

Continuing education – identifying our needs*

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Introduction

LET me begin by asking you to reflect on this question: what, in your opinion, is the most important factor influencing learning? Ausubel (1968), an educational psychologist of established reputation, says this: “If I had to reduce all of educational psychology to just one principle, I would say: the most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.”

Does this match your own experience? If Ausubel is right—and I believe he is—the identification of what a person knows, and by inference what he or she does not know, is of crucial importance in the process of learning. It is on this that my paper will focus.

Aims

Thus the purposes of this paper are:

1. To examine the concepts underlying the identification of knowledge deficits and learning needs.
2. To examine ways of applying these concepts.

Defining the known and learning needs

I want to examine first the concept of drawing a sharp line between what is known and what is not. In clinical medicine we spend a lot of time and expertise on defining clearly what the patient’s problem is, and separating this from what it is not, before treatment begins. In the same way in education it is necessary to define the learner’s educational problem before learning begins. This is done by defining what he or she knows as distinct from what he or she does not know.

Let me illustrate this principle by asking you to imagine a partly completed jigsaw puzzle. The completed part is what the learner knows, the rest is what is not known. Imagine how difficult it would be for you to complete the puzzle if you were forced to wear glasses

which grossly blurred your vision; you would find it hard to see the shape of what is known and equally hard to fit in the unknown pieces. Only when your vision is returned to normal will it be possible to see clearly the shape of the known, and fitting in the unknown will be much simpler.

This illustration suggests that defining the known is not just a matter of demonstrating how much the learner knows; it also enables both teacher and learner to determine the structure and organization of the existing knowledge. The new knowledge can then be presented in a way which makes it easier to assimilate and fit in with the old (Ginsburg and Opper, 1969).

Given that it is necessary to define sharply what needs to be learned, as distinct from what does not need to be learned, reflect for a moment on how you personally go about identifying gaps in individuals’ knowledge and their learning needs. I wonder how many of you are thinking that you would ask questions. Perhaps some of you are thinking that you would pose problems; and if you did pose problems, of course, there would always be questions related to those problems—questions such as “What is the solution to x?”, or “How would you tackle y?”.

Some of you may be thinking that you would observe the individual in action. But again there are related questions such as “What is he or she doing well?”, “What is he or she not doing well?”, “Why is it not being done well?” and “What can he or she do to improve their performance?”.

No matter how you approach the task of defining learning needs, you will find yourself inescapably having to ask questions.

Questioning

So questioning is the central act in identifying knowledge deficits and learning needs. Lest you feel that this is so evident that it can be dismissed without much further consideration, let me hasten to demonstrate that there is much more to questioning than is superficially apparent. For instance, Postman and Weingartner (1971) claim that “the art and science of asking questions is the source of all knowledge.” They go on to

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point out, however, that questions are the instruments of perception, and that the nature of the question, that is its form and assumptions, determines the nature of the answer.

Varieties of question

We all recognize that there are many varieties of question (Fabb *et al.*, 1976). There are closed, focused or convergent questions; there are open, diffuse or divergent questions; and there are all shades in between. There are low order questions requiring only the recall of factual information, and there are high order questions related to interpretation and problem solving, to decision making and to hypothesis testing, which cannot be answered from memory alone but which require reasoning. Questions may be directed to ascertaining feelings, attitudes and values, or they may be used to plumb the inner meanings which people ascribe to phenomena. For instance:

Questions seeking factual information: "What do you know about . . .?", "What is the answer?", "Are there any other answers?", "How will you apply this knowledge?"

Questions on observing a phenomenon: "What is it?", "Why is it so?", "What is the cause?", "What does it mean?"

Questions on observing an individual: "Why did you do this or that?", "What aspects were satisfactory?", "What aspects need improvement?", "What will he do/say next?"

Questions which explore understanding: "How did you get that answer?", "What is your understanding of this?", "What does this suggest?", "Does that remind you of anything?", "Do you see any relationship between x and y?", "If x is true, then what?"

Questions in problem solving: "How would you approach that problem?", "What are you thinking?", "What are the possible solutions?", "What is your conclusion?", "Are there any other conclusions?"

