

Teaching and training in the workplace – putting theory into practice

Dr L Boss, Anaesthetists as Educators Faculty, St Thomas' Hospital, London

Dr A May, Educational Co-ordinator, Scottish Centre for Simulation and Clinical Human Factors (www.scschf.org)

This article is designed to help you reflect on past experiences and apply a combination of existing knowledge and new ideas, some of which have already been mentioned in this series of articles on postgraduate medical education.

In order to continue much further we have to start with some basic assumptions about the motivation of those involved in the learning relationship. The first is that during your list you have the capacity and desire to teach, and correspondingly that the trainee has come to learn.

Learning can be described as a change in behaviour and it is motivation that directs behaviour. Our role as teacher is to influence this complex fusion of intrinsic desire and extrinsic incentives and barriers, so that deep learning can occur.¹ As such, this article will attend to: acknowledging core values, considering the learning environment, building on past experiences, clarifying personal goals and matching these to appropriate assessments, and how to offer challenging but supportive deliberate practice.

What someone might say:

'I teach already what's wrong with the way I do it?'

What someone might think after reading this article:

There is probably nothing wrong with what you are doing! Here is a framework that can help you maximise efficiency and efficacy of the time you spend with trainees in theatre. If we help trainees to learn from more of their experiences, we can mitigate constraints such as reduced training hours and case exposure.

Paradigm shifts

It may be useful to consider the demographics of who stand before, or sit beside us. Trainees will mainly be from the Generation Y² demographic, having been born somewhere between the release of the original Sony Walkman and the launch of Google. Generation Y are linked via social media with a network of friends. Their core values include: free expression, creativity, close relationships with authority figures, work-life flexibility and of course use technology extensively.³

Many trainers will be from Generation X, born after the post-World War II baby boom. This heterogeneous demographic are often described as highly educated, extremely anxious, family-orientated, materialistic slackers who graduated into a recession. They are tainted with disillusionment and eternal cynicism, struggling with the demand for increased productivity alongside decreased reimbursement.⁴

What someone might observe:

Trainees constantly on their smart phones, calling everyone by their first name, flitting in and out of theatres.

What someone might think after reading this article:

Although these are sweeping generational generalisations, we can readily see that there may be mismatch or even confrontation between teacher and learner values. The challenge here is to utilise each other's strengths, and identify strategies that support the learning relationship, whilst also accepting certain divergent behavioural characteristics.

Let us now consider the process of teaching and learning. Much like our

clinical discipline has evolved over the last century, the traditional views on education have made way for newer learning techniques. The 'Ether Age' of learning would advocate the Halsteadian apprenticeship model⁵ of 'see one, do one', where trainees are viewed as empty vessels to be filled with knowledge and if a trainee did not understand a concept or could not acquire a particular skill, it would be because they had failed to learn it rather than because we had failed to teach it well enough.

Moving into the '*Desflurane Age*', trainees now demand more control over learning, preferring a self-directed, integrated approach centered around clinically relevant problems. Although seemingly at odds to '*the way we were taught*', current trainees ascribe much less importance to learning pure facts related to the basic medical sciences.

What someone might overhear:

'They spend a total of three days on basic science at medical school but then expect to be able to put a laparotomy on the table after two weeks of anaesthetics!'

What someone might think after reading this article:

To help our self-directed, problem-based Generation Y trainees, emphasis must be placed on deconstructing the 'expert performance'. If the component parts of tasks are made explicit, relevant and digestible, they can be understood and applied, rather than just memorised and repeated.

Safe learning environment

With patients to see, drugs to draw up and over-booked lists to start on time, creation of a physical, intellectual and psychological 'space' in which a trainee can learn, is tough. However, without

paying some attention to the construction of a safe learning environment, learning will tend to be passive and pocketed memorisation of isolated facts, i.e. surface learning; rather than learning that involves understanding, critical analysis, linking to known concepts and long-term retention of new information, i.e. deep learning.⁶

Part of establishing this learning micro-culture involves setting the 'rules of engagement' which are all too frequently left implicit and assumed, and although problems are rare, much like in anaesthesia, assumptions can be a costly affair.

