

The Conversation

A place for sharing and discussing ideas about education



In each issue we will pose a new question

This time we ask
"How has research impacted you?"

Our responses
 EEF Chief Executive
Sir Kevan Collins
 argues for radical change

We interview MAT
 CEO **Sara Davey**
 about all things
 Leading Edge

Charlotte Rule
 discusses the research
 in teacher training

Elle Wheatley writes
 in our new **Dialogue Pages**
 responding to the curriculum issue

We would love to hear from you. Send a response to...

submit@theconversation.education

Welcome to the conversation

At **The Conversation** we believe that giving educators the space and time to talk about teaching and learning is essential.

Conversations can generate ideas, inform pedagogies and inspire reform. A conversation implies a measure of equality and that listening and sharing without limit, without judgement, without inhibition can lead to incredible things. Conversations allow us to explore ideas, to challenge and ask questions of ourselves, each other and the systems we work in. They inspire us to create, analyse and evaluate ideas. They provoke us to engage intellectually with the latest research and make links between theories and praxes. Conversations can lift us, excite us and challenge us. So join in the conversation!



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QUESTION

Questions can kick start conversations. They ask us to think, respond and converse. Be curious, ask questions.



CONVERSATION

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OP-ED

His thoughts can be read here:
<https://teacherhead.com/2019/04/14/from-research-to-the-classroom-roadblocks-resistance-and-blind-faith/>

In this issue we ask how research has impacted you. Perhaps a better question might have been what educational research are you aware of? It wasn't until several years into my teaching career that I realised pedagogy is a science, that research existed into which strategies have an impact on students' learning and what the extent of that impact might be. This might be considered embarrassingly naive but understandable, given the paucity of discussion or training on research that my previous schools devoted time to. In issue 1 of *The Conversation* I argued that it would be professionally negligent of educators to be unaware of evidence based teaching and learning strategies. This was perhaps a little harsh. But I think that it certainly would be negligent of any school's leadership not to devote time and effort to train their staff in research and evidence based pedagogies.

In a recent blog ex-Headteacher and now education consultant Tom Sherrington discusses what he sees as road blocks to getting more research into the classroom

Research should never be taken at face value and swallowed up by practitioners or schools without careful thought. As Sara Davey elucidates in the interview on page 7, research is partial. She argues that each question that is investigated is necessarily political (set in a given time, place and context) and therefore all research is political. Not that this is a bad thing, it simply means that it is incumbent upon teachers and school leaders to question the political nature of a particular study. The next step would be for educators to answer John Hattie's clarion call to "Know thy impact" and work out for themselves if an evidence based strategy will work in the political context that they find themselves. Does x work for my students, in this year group, in my subject, at this school? Learning how to measure the efficacy and impact of an idea or strategy is therefore of incredible importance to teachers and school leaders.

I would argue then that every school needs to be a "research school". Every classroom needs to be a research laboratory. The mind-set of senior leaders and teachers alike needs to be one of investigation and experimentation. Mistakes will be made, failures will happen, not every idea will work, but isn't that the nature of learning itself?

Teaching is an intellectual profession. Pedagogy is a science. Education is political. The marriage of all three and the underpinning philosophy of education a teacher and school has, gives rise to successful, flourishing students ready to make a difference in their communities. In my view the curriculum should be shaped by the philosophy of a school. This is the intent. The implementation of the curriculum happens when teachers engage with research and evidence based pedagogical strategies to deliver lessons where outstanding teaching and learning is taking place. The impact of these lessons must be constantly monitored, assessed and evaluated by a culture of ongoing, contextual (and therefore political) research by each teacher, department and school. This, in my view, is a model that would be fantastic.

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Contents

How has research impacted you?

