

Teach Practical Skills

Lynne A. Allery

Practical skills are a central part of a healthcare professional's role, and for patients a successful clinical outcome often depends on the competent execution of a technical procedure.

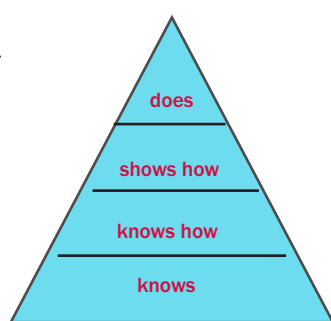
Introduction

Practical skills teaching in medicine has traditionally been based on the principles of **see one, do one, teach one**. Healthcare professionals learn a wide range of practical skills over the years – from basic skills such as suturing a skin wound or the incision and draining of an abscess, to undertaking more complex technical procedures in theatre, such as Appendectomy. But to what extent is the old adage of “see one, do one, teach one” adequate?

Principles of skills teaching

Skills learning can be seen as a hierarchy (see Figure 1). The trainer needs to possess the skills necessary to move a novice from a baseline level of awareness and knowledge of a particular skill through the higher levels of showing an ability to perform the skill, and ultimately to their achieving mastery.

Figure 1
The Skills Hierarchy -
Miller's Pyramid



modified from Miller GE. *Acad Med* 1990;65 (Suppl.):S63-S67.

A number of principles inform the learning and teaching of psychomotor or procedural skills. The trainer will need to assist the trainee to appreciate the various components of a particular skill and enable them to develop an understanding of the various different elements of:

- ▶ Conceptualisation – where skill fits and why important
- ▶ Visualisation – seeing the skill
- ▶ Verbalisation – talking the skill
- ▶ Physical practice – doing the skill
- ▶ Correction and reinforcement – feedback on the skill

In order to teach a skill, trainers need to be competent at performing the skill themselves, they must be able to provide balanced feedback within a structured approach, assess the proficiency of the learner and ensure that there is a phased withdrawal of supervision which allows the trainee to feel that they are supported fully and then trusted to perform the skill as an autonomous practitioner. Those trainers who effectively combine opportunities for their trainees to mentally rehearse the skill with opportunities for the physical practice of each new skill can increase the accuracy with which the procedure is conducted significantly quicker than physical practice alone (Ahsan et al 2015).

The Four Step Model for Teaching Skills

You may have seen this model in use during skill training courses (eg Advanced Trauma Life Support). Adopting a structured approach to learning, the model is well suited to teaching skills that will be utilised in critical care settings and that may need to be reproduced in stressful situations.

The 4-step model in teaching practical skills involves:

1. **Realistic demonstration** – the trainer demonstrates the skill at normal speed without commentary. This allows trainees to observe the mastery of the skill.
2. **Trainer talk through** - the trainer repeats the procedure whilst explaining each step and manoeuvre, answering trainee questions or clarifying any points.
3. **Learner talk through** – the trainee directs the trainer, providing instructions to the trainer on each step and manoeuvre as the trainer does the skill.
4. **Learner does** – the trainee does the skill under close supervision describing each action before it is done.

It is worth considering the value of this approach and the ways in which it might be adapted to accommodate skills teaching in diverse settings. For example, allowing a trainee to watch a recording of a skill procedure could replace steps 1 & 2 and then a training session could be utilised to enable discussions about the topic and skills training to occur. It is also useful to consider situations where such a rigid approach may not be the most appropriate mode of instruction.

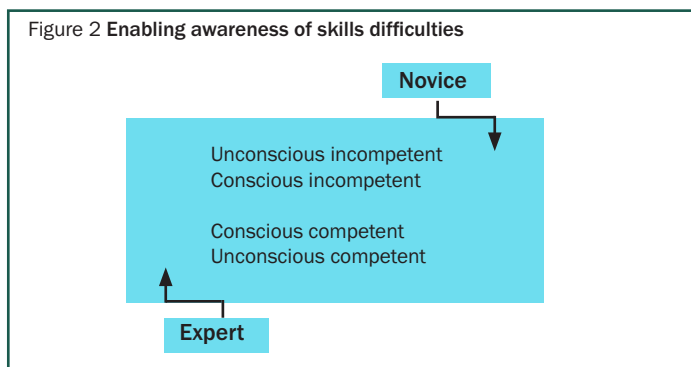
Skill Learning Difficulties

On occasions you may come across a trainee who is having difficulty learning a particular skill. Reasons for this may include:

