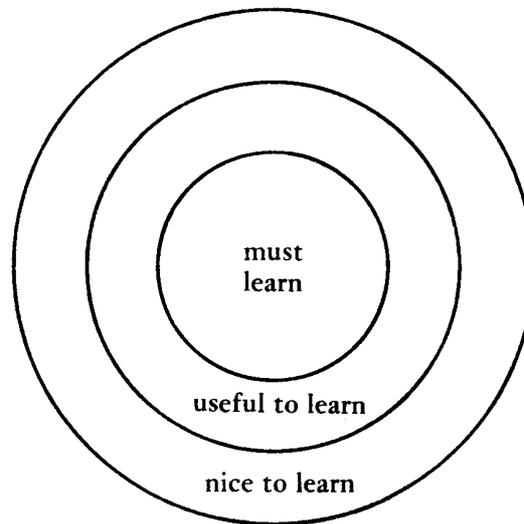


TEACHING *for better* **LEARNING**



**A guide for teachers of
primary health care staff**

Original text by **F R Abbatt**.
Revised and republished by Network Learning, August 2002.

www.networklearning.org

Contents

Introduction	1
A summary of the manual	1
Section 1 What should your students learn?	3
chapter 1 An overview of teaching	3
1.1 Some basic principles	3
1.2 The main aim of a course should be to train students to do a job	4
1.3 Teachers should select what students must learn	4
1.4 Teachers should then help the students to learn	5
1.5 Why not teach everything?	5
1.6 How can you decide what students must learn?	6
1.7 How much can each teacher do?	7
1.8 Summary	8
chapter 2 Community Analysis	9
2.1 Finding out about the job	10
2.2 What is a Community Analysis?	10
2.3 What can the teacher do?	11
2.4 Preparing a job specification	11
2.5 The importance of the job specification	13
2.6 Summary	13
chapter 3 Task Analysis	14
3.1 What is task analysis?	15
3.2 An example of a task analysis	15
3.3 The stages in doing a task analysis	17
3.4 Selecting the task	17
3.5 Selecting the sources of information	17
3.6 Collecting the information	18
3.7 Listing the sub-tasks	19
3.8 Deciding on knowledge, skills and attitudes	20
3.9 Checking the task analysis table	21
3.10 Using the task analysis table	21
3.11 How can teachers find time for task analysis?	22
3.12 A less straightforward task	23
3.13 Summary	25
chapter 4 Planning Lessons and Curricula	26
4.1 What is a curriculum?	26
4.2 Lessons plans and the curriculum	27
4.3 When should teachers be involved in planning curricula and lessons?	27
4.4 Organising the course outline	27
4.5 What kinds of teaching methods will be used?	29

4.6	What kind of assessment methods will be used?	30
4.7	Evaluating the curriculum	30
4.8	Methods of evaluating the curriculum	31
4.9	Evaluating lessons	32
4.10	Summary	33
Section 2 How to help your students learn		34
chapter 5	Introduction to teaching methods	34
5.1	The role of the teacher	34
5.2	How well do you teach?.....	35
5.3	Active learning	36
5.4	Giving feedback.....	38
5.5	Clarity	39
5.6	Making your teaching meaningful.....	39
5.7	Ensuring mastery	40
5.8	Individualise	41
5.9	Caring	43
5.10	Motivation	44
5.11	Conclusion	44
chapter 6	How to teach attitudes	46
6.1	Are attitudes important?.....	46
6.2	How to teach attitudes.....	47
6.3	Providing information to shape attitudes	47
6.4	Providing examples or models to shape attitudes.....	48
6.5	Providing experience to shape attitudes.....	48
6.6	Providing discussion to shape attitudes	49
6.7	Role-playing exercises	50
6.8	Conclusion	50
chapter 7	How to teach skills	52
What is a skill?		52
7.1	Are skills important?.....	52
7.2	Methods of teaching skills	52
7.3	Describing a skill.....	53
7.4	Demonstrating a skill	55
7.5	Providing practice in performing skills	57
7.6	Using role playing to teach skills	58
7.7	The Implications of the AIDS epidemic	60
7.8	Projects	60
7.9	Simulators	61
7.10	Job experience	61
7.11	How much time is needed?	62
7.12	Summary	62
chapter 8	How to teach knowledge	63
How important is knowledge?		63

8.1	Teaching different types of facts	63
8.2	Where should students get the facts from?	64
8.3	Planning the topics of the lecture	65
8.4	Giving the lecture	65
8.5	How to speak in the lecture.....	66
8.6	Visual aids	67
8.7	Using handouts in lectures	67
8.8	Summary	69
Section 3 Checking your students have learnt		70
chapter 9	General issues in assessment	70
9.1	Why must students be assessed?	70
9.2	What makes a good assessment?.....	71
9.3	Making sure that assessment tests really important skills and abilities.....	71
9.4	Making assessment reliable.....	72
9.5	Using assessment to help learning.....	72
9.6	Continuous assessment	73
9.7	Self-assessment.....	74
9.8	Peer-assessment.....	75
9.9	Summary	76
chapter 10	Assessment methods	78
10.1	Oral exams	78
10.2	Essays	78
10.3	Short answer questions	79
10.4	Multiple-choice questions	80
10.5	Patient management problems.....	83
10.6	Project reports	84
10.7	Record books	85
10.8	Check-lists	86
10.9	In-course assessment.....	87
10.10	Conclusion	88

Introduction

A summary of the manual

This manual was originally written in 1980 with help from WHO. This version has been updated and edited to make it shorter and more manageable. It is designed to help teachers running longer courses, of perhaps six or twelve months.

It is written specifically for Health Care Staff. But if you want to train workers in a different field, read the manual and mentally replace each health example with another from your own field. The basic principles of training stay the same whenever you are training someone to do a job.

The manual is arranged in three Sections.

Section 1 deals with the general problem of what students should learn. This is an important issue because complaints are often made that students may know the facts but are not good at applying them. Or, *"students are trained to use equipment or drugs which are not available in the villages."* Or, *"the skills which students learn will not help to solve the real problems of the rural areas."*

The method suggested in chapter 1 is to train students to do a specific job rather than to learn a number of academic disciplines. To do this, the job must be defined and related to the health needs of the community. This process is explained in chapter 2. Chapter 3 looks at the job in more detail so that the teachers can decide exactly what needs to be learnt during a lesson. The technique described for looking at the job is called 'task analysis'.

Section 2 will help you to choose the most suitable teaching methods. Chapter 5 gives a summary of the general ways in which the teacher can help students to learn. Chapters 6, 7 and 8 concentrate on the specific problems of teaching attitudes, skills and knowledge.

Section 3 will help you to test your students. The Section explains the value of testing in helping students to learn and in helping the teacher to improve his own work. Various assessment methods are explained in Chapter 10, with examples which can be adapted and used with a wide range of students.

Section 1 What should your students learn?

chapter 1 An overview of teaching

This chapter makes the following points:

- The purpose of training programmes is to prepare students to do a job.
- Teachers should concentrate on the essential facts, skills and attitudes. It will not be possible or desirable to teach everything.
- Teachers should base their teaching on the real health problems of the community and on the work their students will be expected to do.
- Teachers can plan courses and lessons using two techniques called community analysis and task analysis.

a story

A community nurse completed her training and passed all the exams at the end of the course. She was given two weeks leave before she started her work, so she went back to her village to spend some time with her family. It was a long journey because the nurse's family lived in a remote village. But when she arrived everybody was pleased to see her again. Her mother was specially pleased and very proud that her daughter had done so well.

After the first greetings, the mother said *"It is good that you are back because your baby cousin is ill. The baby has diarrhoea and doesn't look well to me. Do you think that you could help?"* So the nurse went to see the baby and realised that it was very dehydrated. She thought the baby should go to a health centre, but the journey was too far. So she thought about what she had been taught. She could remember the anatomy of the gastro-intestinal tract and all about electrolyte balance. And she remembered that a mixture of salt and sugar in water would help. But she couldn't remember how much sugar and how much salt to put in the water.

She was very worried that the amounts would be wrong. She didn't know whether to send for help and advice or to guess the amounts. In the end she thought that the baby was so sick she would have to do something. She made up the sugar and salt solution in the wrong proportions and the baby died.

moral

Some courses can spend too much time on detailed facts so the less detailed but important facts and skills are not well learnt.

1.1 Some basic principles

The story shows what can happen when a course for training primary health care

staff is unsuccessful. But what makes a successful course? The following are basic principles:

Basic Principles

- 1 The main aim of the course should be to train students to do a job.
 - 2 Teachers should select what students must learn.
 - 3 Teachers should then help the students to learn.
-

These may seem to be very obvious points, but they do have important consequences. These consequences are briefly explained in the next few paragraphs.

1.2 The main aim of a course should be to train students to do a job

This is the basic principle on which this book is based. It means that if students at the end of a course can do the job competently then the course has been successful. If the students cannot do the work of a medical auxiliary or a community midwife then the course has failed.

A consequence of this principle is that the teachers must know a lot about the work which the students will be doing. The teachers should see experienced health care staff doing their work. The teachers should talk to the health care staff about the problems in providing health care. The whole course should be closely linked to the way in which health care is provided. Chapter 3 explains how this may be done.

The major consequence of this principle is that at the end of the course, *students will be able to do something* – not just *know about* something.

1.3 Teachers should select what students must learn

A major responsibility for all teachers is making decisions about exactly what students should learn. In some courses the teachers are given a curriculum or syllabus to follow. But this will always leave a lot of scope to the individual teacher – it simply is not possible or sensible to write down a course in very great detail.

So teachers will be involved in making decisions about:

- how much detail the students should learn
- which facts are important
- what standards of performance are required.

The teachers will make these decisions all the time when they are talking in the lecture room, when they are planning field experience for their students and, most importantly, when they are setting or marking examinations or tests.

1.4 Teachers should then help the students to learn

I heard one teacher at the end of a very detailed lecture say "*I do not mind how much of this you remember. But never say that I have not told you about...*"

This is a completely wrong approach. The job of the teacher is to help students to learn. It does not matter whether the teacher tells the students something or whether they find it out from books or from their own experience. What does matter is whether the students learn how to do the work successfully.

There are lots of ways that teachers can help students to learn. These are explained in detail in Section 2.

Sometimes this idea is summarised by saying that the teacher should be a '*facilitator*' or that the teacher should '*facilitate learning*'.

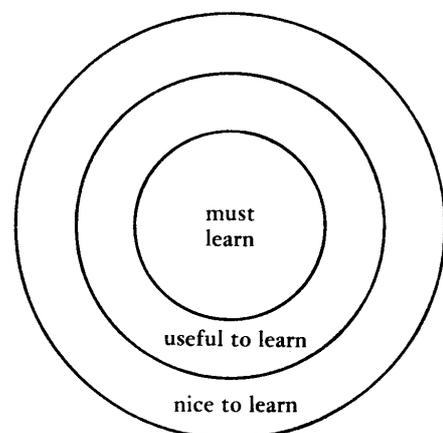
1.5 Why not teach everything?

Some teachers do not like the idea of selecting the most important facts or skills. They feel that their students should learn everything.

Unfortunately it is not possible to learn everything! Knowledge of the human body and medicine, understanding of traditions and ways of behaving in a society, skills in administration and in educational methods are all relevant to health care staff. Learning all that is known in all of these fields would be beyond the scope of the most able student in the largest course. So some selection is essential.

This can be summarised in the diagram:

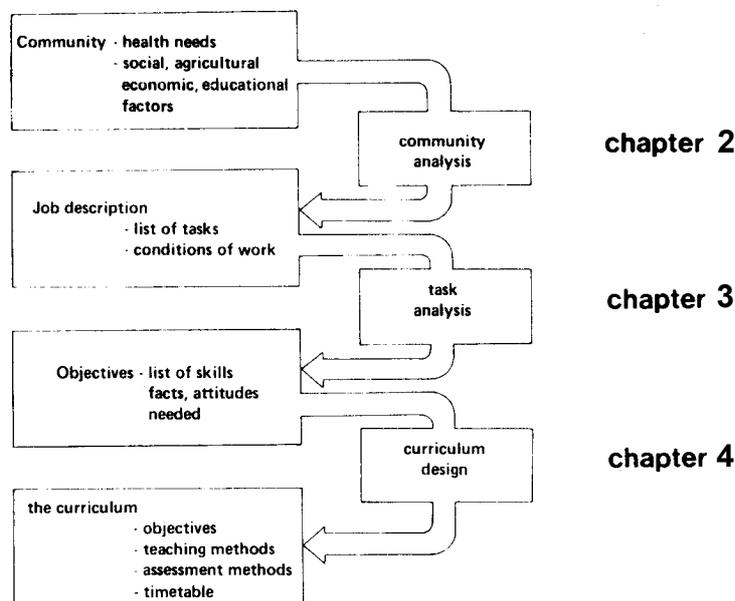
"must learn" is the target. These are the things which *every* student must learn if he is going to be competent in his job. These are the things which the teacher should stress when he is helping students to learn. These are the things which will be tested in exams.



Surrounding the “*must learn*” target there are very many other things which are “*useful to learn*”. But these do not need the same emphasis. Nor should they be tested as thoroughly in exams.

Then again there are very many other facts and skills which are only “*nice to learn*”. Of course, teachers should not prevent students learning anything. In fact they should show students how to learn by using books, conversations and direct experience of the world. But *the teacher's main responsibility is to decide what students must learn and to make sure that the students do learn it.*

1.6 How can you decide what students must learn?



The complete process of deciding what students must learn is shown in the diagram. This probably looks complicated and too much work for a teacher to do. Many teachers have a very full timetable and no spare time. However it is important that all teachers working with primary health care staff know about this process. Then the teachers who have enough time will be able to follow the process in detail. The teachers with less time will be able to use parts of the process. Suggestions for ways in which any teacher can use the process are given in 1.7.

The starting point is the community – that is, the village, town or region and the people living there. This should be studied using a method called community analysis. This is explained in Chapter 2. The aim of the community analysis is to find out exactly what job the primary health care staff will do. This is written down as a list of tasks

which the health worker will do. These might be for example:

- persuade mothers to breast-feed babies
- advise farmers how to store food
- etc. etc.

The next stage is to find out what is involved in each of the tasks. This process is called task analysis and is explained in Chapter 3. The result of the task analysis is a list of skills, with knowledge and attitudes which the health worker will need for each task. For example, the task "*persuade mothers to breast-feed babies*" will require knowledge about the nutritional value of breast milk and the dangers of bottle-feeding. The health worker will also need to have skills in communicating with mothers.

The skills, knowledge and attitudes will be the objectives of the course. That is, a list of the things which students will be able to do at the end of the course.

The third and final stage is to organise these objectives into a course or a lesson. This stage is called curriculum design and is described in Chapter 4. The curriculum consists of the objectives plus:

- details of the general teaching methods which will be used (lectures, group discussions, work in the field)
- assessment methods (when students will be tested, what kind of exam will be used)
- timetable (how much time will be spent on each part of the course and where it will be taught)

1.7 How much can each teacher do?

No teacher can do all the things described above. But each teacher should base his teaching on the principles described.

To do this, teachers should think about the community where his students will be working. He should talk to experienced health workers who know the community and should find out what the real problems are. This is a start towards doing a community analysis.

Teachers should also think about the different tasks the students are being trained to do. Must students learn the detailed anatomy of the breast in order to persuade mothers to breast feed their babies? Or is it more important to learn about communication methods? If teachers ask this kind of question the detailed content of lessons will be improved.

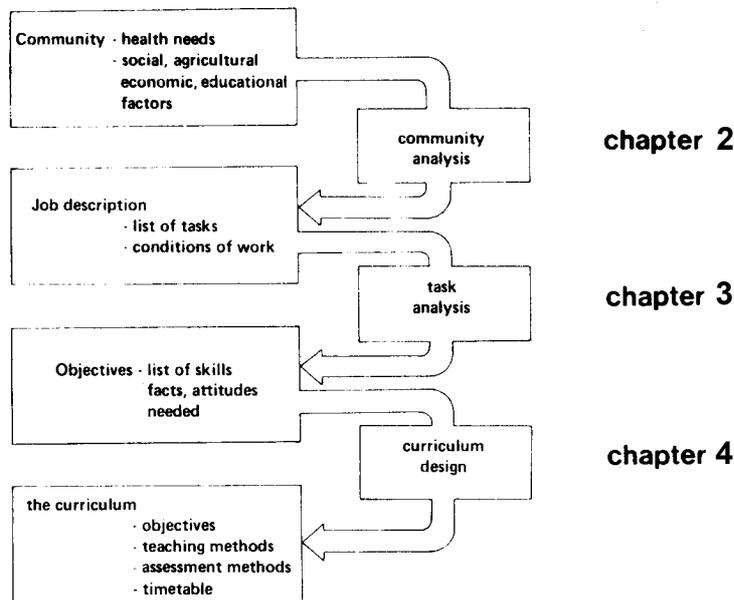
Teachers should also think about the methods they will use and about how much time they are going to spend on each part of their course or lesson.