Op-Ed - page 2

Sir Kevan Collins: Generating evidence is the start, scaling evidence is the goal - page 4

Charlotte Rule: Research Possibilities in Teacher Training - page 6

The Interview: Sara Davey, CEO of Leading Edge Academies Partnership - page 7

Prof Ian Kinchin: Solving Cordelia's Dilemma - page 12

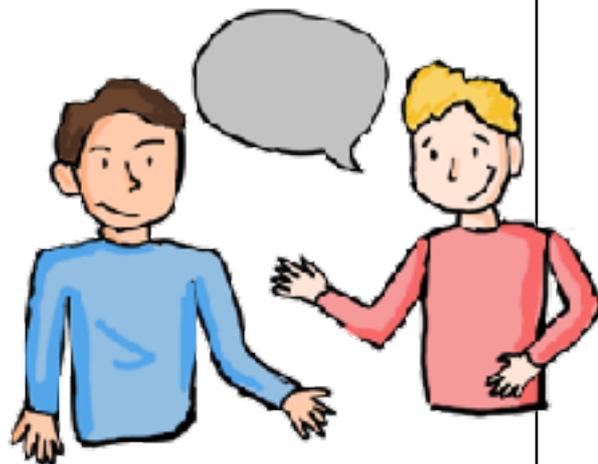
John Rodgers: Metacognition - page 17

The 5 minute Evidence Based Teaching lesson planner - page 19

Cognitive Bias Models - page 20

The Dialogue Pages: Elle Wheatley on the curriculum - page 22

The Conversation Manifesto - page 24



JOIN IN THE CONVERSATION

The conversation is all about bringing people together and talking. Asking a question is a good way to begin a conversation. This semester we ask **"How has research impacted you?"**. Clearly there are many possible ideas and views one could answer with or argue about, but that's the point. It gets the conversation going.

We would love to hear your ideas. If you would like to submit a written response (of around 500 words) please email us at **submit@theconversation.education** or visit **www.theconversation.education**

Conversations need not happen face to face but it is sometimes just really nice to sit around a table and talk. If you would like to join in with one of our conversations in person, please let us know. Email **info@theconversation.education** or visit **www.theconversation.education** for more details.

Do you agree with the ideas discussed by our contributors? Maybe you completely disagree. Either way, we want you to talk about it! Let us know your thoughts, discuss them with your colleagues or debate them with your friends. Have a conversation.

So come on, dive in and join the conversation!



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Chief Executive of the EEF: Sir Kevan Collins

Generating evidence is the start, scaling evidence is the goal

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First Published: <https://educationendowmentfoundation.org.uk/news/eef-blog-generating-evidence-is-the-start-scaling-evidence-is-the-goal/>

Generating evidence is the start:

When we were establishing the EEF in its first year, 2011-12, our major challenge was in showing that generating evidence of 'what works' to raise attainment for disadvantaged learners - through the use of rigorous, independently-evaluated randomised controlled trials - was not only possible, but that it would also be welcomed by teachers and senior leaders.

With **160 trials** commissioned since then - involving more than 10,000 schools, as well as early years and post-16 settings, and reaching well over one million children and young people - we feel confident in saying the EEF's approach has not only been welcomed, but embraced by a profession increasingly receptive to high-quality evidence when presented clearly and accessibly.

The teaching profession is increasingly receptive to high-quality evidence when presented clearly and accessibly

The task of generating evidence is never complete. We will continue identifying high-potential programmes which we hope will prove capable of delivering positive impact when put to the tough tests we set - programmes such as **Magic Breakfast** and **Embedding Formative**

Assessment (both featured in this report) are good examples of these.

And we will continue to build out the evidence in those areas of education where do not yet know enough. I would particularly highlight three areas:

- **Early years education:** there is agreement on the huge promise of supporting children's early learning; but less is known about the most effective programmes and practice. In particular this year, we have been working closely with the Department for Education to boost professional development in the sector, as well as to improve the home learning environment for 0-5 year-olds.
- **Post-16:** there is a huge task here, with more than half of all disadvantaged 19 year-olds leaving formal education without good passes in English and maths, which open so many doors into further education and careers. We are continuing to work in partnership with J.P. Morgan to address this.
- **Essential life skills:** we need to find out more about

what schools can do to help students develop greater self-control, confidence, social skills, motivation, and resilience - all skills that are thought to underpin success in school and beyond.

