

Teaching and learning in the clinical context

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This paper was first written in 2003 as part of a project led by the London Deanery to provide a web-based learning resource to support the educational development of clinical teachers. It was revised by Judy McKimm in 2007 with the introduction of the Deanery's new web-based learning package for clinical teachers. Each of the papers provides a summary and background reading on a core topic in clinical education.

Aims

This paper:

- Provides some ideas of how to make the most of clinical scenarios when teaching students or trainees
- Raises awareness of the relevance of theories of learning and teaching to clinical contexts
- Enables you to identify aspects of your everyday work which can be used as evidence for CPD

Learning outcomes

After studying this paper, you will be able to:

- Identify opportunities for teaching and enabling learning in everyday clinical practice
- Apply some of the major theories of learning and teaching from Higher Education and healthcare contexts to your own teaching practice
- Develop a reflective approach to teaching and learning which you can utilise in your own continuing professional development

Content

Introduction

Educational theories:

- Behaviour theory
- Cognitive theory
- Humanism and adult learning theory
- Situated cognition and the transfer of learning

Application of learning theories

This paper provides an overview of teaching and learning in the clinical context, considers theory and practice. It provides an overview of some educational theories, explains how these have impacted on teaching practice and offers ideas for putting theory into practice in the clinical context with a view to creating good situations for learning.

There is a complementary paper *Facilitating learning: Teaching and learning methods* which focuses on the 'tools of the trade': looking at some of the main teaching and learning methods that clinical teachers might use.

Introduction

Healthcare has as many 'contexts' as you could wish to find. Teaching and learning could be happening in a frantic emergency unit, in a children's clinic, in a primary care facility, in a dentist surgery, on outreach nursing visits, in a community pharmacy and on and on and on.

It is difficult to come up with 'rules' of teaching that will fit all possible situations.

Maybe the best approach would be to look at some general principles for learning, a range of theories and approaches that can be picked and mixed to suit the given situation. There is not a right or wrong way to teach or to learn. To paraphrase Michael Eraut's recent comments on the generalisability of research, instead of talking about right and wrong, we could talk about the conditions under which a given approach is most likely to work (2002).

If 'learning' is the acquisition of new knowledge, skills or attitudes, then teaching is providing the opportunity for that to happen. Educational theorists have tried to describe the processes by which learning occurs.

Educational theories

Behaviour theory

Educational theory as we know it started with Pavlov and his colleagues. Whether using dogs, pigeon, rats, or, unbelievable to consider now, young children, they worked on the idea that if you repeated the same stimulus enough times and gave a negative reinforcement (eg. electric shock) or positive reinforcement (eg. food) for incorrect and correct action, eventually your subject would 'learn'. This is known as **behaviour theory**. Before we dismiss it completely, a couple of things originating from behaviour theory still stand today. Firstly reinforcement or punishment and reward continue in use, although it is more politically correct to call them feedback, and to use positive rather than negative approaches.

Secondly, breaking tasks down into small steps. When the rat was 'taught' to negotiate a maze to get the food, small bits of the maze were 'learnt' before going onto the next bit and finally the whole maze. We

teach clinical skills by breaking them down into steps, and each step and the whole rehearsed.

What the behaviourists gave us:

- Activity aids learning
- Repetition and practice aids learning
- Small steps aid learning
- Reinforcement aids learning

Cognitive theory

In the middle of the 20th century it became more sophisticated, with **cognitive theory**. The age of radio and electrical goods, especially the computer was influential here. The theorists of the time said we learn by receiving information, processing it, storing it and retrieving it; a transmitter radio model. Teachers needed to ensure each step was optimised. Reducing extraneous 'noise' to allow the main message to be the one that was heard; making sure people were 'attending' so that the message would get through. Processing the information meant repeating it, using it, trying a number of formats. From this comes the idea of giving a piece of information, then getting a class or group to work through examples. Feedback is an integral part of cognitive theory, similar to the reinforcement of behaviourism.

Storing information for later retrieval is assisted by the processing mentioned above. The notion of surface, strategic and deep learning is familiar to most people. Surface learning is storing lots of information in short-term memory to regurgitate in an examination or immediate setting. Strategic learning allows the subject to ignore the bits that are not anticipated as required, and focus on those that are. Again often assessment driven, but even in the real world, if you attend a lecture or presentation you only listen to the bits that you think are relevant to your life or work and make sense within it.

Deep learning is facilitated by being encouraged to understand the background, the basic elements that lead to the whole concept. It assumes learning will be banked in long term memory store as it has been learnt, examined, digested, reprocessed, understood.

