Teaching and Training in the Workplace

TEACHING AND LEARNING IN THE WORKPLACE

ANAESTHETISTS as EDUCATORS

The Royal College of Anaesthetists

The Royal College of Anaesthetists

Aims

In this chapter we will explore education in the clinical workplace from both the perspective of the learner and also the teacher. Firstly identifying the needs of the learner, then helping the learner to fulfil those needs and lastly checking that the needs were met in the educational encounter.

Intended learning outcomes

By the end of this chapter you should have a better understanding of how to:

1. Identify and implement opportunistic teaching (TM_HS_07).
2. Provide appropriate supervision to more junior anaesthetists (TM_HS_10).
3. Effectively teach a practical skill (TM_IK_03).
4. Plan and execute a 'teaching' list (TM_HK_03).
5. Reflect on constructive feedback received regarding your own teaching (TM_BS_11).

Activity

With a little planning a routine list can be educationally productive. As a starting point it is useful to have identified the learning/teaching opportunities available. Consider this typical half-day trauma list submitted by an orthopaedic ST1:

1. Edward Davis	**23/03/86**	**ORIF Ankle (120mins)**	**Ward 49**
2. Donald Thomas	**05/08/04**	**MUA +/- K-Wires (90mins)**	**Ward 55**
3. Greta Howards	**16/12/23**	**DHS (60mins)**	**Ward 36**
		(Anaesthetist review please re: IHD, AF, CRF)	
4. Nilam Bah	**21/01/63**	**Removal of plate (30mins)**	**Ward 55**

Basic – Write down a list of the potential learning opportunities on this list. Try to give at least three possibilities per patient.

Intermediate – Write down the potential teaching opportunities within this list. Again try to give at least three potentials per patient.

Higher – Now consider how you might marry these learning and teaching opportunities together and how you might practically structure the morning to achieve some valuable learning.

Overview

Learning opportunities can be broken down into the domains of **knowledge**, **skills** and **attitudes/behaviours**. Knowledge and skills usually predominate, for example: discussing extremes of age, anaesthesia for day case surgery, co-morbidities, and performing neuraxial or regional nerve blocks.

However, other aspects such as: the order of the list, time management, negotiating with other team members, etc. are examples of 'non-technical skills' or attitudes and behaviours that are equally important to be learnt, developed and indeed assessed. The clinical workplace is an ideal environment for teaching professional behaviours and identifying good leadership and team working qualities. In Good Medical Practice, when discussing '*Good Doctors*' the GMC states:

> *'Teaching, training, appraising and assessing doctors and students are important for the care of patients now and in the future. You should be willing to contribute to these activities.'*
>
> (GMC 2006)

The expectation is that all doctors should pass on their skills and knowledge to help educate other doctors. In the long term, this means developing and preparing the future generations of consultants to be expert practitioners. In the short term, it means appropriately supervising more junior colleagues, and being honest when appraising or assessing the performance of others.

To achieve learning, we must **identify** the learner's needs, **fulfil** those needs, and then **check** that these learning needs have been met.

Identifying learner's needs

Unlike other medical specialists, anaesthetists often have the luxury of one-to-one teaching. While this is not an efficient way of teaching a cohort, it allows teaching to be tailored to the individual learner. A learner's *needs* will depend on their previous experience and knowledge base. This will help to pitch the teaching at the right level. Often anaesthetists in theatre will have 'pet' topics they like to discuss. Unfortunately, this may lead to a performance (or teaching session) without any audience participation (or learning).

Remember the teacher puts the ideas in the air, but they don't do the work that results in learning. The learner does this in his or her own head. A useful way to assess a learner's needs is to ask *them* what they would like to 'learn' that day. However this question can be met with a shrug of the shoulders and an, '*I don't know*'. It does not necessarily mean the learner lacks interest, they may not be used to the question actually being asked. A more useful and less generic question might include: '*Have you got a Workplace Based Assessment to complete?*' or '*Is there a particular topic you would like to discuss?*'

If you know in advance that you will be working with a particular colleague, *you could ask them to suggest some topics* and both do some preparation. There is more to teaching than '*Do you want to do the arterial line or central line?*' or serial coffee breaks. The aim of this question is to find out what the trainee feels they need to learn. Motivations will vary: there may be an exam just around the corner or a clinical question arising from a previous clinical encounter.

Being specific about learning needs can be difficult, but given a topic selected arbitrarily, it may be helpful to discuss:

- What the trainee currently can and can't do and any previously unsuccessful attempts.
- Prior feedback received.
- What additional knowledge and skills the trainee might need to complete the case independently.

