The Conundrum of Teachers' Expertise

Prof Richard Kimbell, Goldsmiths, University of London

> Last week, ministers said academies could hire staff who were experts in their field, even if they did not have qualified teacher status (QTS). The government says the new rules will help schools to improve faster. Ministers say it will allow these schools to hire professionals who are experts in their field, such as scientists, engineers, musicians and linguists who may not have QTS.
> (BBC News 1st Aug 2012)
> http://www.bbc.co.uk/news/education-19076852

You may not have consciously thought about them, but you will be familiar with the two basic modes of operation of the mind.

When you drive a car…you don't have to look for the gear lever (for our US colleagues that's the mechanical lever we have for switching the gear box through a series of ratios). You just 'know' where it is and your proprioceptive muscle memory does the work for you. You scan the road ahead – adjust your direction – slow down – signal – turn – accelerate…all completely automatically. Those who have tried programming a computer-controlled buggy to do this job will know how complex it is. But we do it all without (apparently) thinking. We are in automatic pilot – operating below the level of conscious attention. Until something goes wrong. Then we rapidly engage another kind of thought as we try to compute our way out of the problem. Interestingly – as we engage this deliberate form of thought – the world appears to go into slow-motion, indicating the phenomenally fast processing speed that we are generating to tackle the difficulty.

Of course – this notion of two kinds of mental processing only applies when we are dealing with *skilled* behaviour. Learner-drivers do have to think deliberately about what they are doing and this makes their driving appear clumsy and unco-ordinated. As we develop more skill, the auto-pilot phenomenon progressively smooths our behaviour and gradually we lose conscious awareness of those separate considered actions. They blend into a coherent performance.

All skilled performance (e.g. by pianists, mountain-climbers, writers, skiers) is dependent upon the fact that we progressively hand over control from our conscious mind and allow our pre-conscious mind to control things (do the auto-processing) for us. It takes hours and weeks and years of practice, but gradually we embed enough pre-ordered behaviours for the mind to 'know' what to do in almost any given circumstance. It is the weird unexpected things that trigger a return to conscious control.

In the just-finished Olympics in London we have witnessed an astonishing range of skills and heard all about the grueling training schedules of the competitors. Their training is sometimes for fitness – but I am more interested in their training in technique. The rowers and jumpers and throwers and divers spend countless hours in repetitive routines; over and over again; and what they are doing is laying down a set of auto-behaviours that can be relied upon to operate smoothly when they are needed. Without conscious thought.

What does this notion tell us about the expertise of teachers?

It's invariably irritating to hear politicians spouting about the requirements for teachers. Typically they go for what might appear to be the most obvious requirement. Maths teachers must be great mathematicians. Physics teachers must be wonderful physicists. Music teachers must be virtuoso musicians. Rubbish.

The Stig would probably be a hopeless teacher for learner-drivers. Precisely because he is such a great driver. He has long forgotten what it is that he had to be able to do to get started. His skill is all (now) automatic. To become a great driving *teacher*, he would have to start by un-doing all that processing so that he could understand what novice drivers are doing (and doing wrong). And the result would (in all probability) diminish his own driving skill.

In case you think I am overdoing this argument – I suggest that you consider the interplay of these two modes of thinking (automatic and deliberate), and driving really does present us with a good example. While all is going well (while all the incoming signals conform to expectation) our auto-processing keeps things going smoothly. But if we hit a bit of unexpected ice, our turn of the steering wheel no longer results in the anticipated course-correction. Help! Panic!

It's what happens next that is so revealing about the two modes of thinking.

We know (with our deliberate thinking head) that we should steer into the skid. But our auto-processing (laid

down over hundreds of hours of practice) tells us to steer away from the potential hazard. When the two kinds of thinking are in dispute – which one wins? My guess is that most of us would try to steer away – lose control – and skid into the hazard. Auto-processing is SO strong that it overrides our conscious thought. Of course this is not true for those drivers who have lots of experience of skids. Rally drivers are supreme in this area. For them, skidding is normal and they have loads of auto-processed routines to deal with it. My point is that skilled behaviour is VERY difficult to ignore or to un-learn.

So to say that teachers should be experts in their subject is to miss the point. Teachers have to recognise, understand, and know what to do about muddled-mathematics; about pitiable-physics; about mangled-music. They have to be experts in *transformation*. Helping the initiate; moving the novice towards accomplishment; building capability and confidence; and gradually supporting the emergence of expertise. This takes much, much more than simply the expertise itself. Indeed the first requirement is to be able to think as a non-expert, so as to be able to see the problem through the eyes of the child. I think the best maths teachers would be those who struggled with mathematics – not those with an instinctive flair for it. To be an expert *teacher*, one needs to be able to think as a non-expert.

But this is only one side of the expertise of teachers. If – when supporting the *learning* process – it is important for teachers to be able to think as non-experts, there are clearly other aspects of the teaching role that really do require us to be subject experts. And one of these aspects is assessment, and particularly summative assessment. When it comes to making judgements about the quality of a piece of work in (say) English writing, it is absolutely necessary that the person making judgements is an expert writer of English. How else would they know what counts as poor, adequate, good and excellent. You might think that the definition of 'poor', 'adequate' etc is actually defined for us in the criteria that examination bodies apply to their assessment processes, but interestingly the two kinds of thinking emerge again in this assessment context.

Think about making assessments in the same way that we think about driving.

Learner-drivers do one thing at a time – consciously. Put their foot on the clutch – locate the gear – remove the foot gradually – find the 'bite-point' – try to disengage the clutch smoothly – without hitting the oncoming traffic or running over a pedestrian on the crossing. This is very like the behaviour of novice assessors – a mark for this, another for that, and maybe one for that. All decided consciously. But just as expert drivers do it all automatically, so too do expert teachers, who can make complex multi-dimensional judgements automatically – below the level of conscious 'scoring'. This is what we mean by *skilled* behaviour. Conscious box-ticking is for novices and – for experienced teachers – that box ticking in not about making assessments but about covering your back so that you can justify the judgements you have made. Experienced, skilled teachers make quick holistic assessments all the time and with remarkable accuracy. Ask any experienced teacher (of anything) who is the most/least able in their class and they will tell you – and they will do it without the benefit of any assessment sheets or tick lists. Experts sublimate the detail.

So where does this leave us with the expertise of teachers?

My own view is that an important part of the expertise of teachers lies in their ability to switch between these two states: being expert in their field and being non-expert at the same time. There are times when integrated, skilled, automated performance is essential. And there are other times when it is essential to de-construct it and help learners with the unco-ordinated *elements* of performance. This might sound obvious, but it really isn't, because the two states are typically incompatible. A requirement for becoming skilled is the sublimation of unskilled behaviours. So to be able to hold both skilled and unskilled behaviours simultaneously is not at all straightforward. It is one of the many things that student teachers have to learn, and it is one of the reasons why teaching is such a demanding profession.

r.kimbell@gold.au.uk