In summary no teacher can do a complete community analysis plus a task analysis for each task plus a thorough curriculum design. But each can think about teaching in these ways.

1.8 Summary

-
- 1) The aim of a course or a lesson should be to help the students learn how to do the job which they are being trained for.
 - 2) Teacher must select what things students *must learn* and then make sure that the students learn them.
 - 3) Community analysis and task analysis are methods used for deciding what students must learn.
 - 4) Teachers do not have time to do a complete community analysis or a series of task analyses. But they should think about their teaching using these ideas.
-

chapter 2 Community Analysis



In this chapter the main points are:

- teachers must know exactly the kind of work that their students will be doing
- community analysis is the name of a technique which will give teachers this information
- very few teachers will have enough time to do a full community analysis, so some '*shortcuts*' are explained

a story

A health assistant completed his training at college and went to work at a Health Centre as a member of the rural health services team. One of his tasks was to provide health education. He soon found that one of the problems in the area was lack of protein in the diet. So he explained to the villagers that they should eat more meat and grow beans instead of cassava. The villagers tried to follow his advice but they had very few animals and so could not afford to kill any more for eating. Nor did they know how to grow beans. The farmers came back to the health assistant and said "*Tell us how to grow beans. Where can we get the seed? When do we plant the seed? How do we look after the plants?*"

The health assistant didn't know the answers because he hadn't been taught how to grow food. He only knew that soya-beans have 34% protein, groundnuts have 23%, ordinary beans have 20% while cassava only has 1%. This information didn't help the farmers!

moral

The course for health assistants had concentrated on the facts of nutrition. It had not prepared the health assistant to do the essential jobs in the community like giving practical advice about how to improve the diet.

2.1 Finding out about the job

Most teachers would agree that they should prepare their students to do a useful job in the community. They may say "*I am training Health Assistants*" or "*my students will be Community Nurses*". But this is not enough. The teachers need to have a clear and detailed idea of what the students will be doing.

So, how can teachers find out about the job?

There are several ways.

- The teachers may have been Health Assistants or Community Nurses very recently. This gives them a big advantage over other teachers. These teachers should share their practical experience with the students and with other teachers.
- The Ministry of Health may have prepared a detailed '*job specification*'. (A job specification is simply a list of all the things which a person in that job will do). This can be extremely useful in guiding the teachers – but unfortunately detailed job specifications are quite rare.
- The teachers may need to do some form of community analysis which will provide a job specification. The rest of this chapter explains how you can do this.

2.2 What is a Community Analysis?

Community Analysis is a method of finding out about the health needs of a community. This is used to prepare the job specification – which in turn helps the teacher to decide what the students should learn.

A community analysis can be a very complicated process done by teams of experts. But it can also be very much simpler and within the scope of teachers and their students.

The main aim of the analysis is to find out what the community (a village, a group of villages, or a region) is like. First of all, the common diseases are identified. Then the other factors which lead to disease are investigated. These are likely to include

- educational factors—do the people know about food hygiene, nutrition, methods of waste disposal, etc?
- social factors—do the women have to look after the crops as well as prepare food and keep the home clean?
- economic factors—do the farmers sell their produce at a market so that they can buy fertilisers and equipment?
- cultural factors—are there traditions or religious beliefs which affect either

the diet or attitudes towards ideas such as child spacing?

- agricultural factors—what kinds of food can be grown?

The common diseases must be known so that courses can prepare students to provide curative health care (i.e. curing people who are sick). Equally these other factors must be understood so that preventive health care can be provided (i.e. helping people to avoid sickness).

2.3 What can the teacher do?

In many countries the Ministry of Health will probably be responsible for doing this kind of analysis. But even in these countries the analysis may not be completed – or sometimes not even started. So teachers have to find out for themselves.

They don't need to stop teaching for a year to do this! Instead they can use some of the ideas below

- talk to health workers. Talk to the people who work in the community. Ask them what kinds of cases are more common. Ask them what the nutritional problems are – and how they think the problems can be solved. Ask them what traditions must be recognised. And so on.
- talk to former students. Ask the same kind of questions of students who have graduated and are now working in the field. Ask them also about the things which they think were good about the course. Ask them whether there were any gaps in the course.
- talk to the people in the community. Ask the people what kind of help they need.
- use your own students. Most health workers should be able to do some form of community analysis. So give your students practical experience. Send them into the community to do project work and to find out what kinds of health care are needed.

Using these ideas teachers can learn a lot about the community without spending a very large amount of time.

2.4 Preparing a job specification

This information will lead to a list of tasks which the health worker must be trained to do. This list must take into account the work done by other members of the health care team.

An example of a job specification

Health Assistant

1. General Definition

The Health Assistant is the member of the rural health services team with primary function of supporting the improvement of environmental factors such as water supply, waste disposal and food hygiene. His role is disease prevention through the interruption of transmission, through increasing public immunity and through health education. The Health Assistant's activities may be described under the following headings

- A Surveys
- B Inspection and sampling
- C Health education
- D Construction of sanitary facilities
- E Maintenance and treatment of sanitary facilities
- F Communicable disease activities
- G General administration

2. Specific Duties

- A Surveys
 - 1 Prepare and maintain up-to-date maps showing:
 - (a) villages
 - (b) markets
 - (c) health facilities, (health centre, health subcentre, dispensaries, private health facilities)
 - 2 Maintain up-to-date information as to
 - (a) water sources (protected and unprotected)
 - (b)

and so on

This job specification gives a general idea of what the Health Assistant should do: "*primary function of supporting the improvement of environmental factors such as water supply . . .*" and "*disease prevention through the interruption of transmission . . .*". Some job descriptions only go as far as this level of detail. Whilst any job specification is better than none at all, teachers really require more detail to help them plan lessons and courses.

So the example given is a good one because it does say what the health assistant will do. For example "*prepare and maintain up-to-date maps showing (a) villages . . .*"

Clearly the Health Assistant must learn how to do this task.

2.5 The importance of the job specification

The job specification is the list of objectives for the course.

If the students can do each of the tasks listed in the job specification, then the course has been successful.

The job specification is the basis for the course. Every teaching session should be designed to help the student learn how to do one or more of the tasks. Any assessment should be designed to test whether the student will be able to do the tasks.

2.6 Summary

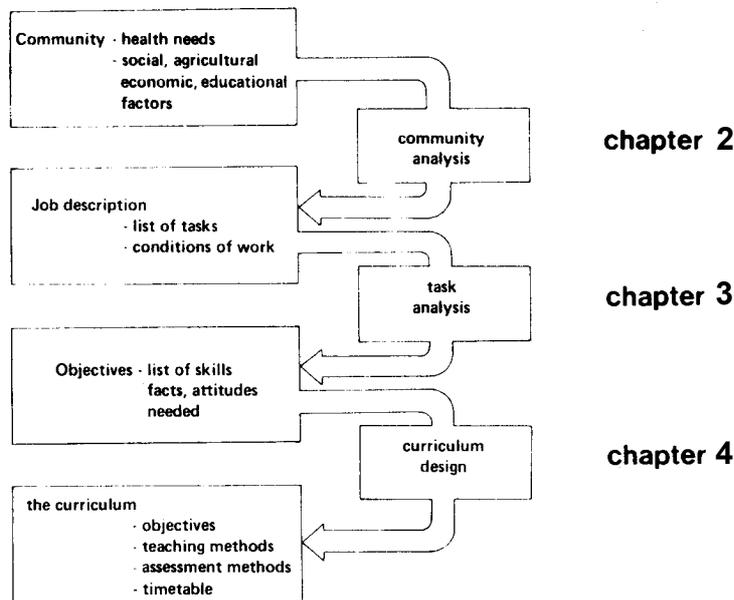
Teachers help their students learn how to do a job. Therefore the teachers must know exactly what this job is.

Community analysis helps teachers to find out more about the job.

Teachers can do an internal community analysis by talking to health workers, other teachers and the people in the community. Their students should also help in community analysis.

The job specification produced at the end of the community analysis is a list of the objectives for the course.

chapter 3 Task Analysis



This chapter explains how teachers can look at a job specification in more detail to find out exactly what needs to be learnt.

a story

Mr. W, a teacher in a college of health sciences, was asked to teach a group of trainee *'Nursing Orderlies'* about weighing babies in an MCH Clinic. He carefully planned a series of lectures about child development and told the students about nutrition and malnutrition. He explained why babies should be weighed regularly and he brought scales into the classroom and demonstrated how to weigh a baby. At the end of the course the students took an exam in which they wrote short notes on questions like *'what are the major causes of malnutrition'*, and *'list 3 reasons for weighing babies regularly'*. The students all answered the questions quite well and Mr. W was pleased.

However, when the Nursing Orderlies started to work in the MCH Clinics there was chaos. They did not know how to organise the queue of mothers and children because nobody had told them how. They didn't know how to record the weights on the Growth Chart, because they had never used graphs and didn't understand them.

What went wrong? Even though the tasks were specified (weighing babies) Mr. W had not thought about how the students would do the task – he had not done a Task Analysis.

So this chapter describes how to do a Task Analysis. The task analysis will help teachers to make sure that their students learn exactly how to do each of the tasks in their job.

3.1 What is task analysis?

Task analysis is a method of looking at some part of a person's job (a task) and writing down exactly what is done. This description is then analysed to find out what students need to learn in order to do the task well. Like community analysis, task analysis can be done in great detail by professional teams who may take years to do a full task analysis. But it can also be done in much less detail and much more quickly by teachers. This less detailed approach will still be extremely valuable and will be described in this chapter.

3.2 An example of a task analysis

If Mr. W had analysed the task of weighing babies in an MCH Clinic he might have produced something like the example below.

This task analysis has been done for a specific category of health worker in one country. Health workers may do the weighing rather differently in your country. They may not use the weighing trousers or they may not examine the baby at all when it is weighed. On the other hand they may do a much more thorough examination. This task analysis is not intended as a perfect model of how to weigh babies in every country. It is just an example of how to write down a task analysis.

What does this example show?

First, the whole task – weighing a baby – is broken down into stages. These stages may be called sub-tasks or parts of the task. The sub-tasks can be of various types. The most obvious sub-tasks are when the nursing orderly does something which you can see – like putting the baby on the scale or recording the weight on the chart. These are – *actions*.

Other sub-tasks are equally important but can be less obvious. For example, the nurse orderly asks the mothers to prepare the babies by putting on weighing trousers. This is a *communication*. This stage must be done and it must be done in the right way or the mothers may be annoyed at the way the nursing orderly speaks to them and not come back to the clinic.

Another kind of sub-task is to make *decisions*. You cannot see this being done so you may not realise what decisions are being made. But obviously they are important and must be recorded.

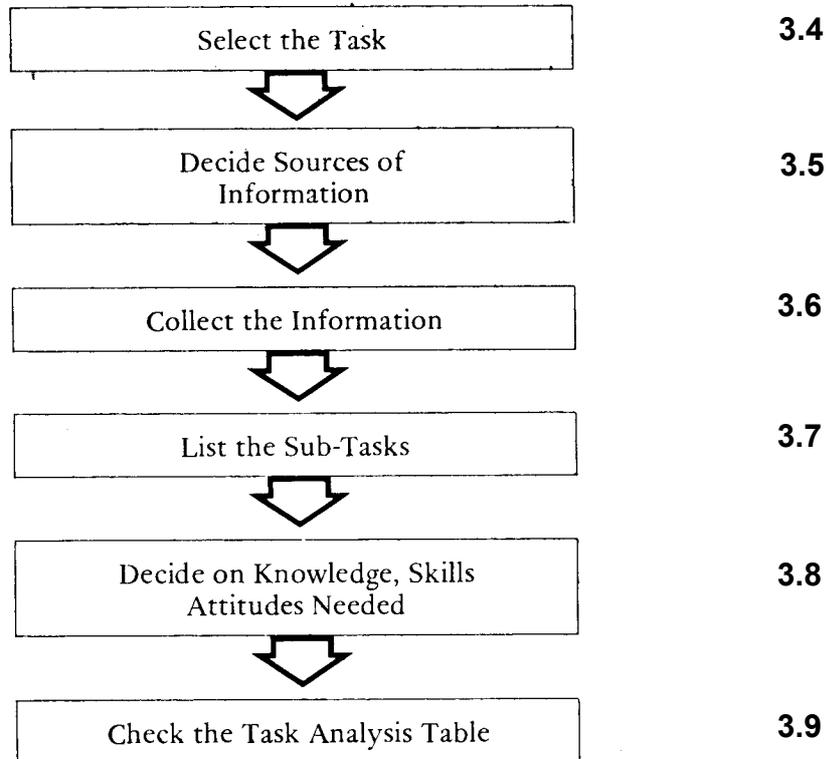
The other columns show the knowledge, skills and attitudes which must be learned by the students. These columns are explained in more detail later in the chapter.

The rest of this chapter is used to explain how the task analysis helps teachers and how teachers can do a task analysis themselves. At this point it must be stressed that no teacher has enough time to do a full task analysis for every task that he teaches. However it will certainly be valuable for a teacher to do at least two or three task analyses in full. Following this experience teachers will think more in task analysis terms and so make their teaching more practical and more purposeful.

Task Analysis Form

Category of Worker Nursing Orderly			
The Task Weighing a baby in MCH Clinic			
Sub-Tasks	Knowledge	Skills	Attitudes
Actions (A) Decisions (D) Communications (C)			
1. Ask mothers to dress babies in weighing trousers (C)		Ability to explain why Dress babies in weighing trousers	Friendliness to mothers
2. Place baby on scale (A)		Reading scales Handling babies	Accuracy
3. Help mother take off weighing trousers Examine baby (A)		Recognition of signs of malnutrition, squint, assymetry	Thoroughness
4. Record weight on growth chart (A)		Plotting points on graph	Accuracy
5. Decide whether to comment to mother or report to more senior staff (D)	When report is necessary normal weights for babies of various ages.		
6. Report or comment as necessary (C)	What comments or reports to make	Report writing communicating to mothers.	Concern for baby's health. Respect for mother.

3.3 The stages in doing a task analysis



The diagram shows the stages which are described in turn in sub-chapters 3.4 to 3.9.

3.4 Selecting the task

The first stage is to select the task for analysis. In this book we will use two examples. One is *'weighing a baby'* and another is *'persuading an unwilling mother to take her child for immunization'*. These are both tasks.

The job specification for the category of health workers who are being trained should give a list of the tasks. But often the job specification is too vague or doesn't exist. In this case the teacher must decide what tasks should be included in the course.

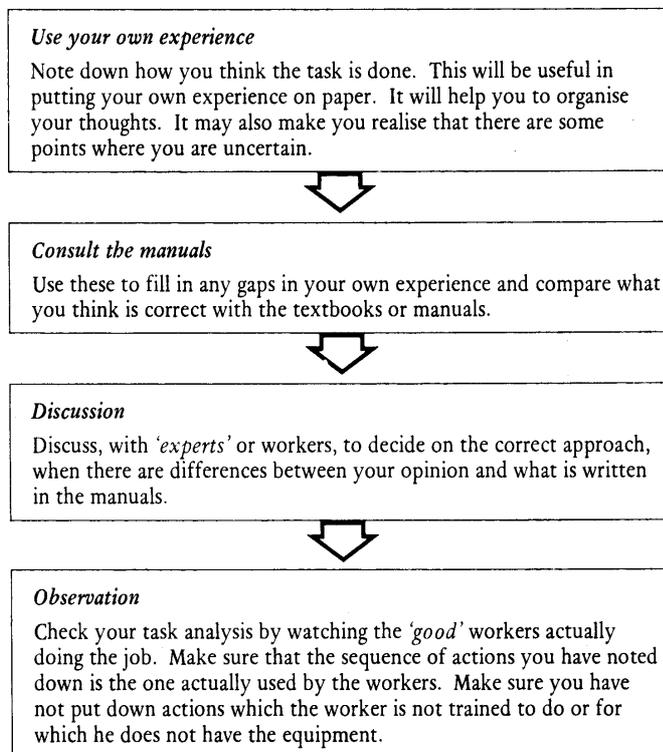
3.5 Selecting the sources of information

When you have decided on the tasks that you wish to analyse, you should decide how you will find out about the way the tasks are done. To do this you should choose one, or preferably several, of the sources listed below:

Sources of Information for Task Analysis

- A Yourself
- B Manuals and textbooks
- C Observation of health workers
- D Discussion with teachers, administrators and advisers
- E Discussion with health workers

Suppose you wished to analyse the task of giving intra-muscular injections. You might decide that you know a lot about this and so would use yourself as the main source of information. You might then check your first analysis by using a textbook or manual. Finally you might check again that your analysis was accurate by watching several health workers giving intra-muscular injections.



3.6 Collecting the information

The next stage is to collect the information from the sources which you have decided on.

Collecting the information simply means writing down on any piece of paper the various stages (the sub-tasks) in doing the task. Whilst you are writing down the sub-tasks it is a good idea to ask the following questions.