Constructive phrases might include:

- *'If this was your own list (case/ward-round/clinic), what would hinder you from doing it independently?'*
- *'Which elements would you need advice/help to complete?'*
- *'How far away do you want me to be during the case?'*

These and similar questions may help the learner and teacher identify appropriate components of a case or list to concentrate on; the knowledge gaps that merit discussion or the skills in need of practice.

Fulfilling the learner's needs

Anaesthesia is a **practical** specialty and learning often accompanies our exposure to clinical situations. No other setting provides the same rich opportunities for close behavioural observation of statements, opinions, interactions and reactions under pressure. It is difficult for a teacher to hide their responses and equally the learner cannot easily hide their own knowledge, skills and attitudes to a given clinical situation (Cantillon and Wood 2010).

As learners (and anaesthetists) we want to get our hands dirty and practice a procedure. Indeed this is a vital step in the process of mastering a new skill, but an important first step is also to observe someone else performing the skill.

As adult learners, we can learn from our experiences (experiential learning) especially if we utilise our prior knowledge, think about our previous experiences, and then reflect on how we may have done better. We naturally reflect most when something goes wrong, but practising self-reflection regularly will help identify what might be improved for next time. There are 4 stages of the experiential learning cycle (Kolb 1984). See Figure 1:

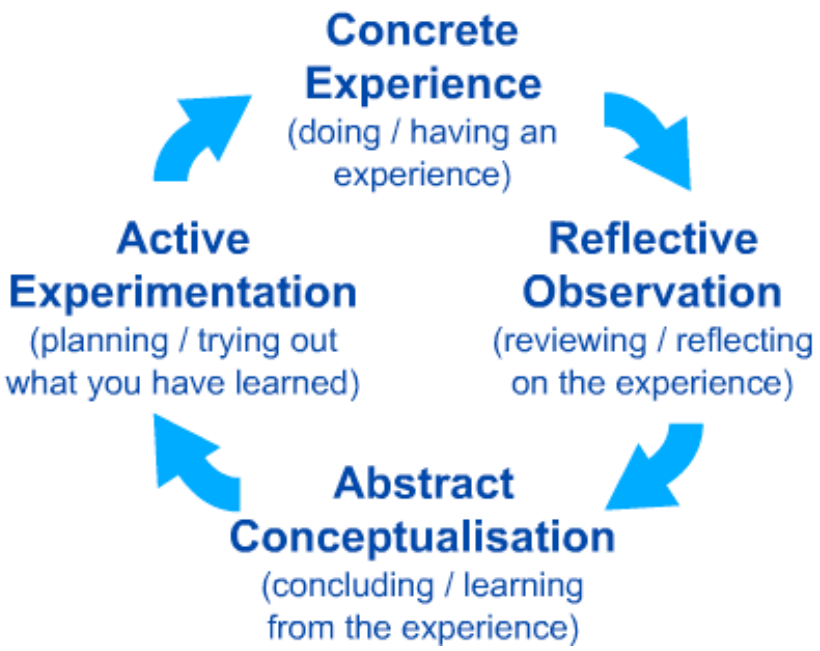

Figure 1. Kolbs experiential learning cycle.

Apprenticeship model

An apprentice is someone who is paid by his or her employer to learn. Clinical anaesthesia can be thought of as an apprenticeship. Collins *et al (1991)* describe six stages that a teacher might use to assist their apprentice in mastering a task.

1. Modelling: allow the learner to observe your practice in order to build up a conceptualisation of that practice.
2. Coaching: watch the learner practice, offering them guidance, critique and feedback.
3. Scaffolding: offer the learner more opportunities to practice, gradually and purposefully increasing the complexity of the work undertaken, while slowly fading your input.
4. Articulation: use questioning and supervision time to encourage the learner to talk through what they are doing, why and how, and also provide a rationale for the approaches they have used.
5. Reflection: encourage the learner to analyse his or her own performance and compare it with that of an expert, to identify ways to further enhance his or her own performance.
6. Exploration: provide opportunities for the learner to undertake new tasks and activities, thus prompting independent thinking and actions.

Teaching and learning styles

Knowing that there are different learning styles and different ways of teaching can help in a learning encounter. Altering your teaching style to fit the topic, the situation and the trainee's own learning style can help improve the end result – a valuable learning experience for all. To achieve this, you must ascertain the learner's knowledge, experience and current stage of learning.

