# *The modified essay question**

IN THE PAST WRITTEN EXAMINATIONS have tended to test recall of factual knowledge to a greater extent than other attributes of the practising doctor. Traditional methods such as the essay paper, or the 'short-notes' type of question have their short-comings. They may not be reliable (ie, chance effects so interfere with marking that repetition of the same examination with the same candidates will give widely different results), or their validity may be poor (ie, the examination does not measure the appropriate knowledge, skills or attitudes).

As the academic content of general practice has become more clearly defined the need for better methods of assessment has become apparent: methods which will assess competence appropriate to the personal doctor providing primary and continuing medical care. This paper describes one approach towards a better method of assessing some of the qualities by reducing examiner unreliability, improving content reliability and increasing the validity of the traditional essay question. We have termed this the 'Modified Essay Question' (MEQ).

## The method

The examination is based on a factual case-history which is presented in stages, usually, but not necessarily, as it evolved in general practice. The aim is to put the candidate in a sufficiently circumscribed position to enable the examiners to compare his performance with that previously worked out and agreed upon by a group of experienced general practitioners. The standards of such an examination are not absolute, the responses may not be in terms of black and white, but rather different shades of grey and they are related to those of the particular group concerned in constructing the examination.

*Construction.* The case-history is chosen so that the various components of the academic discipline of general practice (Royal College of General Practitioners 1969) are represented. The general practitioner of the patient concerned creates the successive sections of the MEQ starting with a brief statement of the setting.

**Example 1.** Mrs A, a previously fit, happily-married 27-year-old mother of two toddlers comes to a busy surgery to obtain treatment for her youngest child's almost non-existent cold. As she leaves your consulting room she says:

'By the way doctor, if you're not too busy, I've been feeling very tired for the past two months'.

What in your experience of general practice (1) is the likely significance of Mrs A's statement? and (2) what will you say to her?

This introductory statement serves not only to familiarize the candidate but also explores knowledge in the area of human behaviour. The situation is further developed:

**Example 2.** Mrs A tells you that she has had catarrh for years and that in the last two months she has had headache made worse by blowing her nose. What two *common* diagnoses might you consider to be most likely at this stage? Give three symptoms or signs associated with each diagnoses.

As this case develops and additional clinical data are added, a space occupying lesion becomes much more probable; however, as the question is framed in the example 2 above, the candidate selecting such diagnoses as tension, headache and respiratory catarrh or sinusitis, receives higher marks than the candidate who diagnoses cerebral tumour, because at this stage the latter indicates a distorted sense of probability diagnoses at the primary care level.

**Example 3.** Two weeks later Mrs A attends accompanied by her husband, saying her headaches are worse. The patient does not usually visit you with her husband. Give two possible reasons for the husband's presence which might affect your subsequent actions.

Such a question explores cognative skills in the area of human behaviour; the number of possibilities is limited and important points (such as the need to consider a second opinion or

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the need to explore in greater depth the relationships among the three persons now involved), will be expected of the candidate. The clinical history is further developed by giving additional information suggesting the patient has some difficulty with vision, possibly diplopia. After inviting the candidate to comment on how he now assesses the diagnostic situation the following question is framed:

**Example 4.** Examination of the patient's eyes leads you to the conclusion that there may be an organic cause underlying the patient's symptoms. List three findings you might discover in the eyes which might suggest one or other of the diagnoses you have already considered. Opposite each finding indicate the diagnoses it would suggest.

The situation is then developed through the phases of domiciliary consultation, admission to hospital and dealing with the young family, to the sudden unexpected death of the patient in hospital and the repercussions on the family and the neighbours, one of whom subsequently attends complaining of headaches and dizziness.

**Example 5.** Three months after this, the patient's neighbour, Mrs B (aged 36) reports complaining of headaches, palpitation and dizzy spells.

Physical examination reveals no abnormality, a regular pulse of 90 per minute and sweating hands.

1. What is the most likely cause of Mrs B's symptoms?
2. How would you confirm your suspicions?
3. How would you manage the situation?

The MEQ is then answered by a small number of examiners who have no previous knowledge of the situation. The creator of the question can then mark these answers and re-word the paper to avoid misunderstandings and major marking difficulties. The question revised as necessary is then answered by the panel of examiners and a marker's check list is prepared and agreed. Each section will then contain correct items with their marks, partially correct items with an agreed reduced level of marking and those items which are not allowed.

*Setting the examination.* Candidates are instructed to answer each of the sections in sequence. The total time allowed is indicated and candidates are requested to be brief in their responses. The examination paper is provided in the form of a booklet. The candidates are instructed that reading ahead does not help, and in each section sufficient space is left for candidates to fill in the appropriate answers. Experiments in which the various sections were projected on a screen for all candidates have shown that this method is unfairly stressful, particularly for older candidates.

*Marking.* The candidate's name, address, sex and nationality are obscured. A standard marking sheet is used with the number of each candidate along the top of the sheet and the agreed answers listed down the left-hand side. A space is also allowed at the bottom of the page for items which have not been allowed or that are considered correct but have not been included by the examiners before the examination (*see* Appendix 1).

Each paper is marked by two examiners and the difference between the marks awarded to the same candidate scrutinized. Most such differences are due to obvious human error by the examiners and not to failures of interpretation.