Scaling evidence is the goal:

Our major challenge now is to scale this evidence so that it makes a practical difference in achieving our charitable goal: breaking the link between family income and educational achievement. As our chairman, Sir Peter Lampl, highlights in his foreword, we are testing a number of different approaches: publishing **guidance reports** on high-priority issues, with clear and actionable recommendations for teachers; setting up our **Research Schools** network; expanding the EEF's '**Promising Projects**'; and launching **major campaigns** to promote effective evidence use. *We are actively planning fresh ways to ensure we mobilise the knowledge of 'what works'* We have commissioned independent evaluations of all these initiatives so we can assess which are most likely to be effective ways of teachers being able to act on our evidence.

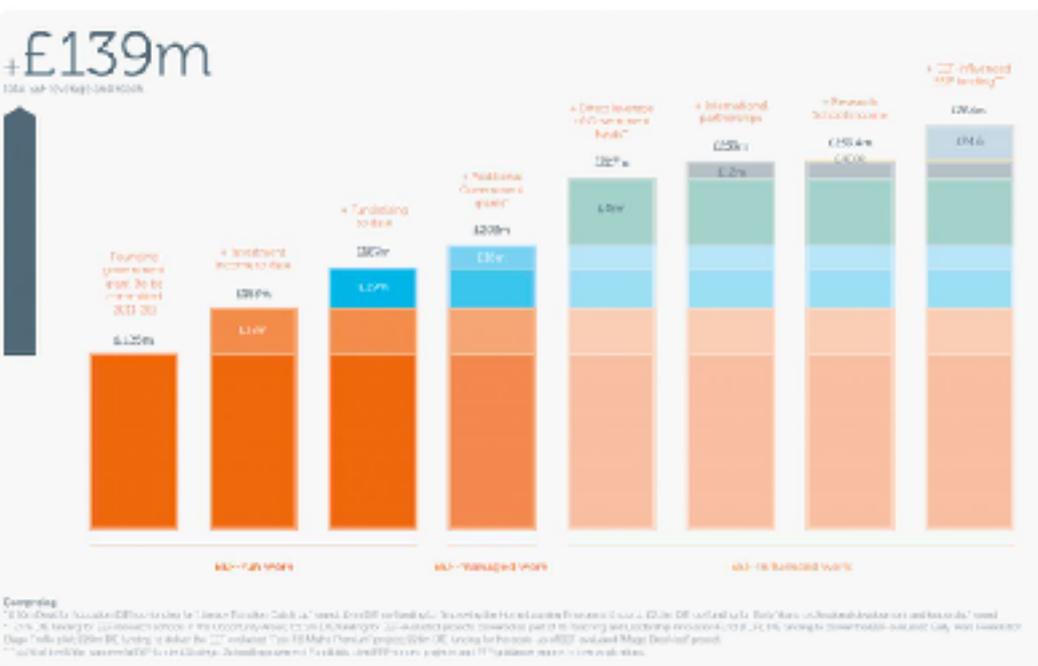
And we are actively planning fresh ways to ensure we mobilise the knowledge of ‘what works’, so that it reaches those schools and settings with the greatest need and

We firmly believe more and better use of evidence is crucial in securing greater reliability in our education system, so that children and young people receive the best

In the last year alone, for example, we have: **renewed our partnership with Wellcome**, generating new evidence about science teaching; **partnered with Kusuma Trust** to scale up evidence for impact in mathematics and science in up to 220 schools; and formed **a major new partnership with BHP Billiton Foundation** to improve learning outcomes for disadvantaged pupils across the world by building a global evidence network.

Indeed – as the chart below, ‘Total EEF leverage and reach’, highlights – we have been able within our first seven years to more than double the £125 million grant from the Department for Education with which the EEF was founded. Almost £140m more has been levered into the system, either directly through EEF-run work, or more indirectly through EEF-managed and EEF-influenced work.