- ▶ A trainee who might lack the innate physical characteristics or traits to undertake the task, perhaps a lack of strength, or an issue with hand eye coordination. For the trainer trait difficulties are difficult to address, if after sufficient opportunities have been scheduled for training, or remediation, without any signs of improvement, it may be that the trainee will need to reconsider their career pathway.
- ▶ A trainee may have been given an inadequate description or demonstration of the task and may not know precisely all the elements of the task or may not appreciate the exact level of competence that is required.
- ▶ A trainee may simply be repeating an incorrect or obsolete performance that had been learned previously.
- ▶ A trainee may have been told a skill was correct when it was not.
- ▶ A trainee may experience affective factors which act as a barrier to learning the task (anxiety, intimidation, lack of belief in the worth of the skill or a sense of its irrelevancy).
- ▶ A trainee may have an inaccurate perception of their own performance, and may not be able to identify how or why the skill was performed incorrectly.

Trainer Challenges

For many clinicians who are routinely performing complex clinical procedures it is often a challenge to move in to the role of a trainer (see Figure 2). As a trainer this requires moving away from 'auto-pilot' mode which is often adopted for routine day to day practice (the expert who is unconsciously competent) to an explicit awareness of precisely what stages and elements of skill performance are required for a competent execution of the skill



(the expert becoming consciously competent). Similarly a novice is often unaware of what precisely it is that they need to learn, and here the trainer's role is vital in protecting patients and enabling the trainee to become conscious of their inability to undertake particular skills (so the trainee becomes consciously incompetent), aware of what they don't know and what it is they need to know to perform safely.

Grantcharov and Reznick (2008) considered some of the issues for training in hospital based specialities, considering 'pre-patient training' away from clinical settings as one way of addressing trainers' concerns about the readiness, or otherwise, of trainees to carry out more advanced procedures on patients. Some of their suggestions can be adapted into both the primary and the secondary care sectors, including the use of manikins and simulated patient consultations.

Task Analysis

Task analysis guides trainers in selecting precisely what to teach, deciding the standard to which a skill should be taught, the teaching sequence as well as anticipating trainees' questions. The benefits of task analysis include providing an objective basis for giving feedback to the trainee and serving as a basis upon which to assess the trainee's performance. It also allows the trainer to make their knowledge explicit. Task analysis is one solution to the problem of the 'unconsciously competent' clinician, as this helps the trainer to break down the skill into manageable stages and to identify the essential manoeuvres required to achieve proficiency.

The main steps in undertaking a task analysis are:

- ▶ Establish the broad components of the skill.
- ▶ Divide the components into procedural steps first and then into sub-steps.
- ▶ Anticipate difficulties that a novice trainee may encounter at any step in the process.
- ▶ Consider a variety of different circumstances and how the performance of the skill might differ in these different situations.

Summary

Healthcare professionals have a key role to play in achieving consensus on the essential stages involved in undertaking practical and procedural skills. Providing opportunities for the trainee to practise are vital, so too is regular critical scrutiny of performance, coupled with constructive feedback.

Teaching procedural skills is a core role for many healthcare teachers. It is vital that trainers consider approaches to teaching skills, and the requirements for achieving skill mastery to ensure patient safety and ensure the training of competent clinicians for the future.

References and further reading

- Brearley, S. (1998) Teaching Manual Skills. In T. Bayley and M. Drury (Eds). Teaching and training techniques for hospital doctors. Radcliffe Press: Oxford.
- Ahsan R, Tait I, Afshin A. (2015). Systematic review and meta-analysis of the role of mental training in the acquisition of technical skills in surgery. The American Journal of Surgery. 210: 3, pg 545-553
- Miller G E. (1990), The assessment of clinical skills/competence/ performance. Academic Medicine. Supplement :S63-7.
- Grantcharov, T.P. and Reznick, R. K. (2008) Teaching Procedural Skills. British Medical Journal. 336.1129-1131.

Lynne Allery is Reader and Director of Medical Education, Academic Section of Postgraduate Medical Education, Cardiff University. She has had extensive experience of teaching teachers within the health sector and enjoys an international reputation in this field.

Series Editor

Dr Michal Tombs - Senior Lecturer in Medical Education, Academic Section of Postgraduate Medical Education, C4ME, School of Medicine, Cardiff University.

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