

## Teaching and Learning

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### Teaching Methods

In the previous articles in this series we discussed the process of learning and teaching, and the importance of communication in this process. Now we take a look at the different teaching methods that people use. Most teachers use a limited number of methods – ones that they are used to, and feel comfortable with. Unfortunately these methods may not be the best that are available. This article aims to give some guidelines about the methods that teachers should use.

### Jobs, Tasks and the ‘Domains of Learning’

In the first article in this series we said that a teacher of eye care workers is guided by the job which they have to be able to perform after training. If you think carefully about it, you will see that a job is made up of a series of tasks – each of which has to be performed competently. What do we need to teach a person, to perform a task competently? According to Abbatt and McMahon,<sup>1</sup> people need to be taught both *skills* and *enabling factors* (i.e., factors which a person needs to perform the skill properly). Let’s take an example:

### Teaching Eye Care Workers to Manage Trachoma (1)

Skills needed for the task	Enabling factors
<ul style="list-style-type: none"> <li>• Diagnosing a case of trachoma</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge of symptoms, signs, stages</li> </ul>
<ul style="list-style-type: none"> <li>• Applying eye ointment</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge of the organism, stages, treatment</li> </ul>
<ul style="list-style-type: none"> <li>• Performing tarsorrhaphy.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge of the anatomy of the eyelid, surgical equipment/ materials to use. Educating people and communities to prevent trachoma. Knowledge of the spread of the disease and methods of preventing such spread</li> </ul>
	<ul style="list-style-type: none"> <li>• An attitude of concern and caring.</li> </ul>

We see here that there are three kinds of *skill*, and two kinds of *enabling factor*:

- |                           |              |
|---------------------------|--------------|
| 1. Decision making skills | 4. Knowledge |
| 2. Manual skills          | 5. Attitudes |
| 3. Communication skills   |              |

Educationalists call these five categories the *domains of learning*.

### Teaching the Different Skills and Enabling Factors

Let’s return to our example. How would we normally teach the skills, knowledge and attitudes needed to manage trachoma?

### Teaching Eye Care Workers to Manage Trachoma (2)

Skill/ enabling factor to be learnt	Suitable teaching method
<ul style="list-style-type: none"> <li>• Diagnosing a case of trachoma</li> </ul>	<ul style="list-style-type: none"> <li>• Students see patients in an eye clinic, with an experienced clinician to check the diagnosis</li> </ul>
<ul style="list-style-type: none"> <li>• Applying eye ointment; performing tarsorrhaphy</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the skills, then let students perform under supervision until they are competent</li> </ul>
<ul style="list-style-type: none"> <li>• Educating people and communities to prevent trachoma</li> </ul>	<ul style="list-style-type: none"> <li>• Let students practice educating people; give them feedback about the way they do it</li> </ul>
<ul style="list-style-type: none"> <li>• Knowledge of symptoms, signs, stages, the organism, medication, anatomy, spread, prevention, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Give a lecture covering these facts. Refer students to pages in a textbook to study</li> </ul>
<ul style="list-style-type: none"> <li>• An attitude of concern and caring.</li> </ul>	<ul style="list-style-type: none"> <li>• Point out examples of good and bad attitudes to the students; discuss these together.</li> </ul>

It is clear from this example that *we need to use different methods, to teach the different domains of learning*. Very often teachers do not understand this. It is a common mistake for example to use lectures for everything. Instead of learning practically how to communicate, students are given a lecture about communication!

### A Feast of Methods

The generations of teachers who have gone before us have developed a large number of methods. All of these methods are now available for us to use. Here are some of the most commonly used ones, in relation to the domains of learning:

### Manual skills

There is really only one way to teach a manual skill, and that is to let the students perform the skill under supervision. It is best if the students first see a careful demonstration of the skill, and if both teachers and learners are guided by

*checklists* (see box below). Students get feedback – which means that the teacher shows them where they have made mistakes. Sometimes students practise on a *model* first, before working with a real patient – for example, they can inject an orange, or they can practise examining each other.

### Communication skills

Again, communication skills can only be taught by making students practise them, after a demonstration, and giving them feedback on their performance. We often use *role play* to teach these skills – for example, one student gives a health education talk, while the others pretend to be a

### About checklists

A checklist is a step-by-step, written description of a skill that is excellently performed.

Forexample, the skill of ‘applying eye ointment’:

- Position the patient comfortably (sitting or lying down)
- Check that the ointment and the prescription agree
- Wash your hands
- Open the tube of ointment and hold it in your ‘clever’ hand
- With the index finger of the other hand, gently pull down the lower eyelid of one eye, to expose the lower fornix
- Squeeze a ‘worm’ of ointment 2 cm long into the lower fornix, from left to right
- and so on\*\*

Checklists like this have several uses:

- Teachers use them when they demonstrate a skill, and to give feedback to students
- Students use them as a guide when they practise the skill by themselves
- Teachers use them to assess skills in an examination.