Questions in decision making: "What courses of action are available?", "How will you decide what to do?", "What will you do?", "Why have you chosen this course of action?", "What other actions could you take?"

Questions which accompany hypotheses: "Is it so?", "How can you demonstrate it is so?"

Questions which explore feelings and an individual's insight into his own behaviour: "How do you feel?", "How do you feel about . . .?", "Why do you feel this way?", "What is your attitude towards . . .?", "What do you value most about . . .?"

Questions which challenge: "Do you really believe that?", "What is your evidence for that?", "How will you go about proving that?", "How will you cope with that problem?", "Can you cope?"

Questions which seek a reflective response: "What do you worry about most?", "What bothers you most

about . . . (e.g. geriatrics, sexual problems)?" "What areas of concern do you have in . . .?", "What issues are most important to you in . . .?", "What problems do you have in . . .?", "What would happen if . . .?".
Questions which check an individual's perceptions: "How do you see/perceive this or that?", "What do you see/perceive . . .?", "What do you hear him/her saying?", "What do you feel he/she means?", "What does that mean to you?", "What does that mean for you?"

I hope these examples will underscore the great diversity of questions which can be asked and the great variety of responses which they invite. And if you are a self-directed learner, you simply substitute 'I' or 'me' for 'you' in all of these questions.

Relevant questions

"Question asking, if it is not to be a sterile, ritualised activity, has to deal with problems that are perceived as useful and realistic by the learners" (Postman and Weingartner, 1971).

To be relevant, we need to focus on the daily activities and problems of the learners. This can best be done by actively involving them in the selection of topics for learning, and by seeking from them the problems, issues and concerns which affect them as they go about their work.

Questions generated by the learner

One other aspect of questioning needs attention. How does one avoid generating questions only of interest to the teacher, whilst ignoring those of importance to the learner? If the teacher does all the questioning, this can and does happen. The obvious answer is to get the learner to ask the questions. Learners should play a central, if not exclusive role in framing questions they think are important. Part of the process of learning is the "re-phrasing, refining and dividing of a worth-knowing question into a series of answerable worth-knowing questions" (Postman and Weingartner, 1971). The answer to many questions is another question.

Divergent questions

The teacher skilled in questioning will therefore use certain types of question to stimulate the learner to generate further questions. These primary questions usually have one thing in common—they are open-ended or divergent and demand that the learner narrows the focus. An open question such as "What bothers you most about alcoholics?" leads the learner to ask many more focused questions, questions such as "How do I recognize an alcoholic amongst my patients?", "How can I help alcoholics to recognize and accept their condition?", "What are the social and family implications of alcoholism?", "How can or should I intervene to assist the family of the alcoholic?" and so on.

By using the divergent, open-ended question, the

skilful teacher can stimulate the learners to generate questions of which they are not at first aware. As Postman and Weingartner (1971) put it, ". . . divergent questions are instruments of 'consciousness expansion'. They reveal to learners new and relevant areas of enquiry, permitting, quite often, the discovery that one's original question is far less significant than the others it has suggested."

Divergent questions are of particular importance in education for family medicine as they enable teachers to bring learners face to face with the broader social and psychological issues of health care. They enable the teacher to draw the learners' attention to their own feelings, attitudes and values, and the effect they have on the care they provide.

'High standard' questions

Finally, the questioner needs to ask himself some questions about *his* questions—questions such as: "Will my questions increase the learner's will as well as his capacity to learn?", "Will they help to give him a sense of joy in learning?", "Will they help to provide the learner with confidence in his ability to learn?", "Will the process of answering the questions tend to stress the uniqueness of the learner?", "In order to get answers, will the learner be required to make enquiries?" (ask further questions, clarify items, make observations, classify data and so on), "Does each question allow for alternative answers?", "Will the answers help the learner to sense and understand the universals in the human condition and so enhance his ability to draw closer to other people?" (Postman and Weingartner, 1971).

"Will the questions draw out skills, attitudes and values as well as factual knowledge?", "Will the process of questioning encourage the learner to formulate his or her own questions and discover his or her own answers, thereby becoming a self-directed learner?", "Will the questions help the learner to become a more effective, efficient and caring family doctor?"

