

## ARTIGO DE PERSPECTIVA

# Why do We Need to Learn to Teach?

## Porque Precisamos de Aprender a Ensinar?

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## INTRODUCTION

For thousands of years, doctors learned their craft using an apprenticeship model, established practitioners took on an assistant, who started by sweeping the surgery and worked up over years to acquire the skills, knowledge and judgement of the master.

This model formed the basis of medical education from 1100 CE up until the end of the 18<sup>th</sup> century in Western Europe. There were broadly 2 tiers of medical practitioners in Europe. The first were graduates of the universities, who held a doctorate, whose knowledge was largely theoretical, but were also involved in drug preparation. The second was a mixed group of Barber surgeons, traveling surgeons, ship's surgeons tooth extractors, etc.

The Universities provided a series of lectures for the academic doctors. These were of variable length. In 1575 in Liden in the Netherlands the course was 4 years, of which the first 2 covered general science and the second 2 the art of Medicine. To graduate the student performed a public doctoral examination of knowledge and delivered a critical discussion on one of the theories of Galen or Hypocrates. By the 18<sup>th</sup> century, the student was asked to defend a thesis based on his studies. There was little regulation of the profession, and many did not complete the doctorate, and left the university to practice without certification.<sup>1</sup>

Meanwhile, the practical barber surgeons and their colleagues pursued an apprenticeship which took 5 years and ended with a theoretical and practical exam. Again, many left before completing this training and worked unregulated.

In the UK and some other European countries, there was a third track to practicing medicine by becoming an Apothecary. The role was based on medicines and their preparation, but in the UK the Society of Apothecaries set examinations for basic medical qualification up to the mid-20<sup>th</sup> century.<sup>2</sup> As Regulation of medical practice expanded over the late nineteenth and early twentieth century the undergraduate training became more uniform in its timing and content. Postgraduate education, however, remained largely an apprenticeship model, and to some degree, so it remains.<sup>3</sup> Several factors in the late 20<sup>th</sup> and early 21<sup>st</sup> century have led to a rethinking of both undergraduate and postgraduate education. The traditional heavy bias of undergraduate education towards theory, i.e. knowing things, has shifted to some degree towards preparing for medical practice, i.e. doing things.<sup>4</sup> In the 1950s Bloom described a taxonomy and hierarchy of learning that has figured largely in educational thinking ever since. This useful hierarchy helps us to think about the process of moving from a novice

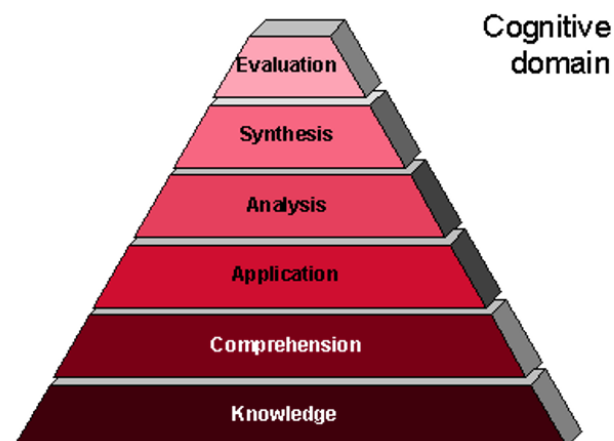


Figure 1. Cognitive domain

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to an expert in any area of life. It started a change in thinking about educating doctors which moved from just purely remembering facts, to acquiring skills in using information, analysing and reasoning based on facts and problem-solving. Similar hierarchies are available in the domains of motor skills and nontechnical skills.<sup>5</sup>

As the theory of education was developing there was a parallel change in the delivery of health care, as economic pressures sought to fix the length of training programs and produce graduates from those programs who had all reached an acceptable standard of training. As medicine expanded more doctors were needed. Those doctors needed to be certificated and regulated in their practice. Postgraduate training was largely delivered by the Universities, but in the workplace, not in the lecture hall.