Surface learning has a bad reputation, deep learning a good one and strategic is frowned upon but acknowledged as a survival tactic. Yet all of us employ each of these in our everyday life. And deep learning is not the whole answer. I once knew how to use calculus. I practised it in a number of ways, knew the history of its development and discovery, loved maths and did well in exams. My learning could not have been deeper, but it has long been inaccessible in that long term memory bank. Absolutely no chance of recall now. Even deep learning needs regular use in order to keep it.

Although predominantly concentrating on the teaching, the cognitivists did acknowledge that individual learners had different styles. A number of inventories are now available to allow individual or group learning styles to be qualified.

In the table below, we can see how learning processes can be linked to instructional events that the teacher can facilitate. The first two columns show stages from Gagné's instructions for learning – taken from *The Conditions of Learning and Theory of Instruction*, 1965. The last column gives possible examples relating to clinical teaching and learning situations.

Learning Process	Instructional Event	Examples
Attention; Alertness	gaining attention	present case study, clinical photograph
Expectancy	informing learner of the objective; activating motivation	explain outline of session and why it might be important
Retrieval to Working Memory	Stimulating recall of prior knowledge	Review previous session, or set task that allows audience to share existing knowledge
Selective Perception	Presenting the stimulus material	Give short talk on the main topic
Encoding: Entry to Long Term Memory Storage	Providing learning guidance	Go over topic in more detail, emphasising the main messages
Responding	Eliciting performance	Set exercises that allow audience to go over the above, working through examples
Reinforcement	Providing feedback; assessing performance	Give feedback on the exercises above
Cueing Retrieval	Enhancing retention and transfer	Summarise main points; give handout with further reading

See the *Curriculum development* paper, Aims and learning outcomes section for more information on learning and learning styles.

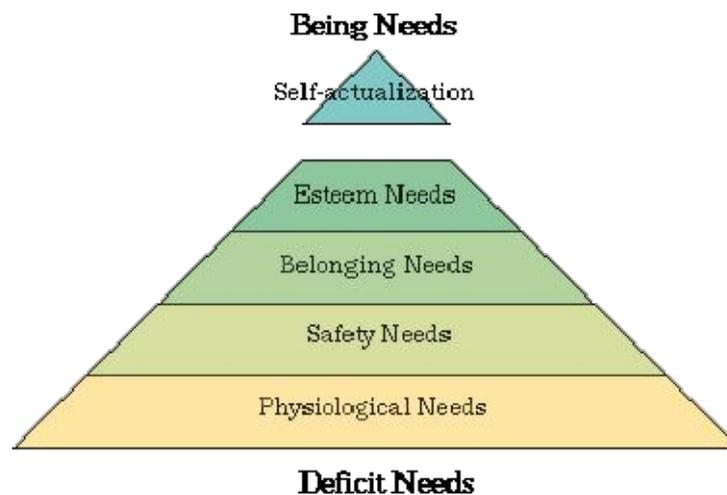
What the cognitivists gave us:

- Learning comes from understanding
- Organisation and structure of teaching aid learning
- Perceptual features need attention
- Cognitive feedback aids learning
- Individual differences need to be taken into account

Humanism and adult learning theory

By the 1970s and 80s the individual became more important. Carl Rogers, Malcolm Knowles and others said adults are different to children. They have experiences, prior knowledge, personalities. They will learn if we provide a secure, motivational environment, in fact, they cannot help but learn as it is a natural human instinct. The role of the 'teacher' is to facilitate the learning, not to be the fountain of all knowledge.

Make it a journey of self discovery said Maslow, albeit talking about psychological development and human motivation.



Let's reflect, hold up the mirror so that people can think about their actions and learn from and for themselves, said Kolb. Look at the Teachers toolbox item *Learning theories* which provides more information about theories of how people learn and what this means for teachers.

The strong emphasis on reflective practice, so much a part of nursing education, is based on these premises. The reflection that is necessary to turn an event into a concrete experience is more than remembrance. It is an analysis using a structured process to review the knowledge and skills used during the event and, probably more importantly, any gaps and learning needs that were identified.