All this has enabled the EEF to extend our reach and scope: broadening our remit to early years and post-16; retaining our focus on attainment, while also looking at the impact of our trials on students’ essential life skills; and developing new ways to make sure evidence is placed into the hands of teachers and senior leaders in ways they can act on it. Big challenges remain. The way to tackle them is by working together. Doing so, we will make a difference.



then benefits those disadvantaged learners for whom education is their most realistic route to a better life.

This is a complex space in which to be working. To be frank, it would be far more straightforward to focus simply on generating evidence: to say to teachers and senior leaders *“this project seemed to work when we trialled it, this one didn’t”* and then leave it to them to try and work out the rest. But we know this would not be an adequate response to the stark problem of the attainment gap, nor to our share of the responsibility for tackling it.

possible teaching, no matter where they live and no matter what their background.

The prize on offer is a great one: an innovative, consistent, well-led, and empowered teaching profession providing better outcomes for all learners, particularly the most disadvantaged.

Finally, thank you:

I believe we are on the right path. That confidence is bolstered by the enthusiasm of so many who wish to partner with the EEF on this journey.

The EEF Teaching and Learning Toolkit is a great resource. Described as an accessible summary of the international evidence on teaching 5 - 16 year olds it can be found here...

<https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit>

Trainee Teacher: Charlotte Rule

Research possibilities in *Teacher Training*.

Arguably, every single day of my training year so far could be categorised as research. Each lesson, professional studies session or CPD event teaches me something new and extends my pedagogical knowledge.

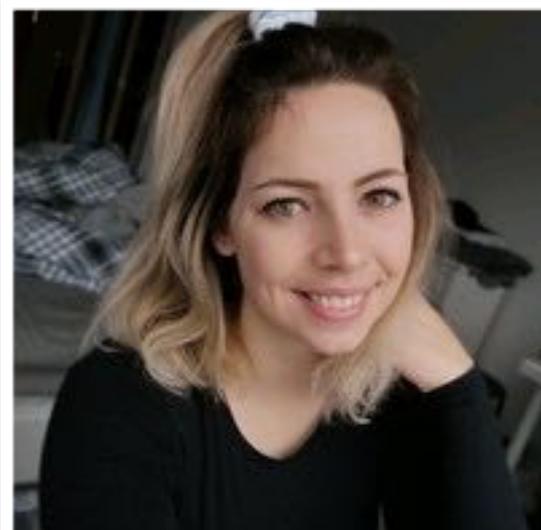
We are taught to consistently critically evaluate every single aspect of ourselves during our training. It is natural for us, when observing others, to be on the look-out for things in a lesson that work well - we may mentally make a note of activities or techniques to try for ourselves - and occasionally, we may observe things *not* to try, too.

We collate qualitative data through conversations with colleagues about ideas and opinions, and look at quantitative data through the class numbers we have accumulated and have religiously pored over in an attempt to understand what it all means. Then, before we know it, we have subconsciously triangulated information we didn't realise we were even collecting.

As part of the training course, we have three assignments to complete. All involve a certain level of research and reading around the topic, but it is the last of these three that requires the most, as it is a case study approach to a whole school 'issue'. Whilst it is pretty cool

that we are seemingly given the freedom to do some *proper* investigation, assignment-based research is actually pretty narrow. You are given a working title, you have to adhere to a certain format, and the 'issue' you are researching is chosen by whatever school you have been placed at. The enjoyment of this assignment and research depends entirely on your interest in the topic you have been told to collect information for, and, unless you go on to work at your placement school, you don't get the opportunity to action anything in *response* to your research. It feels as though you are spending weeks preparing for a race you don't want to take part in. You begin reluctantly by experimenting with different training schedules and techniques to see what works best, and then, because you've invested so much time and effort, you've started to enjoy it. So you up your game. You amend your nutrition for optimum results. You find any little whiskers of information that *might* be relevant for you on race day. And then you don't actually get to compete.

Whilst this is perhaps one of the frustrating sides of a teacher training year, the process of completing a case study is still a useful one, and although you don't



get to 'compete' in the metaphorical race, the countless hours of training for it are still beneficial.