Task

Pick a recent one-on-one learning encounter that you were part of (either as learner or teacher) ; consider what teaching style was used. List 5 words to describe this style.

- Did this match the learning style of the trainee?
- What kind of learner are you?
- What kind of teacher are you?

While we might assume adult learners to be self-directed, this skill takes time to develop. By **facilitating** learning, rather than spoon-feeding or leaving the learner to it, we can nurture this aspect of learning. Grow's 'Stages of Self-Directed Learning' (SSDL) model (Grow 1991) proposes 4 developmental stages for the student (see Table 1).

	Student	Teacher	Examples
Stage 1	Dependent	Authority, Coach	Coaching with immediate feedback. Drill. Informational lecture. Overcoming deficiencies and resistance.
Stage 2	Interested	Motivator, guide	Inspiring lecture plus guided discussion. Goal setting and learning strategies.
Stage 3	Involved	Facilitator	Discussion facilitated by teacher who participates as equal. Seminar. Group projects.
Stage 4	Self-directed	Consultant, delegator	Internship, dissertation, individual work or self-directed study-group.

Table 1. Gearld Grow's 'Stages of Self-Directed Learning' (SSDL) model

A good teacher recognises the stage the learner is at, and adapts their teaching style to suit these needs. For example, in relation to Grow's SSDL if there is a T1/S4 mismatch, the learner will feel patronised, bored and even rebellious. Equally if there is a T4/S1 mismatch, the learner will require more organisation and guidance to aid their learning, and may feel lost without this structure. By helping the learner to reflect on their own practice, you can help them to identify their individual learning needs, and then suggest ways they might meet these needs.

Challenges and practicalities of learning in the workplace

In clinical teaching, not only do we need to consider the learner's needs, but also the needs of the patient, and the service we are providing. Whether this relates to time management in theatre, a busy ICU on-call shift or patient safety under anaesthesia, the teacher (and learner) must bear these issues in mind.

Task

Use 5 words to describe your experiences of being taught in theatre.

Now perform a SWOT analysis (Dosher *et al.* 1960) on this one-on-one style of teaching, i.e. what are the:

- Strengths
- Weaknesses
- Opportunities
- Threats and Barriers

One-on-one teaching in theatre is one of the unique qualities of our specialty. It can be beneficial for both trainee and consultant, not just because it affords serial coffee breaks! Trainees see how to perform their chosen field first hand from an expert, and consultants receive a fresh perspective or learn about how others conduct similar cases. There are always going to be *barriers* to teaching in theatre but the following are some ways to limit or circumvent some of the more common pitfalls.

Patient safety

Patient safety is core to all aspects of anaesthesia. However, with prior discussion teaching should not hamper this core position. Roles should be made clear from the outset. Identification of who will be monitoring the patient during the teaching episode is valuable.

A classic example to highlight its importance is the patient who becomes hypotensive during a procedure but both anaesthetists have internally delegated the responsibility of monitoring the patient to each other and it is the anaesthetic assistant who brings this to the team's attention.

Reflection

Spend a moment thinking about how this situation could be avoided. How would you *practically* prevent this from happening?

Below is an example of how one might set the tone for a teaching list:

> *'I am going to let you manage the case and make the decisions. Don't necessarily look to me for confirmation for decisions you make, but I am here if you need me. I will step in if I think there is a patient safety issue'.*

Time pressures on workload

Teaching takes time and an inexperienced trainee may take longer to complete a task. A compromise might be to allow them to do part of the task. Knowledge of the list load, surgeon and theatre staff will help identify where changes can be made to allow for training time, e.g. sending for the spinal patient twenty minutes earlier than usual. Contacting each other before a list to discuss the possible learning opportunities will save time on the day, and allow prior planning on both sides. Sometimes a trainee can *help* with list efficiency by sharing tasks!

Task

Plan a clinical teaching session for an elective list you have coming up. Identify:

- Learning opportunities.
- Learner's needs.
- Decide on the content and how it will be covered.
- Set aside time for constructive feedback.

Unplanned teaching sessions

Providing effective teaching in the workplace can seem difficult during a busy on-call when the patients' needs must come first. However, there are valuable learning opportunities during out-of-hours work. Unpredictable clinical situations require the teacher to be flexible, in contrast to a pre-planned well-rehearsed lecture. Knowledge of the specialty, and previous teaching experience can be drawn on in unplanned circumstances.

