and prescribing is long overdue; once embarked upon, they enjoy it. They need leadership—a local general-practitioner organizer can provide this.

References

Davies, I. K. (1971). *The Management of Learning.* New York and London: McGraw Hill.

Mager, R. F. (1962). *Preparing Instructional Objectives.* California: Fearon.

Miller, R. B. (1962). In *Psychological Principles in System Development,* ed. R. M. Gagne. New York: Holt, Rinehart & Winston.

Royal College of General Practitioners (1972). *The Future General Practitioner—Learning and Teaching.* London: *British Medical Journal.*

Steel, R. (1972). *Journal of the Royal College of General Practitioners,* **22**, 393-398.

Addendum

Copies of many of the objectives, multiple choice questions, and other forms of assessment can be obtained from Dr M. P. Taylor at the Doncaster Postgraduate Medical Centre, Doncaster.

Future work patterns

"We must also reflect future work patterns. All the evidence is that the number of hours doctors are prepared to work will fall. In the past doctors have traditionally worked very long hours. Junior hospital doctors are quite reasonably now seeking a contract which restricts their commitment and a high priority for both them and the Government is a reduction in working hours.

". . . There is a staffing agreement between the profession and the Department which governs the number of registrar and senior registrar posts in relation to consultant opportunities and aims to prevent the mismatch of the past where too many registrars chased too few consultant posts. It takes eight years to train a specialist and he or she will then perhaps spend 32 years as a consultant. Allowing for the fact that some of those in hospital training will become general practitioners, then at any one time there should be something like a 1:2 ratio of juniors to consultants.

". . . There is already a considerable reappraisal of the undergraduate medical curriculum. New chairs are being created in, for example, geriatrics and general practice. Many students now have a taste of medical life outside hospital or by going to district hospitals see the less glamorous side of the hospital service in action. This question of relating undergraduate experience to future work tasks often arouses heated discussion, particularly in academic circles. There are the purists who argue that education is an aim in itself, the intellectual development and stimulation of an individual, and that this cannot be affected by thoughts of training geared to service needs. But the fact is that the undergraduate curriculum is influenced by the nature of medical work generally. Is it not right then that educationalists should reflect external developments in their training—for example the increasing emphasis on primary care and on community medicine in the widest sense of that term?

". . . Even within the medical profession itself we need to consider the balance between hospital and general practice. We have arrangements to increase the contribution of general practitioners to the hospital service, via the new grade of hospital practitioner or in the developing concept of the community hospitals.

"We are encouraging the development of primary health care with health centre building and a greater emphasis on preventive health. We ought to be able to relieve the pressure on the hospital services, to get better co-ordination of hospital and general practitioner services and improve total delivery of health care even though money will be tight."

Reference

Owen, D. (1976). Speech as Minister at the DHSS to Cambridge University Medical Society. 5 February.