Outside of the assignments, college days filled with CPD allows for 'research' in a more laid-back way. Professional Studies Sessions (the quality of which depend very much on the school you are placed at) are particularly useful as most of the time you are able to 'interview' the colleague offering it, again adding to the subconscious triangulation you've got going on amongst the twenty-eight tabs you have open inside your brain.

Beyond all of this, much of the onus for research as a trainee is very much on the individual. Ultimately, there is no one forcing you to do anything to expand your knowledge, but a love of learning and genuine interest in certain topics regularly compels me to do so.

The Interview

In this issue we discuss Leading Edge ideas and research with Sara Davey CEO of the Leading Edge Academies Partnership

In conversation with John Rodgers

John Rodgers (JR): The Leading Edge Academies Partnership is a MAT that has research at the heart of its vision and values. In fact the website says "Every Academy in the Leading Edge family endeavours to be the best that it can be by using the latest thinking and research to inform their practice and thereby providing the very best education available for the young people in their care." Can you tell us a little about the values you have (Ethical, Excellence, Equity, Empathy, Evolution & Endurance) and what research underpins them?

Sara Davey (SD): The first of our 6 E's is Ethical. We want to make sure that all of the relationships we have within the Trust are based on sound ethics; doing the right thing in other words. We want a clear set of values that are ethical. We have decided as a MAT to all sign up for the values based education approach, that's an award that we are aiming to get. This will allow us to use the language of the 6 E's, the values that we are working on together, in every aspect of the organisation, in every policy, in every practice, in every relationship. We want it to be like a stick of rock through the whole organisation and we think that is

what will make the Leading Edge MAT really distinct.

JR: What sort of intellectual rigour lies behind the decisions made when deciding on your system of ethics for the MAT?

SD: I would go to what politics would say, what the political philosophies are. There are of course some political philosophies that we have rejected and some that we have embraced. The first philosophy that we have rejected is Neo-liberalism. We reject the notion that we want to increase the market forces across education and the opportunities for private companies to take over education because we have direct experience as a MAT where that has proved to be disastrous for a community. So we have direct evidence that Neo-liberalism has not been good news for education, when businessmen take over education and think profit rather than people.

A second philosophy that we would question would be the old fashioned conservatism. This can be said to be based on Plato's idea of the philosopher King. This is the notion that you have a certain group of people in a society who are better educated and better placed to be the leaders and

therefore would then be able to rule things with greater effectiveness and efficiency. This is basically an elitist position. It's the idea that there is an elite that should have a certain type of education and the masses that have another type of education. This division has been really very clear throughout the English education system since the 16th Century. Plato has a lot to answer for in that respect.

As a grammar school student, although the rest of my family went to secondary modern schools, I saw that this system absolutely tore apart families and communities. It was totally unjust. My brothers and sisters were no less intelligent than I was, they just didn't have the same desire to be competitive and get to the grammar school. So I reject Neo-liberalism and I reject formal conservatism.

So then I would look to enlightenment ideas as espoused by the Royal Society of Arts. This is the idea that we should want to create a better society by encouraging human beings to flourish. This is Aristotle's idea of eudaimonia. I agree with this greek philosopher as I do with Socrates.

JR: Plato said some good things as well though surely?