As we entered the 21<sup>st</sup> century a third group of players had become important in the delivery of education in medicine. The patients, who had formerly accepted passively the treatment they received, became better informed and aspired to high-quality care. Litigation has become more common, and standards of patient safety began to be set and individual doctors are expected to reach those standards.<sup>6</sup>

The role of the teacher has changed rapidly over the last 50 years. The master practitioner, who allowed apprentices to 'watch and learn' is being replaced by a facilitator of learning who uses the knowledge of how we learn to help the learner to achieve the required standards.<sup>7</sup>

Our understanding of what knowledge, skills and attitudes we need to have to perform at the required standard has greatly expanded over the last 20 years, and at the same time the neuroscience of how we process information and recall it has led to changes in the approach to learning.

Firstly it is now apparent that Adults learn differently from children. The classic view of the teaching of an adult standing up at the front of the class and telling children things is now no longer accepted as an effective form of teaching. We need to think about what we mean by teaching, what are we trying to do when we teach? A useful way to think about teaching is as 'A planned event that brings about change in the learner'.

The advantage of this definition is that it places emphasis on the learner, and what happens to change their knowledge skills and behaviours. In postgraduate medicine, our learners already have some knowledge and skills and have acquired some behaviours through the workplace. So when we teach them we are building on their previously acquired knowledge and experience. Secondly, we know that adult learning is more effective if it also involves active experiential learning, feedback, and reflection. This is reinforced by what we know about how the brain makes memories and how it recalls them. Some basic facts about moving information from immediate memory to working memory and then into long-term memory. Only 7 objects at a time, only 10 minutes before you

change the stimulus, helps us plan effective teaching events. These and many other facts from the science of memory and behaviour can make us more effective teachers, because we are planning an experience that facilitates the learner.<sup>8</sup>

Thirdly we now understand that every learner needs feedback on how they have changed to move forward. We have moved from a situation, familiar to many older anaesthetists, where the only time anyone gave you 'feedback' was when you did something wrong, through early changes where feedback was 'given' to the learner and consisted of being told how the teacher would have performed, to a more developed Learning Conversation where the learner and teacher together discuss the learning and may a plan for moving forward to the next level.<sup>9,10</sup> Our objective is to produce a new generation of anaesthetists that provide anaesthesia to their patients to the highest standard of safety and effectiveness. We also want them to have motor skills, and non-technical skills in decision-making, situation awareness, team working, and leadership. To achieve this, we as teachers need to appreciate that every contact with an anaesthetist in training is a learning opportunity for that learner. Learning how to use these opportunities for that purpose is at the root of why we need to learn to teach. We may not be experts in every aspect of the learner's needs, but we will all have something to offer from our knowledge and experience, and we need to learn how to teach, provide learning conversations, and encourage reflection for the learners.<sup>11</sup> There has been and still is a great emphasis on learning facts and motor skills, but the importance of non-technical skills is increasingly recognised. In addition to the challenges of providing effective best practices in teaching, as well as in anaesthesia new challenges are coming along.

We have barely got to grips with the Millennial Generation (those born between 1981 and 1996) when our newer graduates are Generation Z (those born between 1997 and 2012) are arriving. The lived experience of these young people and their upbringing with the internet and digital technology, has earned them the title 'Digital Natives' As a generation they tend to be well educated, well behaved, but more stressed and with shorter attention spans, and more prone to depression and other mental illness. This group reads less than any other and has a smaller vocabulary, and they have had a disrupted education through the COVID-19 pandemic. This will present many challenges to the generation who will teach them not the least of which are these characteristics; they want to know the why, they prefer short and engaging content, technology-based learning, experiential learning, and personalized learning.<sup>12</sup> Teaching requires knowledge, skills and attitudes in the same way that anaesthesia requires them. We can all be more effective as teachers if we learn how to, and keep ourselves, up to date with teaching as we do with our clinical work.

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