- How is the action done? – are there any special points to note about the technique?

- What is the reason for doing the sub-task? For example, when weighing a baby, the nurse orderlies should examine the baby to detect early signs of malnutrition, etc. This will allow preventive treatment to be provided *before* the condition develops too far.
- What might go wrong? What would happen if the sub-task was poorly done? For example mothers might be discouraged from bringing children to the clinic if they are treated rudely or have to wait for a very long time.

All these points should be noted. They will be put in order in the following stages.

3.7 Listing the sub-tasks

At this stage convert the rough notes about what happens into an organised list.

You can write this list on a task analysis form like the one shown below.

Task Analysis Form

Category of Worker Nursing Orderly			
The Task Weighing a baby in MCH Clinic			
Sub-Tasks Actions (A) Decisions (D) Communications (C)	Knowledge	Skills	Attitudes
1. Ask mothers to dress babies in weighing trousers (C)		Ability to explain why Dress babies in weighing trousers	Friendliness to mothers
2. Place baby on scale (A)		Reading scales Handling babies	Accuracy
3. Help mother take off weighing trousers Examine baby (A)		Recognition of signs of malnutrition, squint, assymetry	Thoroughness
4. Record weight on growth chart (A)		Plotting points on graph	Accuracy
5. Decide whether to comment to mother or report to more senior staff (D)	When report is necessary normal weights for babies of various ages.		
6. Report or comment as necessary (C)	What comments or reports to make	Report writing communicating to mothers.	Concern for baby's health. Respect for mother.

The sub-tasks are the things which happen:

- the actions
- the communications
- the decisions

You should record these on the form in the order in which they occur. So for the task of '*weighing a baby*' you will have a form like the one shown.

3.8 Deciding on knowledge, skills and attitudes

The sub-tasks are the key to successful teaching. If students are able to do each of the sub-tasks successfully then the course has been successful.

So why bother to do a further stage?

The reason is that some of the sub-tasks require knowledge, skills or attitudes which must be taught. For example, the task "*decide whether to comment to mother or report to more senior staff*" involves knowledge of normal weights for babies of different ages and possibly interpretation of clinical signs. The topics must be learnt to a sufficient standard for making the decision.

What are knowledge, skills and attitudes?

Knowledge is simply what the health worker must know. The facts.

Skills are more difficult to define. They include:

- use of hands and skill in using equipment (manual skills)
- explaining or persuading (communication skills)
- making decisions (thinking skills)

Attitudes are things like respect for the ideas that other people have, caring and thoroughness.

Think about the first sub-task – "*Ask mothers to dress babies in weighing trousers*"

This sub-task involves very little knowledge. There are very few facts which can be usefully written down.

However, the success of this sub-task will depend on the manner in which it is done. Does the health worker shout and bully the mother? Does the health worker help mothers who don't know about weighing trousers? Can the health worker explain why this is necessary? All these points must be explained to the trainee

and there must be opportunities for practising the skills so that the trainee has the skills necessary.

The second sub-task again involves a number of skills. Can the health worker read scales accurately? Can the health worker handle babies confidently? Again these are skills which must be learnt.

So as you go through the sub-tasks you will find that there are a number of skills which are necessary to enable the health worker to do the sub-task. In the same way there will be knowledge and attitudes which are also very important.

Look again at the example task analysis opposite and see whether you think that there are any more skills, attitudes and knowledge which you feel the student must learn.

It is not very important to be able to put points into the various categories accurately. Rather the categories are there to remind the teacher that all these three areas should be considered. For example if teachers did not bother to teach attitudes, the students might be very rude to patients or careless about aseptic techniques.

3.9 Checking the task analysis table

The task analysis table is now complete. However, it should not be used until it has been checked.

If you have used yourself, books or discussion as the sources of information you must check that what you have written does describe what health workers actually do. The only way to check this is to go and observe the health workers doing the task in the field.

3.10 Using the task analysis table

**The sub-tasks are the detailed objectives
for the course**

The value of the task analysis is that it gives teachers a very clear statement of the objectives for the course. These objectives have been worked out from the job description and from watching experienced health workers. So they must be relevant in helping the trainee health workers to learn their job.

Task Analysis  Relevant Objectives

What is the advantage of having relevant objectives?

The objectives tell the teacher exactly what the student must learn. So they help the teacher to cut out irrelevant content from the curriculum. They also help the teacher make sure that all the necessary content is included.

Task Analysis  Relevant Content

The objectives also help the teacher to assess the students. The sub-tasks or tasks should be used as the examination questions – whenever this is possible. For example the best test for the task of *'weighing a baby'* is to ask students to run a session at a clinic where babies are weighed. Whilst this is the ideal test there may be difficulties in organising this. So teachers can ask students to do some of the sub-tasks instead. For example, the students could be asked to record a baby's weight on a chart or decide what advice to give a mother whose 12 month baby weighed 7 kilos.

Task Analysis  Relevant Assessment

The final point is that a task analysis is the first stage in choosing teaching methods. If a student is learning facts or knowledge, a lecture may be a good way of teaching. But if the student is learning a skill, he must get a lot of practice in *doing* the skill – lectures will not be much use. So when teachers think about whether students must learn skills, attitudes or knowledge they are beginning to think about teaching methods.

Task Analysis  Choice of Teaching Method

3.11 How can teachers find time for task analysis?

Teachers are very busy and very few will have time to analyse more than one or two tasks. So here are some practical suggestions.

- Do one or two task analyses in the way that is described in this chapter. Use several sources of information and check the results in the field. This will take quite a lot of time – but it will be time well spent.
- Follow a task analysis way of thinking. For example when thinking about what to tell students in a lesson decide whether some facts **must be learnt**. If the fact would appear in the *'knowledge'* column of any task analysis form, it should be taught. If not it should probably be left out.
- Teach your students to do task analysis. One of the best ways of learning how to do a task is to do a task analysis. So when one group of students have analysed a few tasks, they will be able to teach other groups of students. (This must be supervised of course).

3.12 A less straightforward task

The example of *'weighing a baby'* is a fairly straightforward task. It can be analysed by watching the health worker – and most health workers follow the same sequence of steps or sub-tasks. Other examples of straightforward tasks are *'giving an intramuscular injection'* and *'building a pit latrine'*.

But other tasks are much less precise and different workers will follow different methods. For example, think about the task *"persuade a mother to breast-feed her baby"*. This is much vaguer. There are many ways of doing this task. None of them is guaranteed to work every time and so each health worker who has to do this task will develop his or her own style.

So is it worth doing a task-analysis for this kind of task? The answer is definitely *"yes"*. The reasons are that students have to learn how to do these less precise tasks. So teachers must know what they are helping students to do. The minimum responsibility for a teacher is to teach the students *one* way of doing the task – even if there are several possible ways.

It is also important to do the task analysis because it will often show that the student needs a lot of practice in communication skills and that attitudes are extremely important. So even though the task analysis will not show the *only* way to do the task – nor even possibly the best way – it will show one acceptable way and it will show a minimum for what the students must learn.

Look at the example opposite which analyses how a health worker might do the following task *"persuade an unwilling mother, in a remote area, to take her child for immunization"*.

This may not be exactly the way in which you would teach your students to do this task in your country. But it does show some very important things which will almost certainly apply in your country.

These are

1. There is rather little knowledge needed about *"medical topics"* such as types of vaccine, mechanism of immunization, etc. etc.
2. There is a great emphasis on communication – the ability to persuade and to listen to people. The ability to speak clearly to individuals and groups – and so on.
3. The learning experience which will help students to learn the skills, knowledge and attitudes are mainly practice in talking and listening, practice in preparing materials and in writing reports.

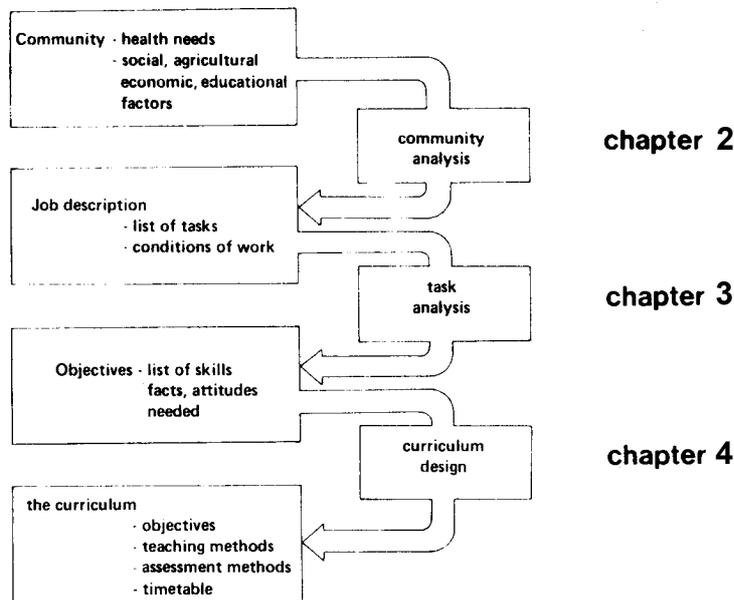
Although this kind of task cannot be analysed as precisely as *"weighing a baby"*, it is still very well worth doing.

Subtasks	Knowledge	Skills	Attitudes	Learning Experiences
1. Greet mother (A)			Friendliness, lack of prejudice	
2. Find out reasons for refusal (C)	Common reasons for refusal (cultural, procedure, prejudice due to reported experience.	Ability to interview and listen to unco-operative people	Sympathy, patience	Simulated interviews with peers, staff members. Practice in interviews in village surveys.
3. Explain why immunisation beneficial to child	Reasons for immunisation, effects: simple facts about illnesses prevented Procedures.	Ability to convince in conversation		Lectures on simple facts about illnesses and transmission: procedures of immunisation and effects. Role playing in persuasion techniques.
4. Explain importance to community of protection of all at risk children (C)	Methods of disease spread, simple facts about immunity, epidemics in community.	Ability to describe complex concepts in simple terms.	Confidence in ability help.	Lectures on simple facts about development of immunity and disease spread in communities: role playing in communication in simple terms.
5. If successful arranges clinic appointment for mother (A)	Fully conversant with immunisation programme (dates, times, place): notifies clinic.	Congratulates mother on correctness of her decision.	Sympathy, friendliness	Importance of knowing local programme impressed on him during training.
6. If unsuccessful seeks an appropriate decision-maker. (A)	Decision-maker in local culture (husband, grandmother, council elder).	Ability to identify local decision makers through tactful questioning and observation.	Tact	Discussion on community attitudes to health and on role of village decision-makers.
7. Repeats 3 and 4 (C)				
8. If successful repeats 1 and 5				
9. If unsuccessful arranges talk with council (A)	Importance of council in directing opinions of community	Ability to persuade chief of need to discuss in council	Tact, persuasiveness	
10. Prepares talk for council (A)	See 3 and 4	Ability to prepare skeleton address in logical sequence		Practice in preparing for health education activities: talks on principles of communication.
11. Prepare supportive materials for talk (A)	Different supportive materials (posters, flashcard, diagrams)	Ability to select appropriate material and to prepare it.		Practice in design and preparation of simple supportive materials: practice in their use in support of talks.
12. Talks to village council (A)		Ability to speak clearly and and to explain concepts simply.	Tact, confidence	Practice in public speaking to peers first, then in village situations.
13. Conducts discussion and answers questions (AD)	Common local prejudices and community needs	Ability to answer questions in a problem situation	Confidence. Humility. Deference to elders.	Practice in debate (role playing, actual village situations): practice in simulated situations in answering difficult questions, dealing with aggressive speaker etc.
14. If successful, repeats 1 and 5 (A)				
15. If unsuccessful, prepares report and notifies supervisor	Knowledge of methods of reporting.	Ability to write reports: ability to summarise facts and verbalise them	Calmness. Lack of prejudice.	Practice in report writing: discussions on when to notify supervisor for advice and assistance
16. As follow-up, arrange talks at school(A)	Importance of children and channels of communication and as future decision-makers.			
17. Prepares and delivers talk (A)	See 3, 4, 10 and 11. Knowledge of folk media	Ability to involve children through games, competitions etc.	Sympathy and understanding of children	Practice in promoting health to children: practice in designing games and competitions: use of folk media

3.13 Summary

1. Task analysis is a method for describing exactly how parts of a job (tasks) are done.
 2. Teachers should use task analysis to help in
 - stating the objectives of a course
 - deciding on the content of courses
 - choosing questions for examinations and tests
 - choosing teaching methods
 3. Teachers should do at least one or two full task analyses. Then they should think in a task analysis way and possibly teach their students how to do task analysis.
-

chapter 4 Planning Lessons and Curricula



This chapter describes how the results of the community analysis and task analysis can be used in planning lessons and curricula.

4.1 What is a curriculum?

The word curriculum can be used to mean two things. In one meaning '*curriculum*' is what actually happens during a course — the lectures, the work with patients and so on. The other meaning is the written description of what happens. This chapter will use '*curriculum*' to mean the written curriculum.

What should a curriculum include?

The written curriculum is needed to help the organisation of a course. So it should contain the kinds of information which will be useful in keeping the course well run. The kinds of information required are:

1. The objective of the course. i.e. the tasks and sub-tasks which the students will learn.
2. The general methods which will be used to teach the students each of the objectives.
3. The time and place where the student will learn—a timetable.
4. The methods used to assess the students.

4.2 Lessons plans and the curriculum

The written curriculum is needed to keep the course as a whole well organised. In the same way a lesson plan is necessary to organise a shorter period of teaching. It will need the same kinds of information – the objectives, the methods, time and place, plus possibly some note about the assessment methods.

The two main differences between a curriculum and a lesson plan are the scale (a curriculum is concerned with a full course and possibly many different teachers) and secondly the need to write it down. It is virtually essential to write down the curriculum for a course. On the other hand many good teachers do not write down their lesson plans. Theoretically there are many good reasons why a lesson plan should be recorded. In practice, time is limited and so teachers with experience can often manage without a written plan, or just very brief notes. 'This is not to say that they do not have a plan – simply that it is not written down.

A lesson plan is a small scale curriculum

4.3 When should teachers be involved in planning curricula and lessons?

Obviously all teachers must plan the lessons or learning experiences for their students. Naturally the teachers will plan what they will say and do. But perhaps much more important is to plan what the student will do—what skills the student will practise, what themes the students will discuss. These are all experiences for the students which will help them to learn. This theme of planning learning experiences for students will be taken up much more fully in Section 2.

Teachers are also involved in planning the whole curriculum. 'They may be involved as a member of a team planning a completely new course or planning improvements in existing courses. They may be involved when they are asked to comment on a curriculum planned by some other people. They must be involved when they are teaching a curriculum, because they should be trying to find ways in which the curriculum can be made better.

4.4 Organising the course outline

Any course for health workers is complex. There are many ideas and problems to be planned. So the first stage is to plan a course outline. This breaks down the complete courses into smaller parts which can be more easily thought about.

It is obviously very important to make sure that this outline will make it as easy as possible for the students to learn. Look at the example below where learning is made difficult.

A poor example of a course outline

Course for community health nurses	hours
Anatomy and physiology	90
Microbiology	30
Psychology.....	60
Sociology.....	60
Hygiene.....	60
Nutrition	60
Fundamentals of nursing	210
Community health nursing I	225
Community health nursing II	120
Community health nursing II	345

This course outline has a number of poor features:

- The basic science courses probably give much more detail than is necessary for the job. So students waste time learning unnecessary facts.
- The basic facts (Sociology, Nutrition etc.) are taught quite separately from their application (Community health nursing).
- The separate courses – Microbiology, Psychology, Sociology etc. – mean that the timetable is probably based on short rigid time periods.

A better way of organising the curriculum would be to base it on the tasks of the community health nurse.

Example – an outline course based on tasks

Community health – water supply food storage and waste disposal
Family health – nutrition and health education
Maternal and Child Health Care
Midwifery
Prevention and control of communicable diseases
First aid and emergency medical care
Training village level health workers
Promotion of community development

This outline is designed to train students to do exactly the same job as the previous example. But it is different in important ways.

- The *whole* course is designed to give the students the necessary skills to do the job.

- The underlying theory is learnt *at the same time* as the practical applications. This is likely to lead to both faster and more thorough learning – because the students can understand exactly why the underlying theory is needed.
- The timetable can be much more flexible – this makes it easier to arrange longer periods of work such as project work or supervised practical work in a village centre. It gets away from the rigid pattern of one hour lectures.

Base the curriculum on the tasks which the students are learning.

4.5 What kinds of teaching methods will be used?

It is probably true to say that most courses for health workers include too much classroom teaching and concentrate too much on teaching facts.

If you prepare a list of tasks for any category of health worker you will find that most of the tasks involve:

- using hands to do things (e.g. giving an injection)
- making decisions (is this cough a symptom of tuberculosis or is it an ordinary cough?)
- communication (explaining to a mother the need for protein in the diet)

You must give students opportunities to practise these skills *during* the course. Unfortunately this practice often takes a lot of time and a lot of effort to organise. So it is easier and may seem quicker to give a lot of lectures. But the essential learning will not happen.

