

## **EDUCATION**

# **Evaluation of courses for general practitioners**

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**T**HE principal goal of education is to produce men capable of doing new things<sup>1</sup>; that is to effect behavioural changes in those who learn. It is in their success in meeting educational objectives expressed in behavioural terms that courses must be evaluated, not merely by undertaking the much simpler measurement of the retention of material presented. It is useful to measure retention only if this is an objective of the course.

Some simple experiments are recorded in which measurements were undertaken of behavioural change on the one hand and retention of presented factual material on the other. The courses concerned were:

1. Practice organization; 3 sessions\*. 46 course members, 1967.
2. Research for general practitioners. Two courses, eight sessions each. 16/12 members, 1970/71.
3. For general-practitioner teachers:
  - (a) Three lectures on the lecture 1968/1969/1970. 82 members.
  - (b) One course, 10 sessions, 1970. 22 members.
4. Clinical physiology; four sessions. 32 members, 1967.

The objectives of these courses are stated below. They were shared with the course members at the beginning of each course.

These and other courses have also been subjectively assessed. Here the course members have been asked to record their views and satisfaction in terms of presentation, content and teaching methods, as well as of their enjoyment of the course, their view as to how well the objectives were met, with more mundane comments on board and lodging. Reference will be made to these measurements later.

In presenting the results a narrative style is employed and only significant findings given. The results are grouped into three: those where evidence of behavioural change was sought and found, those where retention of factual material was measured, and those where subjective opinion was requested.

### **I. Courses after which evidence was sought of behavioural change**

#### **1. Practice organization**

This was the third such course which we had presented and the stated objective of the course was 'by presenting facts and examples, to enable you to carry out various methods of re-organization in your own practice'.

This was a broad aim, rather than an objective, for we had no realistic means of knowing in advance of the course the precise areas in which the individual members might be unaware or interested.

We had also an undisclosed aim which was 'to stimulate you to undertake practice re-organization'.

The content of the course, which was conducted entirely by general-practitioner teachers, referred to: the use of ancillary staff, practice records (including disease indexes, E books, age-sex registers), practice premises and equipment, the organization of time, communications, appointment systems and business methods.

\*The term 'session' means three teaching hours.

The section numbers refer to the courses above.

One whole afternoon was spent on visiting different kinds of practices which between them illustrated in operation the features which we had discussed in the theoretical sessions. Members of the course were able to meet members of these practices and discuss with them the various procedures and methods which each demonstrated. This learning situation was later commented on unanimously, albeit subjectively, by the course members as showing the relevance and application of theory.

A questionnaire relating to the satisfaction of the course members with arrangements and accommodation was administered at the end of the course. The after-glow produced results which, though flattering, were prudently held to mean only that none had a major complaint.

Six months after the course was over a further questionnaire was submitted to each member of the nominal roll. They were asked to indicate what changes they had effected in their practice in any of the areas covered in the course. They were invited to assess the degree (on a five-point scale) in respect of each effected change to which the course itself had contributed to change. Of the 46 members, 90 per cent replied. Eighty per cent had made at least one significant change in their organization while ten of the 46 had made overall major changes. However, an outstanding degree of behavioural change was recorded by two individuals who wrote in addition to completing the questionnaire. They had been, they said, on the point of emigrating because of their dissatisfaction with general practice. One had gone to the length of starting to take out the necessary papers. They ascribed the complete re-organization of their practice with new-found job satisfaction to the information and stimulation of the course.

We thus had evidence of considerable behavioural change as a result of this course.

## 2. *Two courses on 'research for general practitioners'*

The stated objectives of the courses were:

(i) To provide you with information about 'asking the question', 'reading the literature', 'collecting information', 'statistical methods and analysis', 'preparing a protocol and applying for funds', 'the critical reading of scientific papers', and 'the presentation of results'.

(ii) Being in possession of the information referred to, to enable you to produce a protocol of research likely to be approved for funding.

On each course the members were formed into groups—four groups of four in the one and two groups of six in the other. The morning sessions were devoted to the provision of information. In the afternoons each group was given a topic covering an area in which a question had to be asked and a protocol prepared. While we did not define the specific question to be asked, funded studies with which we were familiar were being undertaken in the areas which we selected on each course. Each study was nearly completed with some results available but not yet published.

On the final afternoon of each course the groups presented a written protocol for funds to 'a research council' consisting of a professor and myself. As each protocol required funds of widely different amounts we awarded each group a percentage from 0–100 of their requested sum, giving our critical reasons for this award. We then invited the people to whose unpublished projects the protocols had been related, to describe their own studies and give some of their preliminary findings.