Clarifying when and how specific learning events will take place may seem like over-engineering but it can actually help to reduce the stresses surrounding training expectations, divided responsibilities and clinical list management, not just for trainer and learner but also for other theatre staff, so that allowances can be made and anxieties alleviated.

The morning team briefing is an ideal forum to share your plans with the team, for example who will be the lead anaesthetist for the second case or which epidural the trainee will be attempting. Leading by example might even engender others to share similar useful organisational information.

What someone might think:

'The trainee was doing slightly strange things and they didn't seem to have an overall plan of their own'

What someone might think after reading this article:

Trainees will often do things they are personally unfamiliar with because they think you want them to do it 'your way'. Prior to any observation of clinical performance, clarifying each other's roles and responsibilities will reduce the chances of confused boundaries. For example: 'I'll watch you perform this epidural. I'll not intervene or comment unless I think there's a

risk to patient safety. Conduct the procedure as we have discussed. If I want you to stop at any point to take over the procedure, I will say 'thank you for doing your bit, I will do my part of the procedure now'.

Learning objectives

This process starts with tailoring specific and achievable goals to meet the learning needs of the trainee and is enhanced by resisting making assumptions about what the trainee wants or needs from the teaching episode.

Although pure knowledge is commonly discussed in theatres, for example during the lead up to exams, the clinical environment is where trainees can apply their knowledge to practice actually doing the job. Constructing a specific statement of achievement in the future tense at the beginning of a clinical encounter will make it easier to check that this learning has been accomplished at the end of the day. Useful starting phrases include: 'Which aspects of this case would you find challenging to do for yourself?' and 'If this was your own list, what would you feel less confident with?'

What someone might see:

A trainee not using the checklist and then missing out some of the key steps when performing an anaesthetic machine check.

What someone might think after reading this article:

The trainee assumes that they are not allowed to use the checklist while you are watching, however the learning objective is: 'be able to demonstrate a full anaesthetic machine check.' For exams the objective includes '...without direct reference to the checklist', but for actually doing the job, the checklist is appropriate and suggestive of a good understanding of safety.

Facilitated learning

Learners and teachers often focus attention on doing the practical procedure (*Physical Act*), however Kolb's learning cycle⁷ suggests learners also direct time and energy to active reflection (*Reflective Observation*),

focused consideration (*Abstract Conceptualisation*) and planning how they might do things differently next time (*Active Experimentation*). It is completing, and indeed repeating this process that encourages deep learning. The role of the trainer is to facilitate navigation around Kolb's learning cycle and offer developmental conversations directed towards attainment of expertise.

What someone might think:

'I can't for the life of me work out why they can't get the tube in the right place. They are holding the laryngoscope properly and it all looks good, and then it's in the oesophagus again!'

What someone might think after reading this article:

Bobby Robson maintained that 'practice makes permanent' and not perfect. Anders Ericsson's model for Deliberate Practice⁸ also suggests that it is 'practice with reflection' which leads to expert performance or perfection.

Direct observation

Only surface learning is encouraged if we allow the trainee to simply regurgitate our technique without understanding the what and the why. A more useful conversation to stimulate deep learning is first based upon what the trainee *actually* did, or more importantly, *would* do if we were not in the room. Progressing on to the 'why' then takes you towards the learning opportunities.

Some might argue that being in the coffee room while the trainee conducts the anaesthetic removes the entrenched behaviour of defaulting on decision-making. Although the true weight of responsibility may well only be felt when one feels solely accountable, so much more can be developed from direct observation.

If you, as trainer have not actually seen physical events unfold, it's incredibly difficult to conduct a developmental conversation with your trainee. You can

only really know that the patient was anaesthetised and that now the case has finished. Anything in between is a mystery. You will not have witnessed any of the near misses, many of which will have also gone unnoticed by those present in theatre, including by the trainee themselves. All of these learning opportunities will have been lost.