## Discussion

The main advantage of this type of examination is that the questions can be formulated to allow the candidate to be examined about previously well-defined and circumscribed areas of practical valid experience. If the marking routine is strictly adhered to, examiner unreliability is reduced to negligible proportions; because most of the correct answers are pre-determined a greater objectivity in marking can be achieved. The sections can be framed to cover a much wider, yet more clearly defined field than conventional essay questions and can be used to assess attitudes as well as recall of factual information. The particular MEQ, part of which has been reproduced above, produced two additional advantages in an even more defined way than would be possible with a conventional essay question. It provided the examiners with considerable insight into important areas of medical education which need strengthening. Thus, in one question 90 per cent of the candidates knew the remote dangers of 'coning' after lumbar puncture, but

comparatively few had a clear idea of what to say to a patient who had one single doubtful attack of disseminated sclerosis. When questioned about the healthy father who asked for a statutory sickness benefit certificate while his wife was in hospital, candidates who habitually gave certificates as an easy way out also failed to take other more important positive steps to help the man in his predicament: a question which had been set to explore administrative knowledge unexpectedly gave a measure of attitudes as well.

The MEQ, being constructed from real clinical situations is a source of learning experience. Agreeing on the marking is a searching and highly instructive exercise. This could be used not only for in-course assessment but also as a teaching method. In each of two groups of students, one could construct and the other mark such questions. Experience with this technique suggests that it has relatively few disadvantages. Occasionally candidates feel frustrated because they have not been given all the information they would normally like before trying to solve the problem. This criticism may stem from the failure of the candidate to understand what is being tested.

In any clinical branch of medicine, but especially in general practice, doctors may have to take decisions without all the information they would like to have. On the other hand, early diagnosis (and decision taking) depends on suspecting a diagnosis early when much information is lacking. The MEQ tests the candidate's 'index of suspicion' and this can be accurately compared with an answer prepared by a particular group of examiners drawing on their own extensive experience and complementing it as necessary with reference to appropriate studies. Like the construction of the multiple choice question paper, composition of an MEQ is a time-consuming affair involving a relatively large number of people.

*Assessing the MEQ*

The examination for membership of the Royal College of General Practitioners at present consists of five sections, three of which are 'written' papers, (multiple choice question paper—MCQ; traditional essay question paper—TEQ; modified essay question paper—MEQ), the remaining two sections being 'oral' examinations.

The results of the candidates' performances in TEQ and MEQ papers from two recent examinations are set out in table I.

In each case the candidates who scored more than the previously determined 'minimum pass level' are termed 'passes'; those who were within five per cent of this level are termed 'equivocal'; those who scored below this five per cent band are termed 'failures'.

TABLE I
DISTRIBUTION OF CANDIDATES' SCORES IN DIFFERENT PARTS OF TWO EXAMINATIONS

| | *Examination I* (57 *candidates*) | | *Examination II* (50 *candidates*) | |
|---|---|---|---|---|
| | *MEQ.* | *TEQ.* | *MEQ.* | *TEQ.* |
| Pass .. .. | 48 | 45 | 32 | 29 |
| Equivocal .. | 5 | 10 | 8 | 17 |
| Fail .. .. | 4 | 2 | 10 | 4 |
| | 57 | 57 | 50 | 50 |

The results show that in each examination a smaller proportion of candidates had been placed in the 'equivocal' category—a group which can give rise to much discussion at final adjudication.

In table II the examination results for each candidate in MEQ and TEQ papers have been compared with the candidate's performance in the examination as a whole, in each of two examinations.

TABLE II

COMPARISON OF THE RELATIONSHIPS OF PERFORMANCE IN MEQ AND TEQ PAPERS WITH PERFORMANCE IN EXAMINATIONS I AND II AS A WHOLE

| | *Examination I* (57 *candidates*) | *Examination II* (50 *candidates*) |
|---|---|---|
| MEQ closer relationship than TEQ .. .. .. .. | 8 | 15 |
| TEQ closer relationship than MEQ .. .. .. .. | 3 | 8 |
| No demonstrable difference .. .. .. .. .. | 46 | 37 |

Because the variables concerned are not entirely independent and because the numbers are small, the suggestion that the MEQ results have a better predictive value concerning the outcome of the examination remains an impression at the present time.

*Reactions of candidates.* Comments, even from those who failed the membership examination, have been favourable, the concensus of opinion being that this method of examination is both fair and relevant to general-practice experience. Some candidates however have had difficulty in allotting appropriate time to the different questions because they are not of uniform difficulty.

## Conclusion

Experience with this method of assessment has been sufficiently encouraging for the Board of Censors to incorporate it as an important feature in the examination for membership of the Royal College of General Practitioners.

## APPENDIX 1

### Specimen marking sheet

**Example 5.**

1. Anxiety, neurosis, tension state, anxiety state, psychogenic
   Attack of 'nerves' due to death of neighbour
   'Fear' allowed
   Allowed=thryrotoxicosis because could be precipitated by shock of Mrs A's death — 3

2. Examination (may be mentioned here or in 3, but is marked here)
   Confirm to her that she has no physical signs like Mrs A
   Examination may be mentioned either therapeutically or for purposes of exclusion, but should be mentioned or clearly implied, e.g. absence of abnormal signs — 3
   Exclude (signs of) thryotoxicosis

   **Not allowed here:** second opinion from consultant as a substitute for examination
   Tests mentioned that get 1 mark each:
   (BMR or $1^{131}$ tests will do) PBI — 1
   Hb — 1
   ESR — 1
   Skull x-ray — 1

   Mention of Mrs A's case gets two marks if the candidate indicates the difficulties of breaking professional confidence—tries to get her to admit it was Mrs A or is obviously aware that discussion of Mrs A must come from Mrs B and not from himself. Enquiries re anyone with similar troubles, etc. — 2

3. Reassurance, explanation, discussion of causes of anxiety, suggestion. Allow patient to talk out her feelings re Mrs A, listening. Examine thoroughly . . . tell Mrs B she is normal — 3

   Tranquillizers and sedatives (including therapeutic trial) — 1

   —see again for check review if worse
   —observation or period of observation
   —see over several weeks — 2
   (Seeing patient again should be definitely stated by candidate and not implied, to gain mark)

Total possible 18