Enquiry has shown that four members of the first course have since begun research projects and one has revised a protocol which he was constructing at the time he came on the course. The post-course questionnaires for the second course have not yet been analysed. One member however is known to be constructing a protocol.

## 3. *A course for general-practitioner teachers*

Of the several stated objectives of this course three were calculated to be fulfilled by the exercises to be described. These objectives were:

- (i) To enable you to define educational objectives.
- (ii) To enable you to select learning situations and teaching methods to fulfil these objectives.
- (iii) To enable you to measure the degree of fulfilment of your defined objectives.

The method of conducting the exercises relating to these objectives was as follows: The members of the course had been provided some weeks before the course was to begin with a reading list which included "Preparing Instructional Objectives" by R. F. Mager.<sup>2</sup> They were then given a short questionnaire as soon as our objectives, including the above three, had been stated at the outset of the course itself.

This questionnaire purported *inter alia* to discover who smoked, who fished, and who enjoyed displaying mechanical aptitudes. The course was then divided into three groups each of which was to fulfil the project of teaching the remainder of the course to be able to perform a specific task. The non-smokers were required to teach their colleagues how to roll a cigarette. The non-fishermen had to teach how to tie a blood-knot, and the non-mechanically minded were to teach how to build a bridge across a cliff-lined chasm using a simple children's toy construction set.

Each group was free to ask for any facilities it required, to use the library, to seek out experts if it wished, to define its own objectives, to devise its own teaching-learning methods, and its own methods of evaluation. 'Resource-men' were provided to assist, if asked to do so, by the group. Each member of the course had to learn previously-denied skills before attempting to teach them.

We recorded their final teaching presentations on video-tape, which was later replayed and criticized, both by 'the learners', ie, the two groups not engaged in the presentation and by 'the teachers', the group making the presentation in each case. Criticisms had to be related to the teaching methods employed, the use of teaching resources, and the methods used, the methods of evaluation and the success of the measurement of the exercise.

The cigarette rollers gave a 'big store' type of presentation and measured the results of their teaching of a simple digital skill by requiring each member of the learner group to roll a cigarette, as a simple objective test of learning. They did not however assess their learners capacity before the teaching session.

The 'blood-knot' tiers used the university library to some purpose. They traced the history of the term 'blood-knot' and described it as a method used by feuding gypsies to square accounts in a relatively peaceful fashion. As an after-thought they remarked that the term now survived as the name of a specific knot used by fishermen and we were shown a diagram of the knot.

They had neatly avoided any attempt to teach a physical skill, instead they sought to teach fact and concept. To evaluate their performance they used, unlike the 'cigarette rollers' a 'before' and 'after' questionnaire of the multiple choice type by which they were enabled to measure retention of the contents of their teaching.

The group building the bridge had, as they quickly realized, much greater problems. The task could only be fulfilled if the simple child's toy had applied to it a simple mechanical principle which it was by no means child's play to discern. They used the residential nature of the course to good effect by discovering the engineer we had arranged to be lurking in the bar and learned from him the principle. Unfortunately they forgot the stated objective which was to teach *how* to build a bridge with the material provided, in other words, to demonstrate and ensure that we understood the simple mechanical principle. Instead they set out to *build* the bridge, an attempt which resulted for them and their observers in cliff-hanging failure. They tried very hard to meet an unrequired objective.

This exercise enabled the course to understand and act upon the difference between 'task' and 'process', between that which was to be done and the methods by which it

was done. It demonstrated how much easier it is to teach and to evaluate objectively the teaching and learning of physical skills. To the course organizer the 'knot-tiers' taught (and learnt) the need to be accurate in defining objectives. It also provided the members of the course with an opportunity 'to see ourselves as others see us' in their personal presentations.

Two months after the course a questionnaire was sent to the members. It contained both a subjective and an objective answer section. The results are here summarized. The questionnaire began:

On the first morning the educational objectives of the course were defined as follows:

1. To provide the course with some facts about the new undergraduate curriculum and its philosophy.
2. By emphasizing certain areas of the curriculum to encourage members of the course to seek to learn more about them.
3. By instruction and practice to make the members able to define educational objectives.
4. By placing members of the course in various group situations and explaining the events, to enable members of the course themselves to teach groups.
5. By helping members to deeper self-knowledge, to improve their effectiveness in the person-to-person teaching situation.
6. By demonstration, instruction and practice, to enable members to use teaching methods appropriate to a defined educational objective.

Each respondent was asked to state whether or not, in his opinion, each objective had been met.