The curriculum should include a lot of time when students practise the tasks they are expected to learn. Sometimes this will mean that they should do the work in the community away from the school. Sometimes it will be possible to practise skills in a hospital ward or at a nearby health centre. Sometimes students can practise on each other within the classroom. Specific suggestions for the teaching methods are given in Section 2. The important point for the curriculum planner is that they must allow enough time for this practice. Ensuring that students perform well enough can be done, using check-lists for example.

It is impossible to give a specific amount of time which will be right for every course. However, most courses should have much more time for practice of skills than for theoretical teaching.

More time for practice Less time for theory

4.6 What kind of assessment methods will be used?

The point has already been made that courses should be based on the job which the students are learning to do. Therefore the assessment must also test whether students can do the job. This general approach is called '*performance testing*'.

The general implications are that methods like multiple choice questions and essays are used less often. This is because they usually only test knowledge and facts. Other methods such as patient management problems and record books are used more often. These do test the important skills and attitudes.

More detailed advice on assessment methods is given in Section 3.

4.7 Evaluating the curriculum

The students should be tested – or assessed – to see whether they have learnt the necessary skills and facts. In the same way the curriculum should also be examined to find out whether it works. This process is called curriculum evaluation.

The aim of curriculum evaluation is to find out how successful the curriculum is and to find out ways in which it can be made better. The basis for the evaluation is to see whether the students learn how to do their job satisfactorily.

The curriculum can be evaluated by testing the students at the end of the course. If the students complete their exams satisfactorily then there is some evidence that the course has been good enough. Of course there must be a number of qualifications to this statement. The exams must be relevant and based on the job which the students are being trained to do. Also, the course may help the students to reach a satisfactory standard, but it may take much more time than necessary.

The curriculum can also be evaluated by finding how good the students are after they have left the school or college and started work.

Example – on-the job evaluation

In one region a group of health workers were trained to do a number of tasks. One of the tasks was to conduct an immunisation programme. After a few months it was found that a lot of the mothers brought their children for the first vaccination. Only a few came back for the necessary second injection.

Comments:

This is a very clear evaluation which shows that this part of the training programme had not been successful.

There are many reasons why the programme may not have succeeded

- perhaps the health workers had too many other responsibilities and so did not have time to talk about the need for the second injection.
 - perhaps the programme had not trained the workers how to communicate.
 - perhaps the programme had failed to teach the health workers suitable attitudes.
- etc.
-

4.8 Methods of evaluating the curriculum

Analysis of health needs

In the example above, the weakness of the training programme – or the curriculum – was shown by an analysis of the health statistics. This is the ideal way to evaluate a curriculum – although it may not always be feasible. It is the '*best*' way because the purpose of the curriculum is to train people to solve health problems. If the problems are solved, the curriculum must be good enough. If the problems are not solved then it may be that the curriculum needs to be improved.

Health statistics may be available for things like:

- (i) the number of children immunised.
- (ii) the number of children born
- (iii) the number of infant deaths
- (iv) the number of cases of a disease such as malaria etc.

If the statistics are available then they can help the teacher to decide which parts of the curriculum need improvement.

But remember that some of the things health workers are trained to do cannot be easily shown in statistics. Also in many areas the statistics which are collected are not very reliable or complete. For example the number of cases of diphtheria reported in a region may go up because the reported system is improved – not because more people are suffering from diphtheria.

Critical incident studies

Critical incident studies are a fairly simple method of finding out from the health workers themselves how successful a curriculum is. The idea is to ask one of the health workers to describe five or six things which have happened recently when he has felt uncertain or not competent to handle the situation. These situations are the '*critical incidents*'. This kind of questioning is then repeated for a sample of the recently trained health workers. In this way a picture is built up of the situations which health workers have actually had to face where they feel to be poorly trained.

Some of the '*critical incidents*' may be very unusual or rare. In some case it may not be worth changing the curriculum. Again, if only one worker reports a certain situation as causing difficulty whilst all the others report that they can deal with the situation, then probably no action needs to be taken. But if you find that several workers report difficulty with similar situations then clearly the curriculum should be looked at.

Supervisor's reports

In many countries the work done by the health workers is supervised. In some cases this supervision is carried out almost continuously – as in hospital wards. In other cases the supervision is very restricted – for example when the health worker does his work alone in a remote village. Therefore the value of supervisors' reports will vary from one situation to another.

In every situation the supervisors' comments can be made more helpful, if they are asked to tell you about specific things. For example you may have tried teaching a part of the curriculum differently, so ask the supervisor whether he notices any difference in the way the new health workers do that particular job. Certainly the supervisors can give teachers a lot of help if they point out the tasks which the students do well or do badly at the end of the course.

They may also be able to point out tasks which are taught wrongly. For example students may not be taught how to cooperate with village councils or the students may not have learnt the local traditions.

If the teacher asks for advice from supervisors and then takes action on that advice, the curriculum will be made more effective.

4.9 Evaluating lessons

Lessons can and should be evaluated. This is just as important as curriculum evaluation.

Broadly the same methods should be used. After a lesson (or possibly a group of lessons) the teacher should find out how much the students have learnt. This evaluation should be based on *performance testing*. The teacher should find out whether the students can do the task which they have been taught to do.

If the students can not do the tasks, then the teacher must think how the learning experiences can be improved.

4.10 Summary

Curriculum

1. The aim of a curriculum or a lesson should be to give the students, the skills and the knowledge needed to do the job.
 2. The content should be organised on a '*task*' basis.
 3. The curriculum must include a high proportion of time for practising the skills of communication, thinking and handling equipment.
 4. Evaluation may lead to changes in the content or the teaching methods.
-

Section 2 How to help your students learn

chapter 5 Introduction to teaching methods

Section 1 dealt with *what* your students should learn. This Section goes on to explain *how* you can teach the students.

Naturally, the two Sections go together because the student will only be well trained if the teacher uses good methods *and* teaches the right skills.

Section 1 pointed out the importance of training students how to *do* things rather than just *know* about things. Again, in this Section the main emphasis will be on students '*learning by doing*' rather than just listening. This whole Section could be summed up briefly by the old Chinese proverb:

"hear and forget..... see and remember do and understand "

In addition, there are ways to ensure that they learn to do the tasks to an acceptable level

The Section is organised along the following lines: Chapter 5 gives general guidance about general problems such as motivating students and making subjects relevant. The three remaining chapters in the Section describe particular methods which are used in teaching attitudes (chapter 6), skills (chapter 7) and knowledge (chapter 8).

5.1 The role of the teacher

How can teachers help students to learn? They act as a helper: by organising experiences which allow the student to work in health centres, by advising students to read a few pages from a manual, by writing down some questions for a group of students to discuss. In all these ways the teacher is helping learning.

Some teachers feel that they must do all the talking themselves. They feel that they are not really teaching unless they are telling the students some new information. But this is quite wrong.

In fact if a teacher gives a lecture and the students do not learn then the teacher is talking – not teaching.

One further point. Teaching and educating is an important part of providing health care. So you must use good teaching methods yourself to show your students an example of good teaching.

5.2 How well do you teach?

Below there are a list of questions for you to answer about your own teaching. If you can answer 'yes' to most of the questions then you are probably teaching well. If you answer 'no' or are not quite sure what the question means look at the corresponding part of the chapter. You will see that the first three questions all relate to 'active learning'. This general method is described in more detail in sub-chapter 5.3.

Similarly the next three questions are about giving feedback – which is discussed in 5.4 And so on.

Do you ask students to answer questions?

Do you ask students to apply information in solving problems?

**ACTIVE
LEARNING**

Do you arrange for students to practise thinking and practical skills?

5.3

Do you tell students how well they are doing?

Do you explain the errors that they are making?

Do you explain how students could do better work?

**GIVING
FEEDBACK**

5.4

Can the students hear and see?

Do you use simple language?

Do you use visual aids?

CLARITY

5.5

Do you relate what you are talking about to the students' lives?

Do you give a lot of examples?

Do you relate what you are talking about to the work the students will be doing?

Do you give summaries?

**MAKING
YOUR
TEACHING
MEANINGFUL**

5.6

Do you check that all your students understand each point?

Do you frequently find out whether every student has learnt the skills and tests?

**ENSURING
MASTERY**

5.7

Do you allow students to work at different speeds?

Do you encourage students to learn in different ways?

Do you use several teaching methods?

**INDIVIDUAL
DIFFERENCES**

5.8

Do you let the students realise that you care whether they do well?

Do you show that you care by preparing thoroughly for teaching sessions?

Do you listen to students' comments about your teaching?

CARING

5.9

5.3 Active learning

Many experiments have been done to find out how much students learn when they are listening to a teacher talking during a lecture. These experiments show that the students learn very little.

This can be improved by using writing on the board, diagrams and pictures. In this way the students can see what they have to learn as well as hear it. But still rather little is learnt.

To help students to learn you should give them some activity to do. These activities might be answering questions, writing notes, explaining an idea to a friend or to the whole class. In practical work the activities are even more obvious. The advantages of this can be summed up by repeating the Chinese proverb at the beginning of the Section.

"hear and forget.....see and remember..... do and understand "



"Hear and forget . . ."

Exercise

Suppose you are teaching students how to take a patient's temperature. Which of the following activities would be most useful after you have explained how to do the job?

- A — Read an extract from a manual on taking temperatures
- B — Copy your notes from the board
- C — Make notes in their own words on how to take temperatures
- D — Write on a sheet of paper the temperature reading shown in 5 diagrams of a thermometer
- E — Use a thermometer to find out the temperature of another student
- F — Calculate the change in volume of 5 cu cm of mercury when its temperature changes from 1 0°C to 40°C

Write down your answers now and give reasons

Comments on the exercise

Well, all the activities except F are better than no activities at all. But, of the activities given, E is probably most useful as the students will have to use all the information you have given. They will have to read the thermometer as well as use antiseptic techniques, shake the mercury down, place the thermometer correctly under the tongue etc.

Activity D is also useful as some students may have difficulty in reading off a scale. So this would help the teacher find out exactly which students needed more help.

Activity C is better than B because the students have to do something with the words they have heard or read – rather than just copy.

Activity A might be worth doing so that any points in the manual which were difficult to understand could be explained.

Activity F is probably a waste of time. The students will not have to do this kind of calculation in their job. So it can only waste time and possibly do damage by confusing the student.

You should not, of course, use *all* the activities. Some may not be possible – do you have enough thermometers? Instead, you should choose one or a few of the activities which you feel would help the students to learn best.

There are many different kinds of activities which are useful for different kinds of objectives. For example, you might develop *projects* for the students to do in which they would collect data about health needs. You might use *role-playing* in which students act the parts of different kinds of people they might meet in their work. You might ask groups of students how they would solve a health problem in their community. All these methods will probably give you more work to do. However, the details of the methods will be explained later in chapters 7, 8 and 9 and the effect of using the methods will lead to better learning.

A final point. This book gives you exercises to do while you are reading. In this way the book uses active learning methods. Do you find that the exercises help you to learn?

Summary

It is probably easiest for teachers to keep talking during a lesson, but it does not help learning. Instead, the teacher should think of activities which will force the student to use the information taught. Use as many activities as are feasible, and so help students to learn.

Don't just talk – make your students do the work

5.4 Giving feedback

When the students have done any piece of work, the teacher should explain to the student whether the work was done well. The teacher should also point out exactly what was done poorly and how it could have been done better. This process of telling students how well they are doing is called feedback.

Feedback can also come from written material. The students themselves can sometimes give feedback to each other – if they are given guidance by the teacher (see self-assessment in Section 3).

If students only listen to a teacher talking, there is nothing to give feedback on. So Feedback and Activity go together. To give feedback, you must first arrange to have the students doing things which can be assessed. This means that there should be frequent tests of the students' ability to do the practical skills required, to remember the necessary facts and to use the facts in solving problems or communicating.

These tests may be formal exams. If this is done, the teachers will have to do a lot of extra work and the students may become exam-minded. That is, they may become interested only in passing exams and forget the real reasons for their training. A better way is for the activities and feedback to become part of the normal pattern of teaching. The students will be able to assess their own performance or perhaps assess the work of other students if they are given guidance by the teacher. The feedback should usually have three parts.

A — Feedback should give some encouragement and praise for what has been done well.

B — Feedback should give an indication of the overall standard. For example, "8 out of 10" or "Pass".

C — Feedback should point out any errors or faults and show how the performance could be improved.

Example of giving feedback

You might watch a student practising how to bandage a patient to provide support for an injured arm. When the student has finished you might say "*Good. You have done quite a good job. The bandage is tied firmly— it will not come undone by itself. You have used the right method of bandaging so overall the standard is satisfactory. But you should have made sure that the lower arm was held level. You have made the bandage lift the patient's hand a bit higher than his elbow. To do this better you should...*" and so on.

Notice that this example shows the teacher giving some praise – "Good".

The example includes an indication of standard "*quite a good job*"..... "*it will not come undone by itself*"..... "*right method* " etc.

The example also makes criticisms and shows how to do the job better. "*You should have made sure that the lower arm was held level* ".

Summary

Give as much information as possible to students about the standard of their work. Praise the good things, but also show how they can eliminate errors.

5.5 Clarity

Your teaching must be clear. The students must be able to hear what you say and read what you write. Also make sure that your students understand the words you use. Obvious points perhaps – but sometimes ignored.

5.6 Making your teaching meaningful

If you can make your teaching have meaning then the students will learn more easily.

It is easy to say that teaching should have meaning – but what can you do in practice? Here are some suggestions.

(a) ***Explain in advance what you are going to say.*** This can be done by telling your students what the objectives are for a part of the course. In this way the students will know what you want them to learn and so they can make more sense of the teaching.

(b) ***Try to relate what you teach to students' lives.*** Your students will have a lot of experience which is useful and important. When you are talking about sanitation, find out what your students know then build on this to expand what they know. Do not assume that students know nothing. As another example, if you are talking about a disease – bilharziasis perhaps – find out whether the students know people suffering from the disease. If you do this, bilharziasis will *mean* much more to the students. It will not just be a name in a book but it will be real.

This book tries to make the ideas meaningful to you by explaining them as problems which you face in your teaching.

(c) ***Explain new words.*** When you are providing information you will have to use and explain new words and new concepts. Some teachers like to use long and

complicated words just to show how clever they are. This must obviously be avoided. But still you will need to use some new words. When you do, you should define them carefully, give a lot of examples of what you mean and, if possible, arrange for the students to use the words themselves. This may be in discussion or in writing. In this way your students will begin to get a fuller understanding of the meaning of the words or concepts you use.

(d) **Use examples.** When you are describing a new idea or a method of treatment give real examples. You might talk about a real experience that you have had recently. Even better you may talk about a patient that the students have just seen, or the water supply for a village which they know. Notice that this book uses a lot of examples to explain the ideas.

(e) **Relate the teaching to the work which the students will be doing.** Information and skills will have much more meaning to students if they know how they will be using the information in their job. You might, for example, want your students to be able to use a microscope. Some students will be interested in microscopes in any case. Others may not be so interested and so will not learn well. However if you explain that the students will later use a microscope as part of their job and that this will be a way of confirming diagnosis of common illnesses then they are likely to be much more interested and to learn better. The learning will have more meaning for the students.

(f) **Give summaries.** At the end of a part of the lesson summarise the main points – like this book does.

Summary

You can help your students to learn by making sure that what you teach has meaning for your students.

Do this by:

- (a) explaining in advance what your students are expected to learn.
 - (b) relating what you teach to the students' lives.
 - (c) explaining new words and ideas.
 - (d) giving many examples to illustrate what you mean.
 - (e) showing that what you teach will help the students to do the job they are training for.
 - (f) summarising the main points.
-

5.7 Ensuring mastery

The phrase '*ensuring mastery*', simply means that you make sure that all the students know what is necessary at each stage.

Ideally this is done at the beginning of each teaching lesson.

When you are teaching a certain topic, it may happen that students need to have understood ideas taught in an earlier lesson. For example if you are discussing a Growth Chart for babies then the students will need to know what a graph is and how to record data on a graph. These ideas may have been taught some time ago, so the students may have forgotten or possibly never have understood. This means that the Growth Chart can not be understood.



“ . . . so the students may have forgotten, or possibly never understood

To overcome this difficulty you should check at the beginning of the lesson that **all** students do know what is needed. Don't ask "*Does everybody know about graphics?*" If you do, the students will probably say "*Yes*", whether they understand or not. Nobody likes to admit that they don't know something. Instead you should give a very short test – possibly in this case you could draw a graph on the board and ask the students to write down what a specific point on the graph means.

You should also find out how much your students know at the end of the teaching session – or even at various stages during the session. Again, do not just ask "*Do you understand ?*" Do find out by asking the students to do the skill or tell you the facts.