What the humanists gave us:

- Learning is a natural process
- Motivation, purposes and goals are important
- Social situation affects learning
- Choice, relevance and responsibility aid learning
- Anxiety and emotion affect learning

Situated cognition and the transfer of learning

In a seminal paper in 1989 Brown and colleagues questioned the idea of learning being transferable. You teach a child the 4 times table, he or she

can recite it fantastically, but take them to the shops and say you need four packets of sweets at 8p each and nothing. Or the converse situation: the child who helps his or her parents in the shop at weekends and can multiply up prices by the units of items in a box, number of boxes, and so on, but put a pencil and paper in front of them and ask them to do the sum, and they struggle. My personal example is that I went to the talks on how to manage haematuria in children, I read the books, I regurgitated for exams, but come the clinic and the child in front of me and I had to start again. Once I had seen a few children presenting like that it was easier. The learning had to be situated in my life context to have any meaning and to stick. Situated cognition has many implications for transferring classroom-based learning into the real world. And even in the workplace, knowing something in one context may not mean you 'know' it in another.

Importantly, this makes teaching and learning in the real world context the most meaningful even if it is constrained by practicalities and the tensions of delivering service. Although the apprenticeship model is open to abuse, it is intuitively the right model and should be the basis of all health care professions' education. As we get pushed further into the world of simulations and models, it is worth remembering the limitations.

Application of learning theories

Enough theory.

How does that help?

I find it useful to take bits of each of the above and consider how we can create a good situation for learning. Regardless of the clinical context any or all of these can be adapted.

Step 1 – get the environment right (humanism/adult learning)

Regardless of what you want to teach and what the person wants to learn, it is vital to create a positive learning environment. The most important teaching technique is the one least planned – role modelling. As a teacher, you should model good behaviour, clear boundaries, you should motivate and enthuse by understanding the learners' perspectives. This can be difficult when you know there are factors outside of your control that will potentially demotivate, but a teacher who provides an atmosphere of enquiry, free of condemnation or ridicule is a good one whatever the circumstances.

Simple measures may be needed – opening the windows in a stuffy room, stopping for a break when everyone starts to flag, leaving time at the beginning to find out what the students expect and want, at the end for final discussion and questions, all show that you are thinking of the students.

Other measures show that you value them. Being genuinely interested in their accounts, their questions and the reasons behind them, using their experiences and their prior knowledge to build the session. Certainly avoidance of anxiety and distress is essential.

Step 2 – who are the learners (cognitive and humanism)

This is not an excuse to stereotype medical students or the nursing students, but finding out what they know, what their experiences are, etc. There is not often enough time for detailed research before a teaching session and we can all recall times when we thought we were to teach one group and it turned out to be a group at a different level.

Step 3 – what do you want them to know/do by the end and to what level? (behavioural and cognitive)

Here are the good old objectives. It gets boring to repeat (and to do, lets be honest) but time spent on getting the aims right, with or without the students' input, allows the correct selection of teaching methods. Is it a rote based task, eg. basic life support, that needs a drill, needs breaking down into small steps, repeating, repeating, repeating. Or is it an ethical awareness with no right or wrong answers that requires exploration through discussion, allowing students to generate their own viewpoints based on their previous experiences. Even though potentially extreme, and certainly more time consuming than a one way lecture, it allows the whole group to see the breadth of views and accommodate differences in opinion.

Step 4-7 – prepare, prepare, prepare, prepare (behavioural and cognitive mostly, but also humanism)

<p>“If I had six hours to chop down a tree, I’d spend the first four hours sharpening the axe” Abraham Lincoln</p>
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The tension between delivering the service and teaching is always evident, and when the former is under pressure the latter is forgotten. Asking busy clinicians from whatever profession to teach, take students, supervise trainees, etc is difficult enough, suggesting they then spend time preparing each day results in laughter.

Step 8 – Feedback and reflection (all)

Not just giving feedback to the students and allowing them to reflect on their learning, but also feedback and reflection on your role as a teacher. What did you as a teacher learn from this?

Go through the evaluation results, ask a colleague to observe and comment on your teaching. Even a 'good teacher' can get better.

Activity

Consider a recent teaching session where you were a learner.
What aspects of the above theories do you recognise?
Could the session have been better if consideration had been given to theoretical concepts?

Consider a recent teaching session where you were a teacher.
What aspects of the above theories do you recognise?
Could the session have been better if consideration had been given to theoretical concepts?

References

Eraut, M. (2002). *Learning in Health and Social Care*, 1, 1-5.

Gagne, RM. (1986) *The conditions of learning and theory of instruction*. 4th edition, Holt, Rhinehart and Winston, New York

Further reading

Dent, JA and Harden, RM (2001) *A practical guide for medical teachers*. Churchill Livingstone, London

Welsh, I. And Swann, C. (2002) *Partners in learning: a guide to support and assess in nurse education*. Radcliffe Medical Press, Abingdon.