The average score was approximately 2.5 for each objective on a three-point scale. The overall presentation of the course was unanimously considered to be good, achieving the top score on a four-point scale.

Valuable and relevant to teaching in general practice:—the top points on a six-point scale.

Sixteen questions sought to discover some retention of fact, of the understanding of concept, and its use. The average scores from this section were 70 per cent.

It was notable that one particular question was very poorly answered, producing a score of only about 25 per cent. We felt we were able to trace this to a presentation which was too rapid and obviously not very clear. We had encouraged discussion and a proper interruption had caused the teachers on this occasion not to complete their presentation as intended.

## II. Courses where evidence of factual recall was sought

### 4. *Clinical physiology*

The first three sessions of this course consisted of the provision of information which we hoped would be new—by practising clinicians. Each of the nine teaching hours contained a 40-minute lecture and the remaining period was used for questions and discussion. Each lecturer was asked to provide three questions derived from the material he intended to present, and two examination papers each of 20 questions were constructed, obviously with some overlap. In the final session the course was divided into four groups of eight. The two examination papers were then issued each to two groups who had an hour and a quarter to compose their answers which were to be first written and presented to the 'examiners' and then delivered by the group's chosen spokesman to a plenary session lasting one hour. Here the 'examiners', a small group of lecturers, were able to correct errors and clarify the odd area of difficulty, as well as to see how successful their own teaching had been. The session also provided the opportunity for reinforcement of learning. The device of presenting the written answers in private and the spoken in public was to discourage the reflection of any gestalt flash occasioned by the prior presentation of another group.

### 3(a). *Three courses for general-practitioner teachers*

A lecture on 'the lecture' was given at each of these courses. (To 82 people in all). A short historical piece was followed by some statistics on 'the lecture' as a learning situation taken from the work of McLeish and others,<sup>3</sup> and finally various items of 'do's' and 'don'ts' were presented.<sup>4</sup> This lecture was the last before lunch and intentionally occupied 45 minutes. Each course was given a questionnaire to which the answers were facts contained in the presentation. The lecture was then delivered and immediately after lunch the questionnaire was again applied.

The differences in score were then assessed in percentages which were related to the whole 45 minutes and to the first, second and third periods of 15 minutes contained in the lecture. The results are expressed in table I. They accord with the findings of previous studies<sup>3</sup> that the lecture is like breast feeding in that maximum retention results from the first few minutes of absorption. Like breast feeding also the lecture provides little opportunity for initiative on the part of the receiver, and yet unlike it the lecture provides of itself no opportunity for 'feed-back'.

TABLE I

<i>Immediate recall after:</i>				<i>Per cent</i>
45 minutes	..	..	..	21
30 minutes	..	..	..	25
15 minutes	..	..	..	42
One week	..	..	..	18

### III. Courses where subjective opinion was sought

'Feed-back' of a subjective nature may be valuable both to the teacher and course organizer. While the student customer can no more always be right than can the teacher purveyor, it must be remembered that the postgraduate learner is every inch a volunteer. He may be lured once but now that he is beginning to perceive a plethora of choice he is becoming rightly and knowingly more critical of the presentation of his courses even more so than of their content.

We have yet to organize a course which was not subjectively assessed, and from our courses there have been collected the opinions of some 600 general practitioners. Of these 250 have attended the ten session teachers' courses<sup>5</sup> which have been held once or twice a year since March, 1966. Over 150 attended residential courses of up to eight sessions organized at Lancaster by the late Derek Purser and myself. The remainder include 60 on two 'five session' evening courses for teachers in Preston and Manchester, the courses referred to on research, a course on 'the normal', and various courses of up to 40 sessions for trainees and young practitioners.

The opinions expressed by these general practitioners have shown substantial majorities who prefer:

1. *Reading lists* sent out at least six weeks before the courses begin. We have failed too often in this respect. Books and papers recommended must be definitive, readable and available to any general practitioner without great effort. We learnt this through our failures.

2. *Short lectures*: 30-35 minutes is the maximum with 25-30 minutes for discussion. Too many lecturers drone on for too long. They should be encouraged by the course organizer to adopt the 35-25 formula, and he should be ruthless in stopping any meanderer in mid-flight after one warning cough.

3. *Group work*. The groups appear to function most satisfactorily when they are

'resource aided' and 'task orientated'. The groups described in the courses for teachers and on research could be so designated. A sense of discovery and adventure was displayed in the work of these groups. It would be surprising if groups functioned equally well irrespective of their composition and the length of time they have to work together.<sup>6</sup> The 'tasks' presented must be seen by the course to be relevant, challenging, to present an opportunity to score off the course organizer (for instance, the 'blood knotters') or any permutation of the three. There is a further advantage in using groups on a residential course. If imagination has been fired by the tasks and especially if an inter-group rivalry can be created, the early or later evenings appear to pass rapidly, profitably and usually convivially.