\*\* (see ICEH Teaching Slide Set, No. 10, **Practical Ophthalmic Procedures**, Vol. One)

group of villagers. After the role play the teacher and the 'villagers' give feedback to the 'educator', again using a checklist of the skill.

## Decision making or problem solving skills

The most common decisions that eye health care workers have to make is what the diagnosis is, and what treatment should be given. We teach these by giving the students problems to solve, and giving them feedback on the solutions they suggest. Such problems can be written ones: *case studies* or *patient management problems*. Here we give students the information they need (this can be done on paper or on a computer), and ask them to diagnose the case and solve the treatment problem. Then of course we should ask them to do the same thing with real patients.

## Knowledge

*Lectures* are the most common form of teaching knowledge (see box below). There are numerous other methods, all of which are probably better than lectures. Teachers may discuss important topics with small groups of students in *tutorials*. A group of teachers may present a *seminar*, where they discuss different aspects of the same topic. Teachers may *discuss* a topic with students, drawing on what they already know about it. Teachers may arrange *educational visits*, where students learn from what they see and experience. Teachers may give students *projects* to do, for which the students find the information they need themselves – and so on.

## Attitudes

Attitudes are difficult to 'teach'. All teach-

ers can really do is to *help students develop suitable attitudes*. A very powerful way is by *example*, since students imitate the attitudes of their teachers. Another way is to point out examples of good and bad attitudes, and to *discuss* these with the students: why should a good eye care worker have this attitude, and not that one? Teachers can also give *feedback* to their students, on how their attitudes are developing.

For those readers who would like to know more about these teaching methods, we recommend the following books:

- 1 Abbat F and McMahon R (1993). *Teaching health care workers*, second edition, London: Macmillan. (UK£7.00 + £2.75 postage). The ideas in this book are more 'formal' – the right method for the right domain.
- 2 Werner D and Bower B (1982). *Helping health workers learn*, Palo Alto, California: Hesperian Foundation. (UK£11.50 + £2.75 postage). This book is a real encyclopaedia and less formal.

Both these books are available at the above prices from: **TALC, PO Box 49, St. Albans, Herts AL15TX, UK.**  
**Fax: 00 44 (0) 1727 853 869**  
**E-mail: [talcul@btinternet.com](mailto:talcul@btinternet.com)**  
Cheques and credit cards accepted.

We have seen how important it is to make sure that eye care workers learn all they need to learn, to perform their work competently. In the next issue we deal with this question in more detail: how do we develop a course curriculum? □

## About lectures

There is no doubt that lectures are very popular with teachers - but are they the method of choice for teaching knowledge? Consider the following:

- Most students learn very little during lectures - they get the knowledge into their heads afterwards, by self-study
- It is surely a shocking waste of time to dictate notes to a hundred students, each of whom has to take the dictation down by hand
- Studies have shown that, without doubt, lecturing leads to less knowledge retention than any other way of teaching knowledge
- The average attention span of people who sit listening to someone talking is around 10 minutes. That is why students get bored and go to sleep during long lectures.

What do you think? Perhaps it is better to 'teach' routine knowledge by giving good handouts or pages from textbooks to students, for *directed private study*. Teachers should rather use precious classroom time to explain difficult concepts, or to solve problems together. In any case there should be *interaction* between teachers and learners during lectures - the method should *stimulate* and *involve* learners, rather than boring them to tears.

## YAG Laser

# YAG laser iridotomy treatment for primary angle closure in east Asian eyes

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**Aim:** To assess the efficacy of Nd:YAG laser iridotomy as initial treatment for primary angle closure in a community setting in rural Mongolia.

**Methods:** Subjects with occludable drainage angles in two glaucoma prevalence surveys in Mongolia (carried out in 1995 and 1997) were treated with YAG laser iridotomy at the time of diagnosis. These patients were re-examined in 1998. Patency of iridotomy, intraocular pressure (IOP), visual acuity, and gonioscopic findings were recorded. Iridotomy was classified unsuccessful in eyes where further surgical intervention was required or in which there was a loss of visual acuity to <3/60 from glaucomatous optic neuropathy.

**Results:** 164 eyes of 98 subjects were examined. Patent peripheral iridotomies were found in 98.1% (157/160) of eyes that had not

undergone surgery. Median angle width increased by two Shaffer grades following iridotomy. Iridotomy alone failed in 3% eyes with narrow drainage angles and either peripheral anterior synechiae or raised IOP, but normal optic discs and visual fields. However, in eyes with established glaucomatous optic neuropathy at diagnosis iridotomy failed in 47%. None of the eyes with occludable angles that were normal in all other respects, and underwent iridotomy, developed glaucomatous optic neuropathy or symptomatic angle closure within the follow up period.

**Conclusions:** Nd: YAG laser iridotomy is effective in widening the drainage angle and reducing elevated IOP in east Asian people with primary angle closure. This suggests that pupil block is a significant mechanism causing closure of the angle in this population. Once glaucomatous optic neuropathy associated with synechial angle closure has occurred, iridotomy alone is less effective at controlling IOP.

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