The problem with using scientific evidence in education
(Why teachers should stop trying to be more like doctors)
By Lucinda McKnight and Andy Morgan

For teachers to be like doctors, and base practice on more "scientific" research, might seem like a good idea. But medical doctors are already questioning the narrow reliance in medicine on randomised controlled trials that Australia seems intent on implementing in education.

In randomised controlled trials of new drugs, researchers get two groups of comparable people with a specific problem and give one group the new drug and the other group the old drug or a placebo. No one knows who gets what. Not the doctor, not the patient and not the person assessing the outcomes. Then statistical analysis of the results informs guidelines for clinical practice.

In education, though, students are very different from each other. Unlike those administering placebos and real drugs in a medical trial, teachers know if they are delivering an intervention. Students know they are getting one thing or another. The person assessing the situation knows an intervention has taken place. Constructing a reliable educational randomised controlled trial is highly problematic and open to bias.

As a doctor and teacher thinking, writing and researching together we believe that a more honest understanding of the ambivalences and failures of evidence-based medicine is essential for education.

Before Australia decides teachers need to be like doctors, we want to tell you what is happening and give you some reasons why evidence based medicine itself is said to be in crisis.

1. Randomised controlled trials are just one kind of evidence

Medicine now recognises a much broader evidence base than just randomised controlled trials. Other kinds of medical evidence include: practical "on-the-job" expertise; professional knowledge; insights provided by other research such as case studies; intuition; wisdom gained from listening to patient histories and discussions with patients that allow for shared decision-making or negotiation.

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Privileging randomised controlled trials allows them to become sticks that beat practitioners into uniformity of practice, no matter what their patients want or need. Such practitioners become "cookbook" doctors or, in education, potentially, "cookbook" teachers. The best and most recent forms of evidence based medicine value a broad range of evidence and do not create hierarchies of evidence. Education policy needs to consider this carefully and treat all forms of evidence equally.

2. Medicine can be used as a bully

Teaching is a feminised profession, with a much lower status than medicine. It is easy for science to exert a masculinist authority over teachers, who are required to be ever more scientific to seem professional. They are called on to be phallic teachers, using data, tools, tests, rubrics, standards, benchmarks, probes and scientific trials, rather than "soft" skills of listening, empathising, reflecting and sharing.

A Western scientific evidence-base for practice similarly does not value Indigenous knowledges or philosophies of learning. Externally mandated guidelines also negate the concepts of student voice and negotiated curriculum. While confident doctors know the randomised controlled trial-based statistics and effect sizes need to be read with scepticism, this is not so easy for many teachers. If randomised controlled trial-based guidelines are to rule teaching, teachers will also potentially be monitored for compliance with guidelines they may not fully understand or accept, and which may potentially harm their students.

3. Evidence based medicine is about populations, not people

While medical randomised controlled trials save lives by demonstrating the broad effects of interventions, they make individuals and their needs harder to perceive and respect. Randomised controlled trial-based guidelines can mean that diverse people are forced to conform to simplistic ideals. Rather than starting with the patient, the doctor starts with the rule. Is this what we want for teaching? When medical guidelines are applied in rigid ways, patients can be harmed.

Trials cannot be done on every single kind of person and so inevitably, many individuals are forced to have treatments that will not benefit them at all, or that are at odds with their wishes and beliefs. Educators need to ensure that teachers, not bureaucrats or researchers, remain the authority in their classrooms.

4. Scientific evidence gives rise to gurus

Evidence-based practice can give rise to the cult of the guru. Researchers such as John Hattie, and their trademarked programs like "Visible Learning" based on apparently infallible science, can rapidly colonise and dominate education. Yet their medicalised glamour disguises the reality that there is no universal and enduring formula for "what works".

In 2009, in his book 'Visible learning: A synthesis of over 800 meta-analyses relating to achievement', Hattie advised that, based on evidence, all healthy people should take aspirin to prevent heart attacks. Yet also in 2009, new medical evidence "proved" that the harms in healthy people taking aspirin outweigh the benefits.

In 2009 Hattie said class size does not matter. In 2014, further research found that reducing class size has an important and lasting impact, especially for students from disadvantaged backgrounds.

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While medical-style guidelines may seem to have come from God, such guidelines, even in medicine are often multiple and contradictory. The "cookbook" teacher will always be chasing the latest guideline, disempowered by top-down interference in the classroom.

In medicine, over five years, fifty percent of guideline recommendations are overturned by new evidence. A comparable situation in education would create unimaginable turmoil for teachers.

5. Evidence-based practice risks conflicts of interest

Educational publishers and platforms are very interested in "scientific" evidence. If a researcher can "prove" an intervention works and should be applied to all, this means big dollars. Randomised controlled trials in medicine routinely produce outcomes that are to the benefit of industry. Only certain trials get funded. Much unfavourable research is never published. Drug and medical companies set agendas rather than responding to patient needs, in what has been described as a guideline "factory".

Imagine how this will play out in education. Do we want what happens in classrooms to be dictated by profit driven companies, or student-centred teachers?

What needs to happen?

We call for an urgent halt to the imposition of 'evidence-based' education on Australian teachers, until there a fuller understanding of the benefits and costs of narrow, statistical evidence-based practice. In particular, education needs protection from the likely exploitation of evidence-based guidelines by industries with vested interests.

Rather than removing teacher agency and enforcing subordination to gurus and data-based cults, education needs to embrace a wide range of evidence and reinstate the teacher as the expert who decides whether or not a guideline applies to each student.

Pretending teachers are doctors, without acknowledging the risks and costs of this, leaves students consigned to boring, standardised and ineffective cookbook teaching. Do we want teachers to start with a recipe, or the person in front of them?

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