Occasionally the course organizer who makes use of groups will have to be prepared to act quickly if group-rejected 'isolates' are in trouble. Considerable psychic trauma can be caused unjustifiably if the organizer is not observing his groups or is not competent to make an early diagnosis of trouble and provide early preventive or interventive psychotherapy.

4. *Facilities.* Access to libraries, copies of papers, opportunities to see people at work and expert opinion should be available but not always on stage. Too much spoon feeding destroys initiative and the sense of personal or group discovery. We argue that the individuals of the group should learn to discern their needs and seek out the answers for themselves. This is precisely what seems to happen. Given the opportunity, the mature and middle-aged general practitioner is just as adventurous and thoughtful in his search for knowledge as is the student from the comprehensive school or the department of social medicine each of whom learn a great deal by group projects.

5. *Site.* If one is able to organize courses in pleasant places like Brighton, Edinburgh or Morecambe, do so. One part of south Lancashire is, the practitioners who work there tell us, very much like another. For regional courses choose the more glamorous centres of the region. For courses aimed at a membership drawn from wider sources choose the university centre. This applies to evaluation only because one has to have a course before one can evaluate it.

6. *Preparation.* The courses most likely to be the subject of complaint have been those in which the objectives have been ill defined, where speakers have been badly briefed, have not kept to their brief or have been frankly bad. These speakers are not asked again. These are the courses which are least susceptible to objective evaluation. These are the kind of course which one hopes never to put on or worse still to attend—but we have done both.

### Discussion

Evaluation of courses is essential yet it cannot be effectively undertaken without pre-stated objectives shared with the course members. At the same time there is wide room for manoeuvre in the construction of methods of evaluation. The most difficult measurement of all, which is rarely made, is that of the behavioural changes effected in practice, to prove that course members have become capable of doing new things. There are techniques by which this measurement may be undertaken but they require to be learnt and the expense in terms of time, dedication or finance makes it difficult for many courses to be objectively measured in this way.

The course on practice organization (1), illustrated a factor which organizers should realize may sometimes produce an unexpectedly successful reaction. It is easier to record the results of a course of this nature, but at the time it took place there was a high degree of awareness and motivation being shown in the profession at large. In any course there is an optimum period of time for a maximum response to the receipt of new concepts or new knowledge.

In our unconscious wisdom we did not attempt in 1967 to define our course aims

and objectives too specifically. Further experience suggests that it is all too easy to become pedantic in this direction without any increase in the effectiveness of the course or its evaluation. The objectives need to be as specifically stated as the facts to be learnt or the required behavioural changes demand. No more, no less. Reference was made to an undisclosed aim. Undisclosed aims are proper if they do not adulterate and distort disclosed or shared aims. They must never be the products of hindsight when the term 'accidental findings' (which may be of great value) should be used.

The courses on 'research' illustrated several points. Our course members were most active in using the library and reading the literature. The university and the postgraduate centre afford facilities which must be fully available and used. We also felt it necessary to employ the stratagem of using projects which were being undertaken but not yet published. Otherwise the newly taught, and we hoped learnt, skills of constructing a protocol would have been simulated by seeking out the definitive paper and then repeating and building up the sections headed 'objectives' and 'methods'. This would have defeated the fulfilment of evaluation and feed back which was contained in the method which we used.

The postgraduate medical centres offer excellent opportunities, especially in relation to patients referred or admitted to hospital. It should not be too difficult to define areas of deficit in the medical care given to the patients served by the consultants and general practitioners of the hospital district. The areas of deficit will not all be found to lie with the doctor in the community. A determination of the optimal education programmes to fulfil the deficit can then be made, the programmes provided, and the medical care then re-measured. We hope that other centres will undertake as we are, this valuable exercise, and publish the results.

There seems little point in our spending as a country so much money on continuing education for general practice, and so little time on the evaluation of the results. If one reflects on the costs of courses under Section 63, the provision, furnishing, staffing and maintenance of postgraduate centres, the new sabbatical terms available for general practitioners, the seniority awards which for good or ill depend on continuing education, it is obvious that there is a considerable investment of time, of money, and of manpower. We do not know if this investment is paying dividends. We suspect that it is, but we cannot say in what amounts or in which currency, or from which shares.

This paper has indicated some simple ways in which we have sought to evaluate courses in the hope that it may stimulate others to do a better job and, above all, to report their findings.

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