This technique seems very obvious. Most teachers think that they do "*ensure mastery*". In fact if you talk to students and find out exactly what they know, you may be surprised at how little they remember from previous lectures.

Summary

At the beginning of a session check whether all your students know the facts which they will need. At the end of the lesson, find out whether the main skills or facts have been learnt by all the students.

5.8 Individualise

Almost all teachers will agree that different students learn in different ways. Some students are very intelligent – others seem to be rather less clever.

Some students may be very good at learning facts but rather poor at doing practical work. Others are the opposite. Some can learn from books. Others like to listen to the teacher. Others learn best by practical experience of doing the job.

But often schools treat all students as if they were identical. All students go to exactly the same teaching sessions.

So what can teachers do to allow students to work in ways which are most helpful to the individual student? Here are a number of suggestions which would be feasible in many training schools.

(a) ***Make sure that there is enough time for students to learn on their own.*** To do this you may have to cut down the number of lectures. Some people suggest that there should be as much as 2 hours of time free for individual studying for every hour in a class. If you did this, the students would be able to learn at their own pace outside the lecture room.

(b) ***Use some different teaching methods.*** Some students will learn better from books. Some will learn better when topics are discussed in a group. Some will learn well from watching video etc. (if available).

It is not often possible to give a choice of teaching methods. What is possible is for teachers to use a wider variety of methods and so meet the needs of a larger number of students.

(c) ***Make more use of project work.*** To do this you set students a large-scale task such as finding out what village people think are their major health problems. This kind of project work allows a lot more scope for students to learn in their own way. It also gives a contrast to the lectures.

(d) ***Talk to students individually.*** If you talk to the students by themselves you will find that some students will be confused by one idea whilst others find that idea quite easy. You will then be able to explain the idea yourself, or tell the student how to find the information for himself.

(e) ***Use self-instruction methods.*** Where possible use tape-slide programmes or programmed texts. Where this is not possible because of lack of equipment or suitable programmes, you can help student by written notes. These notes can guide the student in reading manuals for health workers. Notes can also guide the students in practical work by giving lists of skills which the student should learn.

Summary

Remember that your students are individuals. They have different rates and ways of learning, different interests, experiences and abilities. Try to find out what each student is like. Then use this to vary your teaching so that as far as possible each student can learn in his own way.

5.9 Caring

So far, the general ideas have not used the fact that you – the teacher – are a human being. But students will often do things for one teacher which they will not do for another. How then can you use this to help your students learn?

One thing which encourages students to make more effort is the belief that the teachers care about the students. Notice, it is not enough for the teacher to care. The students must *know* that the teacher cares.

This should not be done by giving higher marks than other teachers or allowing poor standards of work or behaviour. In fact, this gives the opposite impression. Nor should you be content to say "*I care about...*".

Simply saying the words will not persuade many students for very long. Instead, the way you as a teacher behave will show whether you care or not.

Exercise

Look at the list of statements about a *teacher*. Then decide which statements you would like to be true of you.

- A. wears clean and tidy clothes.
- B. always arrives for teaching sessions on time.
- C. prepares thoroughly for teaching sessions.
- D. shows knowledge about the subject, by using all the technical words.
- E. a very important person and very busy. So hurries away from teaching sessions to do other work.
- F. never smiles or jokes, because learning is a very serious business.
- G. always praises students' work, however bad it is.
- H. talks to students and finds out what their personal interests and ambitions are.
- I. asks students to comment on the teaching sessions so that the sessions can be improved.
- J. ignores the comments students make about the lessons.
- K. requires the students to do work of a high standard.

Comments on the exercise

The '*correct*' answers are probably obvious. The only statements which need expanding are D, G and H.

Statement D reflects one of the worst things that some teachers do. Teachers should not use technical words to show how clever they are. They should take pride in the way they make ideas easy to understand.

Statement G is typical of a nice teacher who is trying to encourage students. But it is not a good idea to praise bad work. Your aim should be to praise whatever is worth praise, but point out the weak points and insist on a good standard.

Statement H may seem unrealistic. Teachers do not have time to talk to all their students for long periods of time. But you should try to talk *and listen* as much as possible. When you are talking, try to find some shared interest or joke. Maybe you both know some person from the student's village. Maybe you are both interested in the same thing – possibly cooking or sport. Maybe you have some joke which you share. The important point is for the teacher to seem more real as a person.

Summary

If the students believe that the teacher cares about them, they will have an extra reason for learning.

5.10 Motivation

Some mention must also be made of '*motivation*'. It is often said that motivation is the key to successful teaching. All that a teacher needs to do is motivate the students and they will learn!

This is only partly true of course and it is not very helpful. How can teachers motivate students? The answer is simply to use the ideas described in sub-chapters 5.2 to 5.9. Each of these ideas will help to make the courses more interesting, easier to learn or more relevant to the students career. Above all they will help the student realise that you care about his success. All these things taken together will help to motivate the student.

5.11 Conclusion

Some people argue about whether teaching is an art or a science. Put in other words, some people believe that the talent for teaching is a natural gift which good teachers are born with. Other people believe that teaching is a science which is controlled by rules.

What this part of the book has tried to show is that there are some general rules for teaching. If you follow these your teaching will improve. If you do the opposite of these rules, then the teaching will almost certainly be bad and the students won't learn.

But the rules are not enough. The art of teaching is to apply the rules for your students, your subject and your school or college. You, the teacher still have to think of ways of making your teaching sessions have more meaning for your

students. You have to be imaginative and think of activities which will be useful to your students. You have to take the trouble to give feedback to your students and to show that you care about their success.

Summary

To help the students to learn you should

1. Make the learning active – ask questions, set problems and organise projects.
 2. Give feedback – explain how well each student is doing and how their work could be improved.
 3. Make your teaching clear – speak loudly, write tidily, use visual aids and use simple language.
 4. Make your teaching meaningful – explain how it will help students to do their Job better.
 5. Ensure mastery – check that all students know the necessary tasks and can perform the necessary skills before and after each session.
 6. Allow for individual differences – let students learn at their own speed, leave enough free time and use a variety of teaching methods.
 7. Show that you care whether students learn – set high standards and get to know each student.
-

chapter 6 **How to teach attitudes**

What is an attitude? Think about a health worker in a rural centre. He may know all about aseptic methods and have the skill to follow them. But when he is working by himself, he may be tempted to take short cuts and not be very thorough. The way he actually behaves will depend on his attitudes. So we can say that an attitude is a tendency to behave in a certain way.

6.1 **Are attitudes important?**

It has often been said that the attitudes learnt during training are the most important part of the training. At the same time other people say that attitudes cannot be taught. What is the truth?

Certainly attitudes are formed or changed during training. This is quite clear to anyone who has worked with students, and watched them develop over a period of time. Compare the attitudes of the students who have completed a long course of training with the attitudes of a group who are just starting. The differences will usually be obvious. But how has this change taken place? Has the change been caused by the course? Can teachers really control attitude changes? One of the problems for teachers is that attitudes cannot be measured simply.



Another problem is that attitudes are rather vague things. They are hard to define or to explain.

Despite these problems attitudes are very important and teachers must try to teach students so that the students will learn the right attitudes.

This is especially important where the student is being trained to work in isolated places or where there is not much close supervision. Here the temptation will be very strong to take life easily and not work very hard. As a result standards of

health care will fall. The thing which prevents this drop in standards is the attitude of the health worker.

6.2 How to teach attitudes

There are no guaranteed methods of teaching attitudes. The teacher must be aware that all of the experiences that a student has *may* change his attitudes. But no single experience can be certain of having a specific effect on all students.

There are five general methods which the teacher can use. These are:

- (i) providing information
- (ii) providing examples or models
- (iii) providing direct experience
- (iv) providing opportunities for discussion
- (v) role playing exercises.

Even though you use all these methods, you must be aware that students' attitudes may be shaped by events over which you have no control. For example, students will read books, talk to people outside the school, meet their families and so on. The students will also have formed many of their attitudes before they start their training. So you can only provide one influence amongst many.

It is important therefore that your influence must be as strong as possible and – of course – that the influence must be a good one.

The following sub-chapters explain each of the methods in more detail.

6.3 Providing information to shape attitudes

Information is not always enough to change attitudes but it may help. For example, the facts relating to smoking and the risks of cancer and heart disease are fairly well known by many people in a number of countries. For some people this information has been enough to persuade them to change their attitude to smoking and to stop smoking. For many other people, the information has not been enough.

The information may be presented in many ways. Lectures are one obvious method. Films are often more effective because they can provide a more intense experience.

The important teaching technique is to show how the facts are *relevant* to the attitude.

6.4 Providing examples or models to shape attitudes

Most advertising is designed to change attitudes. A common technique is to show an *'ideal person'* (usually young, good looking and female!) using a certain product. The advertiser aims to provide a model or an example which will be followed by the reader. This technique is generally very effective.

What has this got to do with teaching? Well, for many students their teachers are very powerful models. Students will often tend to copy the way they behave. If they are rude to patients or careless in handling equipment, then the students will tend to follow this example.

On the other hand, if they show consideration to the people they work with, then the students will tend to behave in a similar way. Therefore it is essential that in everything you do you should provide a good example.

Of course, all the other people that your students see will have an influence. Other health workers, nurses and doctors will all provide models for the students to copy. The teacher should therefore make sure that as far as possible, the model is a good one.

6.5 Providing experience to shape attitudes

Throughout the students' training they will have experiences which will shape their attitudes. They may see patients with sores which have not been treated and have then become septic and possibly disabling. This direct experience of seeing the patient's suffering will have far more impact on shaping attitudes than a whole bookful of facts about the need for early treatment of superficial wounds.

The teacher should provide as much of this direct experience as possible. For example many health workers have responsibility for improving nutrition in a community. In some schools the students grow all the vegetables that they eat and look after animals themselves. This experience will help them to have more positive attitudes to doing the work themselves. In these schools the teachers believe it is important for the teachers to join in with the digging and cultivation so that students learn that the manual work is not undignified.

Exercise

List 3 experiences which you think your students should have which would help them to form good attitudes *to patients*.

Comments on the Exercise

You may have written down ideas such as

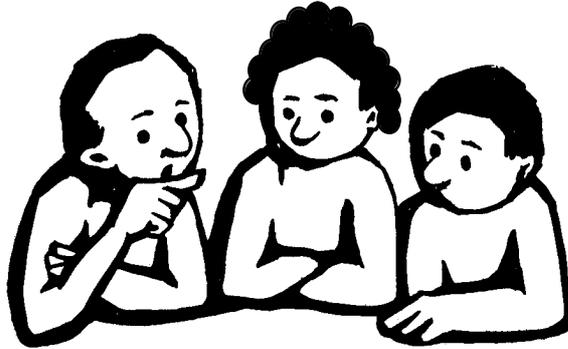
- Working with an experienced health worker who you know has good attitudes to patients.

- Talking to patients about their worries concerning health.
- Meeting people who suffer from some disabling but preventable disease.

Note: It is always a good idea to discuss these experiences with your students so that you can make clear the kinds of attitudes which you want them to learn.

6.6 Providing discussion to shape attitudes

Discussion in small groups is generally thought to be helpful in shaping attitudes. It is especially important as the discussion will help to make the previous three methods more effective. For example it will be helpful for students to describe and discuss the experiences that they have had with patients. In the discussion they will share experience, so that the experience which one student has had may influence all the other members of the group.



“Providing discussion to shape attitudes.”

Another important feature of the discussion is the way in which the attitudes of individual students change when they talk about their own opinions. The process of putting their ideas into words and seeing the reaction of the other students can be a powerful way of bringing about attitude change. For this to happen, the group size must be small enough to give *every* student a chance to talk. A group of 7 or 8 students is ideal and 15 is an absolute maximum for this technique to be effective.

Example of questions for a discussion

Imagine that each of you has been sent to different villages to persuade the local people to build a piped water supply.

1. How would you start to persuade the local people? For example would you try to make a speech to a large meeting or would you talk to individuals. If you choose a large meeting, who would you like to attend the meeting and how would you persuade them to come.

2. What rumours and objections about piped water supplies might you hear?
3. How would you respond to these rumours and objections?
4. What advantages do you think would be persuasive?
5. Why do you think some people don't like the idea of piped water?
6. Would you force the village people to build the water supply if you had the power?

Notice that these questions are specific enough to start the students talking and to provide some structure for the discussion. But they also allow students to express different opinions and so begin to form or change their attitudes.

Activity

Write down the instructions you would give to a small group meeting. The instructions should help the group to think about parts of their job where attitudes are as important as knowledge or skills. The aim of the discussion should be to encourage the students to talk about your questions and so develop their attitudes. As an example, you might like to think of instructions which would encourage students to be more careful in their use of medical equipment.

6.7 Role-playing exercises

Attitudes are very important in communications with people. If you respect people you will listen to them and speak to them in a different way.

Attitudes to people will often be improved if you understand the other person's point of view. So, one way of teaching attitudes is to give the students some experience of what it is like to be a patient or a mother with a poorly nourished child, or a shopkeeper who thinks that the health inspector is unreasonable. This can be done by using the technique of role-playing.

In this technique the students act the parts of different people and so begin to experience some of the feelings of these people.

The technique is also very useful in teaching communication skills and is described in more detail in Chapter 8.

6.8 Conclusion

Attitudes are important even though they are difficult to define, test or teach. The ideas in this chapter are just suggestions, because there are no widely accepted methods of teaching attitudes. It is certain that what you do *will* change students' attitudes. It is less certain exactly what that change will be.

Summary

1. An attitude is a tendency to behave in a certain way. For example a person who has an attitude of thoroughness will generally keep full and correct records of his **work**.

2. Attitudes like this are not developed easily. The teacher must do more than say '*You should be thorough in keeping records*'.

2. Attitudes can be shaped by

- (i) providing the background information
 - (ii) providing a model or example
 - (iii) providing experiences
 - (iv) encouraging discussion amongst the students
 - (v) using role-playing exercises
-

chapter 7 **How to teach skills**

What is a skill?

Anybody working in primary health care uses many skills. They may use their hands skilfully when they apply a dressing, build a water supply or repair equipment. This kind of skill is often called a 'manual' or *psychomotor* skill.

They may talk skilfully when they persuade village people to attend an MCH clinic or encourage farmers to grow crops which will improve nutrition. The skills of explaining and persuading are called *communication* skills.

Then there are skills in making decisions. The most obvious example is when the health worker decides on a diagnosis or on treatment. Other examples are keeping records, ordering supplies, choosing the site for a well or latrines and so on. These skills are called thinking skills or *decision-making* skills.

The names – cognitive, communication and psychomotor – are not very important but are given because you may have read or heard these words elsewhere. What is important is that all these skills involve more than remembering facts. They involve the application of facts. For example in making a diagnosis, the health worker must be able to take a history, recognise signs and symptoms and then compare this information with his knowledge of diseases. This application of knowledge is a skill. The important point for the teacher is that *skills must be practised by the student*.

7.1 **Are skills important?**

The obvious answer is yes. Very frequently supervisors, doctors and senior health workers complain that students from schools for health workers know a lot of facts, but they cannot apply them. In other words they have the knowledge but they do not have enough of the skills.

What is the remedy?

- First, teachers must accept that their job is to help students learn skills.
- Then they must make sure that there is enough time to teach skills.
- Finally they should use good teaching methods.

This chapter will explain some of the teaching methods which can be used.

7.2 **Methods of teaching skills**

Teachers often use the following patterns when they teach skills:

1. Describe the skill – explain what the skill is, why it is important, when it should be used.

2. Demonstrate the skill – let the students see an expert (often the teacher) perform the skill.
3. Arrange practice sessions.

This pattern is generally sensible, although the stages can not be completely separated.

For example it may be more interesting to start with a demonstration. Or students may need more demonstration after they have had some practice.

Often the skill is described in a lecture (theory) then some time later – maybe weeks later – the students do the practice (practical). This is *not* desirable although there may be administrative reasons for doing it this way. Ideally, *theory and practice should be taught together*.



“Ideally theory and practice should be taught together.”

7.3 Describing a skill

The first stage in teaching a skill is to describe the skill. This will involve explaining why the skill is important and why the students must learn it. It will involve explaining when the students should use the skill and it will involve explaining the stages in performing the skill.

For example, if you are teaching how to give an injection, most students will know vaguely what an injection is and why it is important. But if you are describing the skills involved in persuading mothers to bring their children to an immunisation clinic, some students may not realise why this is important.

When you explain the stages in performing a skill, a task analysis will be very helpful. This is because the task analysis gives a list of what is done and the order in which each stage is done. The task analysis will help you, the teacher, to be very clear in your own mind about the stages. It can also be used directly by the students. If you use task analysis in this way, it should be rewritten so that it is useful for the student. Look at the example below which is used for teaching hospital nurses. (Notice that the words used are sometimes difficult for students – maybe you could improve them. Notice also that this is the way medicines are given in the hospital where the nurses are trained – it is not necessarily the way **you** would train nurses to do this particular job).