If the answers to these questions are all "Yes", we will have set a very high standard in medical education.

Settings in which questioning can be used

The clinical setting

In the clinical setting, colleagues habitually ask each other questions about their day-to-day work. But are the questions always the most thought-provoking? Could the quality of dialogue in the clinic be improved by the use of more divergent and high order questions, or by asking questions which require others to be generated? Could better understanding be achieved by using questions which explore feelings, values and attitudes, and heighten self-awareness?

I put it to you that the single most useful thing in improving the educational potency of the workplace

would be for all members of the health team to learn the skill of questioning. The dialogue which would result would facilitate the never-ending process of separating the known from the unknown—the process of identifying learning needs.

If the focus of interest is the problems that patients present, questions could be asked such as: "What is the most effective treatment for menopausal symptoms?", "What routine should be adopted for periodic health checks?" and "What is the most cost-effective way of investigating hypertension?"

Or, to be more patient specific: "What should we do for Mrs Jones with her rheumatoid arthritis?", "Would family therapy be helpful for the Robertson family?" and "Why are the Smith children always here with respiratory infections?"

Or, to be more doctor specific: "Why did you adopt that line of questioning with Mr Hobbs?", "Why did you carry out a full CNS examination on Jenny Hill?" and "Why did you give Mrs Johnson a high oestrogen contraceptive?"

Some of the above questions will be derived from direct observation, some from record review and some from case discussion, and the answers to these questions will uncover knowledge deficits and highlight learning needs.

Taking a wider view, questions about the patterns within the practice could be asked: "What is the referral rate and the reasons for referral?", "What are the prescribing patterns?", "How many repeat prescriptions are issued?", "What is the pattern of prescribing psychotropics?", "What office procedures and investigations are done, and for what reason?" and "What is the morbidity pattern in this area?"

Practice surveys would be needed to answer the latter questions. Medical record review is one method commonly used. Experience in the Birmingham Research Unit (Royal College of General Practitioners, 1977) has shown that discussing the results of such surveys in the practice setting can produce changes in behaviour. Gaps in knowledge and skills are demonstrated, leading to corrective action.

Looking at the clinical practice as a health service provider, questions can be asked about its efficiency and effectiveness: "What is the waiting time at the clinic?", "How readily can patients be seen out of hours or at home?", "What is the consulting rate?", "What is the productivity of the clinic?", "What critical incidents have occurred—unexpected deaths, complaints, injury in the clinic?", "What do our patients feel about the services provided?" and "What is the quality of the medical record system?"

All of these questions concern both individuals in the clinic and the clinic as a whole, and answers to them would identify deficits in the practice and its health professionals.

Clearly, the practice setting has enormous potential as an environment for identifying needs. Certainly what

happens there must be relevant to the doctors' day-to-day work. Their deficits in coping both with the conditions they see and the disability and social disruption these conditions cause can be identified by the skilful use of questions, questions and more questions. Methods which are commonly used to generate questions include (Fabb, 1979): informal hour-by-hour dialogue, case discussion, direct observation, medical record review, review of consultants' reports and letters and practice surveys. As you will realize, these are all part of the process of peer review and practice audit, and are components of the process of ensuring quality of care.

Educational settings

Outside the clinical environment, there are many approaches to identifying learning needs. Perhaps the most potent is the learning group. Our experience (Fabb *et al.*, 1976), and that in the UK and North America, has demonstrated that this is the most effective learning environment outside the practice—providing the group is relatively small (somewhere between eight and 15 members), relatively stable in membership and conducive to open, honest communication and the full participation of all of its members and not dominated by the resource person. Such a group makes it possible to share individual problems and concerns, discuss issues of common interest, ask a variety of relevant questions and identify deficiencies and learning needs. The mutual support and the expert input enables participants to correct these deficiencies.

Apart from learning groups, there are traditional lectures, symposia and panel discussions, all of which have their place. Perhaps their greatest drawback is the inherent difficulty of discovering the learner's educational needs.