What someone might say:

'I'm leaving the trainee to learn from their mistakes, I'm not always going to be there when they're on-call at night.'

What someone might think after reading this article:

Although there will always be some degree of observer bias with the trainer in the room, if you are not physically present during a case, you will have to make multiple assumptions about what happened. This makes it extremely difficult to have a useful conversation.

Frame-based feedback

The discussion you have with your trainee needs to be based upon observed facts and develop from genuine inquiry. It should generate insight and offer actionable conclusions.

One method that may help construct a productive discussion with a trainee is the 'frames-based' approach proposed by Rudolph and Raemer:⁹ *'We know what they did wrong, but not why'*. They suggest that questioning should be directed towards trying to discover what 'cognitive frames' have driven a trainee's actions rather than jumping to conclusions. This misdiagnosis of underlying thought processes is not efficient, may hamper a trainee's progress and can impact on patient safety.

What someone might hear:

'Sorry, I won't do it like that again, I'll do it your way next time.'

What someone might think after reading this article:

If you attach your own interpretation to an observed action, and then try to correct the

Summary Box

- Put theory into practice: consider the way you teach with regard to efficacy and efficiency of learning.
- Paradigm shift: your learners are intelligent adults like you, but they may be from a different generation.
- Safe learning environment: learning on the job requires the construction of a 'virtual classroom' with its attendant boundaries and expectations.
- Learning objectives: agreeing specific and explicit learning at the start of the day not only focuses the session but also gives you an opportunity to assess whether you have effectively taught the trainee.
- Facilitated learning: learning is long lasting when the learner constructs it themselves, as you get more proficient at facilitation, efficiency will develop.
- Direct observation: if nobody noticed it, no learning can come from it.
- Frames based feedback: launching conversations based on observation rather than personal interpretation and judgment will lead to true development.

assumed underlying behaviour, nine times out of ten you will get a defensive apology. If you ask a frames-based question, you should get an accurate diagnosis of the reasons behind the actions. Teaching is then directed to matching actual learning needs.

Summary

This article is not an all-encompassing textbook on adult learning theory; it is designed to be the catalyst to consider and challenge what underpins teaching and learning in the workplace. In this article we have not separately considered the act of teaching professionalism, partly because professionalism is something primarily delivered by your actions and reactions in real time. It is also part of the 'hidden curriculum' for learners and is essentially a side effect of the education we provide. We can display professionalism in education by modelling our teaching and training on foundations that are appropriate for intelligent adult learners.

References

- 1 Mann KV. Motivation in medical education: how theory can inform our practice. *Acad Med* 1999;**74**:237–239.
- 2 Read E. People Management: Myth-Busting Generation Y-Generational Differences at Work; Don't Understand Your Younger Colleagues. *Think They Have Different Work Attitudes to You* 2007;63.

- 3 Taylor P, Keeter S. Millenials: A portrait of generation next. *Pew Research Center*, 2010.
- 4 Miller JD. Active, balanced, and happy: These young Americans are not bowling alone. The Generation X Report: A Quarterly Research Report from the Longitudinal Study of American Youth, International Center for the Advancement of Scientific Literacy, 2011.
- 5 Polavarapu HV et al. 100 years of surgical education: the past, present, and future. *Am Coll Surg Bulletin* 2013;**98**(7):22.
- 6 Prosser M, Trigwell K. Understanding learning and teaching, on deep and surface learning. *Society for Research in to Higher Education*, 1999.
- 7 Kolb D. *Experiential Learning as the Science of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall, 1984.
- 8 Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med* 2004;**79**:S70–S81.
- 9 Rudolph J, Raemer D, Shapiro J. We know what they did wrong, but not why: the case for 'frame-based' feedback. *The Clinical Teacher* 2013;**10**:186–189.

Lipkin NA, Perrymore AJ. Y in the workplace: Managing the 'me first' generation. *Career Press Inc*, 2009.