Developing a Course Curriculum

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In the last article in this series we looked at the different teaching methods that we can use. Now that we have some ideas on *how* to teach, the question arises: *what* do we need to teach? How do we decide what students need to learn? How do we decide what to include in a course, and what to leave out? Fortunately, there is a clear path that we can follow (Abbatt and McMahon, 1993) which is shown in Figure 1.

Describing the Job

In health care the reason for training is clear: we expect those who are being trained to do their work well. This means that we have to define exactly what the job is, and what we want the learners to perform. If we think carefully about it, we will see that a job is made up of tasks. We, therefore, have to start by listing the tasks that our health worker should be able to perform competently. How do we arrive at this list of tasks? Here are some ideas:

- We watch skilled health workers at work, and write down what they do every day
- We ask the health workers themselves to tell us which tasks they perform in their daily work. We ask other health team members (e.g., managers) the samequestion
- We consult official documents, such as job descriptions for that category of worker
- We look at available health statistics, and from that we work out what the health worker should be able to do.

Some tasks on the list will be more important than others. This may be because they are done more frequently, or because there will be serious consequences if they are badly done.

It is important to think widely at this stage. Some people think that the only task that health workers have is to treat sick people. However, they have many other important tasks as well. Here are some of them:

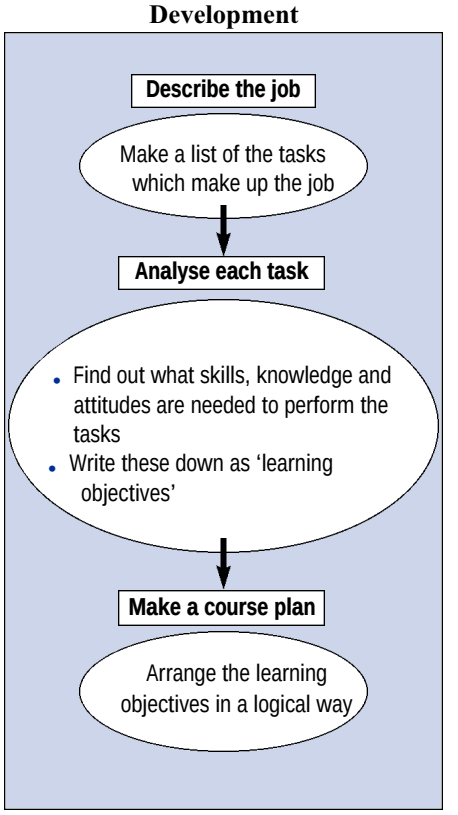
- Management tasks – e.g., maintaining the drug supply; keeping financial records; managing time properly
- Tasks related to preventing disease and promoting health – e.g., health education
- Tasks related to teamwork – e.g., resolving conflicts
- Tasks related to communication – e.g., writing a referral letter.

Such tasks must also be included in the task list.

Analysing the Tasks

What do people need to learn, to perform a task competently? In a previous article we saw that they need to learn both *skills* and *enabling factors*. This means that we have to look at each task, and work out the knowledge, attitudes and skills that the worker needs to learn to perform that task properly. Table 1 provides an example for an ophthalmic assistant.

Fig. 1: The Process of Curriculum Development



After this analysis we know exactly what the students have to learn. In fact, the items in the right hand column become our 'learning objectives'. We simply rewrite them as follows:

When you have analysed a couple of tasks you will notice that some tasks share the same 'learning objectives'. This is especially true for the communication skills and the attitudes, but also for basic subjects like anatomy and physiology.

Making a Course Plan

When you have finished analysing all the tasks, you will have a large number of learning objectives (Table 2).

Table 1: Task–Diagnosing and Managing a Patient with Primary Open Angle Glaucoma (POAG)

Manual skill	• Fundoscopy with an ophthalmascope • Measuring intra-ocular pressure using a Schiötz tonometer • Recording visual fields.
Decision-making skill	• Deciding when to treat • Deciding how to treat • Deciding when to refer.
Communication skill	• Explaining to a patient how to take treatment • Explaining the need to continue with treatment.
Knowledge	• Anatomy of the eye • Physiology of the aqueous humour • Pathophysiology/ course of the disease (treated/ untreated) • Epidemiology of the disease • Drugs used (mode of action, dosage, side-effects) • Problems experienced with treatment.
Attitude	• Encouraging and supportive.