One method of learning which gets little mention, but which has been shown to be of considerable importance to most professionals, is private study. Many doctors gain much from reading books and periodicals, and many now use audiovisual aids, including videotapes. It is known that the more active the learner is during his or her learning, the more he or she will get out of it. Activity implies being alert, formulating questions clearly, and responding to questions or problems within the educational material. Again, the process of questioning, both by the learner and the author of the material, is central to the learning process.

This is why self-assessment programmes have become so popular as an effective learning method. Most of you will be aware of the self-assessment programmes of the American Academy (American Academy of Family Physicians, 1978) and the Canadian College (College of Family Physicians of Canada, 1980). The College of General Practitioners in Australia has its own programme, the CHECK programme of self-assessment (Royal Australian College of General Practitioners, 1980), which has been available since 1972, and many

Inderal Abridged Prescribing Information

DOSAGE AND ADMINISTRATION: 1. **HYPERTENSION** INITIALLY 80 MG TWICE DAILY INCREASING TO 160 MG TWICE DAILY AFTER ONE WEEK, AS NECESSARY. 2. **ANGINA** INITIALLY 40 MG TWO OR THREE TIMES DAILY INCREASING AS NECESSARY AT WEEKLY INTERVALS. AN ADEQUATE RESPONSE IS USUALLY SEEN IN THE RANGE 120-240 MG/DAY. **CONTRAINDICATIONS, WARNINGS ETC.** 'INDERAL' SHOULD NOT BE USED: 1. IN THE PRESENCE OF SECOND AND THIRD DEGREE HEART BLOCK. 2. IF THERE IS A HISTORY OF BRONCHOSPASM. 3. AFTER PROLONGED FASTING. 4. IN METABOLIC ACIDOSIS (EG IN SOME DIABETICS). 5. WITH VERAPAMIL, AND NEITHER DRUG SHOULD BE ADMINISTERED WITHIN SEVERAL DAYS OF DISCONTINUING THE OTHER. **PRECAUTIONS** 1. SPECIAL CARE SHOULD BE TAKEN IN PATIENTS WHOSE CARDIAC RESERVE IS POOR. 2. BRADYCARDIA (USUALLY LESS THAN 50-55 BEATS/MIN) INDICATES THAT DOSAGE SHOULD NOT BE FURTHER INCREASED. 3. IT IS IMPORTANT THAT A BETA BLOCKING AGENT IS NOT DISCONTINUED ABRUPTLY. 4. AS WITH ALL OTHER DRUGS, 'INDERAL' SHOULD NOT BE GIVEN IN PREGNANCY UNLESS ITS USE IS ESSENTIAL. 5. IF 'INDERAL' AND CLONIDINE ARE GIVEN CONCURRENTLY THE CLONIDINE SHOULD NOT BE DISCONTINUED UNTIL SEVERAL DAYS AFTER THE WITHDRAWAL OF THE BETA BLOCKER (SEE ALSO PRESCRIBING INFORMATION ON CLONIDINE). **ANAESTHESIA** 'INDERAL' MAY CAUSE AN ALTERED RESPONSE TO STRESS AND THEREFORE IT MAY BE NECESSARY TO WITHDRAW THE DRUG BEFORE SURGERY: SEE THE DATA SHEET. **ADVERSE REACTIONS** 'INDERAL' IS USUALLY WELL-TOLERATED. MINOR SIDE EFFECTS SUCH AS COLD EXTREMITIES, NAUSEA, INSOMNIA, LASSITUDE AND DIARRHOEA ARE USUALLY TRANSIENT, RESOLVING ON WITHDRAWAL OF THE DRUG. THERE HAVE BEEN REPORTS OF SKIN RASHES AND/OR DRY EYES ASSOCIATED WITH THE USE OF BETA BLOCKING DRUGS. THE REPORTED INCIDENCE IS SMALL AND IN MOST CASES THE SYMPTOMS HAVE CLEARED WHEN TREATMENT WAS WITHDRAWN. DISCONTINUANCE OF THE DRUG SHOULD BE CONSIDERED IF ANY SUCH REACTION IS NOT OTHERWISE EXPLICABLE. CESSATION OF THERAPY WITH A BETA ADRENERGIC BLOCKER SHOULD BE GRADUAL. IN THE RARE EVENT OF INTOLERANCE TO 'INDERAL' MANIFESTED AS BRADYCARDIA AND HYPOTENSION, THE DRUG SHOULD BE WITHDRAWN AND TREATMENT INSTITUTED AS FOLLOWS. **OVERDOSAGE** EXCESSIVE BRADYCARDIA CAN BE COUNTERED WITH ATROPINE 1-2 MG INTRAVENOUSLY, FOLLOWED, IF NECESSARY, BY A BETA RECEPTOR STIMULANT SUCH AS ISOPRENALINE 25 MICROGRAMS INTRAVENOUSLY OR ORCIPRENALINE 0.5 MG INTRAVENOUSLY. 'INDERAL' IS A TRADEMARK FOR PROPRANOLOL HYDROCHLORIDE. FULL PRESCRIBING INFORMATION IS AVAILABLE FROM: IMPERIAL CHEMICAL INDUSTRIES LIMITED, PHARMACEUTICALS DIVISION, ALDERLEY HOUSE, ALDERLEY PARK, MACCLESFIELD, CHESHIRE SK10 4TF. **P.L. NOS** 0029/5064 (40 MG TABLETS). 0029/5065 (80 MG TABLETS). 0029/0103 (160 MG TABLETS). **BASIC NHS PRICES:** 40 MG 250...£9.69, 1000...£36.63; 80 MG 100...£5.82, 500...£27.37; 160 MG 50...£5.82, 250...£27.37.



