

Transcript Ross Fox's Keynote Address

Part 3 – Reflections on the Science of Learning



Science of Learning Leadership Accelerator

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AN ENGINE THAT POWERS SCHOOL IMPROVEMENT

**Primary
focus**



I want to reflect on that Science of Learning is not, as we know, a precise concept. It is not necessarily easy to say "that's not science of learning." That is, I think in the case of Goodman - is it easy to say that's not consistent with the Science of Learning, the idea that you shouldn't read the words on the page? I think that's problematic. I think reading entails reading the words on the page. But that in the Science of Learning, it's a body of knowledge. We've got to accept that. The role of us, as educational professionals, is to be engaged in a serious debate about the implications of the research for the pedagogical approach we choose, the curriculum approach we choose and the assessment approach we choose.

It should inform and challenge us on debates about all those things.

There is a science of learning

There is a **science of learning** and its **tenets and implications** need to be understood before embarking on improving classroom practice or schools.



School is where we learn **biologically secondary** information (Geary)



Learning is a change in **long-term memory** (William)



Teaching is a profession that should be informed by evidence upon that determines professional practice



Knowledge matters, knowledge is what we think with, knowledge sticks to knowledge (E.D Hirsch, Schema theory)

Catalyst

This is not a comprehensive or exhaustive list, but just some of the elements that I think we've certainly thought about. And, you know, there's a large overlap here, understandably, with some of the comments that Pam has made earlier this morning, a recognition that schools exist to teach things that students would probably not learn by themselves. You've got to acknowledge that we're not just there to facilitate the child playing. We're there to teach things they won't learn easily by themselves. So that idea that Geary's guide of the biologically secondary knowledge and I think that's important to realise, if you go into it, it's counter to that developmental idea that students will just flourish left to their own devices. They will flourish as the individuals we want them to be through great teaching and learning. And that's an active process in my view now.

We've got amazingly great educators, as do all systems and schools across the country. But when you start with a question about "what is learning?", you can end up with very, very



diverse answers that lead you to prioritise all sorts of strange things. I'm going in a couple of weeks to an ACT Government Leadership Day, where Pasi Sahlberg is speaking. One of Pasi's recent books is "Let the Children Play". Literally. And he's very committed to that. I'm not saying play doesn't have a role, by the way, but I'm very worried about play absent intention.

It is important that, as a system, schools adopt a clear definition of learning so that we can hold ourselves to account, so that we can think through "is what we're doing adding to our definition of learning?" I'm quite attracted to Dylan William's provocation; I'm not sure he's the first one who thought of it, but his statement that "learning is a change in long term memory" obviously takes you into cognitive load theory questions. What does that mean? How does the brain actually remember something? How does teaching respond to the needs of the brain to remember something? I think that's a very important starting point.

Just here I'll add, earlier on when I came in I was quite impressed by the Brighton Grammar Learning model. I'm someone who's anti-frameworks in education. I think most frameworks allow people to say, I can see what I'm doing in that framework, so I'm validated. As professionals, we've got to go past the framework to the evidence base, to the criteria that we understand is good practice and we've got to test ourselves against them. The danger with frameworks - absent professional conversations, interrogation of the evidence - is they're so abstract, so philosophical and abstract, that they do not entail learning and teaching consistent with the Science of Learning or the Science of Reading.

My commitment at least, is to try and avoid any frameworks or as few frameworks as possible unless they're deeply understood, deeply embedded and deeply connected to evidence and hopefully entail practice that is consistent with the Science of Learning and the Science of Reading.

The teaching is a profession. I think a lot about why we don't consider teachers more like doctors. I think a lot about that, and I was really shocked, I've got to say, Pam, there was a Twitter exchange I saw where there was a serious, supposedly serious, academic saying teaching's got nothing to learn from medicine and we shouldn't go in that direction because apparently doctors are throwing out the science, which just can't be true. I do think a lot about doctors and teachers and what I see is that at the moment we may be falling into the trap of defining the teaching profession in a totally unsustainable way. Saying, here's your classroom after four years of education at a university where they've probably taught you critical and comparative approaches, not the reading science and the learning science. You just choose your own curriculum. Now, that's not quite the reality, though. They might get some help with curriculum and just go ahead and teach and see how you go. Assess it. All you need to do is a five point scale at the end of term.



Now, of course, it's much more complex than this, so I don't mean to trivialise it but just think about that. A four year trained teacher, not a lot of science exposure. I don't think that's an exaggeration. And then you've got largely an eight year trained doctor. Who when you go in to see them, they often, now they actually, have a scripted diagnosis path facilitated by interaction with a computer. And that's not diminishing their professionalism. It's been tested as to how you identify if someone is sick and what ailment they have and what treatment is best. And then, by the way, when they find out you've got something that needs antibiotics, they don't whip out the back and say, "oh, just get some and I'll just mix up some antibiotics for you". There's a whole industry that validates the efficacy of the treatment. There's a whole industry involved in precise and quality controlled distribution of the solution. And they're quite comfortable just doing this small sliver of the treatment, diagnosis and treatment, and teachers are almost doing the whole amount with not appropriate support from their initial teacher education.

That's the situation I think we find ourselves in. And I still wonder why aren't we thinking more about it, like doctors. The doctors do not say, I've just had some ideas, I read some things about homeopathy, let me just try that on you. By and large, doctors are prescribing antibiotics, anti-depressants and painkillers and there's very rigorous randomised controlled trials as we know about that. And it's adventurous to say, "oh no, we want to lessen that and loosen it up". And what are the implications of that for teaching? Which we should arguably have very precise expectations consistent with the Science of Learning and the Science of Reading.

We don't have the evidence architecture, I would say, and Jenny (Donovan) might talk to that later to support that, but at the moment, we are delegating often how to teach, what to teach and how to assess it to an individual teacher who is not well prepared for that task. There's this question as to whether we've set up an unsustainable model, and that's at the back of their minds in approaching this. We're not going to undermine the professionalism of the teachers, but we're concerned to have consistent, high quality delivery that reliably diagnoses the needs of students.

I do want to say something, because I don't know that this necessarily is prominent in the Science of Learning literature at the moment, but I've been profoundly convinced by Don Hirsch's work (ED Hirsch in *Why Knowledge Matters*), that if we have a curriculum that does not prioritise knowledge rich content, it's quite likely we're going to be frustrated with the outcomes. I think that we've got to have pedagogy that is absolutely consistent with the Science of Learning and Science of Reading, and then you've got to have knowledge rich content. My perspective is there's not enough debate about what that is. I know that Reid's here, and there's some very eminent people thinking about it, but we're not having a debate widely enough because if we aren't precise about the curriculum expectations, are we going to be surprised that there's variation in student achievement in what they do know or what



they can do, those knowledge and skills. I think I've been profoundly influenced by that and certainly our approach in Canberra Goulburn is based on knowledge and sticks to knowledge. If the students know something, they're going to be better placed to know the next thing. I could talk for an hour on that. I'd very much encourage you, if you hadn't read ED Hirsch's "Why knowledge matters". He's got this amazing natural experiment that he relates in France, where they had a very precise curriculum. They went to a very devolved curriculum, and two appalling things happened. The national achievement dropped by about half a standard deviation. More concerningly, the predictability of student background on student achievement increased. It was more predictable that if you're from a wealthy or privileged background, you would do well and you don't have to be very adventurous to say the absence of precise curriculum expectations in Australian classrooms might well be having a very deleterious effect.

I'm not saying we should rush to solve that first, but I think we should be very unsettled about the experience of France and what might be possible here if we got all of that together. That might be controversial.