Examples of instructions for a student based on a task analysis

Giving medicines by mouth

Equipment

Trolley containing:

- All medicines required.
- Graduated medicine glasses.
- Teaspoons.
- Jug of cold water
- Small tray or plate for carrying drug to bedside.
- Receiver for used spoons
- Medicine cloth.
- Soapy water and clean water.

Giving the medicine

1. Identify the name of the patient.
 2. Read the prescription carefully. Give medicine at the time ordered and give before or after meals, as instructed. If before meals, give twenty minutes before. If after, give immediately after.
 3. Select the medicine and check the label with the prescription.
 4. Ensure that the label is kept clean (if liquid medicine) by holding the bottle with the label against the palm of the hand.
 5. Shake the bottle.
 6. Hold the medicine glass at eye level while the medicine is being poured.
 7. Shake the prescribed number of tablets or pills on to the lid of the container and from there, on to a spoon and then on to the back of the patient's tongue, or mix with water.
 8. Place powders on a spoon and then on the back of the patient's tongue, or mix with water.
 9. Make unpleasant medicine as agreeable as possible by following their administration with a sweet or drink of fruit juice, if this is allowed.
 10. Stay with the patient until he takes the medicine. Do not leave it on the patient's locker.
 11. Note administration on Drug Recording Sheet.
-

This example shows:

1. The instructions could be used as a handout when the teacher describes the skill.

2. The students can keep these instructions and refer to them when practising the skill – or put them into their own manual for reference after the end of the course.
3. The written instructions make quite clear what standard of performance is expected. (All teachers and examiners will follow the same standard).
4. Because the instructions are written down, students can assess each other and so help their own teaching.

These written instructions are sometimes called *procedure cards* or *job-aid cards*. Again the technical names are not very important. What matters is that some teachers have found that they are very useful and that many more teachers could use them.

7.4 Demonstrating a skill

When the skill has been described it should be demonstrated. Sometimes the demonstration is done at the same time as the description.

There are some obvious points about demonstrations which are easy to explain, but are more difficult to follow.

1. ***The demonstration must be correct.*** Obviously you must not demonstrate bad methods. Also you must make sure that any equipment you use will be available to the students when they are working in the field. You should also make sure that your demonstration does not use methods which require too much time or too much skill. For example if you are demonstrating how to prepare posters for a talk to mothers in a village, you should make sure that you only use the kind of paper, paint and pens which will be available to your students.



“The demonstration must be visible . . .”

2. ***The demonstration must be visible.*** All the students must be able to see what you are doing. This is so obvious but often teachers make mistakes here. The

problem is most serious when there are large numbers of students or when the skill you are demonstrating cannot be seen from far away.

The solution here may be to use a video. But for the very many teachers who do not have the equipment, the only way is to repeat the demonstration many times. Senior students or teaching assistants may help you here.

If some students cannot see properly repeat the demonstration

3. **Explain what you are doing.** It is not enough to perform the skill correctly and visibly. You must explain what you are doing and emphasise important points. A handout, or written set of instructions will help you here.

An example of using a handout to help explanation:

Preparing for an intramuscular injection

1. Put the two parts of the syringe and the needle in a metal container (a metal pan or tin). Cover them with water and boil them for ten minutes.
2. Wash your hands with clean water and soap. Rub your hands together in the soapy water until they are really clean. Rinse your hands in clean water.
3. Clean the lid of the little bottle (which contains the penicillin or any other substance to be injected), using a swab wetted with a disinfectant such as surgical spirit, alcohol, rub hard two or three times.
4. Using the same swab, rub two or three times the place where you are going to put the needle in the buttocks for the intramuscular injection. On the buttocks choose a place for the injection which is fairly high up and towards the side.
5. Put the two parts of the needle together and fit the needle in firmly. To do this, take the needle at its base, that is to say by the part which is not sharp

and so on

This kind of handout might be used in the following way. The teacher would:

- explain why intramuscular injections are given.
- give the handout to the students.
- demonstrate each stage in turn by showing the students exactly what has to be done. During the demonstration, the teacher would keep on referring to the handout. For example, saying "*now we come to stage 2. You should wash your hands like this. Notice that the water must be clean and that I have to use soap. It is not enough just to get the hands wet. You must rub your hands together hard to remove any dirt or risk of infection...*"

An advantage of using the written handout whilst you demonstrate a skill is that the students will become familiar with the handout. They can then keep the

handout for revision or to refer to later.

Another advantage is that you are giving the students a record, so they do not have to take notes. This means that they can concentrate on watching the demonstration, rather than trying to do two things at the same time.

7.5 Providing practice in performing skills

The most important stage in teaching students how to perform a skill is the practice. Unfortunately this is often the most difficult to organise and can take the most time. Despite these problems, teachers must make sure that students have plenty of opportunities for this practice.

One way of ensuring that students reach an adequate standard is to develop a check-list. After the demonstration of an intramuscular injection, for example, the handout (on the previous page) can easily be adapted to the following format:

Check-list when giving an intramuscular injection:

<i>Did the Student</i>	<i>Yes</i>	<i>Not enough</i>	<i>No</i>
------------------------	------------	-------------------	-----------

- 1 Disinfect the equipment well*
- 2 Wash hands really well*
- 3 clean the flask lid well
with disinfectant and rubbing*
- 4 Choose the right site for the injection*
- 5 Disinfect site well.*

And so on.

Such a check-list can be written by the students, then used for practice in pairs, one of the pair carries out the (simulated) procedure, one watches and uses the check-list. Note that all “yes” answers are positive so that when the check-list is completed, it is easy to see whether the task was mostly well done (a vertical line of ticks under the “yes”) or done badly. A slightly different format can be found in 10.8.

By specifying the standard of performance expected, the students are helped to master properly the skills they need.

The main features of teaching skills well are:

- *All* students practise the skill often enough.
- The students receive feedback about how well they are performing the skill.
- Check-lists to ensure good standards.

The remainder of this chapter describes methods which the teacher can use. These are:

- Role-playing (7.6)
- Projects (7.7)
- Simulations (7.8)
- Job experience (7.9)

This is not the complete list of possible methods. Rather it gives some ideas about some of the possible methods. Every teacher can adapt these methods, read about other methods or develop new methods to suit the specific needs of his students.

7.6 Using role playing to teach skills

Perhaps communications skills are the most difficult group of skills to teach. This is because there are fewer definite rules to follow. For example it is hard to decide exactly what makes an explanation clear or persuasive.

Because of this, students need to develop their own way of communicating and so, of course, they must have plenty of practice. This practice should be supervised by a teacher, a senior student or an assistant whenever possible.

Role-playing is one method which is useful. In this method the students act different parts as if they were in a play. But instead of words and parts the different students are only given an outline of a situation. See the example below:

Example

Ask student A to act the role of a health worker trying to persuade a mother to have her baby immunized against polio.

Ask student B to act the role of the mother. Explain that the mother is worried because she has heard that the immunization is dangerous and that her mother does not believe immunization is necessary. However, she must be persuaded although she respects her own mother.

Ask student C to act the role of the grandmother. The grandmother expects her opinion to be followed. None of her babies were immunized and all of them grew up to be strong and healthy. She believes immunization is unnecessary and dangerous.

Now tell the role players that the health worker is talking to the mother and grandmother in the health centre. Ask the role-players to act the

parts you have given them by talking and reacting in the way they think that the mother, grandmother and health worker would behave.

Ask the other students in the group to watch and listen to what happens. They should note down things which the health worker does well and also the mistakes he or she makes.

They should think how they would have talked or acted differently. What other information would they have used? Would their manner have been different.

Probably the role-playing will last for only a few minutes. Now comes the very important stage – the discussion.

Ask various students how they would have behaved and invite discussion from the group as a whole about the way the health worker behaved. Ask them also how the grandmother and mother felt. Would the grandmother feel her experience was made to seem silly? Would the mother have felt bullied? As the teacher you should try to start the students thinking about the emotions of the people in the role-playing. The students should also be made aware that facts are not enough for good communication.

This then is an example of a role-playing exercise. Many other examples could be thought of which would help students to understand the problems of communication. The examples could be fairly simple like the one above or they could be made more complicated. For example you might add extra information such as the news that a baby in a neighbouring village died soon after immunization of a different disease. Or the husband might come into the health centre during the discussion. He might have strong opinions about immunization – either for it or against it.

Whatever the situation you choose to use, the students will need some reassurance. Some may be very shy or afraid of making mistakes.

It is probably not wise to force any student to take on a role until they have seen other students in action. You should try to keep the mood fairly light-hearted – and make quite sure that the students know that this is purely a learning experience and not an assessment!

Whilst this is a very useful technique in practising skills and giving students insight into communication, there are some limitations. The main one is that this technique should not be used with groups of more than about 25 students. The reason is that the method depends on the discussion at the end when *all* students should take part. With large groups this is impossible.

A second limitation is that students acting as grandmothers are only *acting*. Therefore, the students should *also* have experience of communicating with real people with real opinions and real personalities. Although these limitations are important, role-playing is still a very useful method in helping with communication skills.

7.7 The Implications of the AIDS epidemic

With the increasing importance of helping people with AIDS, people needing Family Planning and so forth, it has become necessary for all Health Workers to have good communication skills in sensitive areas. People learn these in the same way as they learn to discuss immunisation with grannies. They need role-plays, practice and good check-lists.

For those that need more, a manual, “Interviewing and Counselling at the Grass-Roots” can be used by small groups to learn these skills. It can be downloaded from the www.networklearning.org site. It contains role-plays and check-lists.

7.8 Projects

Projects are an important part of many longer courses. In a project the student – or a group of 3 or 4 students – is asked to attempt a specified task. For example, the students might be asked to find out about the health problems in a village – or they might be asked to find out what superstitions school children have about nutrition or hygiene.

When the students do the project work they will find out facts. But they will also increase their skills in talking to people, in collecting and reporting information and probably in other areas as well. The exact skills will depend on the project chosen.

Ideally projects can be very valuable learning experiences but they can go badly wrong. Teachers must give enough help and encouragement – without doing all the work. At the end of the project the reports should be presented to the whole class of students so that every student can benefit from the experiences gained in all the projects – and this takes time.

Projects do work – provided the teacher is enthusiastic, gives enough help and there are not too many students. They are very difficult to organise when there are more than about 40 in a class.

7.9 Simulators

Simulators are extremely difficult to define in any way that is both reasonably simple and complete. It is better to quote some examples. An orange can be used as a simulator, when students use it to practise injections. In this case the orange simulates the skin and flesh of the patient. Other simulators are used to train pilots how to fly aircraft. These flight simulators have all the aircraft controls and instruments which are linked through a computer to reproduce the behaviour of the aircraft.

So simulators can be extremely complicated and costly or they can be very simple and cheap.

Some simulators can be bought. For example, a simulated patient made out of plastic can be used to practise insertion of an endotracheal tube. Other simulations can use paper and pencil. These are called patient management problems and are described in Section 3 (sub-chapter 10.5).

The main aim of simulators (whether they are simple like oranges or very complicated) is to give the student some experience and practice before the student works with more expensive equipment or with patients. They are not intended to complete the training.

A problem facing teachers is that simulators are not widely available. Instead teachers must use their imagination to think of ideas like the orange.

7.10 Job experience

Perhaps the most useful practice a student can have is to actually do the job itself. Naturally students cannot do this in an uncontrolled way.

One way is for students to join qualified health care staff for periods of attachment. Ideally one or two students work with the senior health worker to see how the job is done. Gradually the senior health worker or supervisor will ask the students to do more and more of the work. All the time, the supervisor must make sure that the students are not making any serious mistakes and that they are frequently told what they are doing well, what they are doing badly – and how the bad points can be improved.

This job experience is widely used. Ward rounds and attachments to wards are examples of this method. At least one school spends the whole of the second year of a three year curriculum in job experience.

Although this method is widely used it is not always well used. Often ward rounds will have so many students working with one teacher that only one student out of ten or fifteen is actually practising a skill whilst the others

are just watching. This can be very boring and even at its best is not very effective.

Despite these dangers, job experience can be a most powerful method of helping students to learn skills, so it is worth putting in a lot of effort to arrange for students to work with qualified staff. It is also well worth explaining to the staff that the aim is to provide supervised practice – not to give mere theory lessons.

7.11 How much time is needed?

It is very difficult to give definite answers to how much time students need to learn skills. It is almost certainly true that most curricula give too much time to teaching theory and not enough time to learning skills and attitudes. For many tasks, students will often take two to four times as long to master the skills and learn the attitudes as they do to learn the *necessary* facts. There are, of course, exceptions to this general rule. But the implication is clear that a great deal of time must be spent in practising skills.

7.12 Summary

How to teach skills

- 1) It is absolutely essential to teach students the relevant communication, manual and decision-making skills.
 - 2) Skills are usually taught by:
 - describing the skill
 - demonstrating the skill
 - allowing every student to practise the skill
 - checking that the student can do the skill well enough
 - 3) Role playing, projects, simulations and job experience are some of the ways in which students can practise skills.
 - 4) ***Probably two thirds or more of the time in every course for health workers should be spent in teaching skills.***
-

chapter 8 **How to teach knowledge**

How important is knowledge?

Obviously all health workers must have some knowledge in order to do their job. But it is also true that other knowledge is not necessary. For example, a health educator must know which local foods contain protein – this is essential knowledge. On the other hand, the health educator will not need to know the chemical structure of each of the proteins. Nor will he need to know the formulas for the biochemical processes involved in the digestion of protein.

So some facts are very important and some are not at all useful. This means that the teacher must *choose* which facts to teach.

As a guide, teachers should ask themselves the following questions.

“What would the students do poorly if I left out this detail?”

If the answer is *“nothing”* – then the detail should usually be left out.

8.1 **Teaching different types of facts**

So far this chapter has explained that some facts are important whilst other facts are very much less important. But the important facts may be important in different ways – so they should be taught in different ways.

Take as an example the training of a group of health auxiliaries who will be responsible for running an immunization programme. The course may include the following (there will be much more than this of course!).

- A** Whether the vaccine can be stored in sunlight or whether it must be kept in the dark.
- B** How to explain to parents that their children should be immunized.
- C** The date when the vaccine was discovered.
- D** Safe storage times for the vaccine at different temperatures.

A is obviously an essential fact. It must be emphasised strongly and the teacher must make sure that all students remember it. It should be included in an exam.

B is also important – but it is more important that students can *do* the explaining rather than write down how they would do it. Here it is not enough to teach the facts. The skills must also be learnt. The skill should be tested in an exam – but the facts alone need not be tested.

C, the date of the discovery of the vaccine is not essential knowledge for anyone. However background information like the story of the discovery of the smallpox vaccine may well help to make the lesson more interesting. So it is worth including. But do let your students realise that this is only background information. It does not need to be remembered. Nor should it be part of any exam.

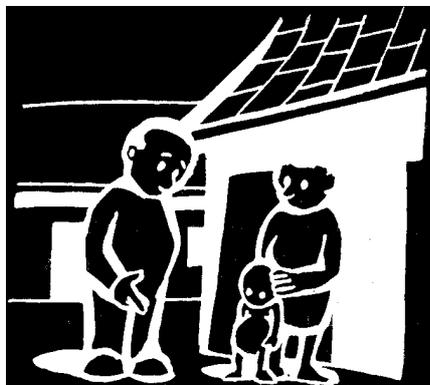
D, the storage times are important and so the students should be told them. For some vaccines the information may be fairly detailed and difficult to remember. In this case the facts should be recorded in a manual for the students to keep. The most important point for the teacher is to make sure that the facts are recorded accurately and that the students can look it up when necessary. These are facts for reference.

8.2 Where should students get the facts from?

The students can learn facts or information by listening to the teacher. In this case, the teacher is the source of information. He knows the facts and tells them to the student.

But there are many other sources of information which can be used. Many manuals are available which contain relevant information for health workers. There are also textbooks, films, videos and posters which have been prepared specially for health workers. Now, with the web, there are many useful websites. (Some of these are in the Resources List at www.networklearning.org – for example, John Hopkins supply a package of village-level health information at www.jhucpp.org/tools/download.stm). The students should be told, though, not to trust information from dubious sources

Another source of information is the real world. You do not always need to tell your students what happens when a sore is not treated. Nor do you need to describe the food which mothers give to their children. Your



students will have seen these things for themselves. So you can use your students' experience of the real world. In a similar way you can send your students out into the villages to collect information. The information gained in these ways is much more real to the student than the words spoken by the teacher. The information means more and is learnt better.

"The information means much more, and is learnt better"

So do not think that you must tell the students everything. Encourage your students to learn from their own experience, from books, from models and from each other.

8.3 Planning the topics of the lecture

When you have decided that some facts need to be taught you must plan the teaching session in which they will be taught.

A useful way of doing this is to start with the task. Then decide on the main items which must be covered. For example your task might be the control of the malarial mosquito. Some of the themes you will want to cover are:

- sites where the larvae can be found
- methods of eliminating these sites
- methods of preventing mosquitoes using these sites
- etc. etc.

