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Anaesthetists as adult learners

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The underpinning theme behind all postgraduate medical education is to create a self motivated, self directed, reflective adult learner, who will manage and drive their own learning from graduation to retirement, a process termed 'life long learning'. There is an enormous amount of literature written about the Adult Learner, and the differences between adults and children. Anaesthetists are all adults and whatever the grade, career or training, they bring to the learning experience a number of characteristics we need to recognise.

Adult learning theory tells us that these characteristics are:

Adult learning is purposeful
Adults are voluntary participants
Adults need to be active participants
They need clear aims and objectives
Adults need feedback
Learning needs to include reflection

Adult learning theory describes adults as purposeful learners, who are less willing to take the value and relevance of the learning on trust, usually having a specific purpose in mind. They want provision tailored to their needs. The conflict between this theory and the requirement to undertake mandatory training is obvious and perhaps explains the difficulty in getting many of us to undertake yearly Information Governance training. Adults are also expected to be enthusiastic and motivated, because they have chosen to learn. Yet much of Postgraduate Medical Education is mandated with detailed curricula and learning outcomes, and trainees, particularly, have to meet these requirements. Adults also expect to see that the

learning has relevance to the day job, and that they can transfer the new knowledge into real life. This is explains why, at times, trainees struggle to grapple with some aspects of the curriculum and trainers struggle with teaching it!

What motivates us to learn? We assume that all adults are motivated to learn but that may not be the case. Just because it is the right thing to do is not always a sufficient motivator. The decision to learn is a continual cost/benefit evaluation and sometimes cost outweighs the benefit. Motivation is dependent on intrinsic and extrinsic factors. In training extrinsic factors are curriculum and exam produced. Further on in our careers, it is a requirement of our speciality to continually stay up to date and, now this is driven by the requirements of revalidation. Intrinsic factors are those within our selves, those inner pressures (to be the best at what we do, to do the best for our patients) and/or rational decisions which create a desire for learning.

It is particularly important to us as adults that learning is not passive. Adult learners are not empty vessels into which we pour information, as the expert teacher. Rather they should be teaching themselves, in a variety of ways which are interactive and engaging, with the teacher being much more of a guide, facilitator, and co-learner. This is interesting because so many of the meetings we attend to get out CPD points consist of a series of experts standing up in front of an audience and telling them what they know. While some anaesthetists will be perfectly happy sitting listening and

learning in this way an even greater number may not. There is a definite need to think about the changing role of the tutor, from 'sage on the stage' to 'guide on the side' and looking to our current generation of learners, perhaps the teacher is now the 'pleb on the web'!

As adults we have different styles of learning. This theory is based on the learning cycle or how we learn from experience and has been elaborated by David Kolb (Figure 1). Each stage of the learning cycle calls for a different learning approach and appeals to different people. The four types of learning styles are below:[1]

1   Active learners: learn by doing something immediately; try to find out how something works; like lots of new experiences; impatient when being taught how to do something.

2   Reflective learners: learn by 'wait and see'; sit back and watch others first; tend to think through all the implications.

3   Theorising learners: get down to first principles; think through step by step; build a big picture; logical.

4   Experimental learners: apply new insights; try to find new and more effective ways of doing things; like solving problems.
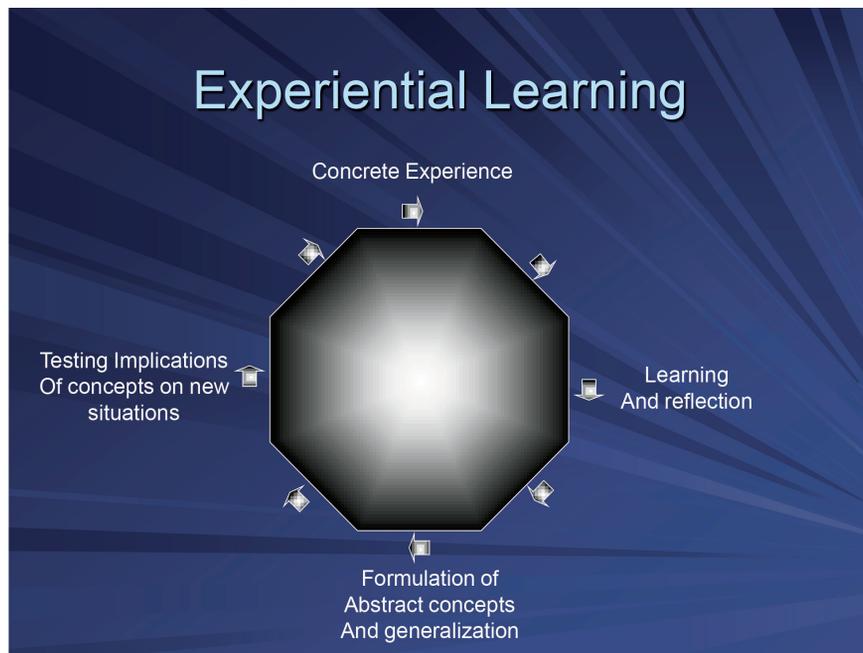
We can also be described as:

Visual learners: like diagrams, pictures ('show me')

Auditory learners: listen to all sounds associated with learning ('tell me')

Kinaesthetic learners: need to physically do something to understand it ('let me do it')

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Figure 1 The Learning Cycle (David Kolb[1])

We prefer to learn in a particular style but use all of them at certain times and in certain situations. Styles may be part of the explanation why we learn less easily with some people and in some situations than others.