Table 2: At the End of the Course the Students Should Be Able To:

- Examine the optic nerve head with the ophthalmoscope
- Measure intra-ocular pressure using a Schiötz tonometer
- Decide when to treat a person with POAG
- Explain to a patient how to take treatment for POAG
- Describe the anatomy of the eye
- Demonstrate an encouraging and supportive attitude towards patients with POAG – and so on.

A community eye health worker in Afghanistan

Photo: M Murtaza Farrahmand

These now have to be fitted into a timetable. As you do this, you have to keep the following in mind:

- The material must be presented in a logical sequence. This means two things:
  - Firstly, we need to group things together that belong together. For example, we group everything around trachoma together: the causative organism, epidemiology, prevention, treatment, etc.
  - Secondly, some things have to come before others. For example, students need to learn basic optics before they learn to do refraction.
- You have to fit into the time available for the course. Somehow there is always too little time – which means that you have to prioritise. Some learning objectives have to be left out, or made shorter. You also have to avoid unnecessary duplication and repetition.
- You have to consider the teaching methods you are going to use. For example, practicals take more time and need more teaching staff
- You have to consider the facilities that are available for training. If your own institution cannot offer enough places for practicals, students may have to travel to other sites.

Curriculum Reform and the 'SPICES' Model

Curricula are always changing, as teachers try to remain up-to-date and to eliminate problems. Over the last 20 years, however, there have been strong movements in many countries, to improve the quality of training of health workers. Harden et al. (1984) describe these changes as follows:

- **Student centred:**
  The most important consideration is that students should learn excellently. Teacher convenience and status come second.
- **Problem based:**
  Students learn to solve problems (clinical and management ones) rather than just memorising facts.
- **Integrated:**
  We now teach many subjects together – all those parts which deal with a specific problem. We no longer teach separate 'subjects'.
- **Community based:**
  Students learn new knowledge and skills in community settings, and not just in large hospitals as in the past.
- **Electives:**
  The curriculum is not completely fixed – students get some opportunities to pursue their individual interests.
- **Systematic:**
  We make sure that students learn to manage all important problems, by planning practicals carefully. We no longer just put them into the ward (or clinic) and hope for the best!

You will notice that the first letters of the six words spell 'SPICES'. This is a good checklist, to evaluate our present curricula and to see where we may have to change.
In the next article in this series we are going to discuss the assessment of our students – how can we find out if they have learnt what they should learn? Watch this space!

References

1 Abbatt F, McMahon R (1993). *Teaching health care workers*, second edition, London: Macmillan, pp.26-37.

2 Harden R M, Sowden S, Dunn W R. Educational strategies in curriculum development: the SPICES model. *Medical Education*, 1984; **18**: 284–97.

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Problem Based Learning (PBL)

In traditional training courses the teachers work out what the students need to learn, and systematically make sure that they learn it. PBL is different. As its name says, this method bases all learning on problems. It works like this. There are no lectures. Instead, the students are presented with a problem – usually a clinical one. Working in small groups, and under the guidance of a tutor, the students themselves work out what they need to know, and what skills they need, to manage this problem. They then go to the library, and to the wards and clinics, to learn the necessary knowledge and skills.
For example, one problem may be that of a patient with entropion and corneal scarring. The students work out that they need to learn about the clinical course of trachoma; the causative organism; its treatment (medically and surgically); its prevention (improved water supply and sanitation, community participation, etc.); its epidemiology; other causes of corneal scarring; and so on. This one problem, therefore, makes the students learn a large number of topics and skills.
The teachers still have to work out the content of the curriculum. But by carefully selecting the right problems, and enough of them, they make sure that students will cover the whole curriculum. The difference is that the students themselves 'discover' what they need to learn, rather than being given all the information by their teachers.

PBL has several advantages above traditional courses:

- Learners learn how to solve a problem by themselves, in a systematic way. This means that they can do it again in future, when they are faced with a new problem.
- The learners only learn what is needed to solve the problem. There is less danger of learning a lot of unnecessary information.
- Learners learn deeply rather than superficially, because they are actively involved.

CORRECTION
TeachingandLearning
Detlef R Prozesky
J CommEyeHealth 2000; **13**: 60–61.
TheEditorapologiesthatinthetwo tablesonp.60'tarsorrhaphy'should have read 'tarsal rotation'.

The DU-AL Corporation

John Sandford-Smith, in his letter in the last issue of the Journal (**13**: 62), referred to the uncertainty facing the DU-AL Corporation.
This company has now been acquiredby:

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