When you have decided on these themes, they should be put into a sensible order (you cannot talk about preventing mosquitoes getting to the sites, until you know what the sites are).

Then think through each theme to decide how much detail is needed. What facts must be remembered, what facts will add to the interest, what facts should be recorded for reference.

8.4 Giving the lecture

There are many ways of giving a lecture. The advice given below describes just one pattern. You will want to vary this and develop your own methods. However this does give a basic guide which you can follow and improve.

- 1 ***Get the students' attention.*** You can do this by explaining why the lecture is important to the students. Or tell a story which shows why the topic is important. Maybe you can ask what they already know about the topic or why they think it is important.
- 2 ***Give a summary.*** Explain what is going to be covered. This helps the students' understand how each part of the lecture is related.
- 3 ***Test how much students already know.*** Make sure that all students really do know any facts which you are going to use. For example, if you think the students need to know some anatomy to understand a point, check that they do know it.

- 4 ***Present the facts and information.*** You may tell the students the facts, or
 - use handouts
 - ask students to read a part of a book
 - ask one of the students to describe the facts
 - use audio visual aids
 - show models, equipment or patients
- 5 ***Set some activity.*** This activity should make the students use the facts they have just learnt. This is a very important part of teaching.

For example you can ask individual students or groups of students "*What would you do if...?*" or "*How would you...?*" Another kind of activity is simply to write notes or fill in gaps of a handout.

6. ***Summarize.*** Repeat the main points which you want students to remember.
- 7 ***Test.*** Check whether the important points have been learnt.
8. ***Set an exercise to do after the lecture.*** You may ask students to prepare for the next session by reading, doing some specific work in the ward or in the community, or by revising what has been learnt previously.

You may think that this is not the kind of lecture that you used to go to when you were a student. This does not matter. A lecture should involve the students in doing things. Just listening is a poor and slow way of learning.

8.5 How to speak in the lecture

You should not spend the whole time talking. But when you are talking there are some points to remember.

- 1 ***Do you speak loud enough?*** Often teachers speak to the students at the front. The ones at the back simply cannot hear and so cannot learn. If you are not sure whether you can be heard, ask a friend to sit at the back and tell you.
- 2 ***Do you speak clearly?*** The volume may be loud enough, but you may speak unclearly. You should make sure that the words are clear and that you speak to the audience. Do not look down at notes or talk facing the board.
- 3 ***Do you use simple words?*** Make sure that the language you use is simple enough for the students. This is especially important when the students may come from communities where different languages are spoken.
- 4 ***Do you sound as though you are interested?*** Some teachers speak in a flat, monotonous voice. They sound bored and their students soon become bored. Vary your voice and try to show that you are enthusiastic and interested.

8.6 Visual aids

Some of the ideas and facts in your lecture will be best explained by drawing a diagram or a picture. So you should use a visual aid: chalkboard, charts, flannelgraph, overhead projector, slide or film strip projector, photograph, film, video, etc.

At least some of these will be available to you. Sometimes the material will be prepared for you to use (filmstrips, films and photographs). These can be difficult to obtain, but one agency "Teaching Aids at Low Cost" (TALC) specialises in making and selling these aids as cheaply as possible.

The websites of TALC and other organisations with teaching materials are available through the Resources List at www.networklearning.org
TALC's address is: P.O. Box 49, St. Albans, HERTS AL1 5TX, U.K.

Other aids you can prepare for yourself. When you do this you should:

- 1 Keep diagrams as simple as possible – unnecessary detail only confuses the students.



“Make sure all lettering can be read by ALL the audience.”

- 2 Make sure all lettering can be read by *all* the audience. (This is very obvious but is not often done). This point applies especially when you are writing on a chalkboard.
- 3 Talk about each diagram to make sure that all symbols are understood. This is especially important when you use graphs or cross-sections

8.7 Using handouts in lectures

Handouts are one way of adding to lectures. They can be used in two main ways.

- A guide to taking notes.
- A permanent record of the facts.

Of course, one handout may be useful in both ways, but often there will be an emphasis in one area.

Look at the example of a handout:

Example: A Handout for Students to Take Notes on.

<p>Malaria</p> <p><i>Signs and symptoms:</i></p> <p><i>Treatment of patients:</i></p> <p><i>Nature of disease:</i></p> <p><i>Who is at risk?</i></p> <p><i>How is malaria transmitted?</i></p> <p><i>Prevention of malaria:</i></p>

This very simple handout helps to make the lesson a bit more active, and so helps learning.

Notice that the handout gives a structure to the lesson. It will help to remind the teacher of the main points. Using this framework he could start off by asking students, "who has had malaria?" Then ask them about what it was like – the symptoms. And so on. As each stage is completed the students would fill in the main points on their handout.

Now look at another type of handout.

Maximum Storage Times of Vaccines				
Vaccine	Undiluted		Diluted	
	Fridge 1° - 4° C	Room Up to 20° C	Fridge 1° - 4° C	Room Up to 20° C
Tetanus			2 - 3 yrs	2 - 3 days
BCG (for Tuberculosis)	1 - 2 yrs	1 month	2 - 3 hrs	1 - 2 hrs away from sunlight
Smallpox	1 year	1 month	1 week	1 day

This second example is quite different. It provides a record of information; which the student may want to refer to later. It is unlikely that the student would be expected to know and remember all these times.

The teacher can give this handout to the students during the class. This saves time spent in drawing the table on the board and waiting for students to copy it down. This time can then be better spent by asking students questions to test their understanding of the information. For example, *"If you do not have a refrigerator, how would you organise BCG vaccinations in your village?"*

8.8 Summary

1. Only teach those facts which the students need.
2. Plan exercises and activities for the students – do not just talk.
3. Encourage students to find out facts from their own experience, each other, books and manuals, and, where possible, the Web.
4. Use visual aids and handouts.

Section 3 Checking your students have learnt

chapter 9 General issues in assessment

One of the most important parts of any teacher's job is to find out how much students have learnt. This can be done by setting exams or watching students at work. Whichever method you use, the process is called assessment. This chapter covers the general issues and problems of specific assessment methods.

The general issues in the chapter are:

- the reasons for assessing students (9.1)
- what makes a satisfactory assessment (9.2)
- making sure that assessment tests really important skills and abilities. (Validity) (9.3)
- making assessment reliable (9.4)
- using assessment to help learning (9.5)
- continuous assessment (9.6)
- self-assessment (9.7)
- using students to assess each others performance (9.8)

9.1 Why must students be assessed?

Most teachers would agree that their students should take some kind of examination or that the students' ability should be measured in some way. In other words, students should be assessed.

The reasons commonly given for this assessing of students are:

- There must be a check that the students will be able to do the job reasonably well. This of course is specially important in all the health professions.
- Exams and tests encourage the students to work harder.
- The assessment can be used to guide the students about which topics or skills they need to learn more.
- The assessment can also guide the teacher about which parts of the course have been successful and which parts need to be improved.

Naturally no single assessment during a course can achieve all the purposes. For example a final exam may be good for seeing whether the students are able to do the job. But it will not be of much use in guiding the students about what they should learn.

So it is important to think about the reason *why* you are assessing students in any test or exam. Then you can design the test to do the job that you feel is most important. You can decide *who* will do the assessing. *When* it will be done and *what* kinds of questions you will use.

9.2 What makes a good assessment?

When you design the assessment methods for a course or for a lesson there are five questions that you should ask

- A Does the assessment fit the regulations for the course?
- B Is the assessment reasonably economical in materials and time?
- C Does the assessment test really important skills and abilities? (Is it *valid*?)
- D Are you sure that the marks gained by each student are accurate? (Is it *reliable*?)
- E Does the assessment give information which will help students to learn better and help teachers to improve their teaching?

The first two points are fairly straightforward. Sometimes there are regulations about the kinds of exams which must be used and these regulations must be observed. But often the regulations only concern the final exams and leave a lot of freedom for teachers during a course. If you feel that the regulations prevent you assessing the students in a satisfactory way, you should perhaps talk to other teachers and the people on the committee which makes the regulations so that changes could be considered.

Assessments must not take too much time and effort. So methods like oral exams and essays have a serious disadvantage because they take up so much of the teachers' and examiners' time.

The following three sub-chapters deal with the remaining three questions in turn.

9.3 Making sure that assessment tests really important skills and abilities

After some recent Anatomy and Physiology exams in a medical school, a senior clinician said, *"I couldn't answer the questions, nor could any of the other doctors who saw the questions. I couldn't see why students needed to know these things"*.

This illustration shows a danger which is very serious in any schools which train health workers – students are often asked about facts which are not important.

This is very serious because students naturally want to do well in examinations and so they learn what they think will be in the examination. The solution is to

test *only* those skills and abilities which you believe are important.

One way of deciding what is important is to think about the job which the students will be doing – what *performance* must they achieve. For example a health educator will probably have to do jobs like explaining about hygiene or persuading mothers to breast feed babies. This explaining and persuading is a *performance*. Ideally the assessment should test whether the student can do the job successfully. If the assessment does do this, it is *valid*.

Unfortunately health educators are sometimes asked in an exam to write essays on the nutritional value of breast milk. This knowledge is only a small part of the skills needed (it does not cover the skills of talking to mothers) and so it is not really valid.

It is easy to advise teachers to make examinations *valid* by testing the *performance* of their students. It is much more difficult for the teachers to plan assessments which will do this'. Some ideas are given in the next chapter.

9.4 Making assessment reliable

In a recent exam the students were asked to write about the treatment of burns. The papers were marked by the teacher who had taught the course. Then another teacher marked the same exam papers. The scores given by the two teachers were very different. For example one student was given 45% by one teacher (a fail) and 70% by the other.

This illustrates that in this exam the marking was not *reliable*.

Clearly, the final mark should be *reliable* or it becomes meaningless. But how can you be sure that a mark really is *reliable*? The answer is to try to cut out the errors right through the assessment process. Do this by choosing assessment methods which are less likely to lead to errors. (For example multiple-choice questions are better than essays).

Also use techniques which help the markers work to a uniform standard – check-lists are useful here. The methods are described in more detail in the next chapter.

9.5 Using assessment to help learning

Exams can encourage students to do more work – and so they help learning. But assessment can do much more than this. It can tell the students exactly what they need to spend more time on. In many courses the teachers give frequent tests and then tell each student what parts have been done badly. In this way the students get feedback about the quality of their work and so can improve.

To illustrate this point, look at the result for just 5 students who took a 4 part test in the middle of a course.

Activity on Using Assessment to Help Learning

	Part 1	Part 2	Part 3	Part 4
Student A.	✓	x	x	✓
B.	✓	✓	x	✓
C.	✓	✓	✓	✓
D.	✓	✓	x	x
E.	✓	✓	x	x

Key ✓ means satisfactory standard. Key x means unsatisfactory standard.

What would you do if you were the teacher?

Comments on the Test Results

Probably you would be happy about part 1. For part 2 you should advise student A that his standard was not good enough. You should try to make time to explain *why* his work was not good and also explain how it could be made better. Ideally he should be tested again on this part after he has had a chance to learn.

The results for part 3 show that this is generally poorly learnt. Probably this part needs to be taught again. Here the teacher gets feedback about his own performance – so maybe next year the topic will be taught differently.

Part 4 shows that two students need more guidance – but it would probably be a waste of time to repeat part 4 for the whole class.

If you do everything suggested in the comments, you will find that it will take you a lot of time. This is a problem, but giving students this kind of individual guidance is one of the most valuable things that a teacher can do. You must try to make time. One idea is to spend less time lecturing to the class and letting students learn directly from manuals, handouts and practical experience.

A final point. Notice that this frequent testing and guidance applies equally well to both the knowledge and skills.

9.6 Continuous assessment

In some courses students sit one final exam at the end of the course. In other courses students are watched more or less continuously by a supervisor. Between these two extremes there are courses with tests or assessment every week, or

every month, or every term. Almost anything is possible. Generally '*continuous assessment*' is the name used, '*frequent assessment*' would be a more accurate name.

What are the advantages of continuous assessment?

- Because there are several assessments an error in any one assessment is less important. So continuous assessment tends to be more reliable.
- The tensions and worries of the single final exam are removed.
- The motivation to pass exams is spread over the whole of the course – so students tend to work harder over the whole course instead of making a single desperate effort at the end.
- If students do poorly in one test, they have time to correct their errors before the end of the course. Continuous assessment gives more guidance to both teachers and students.
- Students are shown right through the course what standard is expected.

Of course there are some disadvantages as well. The main one is that continuous assessment will take more time and effort to organise.

Continuous assessment can take many forms. It may be a series of written tests, or it may be observing students whilst they are working on a ward, in the laboratory, or in the field. The marks given may be recorded – to decide whether the student eventually passes or fails. Or the marks may only be used to guide the students. Whatever system is followed, continuous assessment offers important advantages in both helping students to learn and in making more accurate and reliable judgements about how much the students have learnt.

9.7 Self-assessment

Self-assessment is the name given to assessment where the student assesses his own performance.

Some teachers are very worried by this idea because they feel that the students are not responsible enough or do not know enough. This is probably true at the beginning of the course. However, some health workers will be working with very little supervision after they have qualified. So in the job they *must* assess themselves. Therefore it is a good idea to give the students some experience of self-assessment whilst they are still being trained.

Naturally self-assessment is a method which is used for only part of the time. Teachers or external examiners will be used to decide whether students should pass or fail at the end of a course. But during a course self-assessment *can* be used. It will help to save time and will give students a greater sense of responsibility.

In self-assessment, the students need clear guidance about what standards are required. They must also be given a very clear idea of the task. For example you might ask students to:

1. Inspect 50 microscope slides of blood samples to decide whether the patient has malaria.
2. Fill in standard forms for stock control in a pharmacy.
3. Plot a patient's temperature on a chart.
4. Weigh a baby and record the weight approximately.

In all these examples the student can compare his own work with a "*correct answer*" and so learn whether his work is satisfactory.

Notice that cheating is not a problem, because the purpose of self-assessment is to learn – not to score points in an exam.

9.8 Peer-assessment

An alternative to self-assessment is peer-assessment. This is the name given to assessment where students assess each other.

Again it is not suitable for deciding whether students pass or fail. But it is a very good method for helping students to learn.

Many students will ask a friend to test them when they are revising for an exam. This simple idea can be encouraged and guided by the teacher. For example students can be given written instructions for doing a job. Then one of the students attempts to do the job while the other one watches and comments. At the end the students change over and the second student does the job watched by the first one.



"Then one of the students attempts to do the job . . ."

The teacher must of course provide the written instructions or check-lists. These can be prepared either from the teacher's own experience or from a manual.

Peer-assessment can help to make field experience much more meaningful and purposeful. Instead of vaguely trying to do a job as well as possible, each student will be supervised by a fellow student who is there to watch and advise.

9.9 Summary

As an exercise of this chapter, look at the three examples of assessment methods given below. Then comment on them using the last four of the five points made in sub-chapter 9.2. That is:

- is the assessment economical in materials and in time?
- does the assessment test really important skills and abilities? (is it *valid* ?)
- are the marks accurate (*reliable*)?
- does the assessment help learning?

Now look at the examples below:

- A At the end of the course, a written exam is given in which students write 4 essays in 3 hours. Then an external examiner meets each student individually for 15 minutes to give them an oral exam on what they have learnt.
- B Every two weeks during the course, students have to answer 20 multiple choice questions on signs and symptoms of diseases, methods of treatment prevention of the disease etc. etc. The students mark the papers themselves by comparing the answers with the '*correct*' answers supplied by the teacher.
- C Trainee community health nurses spend 1 month working with an experienced CHN (2 students work with each CHN). The students do most of the work themselves under supervision. At the end of the month the supervisor writes a report on the students.

Write your own comments on each assessment method.

Comments

	Economy of time	Validity	Reliability	Helping learning
A	Poor	Poor	Poor	Poor
B	Good - after 1st year	Misses many important skills	Very good	Good
C	Poor	Very good	Moderate	Good

- A** This method is bad in almost every way. It will take a long time to mark the essays and to conduct the oral exams. Students won't have to write essays or talk to external examiners after the course – so the skills tested are not important. Essay marking and the marks given in oral exams are frequently *not* reliable. The exam comes too late for students to learn much from it.
- B** Setting the MCQs will take a lot of time. But they can be used year after year (with a little modification) and the marking is very quick. The assessment may test important skills – it will depend on the exact questions asked and what work the students are being trained to do. However multiple choice questions usually only test factual knowledge, so they cannot test many of the important skills which should be tested. The reliability is excellent – there should be very few marking errors. Students should learn from both marking other students' work and from seeing exactly what errors they have made. But note that it will only help learning of factual knowledge.
- C** This method will take quite a lot of time because the supervisor writes individual reports. However the important skills are tested. The reliability may only be low because different supervisors may have different standards. The assessment should help learning very effectively.