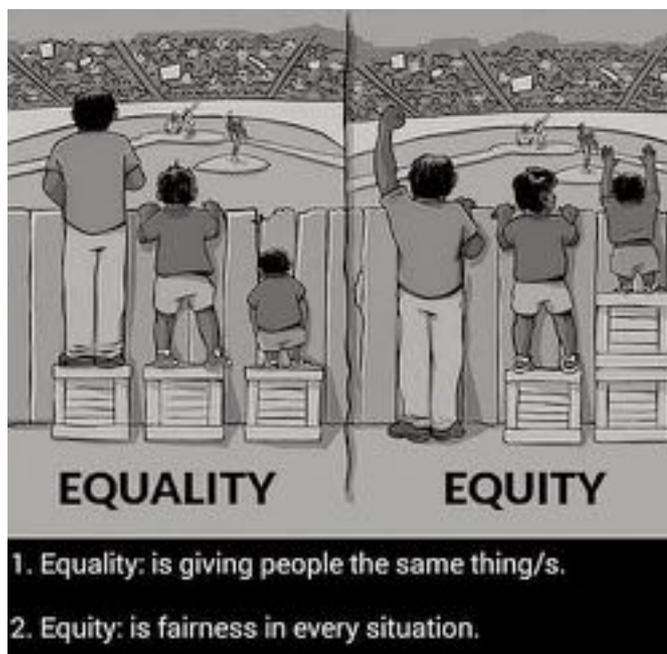
SD: He did, of course, but politically I agree much more with the ideas of Aristotle and Socrates. Socrates was talking about having different dialectic view points and that's where the enlightenment comes in. So we very much embrace the human flourishing idea, but it's not enough because it's very individualistic. It's a liberal approach that is very focussed on just the individual. What we want is a better community not just a better individual. So that is why we have also embraced the social justice position where we are saying that everybody has an entitlement to do well and everyone is capable of doing well. This is the political viewpoint that the MAT has at its heart.

JR: In terms of research, this idea is backed up by neuroscience. We see physical growth in brains when people learn a language, a new skill, a musical instrument and so on. It seems to me that neuro-plasticity underpins the growth mind-set paradigm. Do growth mind-set and neuroscience fall under the Ethics E or do they perhaps come under all of the 6 Es?

SD: I think they come under all of them actually. They are absolutely interrelated. I do believe that you are being ethical if you treat people equally, hence equity, and you believe that everyone is capable of excellence.

JR: The second E is Excellence. Why did the Leading Edge MAT choose to take on board the High Performance methodology?

SD: Well, Mounts Bay Academy has been on a long journey to get us to the point of High Performance Learning. The journey has involved us raising aspirations through a programme that was set up by the Sports Colleges originally. This was called The Global Institute of Student Aspirations. This was all about saying that we are all capable of excellence; we all want to be excellent and it is possible. That has influenced the whole culture of the school over the last decade. More recently we have



chosen to work with Professor Deborah Eyre at the High Performance Learning organisation because she has been able to articulate the values and the habits that make successful learners. So the piece of work that needs to happen at this school is to turn the labels of High Performance habits into actual habits in our learners.

The values of High Performance need to be everywhere and we are very much in the early stages of that here at Mounts Bay Academy. We are embedding that across every lesson and every activity that we do.

JR: The third E is Equity. How is this distinct from the Ethics E?

SD: I would actually distinguish it from equality. Equity is the belief that we all want equal outcomes, where equality is actually another word for equality of opportunity. This means that everybody sets out from the same starting point but some people are obviously going to get to the end more quickly. So it actually ends up justifying inequality.

JR: There's that famous cartoon that shows 3 children standing on 3 equal sized boxes trying to see over a wall vs the 3 children standing on different sized boxes being able to see equally well over the wall.

SD: I don't think people realise that equality and meritocracy are justifications of inequality. When you listen to the word you don't realise that. Equity is the one that focusses on social justice. So one is a right wing term and one is a left wing term.

JR: The next E is Empathy. Tell us a bit about that.

SD: It's all about relationships. Everything in the business of education is about positive relationships and that is why restorative justice is something that

we have decided to take on. We used to be quite a black and white school with regard to our consequences; it was the fashion to have quite an assertive discipline model of education. We moved to the restorative justice model as a result of a challenge partner visit to the Compton School where I saw it in action. The students there were hugely positive about it. They told me that the detentions they used to be getting meant nothing to them anymore. They were getting more and more detentions, it was getting more and more punitive and they said that the restorative justice approach had transformed things. I wanted to see whether it was possible to do the restorative justice approach here in Penzance and I have to say it has totally transformed things here too. Across the MAT we all agree that Empathy is a value that we cherish and restorative justice is a way of systematising that.