Adult learners need defined aims and objectives when they learn and they need to see why the learning is relevant. Anaesthetists learn new techniques to enable them to improve the care of their patients or meet the increasingly complex demands of the surgery they are anaesthetising for. The requirement to have aims and objectives is clearly defined within the modern structured training programme, with a documented Personal Development plan being essential for all doctors, with defined outcomes within agreed timescales. This is one of the most important roles of an Educational Supervisor, but is not always done well.

Many trainers report difficulties in giving feedback, particularly when it requires time and the clinical environment is so busy. Providing feedback is integral to learning

and need not necessarily take very much time to do, but does require commitment. That extra five minutes at the end of the list can be incredibly useful. Positive feedback is vital to reinforce what is good, constructive feedback on what could be done better. There is evidence in the literature that even just a few minutes are beneficial.

There is a tendency to think of feedback in terms of just trainers and trainees but everybody needs feedback and consultants/trainers should ask for feedback just as often as trainees. We should all remember that throw away comments can be quite harmful.

Anaesthetists do a lot of reflection, usually informally. Reflection is regarded as a key aspect of being an Adult Learner and integral to the development of a good professional. For many consultants it was not part of their learning experience and is still regarded as a bit of a strange thing to do. Nevertheless, the GMC regards evidence of reflection as very important and so we need to encourage this activity. It is a step in developing 'conscious competence'.

Reflection that truly aids learning, involves describing the event and recognising how it affects your feelings attitudes and beliefs. This leads on to questioning what has been learnt, comparing it to previous experience and a judgement of what went well or less well and why. This may change how you respond to a similar event in the future. If you can explain why and back this up with references to the literature then learning has resulted from the reflection.[2]

But learning in anaesthesia is just not that straightforward. We don't just learn as individuals. We learn in a social environment which is also highly complex demanding the use of very complex skills and interactions.

The speciality of anaesthesia is unique in how its practitioners have to perform. Our working environment is more in common with other safety critical, high technology industries such as aviation which are characterised by high dynamism, uncertainty, time pressure, ill formed problems complex human – machine interactions and risk.[3] This is complicated by the fact that anaesthetists not only interact with man-made machines but with 'human machines', i.e. the human body, which is infinitely more complex than any man-made machine. It is also further complicated by the fact that we are interacting with a variety of colleagues, these interactions affecting our ability to work and learn in this environment. Two things that underpin our ability to work and learn in this environment are professional artistry and capability.

The ability to exercise judgement in unique, complex and uncertain situations is encompassed in what Schon[4] refers to as professional artistry. There is much debate as to how anaesthetists learn this artistry.

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A theory that may explain part of this is social learning theory. Rooted in the concepts of many traditional theories of learning it adds a social concept: anaesthetists can learn new information and behaviours by watching other people, often older and more experienced but not necessarily so. This type of learning is observational (or 'modelling'). We may do a lot of this unconsciously by absorbing the behaviour or we may do this consciously by reflecting on what we have seen, comparing ourselves and the way we perform and deciding what and how we are going to use what we have seen in our own practice and the way we behave. Social learning theory acknowledges that we have to be in a mental state to learn but also that the learning might not actually produce new behaviours.

Capability is the extent to which we can adapt to change and generate new knowledge and continue to improve our performance. Capability is more than competence or what we know or are able to do in terms of knowledge skills and attitudes.[5]

Our learning takes place in a zone of complexity, the circle in the middle of Figure 2. This zone of complexity is where relationships between items of knowledge are not predictable or linear but neither are they frankly chaotic. Learning that builds capability takes place when we engage with an uncertain and unfamiliar context in a meaningful way. We cannot be taught capability or passively assimilate it. We reach it through a transformation process ('transformational learning') in which we adapt our existing competencies and tune them to new circumstances. We actively engage through critical reflection and discourse to question assumptions, expectations and context to achieve deeper meaning and new perspectives to guide our

actions. This process of adapting to, or evolving with new situations, through developing new behaviours allows us to transition from individual competence to personal capability. Capability allows us to work effectively in complex, unfamiliar environments.[5]

We are all on different points of a continuum between being required to be taught everything and wanting to find out everything for ourselves. We use a variety of learning styles, although on the whole we may be more comfortable and learn more if we use our preferred learning style. We all have some consciousness of what we can and cannot do in the way of learning. A young anaesthetist in CT1 may learn in a very different way to an older, very experience anaesthetist and clearly the way we learn changes as we get older and approach different stages in our working lives.

We change as we learn. We learn because we want to change.

References

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Figure 2 Competence and capability in complex adaptive systems (Frazer SM, Greenhough T. *BMJ* **2001;323:799–803).**