Overall these examples illustrate that each assessment method has some disadvantages. The teacher should be aware of these problems and try to reduce them as far as possible. Specific guidance on different assessment methods is given in the next chapter.

chapter 10 **Assessment methods**

In the previous chapter general issues were discussed. It was explained that a good assessment should be economical, valid, reliable and helpful to the student and teacher. This chapter goes on to describe specific methods which will help to improve the way you assess your students. Examples of each method will be given and comments about the value of the method will be made.

10.1 Oral exams

In an oral exam one student is interviewed by one or two examiners. Usually the students are asked to tell the examiners what they know about some topic or what they would do in some situation which might happen in the job.

The oral exam does have some advantages. Because the exam is *'live'* the examiner can ask for more detailed information and can probe to find out how much the student knows.

However this is not a very satisfactory method of assessment. Students are often made extremely anxious by the examiners – even though the examiners try to be friendly. This is an unfair stress on the students and quite different from the stresses they will face in their career. As a result many students get worse marks than they deserve. Orals also take a lot of time and have frequently been criticised because the marks given are unreliable. Further, the oral rarely tests important skills and does not usually help learning.

Therefore you should not use orals unless you have some specific and powerful reason for choosing this method.

10.2 Essays

Essays have been widely used in assessing students in the health professions. But again this method has very serious disadvantages.

In one course students were asked to write an essay on *"Polio Immunisation"*. This is a very poor test even though the topic was vaguely relevant to the students. (The students would be responsible for polio immunisation as part of their jobs).

The test is poor because:

- the students can not know what is expected by the examiner. Should they describe the administration of an immunisation programme? Should they outline how the immunisation prevents polio? Should they describe the side effects? And so on.

- the marking is likely to be unreliable. The reason is that because the topic is not clearly defined, different teachers will think different points are the most important – and give different marks as a result. Whether a student passes will depend very much on who marks the paper.
- the test is not valid. Students are not going to write essays in their job. They are going to immunise people. Therefore it would be much better to test the really important skills.
- the essays will take a long time to mark – if the teachers do this job thoroughly.
- the students are unlikely to learn very much from the test.

How could the essay be improved?

The first point must be that a quite different assessment method would probably be better – these are described in the following paragraphs. However if an essay must be used you should

1. Make the title much more specific – for example:

"Describe how you would explain to mothers why their children should be immunised against polio".

or:

"Explain how polio vaccine should be transported and given to children."

These essay titles are fairer because it is more clear to students what they should write. Secondly they are more valid because they ask the students to describe important skills.

2. Prepare a marking scheme and follow it. This scheme will include a list of the major points which should be covered in the essay and may say how many marks should be given for accurate spelling, general clarity of explanation etc. All teachers marking the essay should use this scheme. This improves reliability.
3. After the exam, show the marking scheme to the students and discuss it with them. This will improve learning.

10.3 Short answer questions

Short answer questions allow the teacher to ask questions about a larger proportion of the course and to mark more accurately and quickly.

Example of short answer questions

The following questions were part of an examination for health inspector trainees.

1. List 4 advantages to a household of proper rubbish disposal.
 - (i)
 - (ii)
 - (iii)
 - (iv)
 2. Draw a diagram showing the construction of a simple incinerator suitable for use in a small village.
 3. Give two circumstances when tipping and burying rubbish is better than composting.
 - (i)
 - (ii)
-

Short answer questions often ask students to make lists or state 2 advantages or draw a diagram. Because they are so much more specific they are quicker to mark and more reliable. They are also very much quicker to answer so in the time allowed for the exam many more topics can be answered than in an essay exam.

There is still a great danger that this kind of question will only ask students to remember facts rather than apply knowledge or perform skills.

10.4 Multiple-choice questions

Multiple choice questions are often called MCQs. They are a stage beyond the short answer question, because the students do not write any words. They just choose which of the answers is best.

Example – an MCQ of the one-from-five type

A patient tells you that he has noticed one of his eyes is red and he is worried. You can find no foreign body, but notice that the pupil is bigger in the red eye and the pupil does not respond to light. What is the most likely diagnosis?

- A. Trachoma
 - B. Conjunctivitis
 - C. Iritis
 - D. Corneal ulcer
 - E. Glaucoma
-

In this example the student has to choose between the possible answers and select the one answer which is best – in this case 'E'. In this type of question there is a *stem* and *five choices*.

The *stem* is:

"A patient tells you.....What is the most likely diagnosis? "

The *five choices* are:

- "A. Trachoma
- B. Conjunctivitis
- C. Iritis
- D. Corneal ulcer
- E. Glaucoma"

Although it is possible to use 4 or 6 choices, five is the most suitable number. So this type of question is sometimes called the **one from five** type of multiple choice question (MCQ).

Another type of MCQ is the True/false type.

Example – of a true/false MCQ

In glaucoma,

- | | |
|--|-------|
| A. there are usually white or grey spots on the cornea | T. F. |
| B. the pupils are irregular | T. F. |
| C. only one eye may be red | T. F. |
| D. the patient should be referred to a health centre | T. F. |
| E. a foreign body is the most likely cause | T. F. |
-

Again there is a stem -- in this example it is very short: "*In glaucoma,*".

But this time the stem is followed by several statements. For each statement the student has to decide whether the statement is true or false. In this case 'A' is false, so the student will draw a circle round 'F'. 'B' is also false, but 'C' and 'D' are true while 'E' is false, so the student should draw circles round the F,F,T,T and F respectively. In this case the student has to answer all five parts of the question.

Both these types of question are fairly commonly used although there are reasons for preferring the True/False type.

How good are MCQs?

They can certainly be marked very quickly and accurately. They can also be answered quickly so a lot of questions can be set in an exam – therefore a lot of the course can be covered.

On the other hand there are serious disadvantages. It is quite difficult to write clear questions – so writing the questions takes a lot of time. There is also the very serious problem that MCQs usually only test knowledge. Only rarely do they test decision making ability and they cannot test abilities to communicate or to perform procedures. So MCQs are unlikely to be valid for your course.

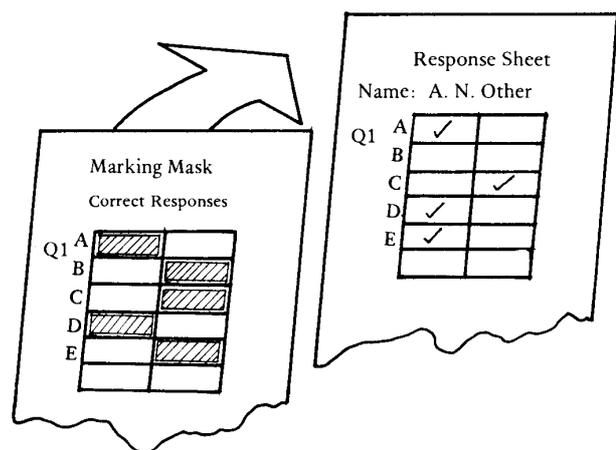
Despite these problems MCQs will probably be useful as one of the assessment methods used in your course. They can be used to check factual knowledge, especially during the course. They are also very helpful when used for self assessment or peer-assessment.

If you decide to use MCQs the following practical points may be helpful

- You should allow roughly 2 minutes for each 5-part true/false question in an exam. So in an hour students can be expected to answer about 30 questions. If you find that students are not finishing the exam cut down the number of questions. It is not a race.
- For true/false questions it is probably best to give 1 mark for each correct choice, zero for no answer and take away one mark for each wrong choice. In one-from-five questions use the same scheme except that there is no need to take away the mark for wrong answers.
- The 'pass' mark for MCQs should be quite high. This is because the MCQ should be testing basic knowledge which all students should know. Therefore a pass mark as high as 80% or 90% can be used successfully. It is better to use easy questions with a high pass mark rather than harder questions with a pass mark of 50 or 60.
- Marking is made much faster if a separate response sheet is used for the student answers. Then a mask can be laid over the response sheet with holes cut out for the correct answers.

In the example shown here, 3 correct answers will show through the holes – so give 3 marks. There are 4 ticks altogether, so 1 must be wrong – so take away one mark.

This leaves a score of 2 (3 minus 1) for question 1.



10.5 Patient management problems

Patient management problems are a development of short-answer questions. The main feature is that a series of questions are asked about a real case. Although they are called patient management problems they can be used in a wide range of subjects. In fact they can be used wherever students are being trained to make decisions. So they are also very useful for assessing students who are training to be health educators, community health workers, community nurses, health inspectors etc.

Example of a patient management problem

Mrs. A. comes to the health centre and tells you that she is tired all the time. She asks you for a tonic. You find out that she is 30 years old and about 5 months pregnant.

1. List 3 things which you think might cause the tiredness.
 2. List 2 other questions which you would ask Mrs. A.
 3. As a result of Mrs. A.'s answers, you suspect Mrs. A. is anaemic. What physical signs would you look for.
 4. Your examination confirms your diagnosis of anaemia. What treatment (if any) would you prescribe and what other advice would you give.
-

This example has the advantages of a short-answer question. It is clear to the student and it will be quick and reliable to mark (providing that all teachers involved agree what the possible causes of tiredness are.) It is also more valid as a test because it is based on the kind of work the students were trained to do. (It would be much better if each student met Mrs. A. and actually took a history and examined her). If students are given the marking scheme after the exam they will also be able to learn from this.

How can you write patient management problems?

It is usually easiest if you base the problem on a real case that *you* have dealt with: a boy who was brought to you with severe abdominal pain; a shopkeeper who failed to keep his premises clean despite several visits from a health inspector; a mother who rejected any advice on nutrition even though her children were malnourished. Of course you must still work as a health worker yourself to follow this advice. But if you teach full time you can still talk to health workers or, even better, spend half a day with a health worker to write down examples of cases.

The next stage is to divide the case into stages. What happened first? What decisions had to be made? What alternatives were there?

Then you should decide what bits of information you will tell the student and which bits you will ask them to tell you.

At this stage you will have a patient management problem, but you will still need to make a marking scheme. List all the answers that you think students might give – both right and wrong. Then decide how many marks you will give for each of the possible answers.

10.6 Project reports

In a number of courses students are asked to work on a project. This may involve doing a survey of a community, working in a health care team for a few weeks etc. Often the student reports on the project, and this can take a lot of time.

Naturally the students will be more motivated in the project if the reports are assessed and the marks count towards the final examination score.

However project reports are extremely difficult to mark fairly because there are usually no clear standards to follow. Some students may do very good work but present a poor report. Others will present a very clear and full report of poor work. Which is best and what standard will you accept?

Some guidelines may help you.

1. Project work should be assessed by at least two people marking independently. The two marks should then be compared and discussed to reach a final mark
2. Where possible, explain to students what standards they should aim for. Tell the students what you think a good project would be like. Where possible explain how much data should be collected, how many cases should be seen, what kinds of graphs or tables would be useful. But be careful not to restrict the students too tightly.
3. Let the students see some project work done in previous years which you think is good and also some which you think is bad. Explain your reasons. Of course you cannot do this the first time that you use projects – so maybe the marks for the first projects should not be counted in the overall assessment.

Clearly the use of projects in assessment causes some problems for the teacher. What is their value? Project reports will take a lot of time to mark and the score may have a low reliability. But they can have high validity if the projects are chosen carefully to involve the students in important skills. Above all projects can be very powerful learning experiences and they should be assessed to encourage students to make the maximum effort.

10.7 Record books

Record books have been used quite widely in nurse training and there are good reasons why they can be used in courses for other groups of primary health care staff.

The record book contains a list of skills or tasks which the student should be able to do. These tasks are the objectives – or at least some of the objectives – for the course. The students are responsible for learning how to do each of the tasks, and when they are ready they can ask a teacher to check their performance. During the course the students must do all of the tasks to a satisfactory standard. Check-lists could be used for this and the completed check-lists included in the Record book bundle. If the teacher thinks that the student's performance is good enough he signs the student's record book. If the performance is not good enough, the faults are explained and the student can try again later.

Example– a page from a student's record book

Task	Date	Signature
17. Prepare a flip chart for use with an audience of 30 people		
18. Give advice to a pregnant woman about ante-natal care.	20/10/99	<i>M. Gunn</i>

The record book does use quite a lot of the teachers' time because each student must be seen and their performance must be judged. This method can be difficult to organise because teachers may not be available when the student is ready to be assessed. Also some teachers may be known as easier markers so there are some problems about reliability. However on balance there are powerful advantages. The main one is that the record books help learning. They do this by making clear to the students what needs to be learnt. They also make sure that when students are not up to standard the teacher is there to give advice. The second main advantage is that the method should be highly valid – the students will be assessed on how well they can do the tasks and jobs which they are trained to do.

This is a slightly different type of assessment. Students do not get a mark out of 10 for each performance—they are simply judged to be good enough or not. So at the end of the course a student may have done 23 out of the 29 set tasks to a suitable standard. It is then up to the examiners to decide whether this is a "pass". In some courses students must achieve a satisfactory standard on all the tasks. In other courses it may well be impossible to insist on this high standard.

10.8 Check-lists

Check-lists can be used to standardise assessment through observation. Practical and clinical examinations can often be criticised because the mark is unreliable. Different examiners use different standards. **Check-lists** reduce this problem and they also make sure that the way in which the student does the task is assessed.

Example – A checklist for the question –

'Prepare a thin blood film using a sample of your own blood'

	not done	done correctly
1. Use middle finger or ring finger of left hand		
2. Cleans the finger using spirit		
3. Dries finger with a different piece of cotton wool		
4. Allows blood to flow freely after pricking with Hagedorn needle		
5. Puts a single drop of blood in the middle of the microscope slide		
6. Allows the blood to spread along the end of the second slide		
7. Pushes spreader quickly along the slide		
8. Draws blood along <i>behind</i> the spreader		
9. Does <i>not</i> blow on slide or shake it		

The examiner can watch the student preparing the blood film and put ticks in the right hand column for each part 'done correctly'. At the end of the test the number of ticks in the 'done correctly' column are added up and give a score for the student out of 9. The pass mark for this test must be decided by the examiner, who may feel that 7 out of 9 would be a suitable pass standard for this test. For other tests it may be 50% or 90% – the pass standard will depend on the specific test.

The advantage of the check-list is that it will make the marking fairer. Different examiners watching a student do a test are more likely to give the same score if they have a check-list. The check-list is also very useful for giving feedback to students or teachers because the evidence is clear and it is simple. The examiner might tell the teacher, "*Most of your students did the blood film test quite well, but I noticed about half of them pushed the drop of blood instead of drawing it behind*

the spreader slide". This would clearly help the teacher realise that this point needed more emphasis during the next course.

In the same way detailed information can be given to each student. For example the student might be allowed to see the actual check-list for his own performance.

This example check-list is for a physical skill. Similar check-lists can be prepared for communication skills and for attitudes. Note that a task analysis will be very valuable in preparing a check-list.

10.9 In-course assessment

During the training course, your students will probably spend time working in hospitals, health centres or dispensaries. There they will be practising the communication skills and the physical skills needed in their job. This time can be used for assessment as well as teaching. Probably the greatest difficulty is that the teacher must rely on assessments made by many different people. So it is difficult to say that all the different people have similar standards. To help in this, check-lists can again be used. But in this situation the check-lists should be less detailed.

Example – a checklist for assessing students in a health centre

	completely satisfactory	just good enough	not good enough
1. Keeps complete and accurate records			
2. Observes sterile procedures			
3. Establishes good relationships with patients			

and so on.

Nurses or health workers supervising students can use forms like this to give a clear picture of what the students can do or cannot do. Using this information the teacher:

1. makes decisions on whether students should pass or fail.
2. gives specific advice to students about what they need to learn.
3. improves the course in areas which are poorly learnt.

This less detailed kind of check-list is again prepared from a task analysis.

Example – a check-list for observing attitudes.

1. Very keen willing worker		Does as little work as possible
2. Accepts instructions willingly		Resents or ignores instructions
3. Very great interest in patients		Not interested in patients
4. Always keen to learn		Not interested in learning
5. Always on time		Always late

This check-list might be used by a matron on a ward where student nurses spend part of their training. The matron would use one form for each student nurse. At the end of the training period she would think about the way each of the nurses had worked during their time in the ward.

For example, the first nurse might have been quite willing to do what she was asked to do, but never seemed very keen or offered to do extra work. The matron would note this down by putting a cross at about the middle of the line...

1. Very keen willing worker	*	Does as little work as possible
-----------------------------	---	---------------------------------

In this way the matron can give a fair and quick summary of the attitudes of the student nurse to the teacher responsible for the course. This check-list can be used to give advice to the student nurse and can form part of the record which is used to decide whether the student nurse passes the course.

10.10 Conclusion

No assessment method is perfect. Each has some advantages, some disadvantages. The teacher should therefore use a variety of methods whenever this is possible.

Ideally the teacher should first decide what skills need to be assessed. These skills are, of course, the objectives of the course.

Then the best method should be chosen for assessing these skills. The method should be chosen on the basis of:

1. regulations for the course
2. economy of time
3. reliability
4. validity
5. value as a learning tool