And of course Empathy isn't just about the relationship that you have with your peers; it's about the relationship that you have with your family, with your community, with your country and finally with the rest of the world. Our project weeks are great vehicles to expose our students to global issues that we hope will develop their empathy with people across the world, often with very different viewpoints and experiences from their own.

JR: The next E is Evolution. What does that mean to you?

SD: Continuous development. Constantly we construct our own personal learner identity through our interactions on a daily basis.

We evolve as learners every day. We can get negative feedback which influences us and whether we are going to learn well or not and we can get positive feedback. It's really important to evolve a positive and strong learner identity and we do that through positive learning habits. This is where the HPL comes in. The whole organisation needs to learn that if we stop still now, we are actually going backwards because times are changing so fast.

JR: In biology evolution does not always occur at a steady rate of change. There are periods of stasis and then periods of rapid change, an explosion, a proliferation of new species. This reminds me of threshold concepts. As educators we must understand that sometimes learners may be stuck at a level of learning, in stasis almost, but by going through a threshold concept they can make rapid progress in learning and understanding. Meyer and Land define a threshold concept as "akin to a portal, opening up a new and previously inaccessible way of thinking about something."

SD: Well, Thomas Khun is the man here. "The Structure of Scientific Revolutions" is his book, and he talks about paradigm shifts. What you are describing, I would say, is a paradigm shift. We are living in a paradigm shift moment of history and also, in terms of education with the new framework from OFSTED and the National Curriculum. We are just about to do a mini education paradigm shift but the shift in society is with technology and with global warming. All of those are combined and are

making a kind of super paradigm shift.

JR: Talking of technology, what do you think about the new AI systems that schools are beginning to use?

SD: I think that we are at the very start. It's the beginning of a debate about what it means to be a human being now compared to when I was a child and it's a completely different ball game now because of technology. We have generation Z who are not thinking, behaving or feeling in the same way as I did when I was a child.

JR: Sir Anthony Seldon writes about that in his book "The Fourth Education Revolution" when he says for him AI is the start of humans learning to become more fully human.

SD: I don't necessarily agree with him on that point. He is obviously an enlightenment thinker. He is a classic example of what we were talking about earlier; he is thinking too individually. The trouble with the whole of that enlightenment approach is that it is all about the individual and it fails to appreciate what is happening in groups and to society. So that's where my sociological training comes in because I'm always going to make the point, don't focus on the individual, focus on what is happening community wise. It's not enough to think in those terms, to think that by focussing on improving individuals through educating them to appreciate art or music, to become more fully human and flourish that this will lead to societal improvements. It's so selfish, it's so egocentric.

JR: Do you not think that the consequence of helping students to become more fully human would be a better society? If we produced 100 kids from Penzance that were as fully human as they could be, in all that means philosophically and ethically, would they then not go on to affect the world in a positive way?

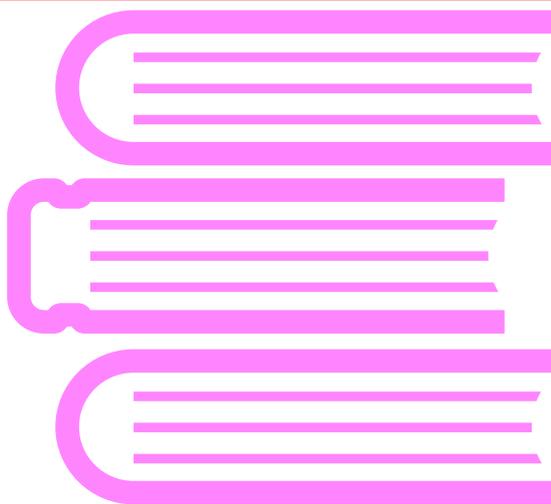
SD: If human flourishing meant community flourishing and it wasn't just about them, then yes, of course. It's not an inevitable consequence. I could give you examples of great stars who have gone on to do wonderful things, but they don't necessarily give back to their community. There is a danger that it becomes a little bit me, me, me.