Lake and Ryan (2004) suggest:

> *'Given that we know we will be teaching, we know we are going to be busy and we know the topics that recur, we* ***can*** *plan.'*

Many clinicians have a set of teaching scripts, based on recurring clinical situations. These can be adapted to new teaching moments, and will be incorporated into your set.
In ICU, to some degree the subject matter is determined by the patients on the unit at any given time, but the learning opportunities are endless. Think about how you might include a more junior colleague during a busy ICU ward round.

Reflection

Think about what common clinical situations occur whilst on-call. How might you utilise these as learning opportunities?

Opportunistic teaching

By definition, opportunistic teaching is unpredictable, however learning can be maximised. A common misconception is that opportunistic teaching prohibits pre-planning, setting learning outcomes, and offering time for reflection. Without suitable preparation there is a danger that clinicians will only teach their favourite subjects. Planning for opportunistic teaching can include: knowledge of the curriculum, knowledge of the learner(s) and then targeting teaching to mutually set educational goals.

Educational strategies for optimising opportunistic teaching are designed to be incorporated into daily work. A common theme is that many of these strategies are about making the **implicit knowledge** of the teacher more **explicit** to the learner - sometimes the most experienced clinicians find this reflection on their own competence a real challenge and struggle to make their expertise accessible to others.

Task

What are the pros and cons of these learning strategies?

- **Shadowing** (follow me round and see what I do).
- **Reporting-back** (go and see the patient and tell me what you find).
- **Ward-round teaching** (discussion of the patient at the bedside).

Strategies

Demonstrations – The learner can observe and critique a skill performed by the teacher. The learner can summarise what they saw, and then discussion can draw out learning points. Constructive feedback will help a learner to appreciate what they observed and improve their observation skills for the next encounter.

Thinking aloud – Having an 'expert' explaining **why** they chose to do certain things in a specific way is a valuable technique which helps a learners understand the indications or implications of a decision or action.

Observation with feedback – trainees want constructive feedback. Really concentrating on the way a learner performs a task and then discussing the process can build confidence, be corrective, and aid development.

Bite-size chunks – long lectures can exhaust learners, but a few minutes on a contextually relevant clinical topic is highly beneficial and will cement what they have learnt from the clinical encounter.

Role modelling – teaching should also include topics such as professionalism, team working, attitudes and behaviours. Although equally as important, learning should not always be confined to knowledge and skills.

‘Experience’ and ‘explanation’ cycles

Cox (1993) described two linked cycles to maximise learning from patient contact. The first is the **‘experience cycle’** – the learner is briefed on what they might see, and what the potential learning opportunities will be. The clinical interaction occurs, and then there is a debriefing of what happened, the **‘explanation cycle’**. Teacher and learner now discuss the clinical encounter, what the problems were and how they were dealt with. The learner can then reflect on what they saw and learnt, building on their previous knowledge and experience: the **pre-brief** and **debrief.** Cox’s cycles could be used when a learning opportunity arises on-call. The learner can be briefed on the way to pre-assess a patient, signposting what relevant questions they might ask, or what is particularly important in the case.

Teaching and learning clinical skills

Fitts and Posner (1967) described a three phase model of motor skill acquisition:

- Cognitive phase – the skill is being learned.
- Integrative phase – the performance becomes skilled.
- Autonomous phase – the skill becomes automatic.

You can use the example of learning to drive a car as a simple analogy to explain this concept. With more practice and experience, learners move from novice to expert. This requires deliberate practice, coaching and repetition of the skill with constructive, timely feedback on performance.

George & Doto (2001) expand on the old adage *‘see one, do one, teach one’* in their ‘5-step method for teaching clinical skills’, which forms the basis of many trauma and resuscitation course teaching methods.

1. Overview: put the skill into context. This could be a discussion of the indications and contraindications, anatomy or necessary equipment.
2. Demonstration without comment: the learner(s) watch the skill performed in real time. This allows the learner to see how the skill should be performed, and what they are aiming for. As some skills occur infrequently, you could substitute this stage with a video.
3. Demonstration with description: the teacher explains what they are doing
4. Demonstration with student commentary: the student describes while the teacher does. This checks student understanding of the steps.
5. Student performs: opportunity for students to practice with feedback

Reflection

At what stage of your own competence with a particular skill would you feel comfortable supervising or teaching another anaesthetist?

The four stages of learning

The conscious competence model (Howell 1982) explains the process and stages of learning a new skill (or behaviour, ability, technique).