INDERAL

Propranolol Hydrochloride

other countries are producing similar programmes.

The principle is the same in all of these programmes—the user is challenged with questions, or problems followed by questions, to which he or she has to respond. The learner is then given the answers, and, in some cases, the reasons for the answers, together with related educational material which enables him or her to understand fully the subject under discussion. Our experience with self-assessment programmes leads us to believe that they are amongst the most potent tools available in medical education today.

There are other educational methods such as computer-assisted instruction, dial-a-library services, telephone hook-ups and broadcast medical television. No matter how technically sophisticated these might be, their effectiveness will depend on their capacity to help learners define their learning needs sharply by challenging them with questions relevant to their daily work, and by meeting the needs they identify.

Conclusion

The methods that I have described are for the most part well known and in common use. What is more important than the method, however, is the process of questioning used. The skilful use of questioning is an essential ingredient of success in them all.

In conclusion, I leave you with just three principles to use in identifying learning needs:

1. Define sharply what is known from what is not known.
2. Use questioning in all its forms to do this.
3. Select educational methods which use these principles, with special emphasis on:
 - a) the clinical environment.
 - b) the small learning group.
 - c) self-assessment programmes.

Perhaps I should end as I began—with a question: what does all this mean for you?

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DOCTORS ON THE MOVE

Occasional Paper 7

At a time when organizational changes are coming thick and fast in general practice, *Occasional Paper 7* reports a novel and interesting experiment in which the premises of one general practice were completely reorganized so that traditional consulting rooms were replaced and the doctor, instead of remaining static in one room, moved around.

Coupled with the increase in the role of nursing colleagues, this experiment has been carefully evaluated and measurements include the time spent by doctors, the work of the nurses and the opinions of the patients.

Doctors on the Move summarizes this radical innovation in practice organization and is available now, price £3.00 including postage, from the Royal College of General Practitioners, 14 Princes Gate, London SW7 1PU. Payment should be made with order.

Smallpox vaccination

In 1980 there were nine reports of vaccinia lesions received by the Communicable Disease Surveillance Centre, compared with 21 in 1979. Three of the patients had themselves been vaccinated, three were contacts of vaccinated people and in three the source of infection could not be traced. "Doctors are reminded that intending travellers who require vaccination should receive it only if it is made clear to them that there is now no medical reason for vaccination of travellers, and that the procedure may be hazardous to them and to their contacts."

Source: PHLS Communicable Disease Surveillance Centre, *Communicable Disease Report*, 81/02.