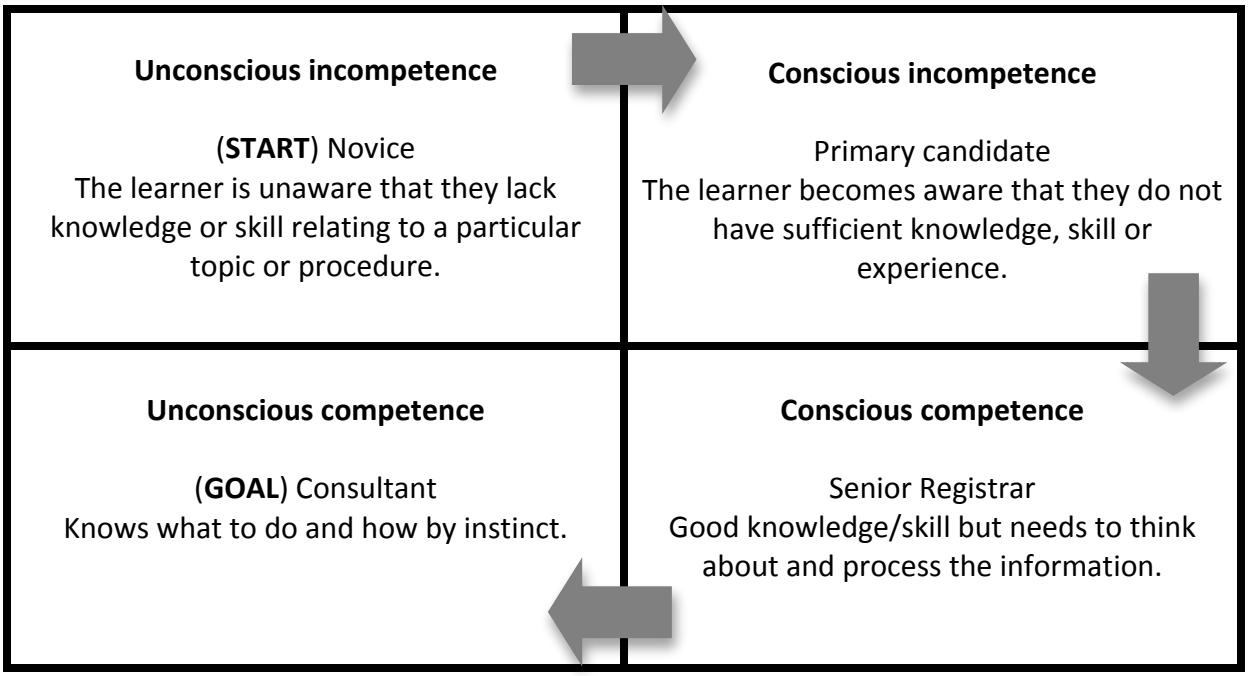

Figure 2: The conscious competence' learning model.

The matrix above explains how a learner transitions as they learn a new skill. It is indeed possible to regress through the stages if a skill is not practiced regularly e.g. anaesthetising a paediatric patient.

Inherent reasons for failure to learn a skill, such as lack of co-ordination, are rare. It is more likely that the difficulty has arisen because a learner has been taught in the wrong way, had poor supervision or poor feedback and correction. Adequate supervision and feedback is crucial in helping someone master a skill.

Even if a trainee is unable to perform the whole skill, permitting them to do a portion, and demonstrating how to do the other parts, not only involves the learner and gives them worth, but also helps to build confidence. This process aids the acquisition of additional skills until eventually the learner can perform the whole task unassisted.

Clinical supervision

You have probably been a clinical supervisor for many years even if you do not realise it. If you have not had more junior anaesthetic colleagues with you, you will have had medical students or theatre nurses or junior ODPs with you in theatre. With this role comes an extra layer of responsibility and often stress. Knowing how closely to supervise can be challenging, especially when the knowledge or skill set of the trainee is unknown. There are inherent tensions in supervising a learner. There are the needs of the patient to consider, the need for the list to run to time and also the needs of the learner. For example, a learner sometimes needs to be put outside of their comfort zone. The aim of a supervisor should be to move a learner along and around the supervision cycle.

Reflection

Can you remember an occasion when a more senior colleague, while watching you perform a procedure, put on a pair of gloves and asked to 'take over'? How did it make you feel?

How closely to supervise?

There has to be discussion beforehand between learner and teacher about when they might intervene. The most obvious grounds would be for safety reasons. However, discussion might also include agreeing how long or how many times the trainee will attempt the skill before the supervisor takes over. This should be a joint decision, as the trainee may feel anxious with repeated failed attempts without the supervisor stepping in to help.

Discussion of how to communicate in front of an awake patient is often forgotten. A useful communication 'tool' is the use of hand signals. For example the 'time out' hand signal can be used while teaching epidural insertion rather than distressing an already tense woman in labour, with verbal communication.

Has learning occurred?

One could **teach** all day, but how will you know that it has been **effective***:* that learning has occurred? The learner might demonstrate their new knowledge or skill but fundamentally the best way is to have a discussion with the learner. One could argue that if the learner has failed to grasp a concept, it is a failing on the teacher's part rather than on that of the learner. This discussion is the point when a teacher can get feedback on *his or her* own abilities. This could be viewed as an onerous task, but if you have built-up an honest relationship during the day, the learner should feel able to offer the teacher some honest and constructive feedback.

Key thoughts

Think of yourself as a facilitator for learning rather than as a teacher. Verbalise the learning opportunities available and remember you are a role model. Encourage feedback and reflection, and reflect on your own teaching sessions. We are all continuously learning throughout our professional lives, we have had to learn our craft, helping others to learn is a skill like any other.

Evidence of Progression

Basic level

- Supervise a more junior doctor performing a skill. Complete a Workplace Based Assessment for them. Offer constructive feedback. Critically reflect on your role in this conversation.

Intermediate level

- Think about your last teaching list (You could be the learner or teacher). Try to identify 3 learning outcomes (1x knowledge, 1x skill, 1x attitude). How could the session have been improved upon educationally?

- Write a reflective piece on this teaching session for your education portfolio.

Higher level

- Plan a teaching list for a more junior doctor. Think about the possible learning outcomes. After completing the list, offer time for feedback and evaluate the session. Teach a skill and give feedback. Ask someone to observe this encounter.

- Conduct a feedback session using his or her observations regarding your teaching skills.

Further reading

Swanwick, T. (ed). 2010. Understanding Medical Education: Evidence Theory and Practice. Oxford: Wiley-Blackwell.

References

Cantillon, P., Wood, P., (2010). ABC of Learning and Teaching in Medicine, BMJ Books.

Collins, A., Brown, J. S.*, et al.* (1991). "Cognitive apprenticeship: Making thinking visible." American Educator **15**(3): 6-11.

Cox, K. (1993). "Planning bedside teaching, 1: Overview (Review)." Medical journal of Australia **158**((4)): 280-282.

Dosher, M., Benepe, O.*, et al.* (1960). The SWOT analysis method, Mento Park, CA: Stanford Research Institute.

Fitts, P. M., Posner, M.I. (1967). Human performance. Belmont, CA, Brooks/Cole.

George, J. H., Doto, F.X. (2001). "A simple five-step method for teaching clinical skills." Family Medicine **33**(41): 577–578.

GMC (2006). Good Medical Practice, General Medical Council.

Grow, G. O. (1991). "Teaching learners to be self-directed." Adult education quarterly **41**(3): 125-149.

Howell, W. C., Fleishman, E. A. (1982). Human Performance and Productivity: Information Processing and Decision Making. . Hillsdale, NJ: Erlbaum.

Kolb, D. A., (1984). Experiential learning: Experience as the source of learning and development, Prentice-Hall Englewood Cliffs, NJ.

Lake, F. R., Ryan, G., (2004). "Teaching on the run tips 2: educational guides for teaching in a clinical setting." Medical journal of Australia **180**(8): 527-528.

RCoA 2010 Syllabus Key

TM_BK_07 Describes the difference between learning objectives and outcomes.

TM_BS_08 Delivers informal teaching in the workplace.

TM_BS_11 Demonstrates an ability to reflect and analyse constructive feedback from others regarding their own clinical knowledge, skills and behaviour.

TM_BS_12 Engages in opportunistic workplace-based learning and teaching.

TM_IK_03 Knows how to create a framework in which to teach a practical skill safely.

TM_IS_04 Provides appropriate clinical supervision to less experienced colleagues.

TM_HK_03 Knows how to plan a 'teaching list' for a more junior trainee.

TM_HK_14 Knows how to provide a level of clinical supervision appropriate to the competence and experience of the trainee.

TM_HS_05 Demonstrates effective lecture, presentation, small group and bedside teaching sessions.

TM_HS_07 Engages in opportunistic teaching of more junior trainees in clinical settings.

TM_HS_10 Supervises junior trainees in the course of routine and emergency.