JR: It's perhaps a symptom of the modern world.

SD: That's what I'm saying, you have just summed it up. The script of the modern world needs to be re-written and the paradigm shift needs to have that script to be about communities and not just about individuals.

JR: I just want to go back to Sir Anthony Seldon because I think I misquoted him earlier, what he actually wrote was, "We have schools 180 degrees wrong; we are educating our young to become more like machines, like robots; but digital technology and AI machines will always outperform us. Instead, we need to be educating our young to become more fully human."

SD: I absolutely agree with him but more than that needs to be done.



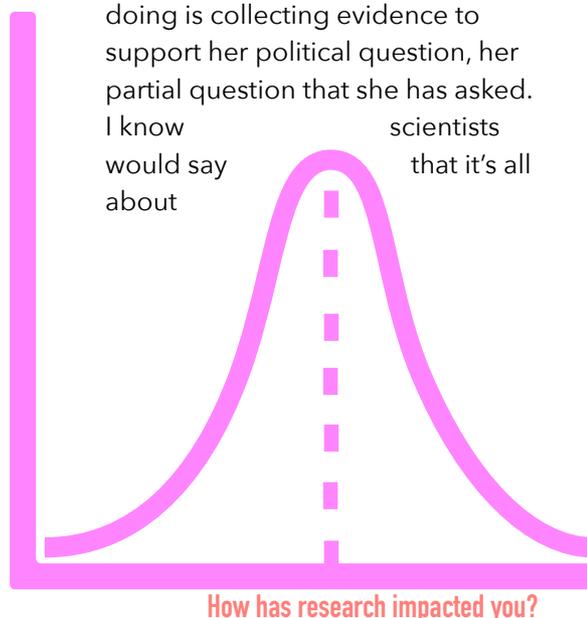
Of course he is working in a private school system where he has got lots more money and it is possible for him to do that with his youngsters. For youngsters who are not in the private school system, who are from a working class background in the public school system; they are having to compete with that and it is simply not a level playing field. So he is talking from a very specific perspective and context that is not universal.

JR: The final E is endurance which to me encapsulates resilience and grit, characteristics of high performing learners.

SD: I think that we have got to understand that mistakes are an integral part of what learning is. Mistakes can devastate you if you are not robust in your sense of self worth and self efficacy and self identity, so through relationships and positive experiences you have got to build young people who can make mistakes and understand that learning is all about that. That's where the grit and resilience comes from. It's just becoming mistake friendly.

JR: To bring in a comment about research I would like to mention the work done by Angela Duckworth in her book "Grit". And of course she also says that grit is not necessarily an innate quality but rather a thing that one can develop and get better at which brings us back to the growth mindset.

SD: I would say on research that it is fundamentally a political project. I don't think that people realise that. Some people have the deluded idea that they are being objective when they do research. The very question that any researcher asks is necessarily context specific, historically specific in terms of time and age and therefore clearly partial and not 3D. By the very selection of your research question you have a political agenda. So I would always be suspicious of all research and I would always ask the question "what is your political agenda?" You have just mentioned the work done by Angela Duckworth. I'm immediately thinking, hang on, what is the kind of research she has done, the kind of scales she has used to measure, that's a psychologist's very personal, individual question. And what she's doing is collecting evidence to support her political question, her partial question that she has asked. I know scientists would say that it's all about



hypothesis testing but that's not the reality always in science is it?

JR: Not always, but science as a methodology, as a philosophy, tries to remove as many of those baggages as it can.

SD: In sociology there are two branches of thought about social research. There is the branch that uses scientific methods and collects large scale quantitative data because it claims that it can generalise to the whole population and uses these samples to do that. What the group of people who use this method fail to realise is that they are politically biased because they think they are being objective but in my view they are not. They are inevitably partial. The other branch of research in social science is employed by the qualitative researchers who look at something starting from the micro, looking at something in depth, to get a real authentic picture of what's happening and then tell a story which can be generalised. Now, what I would say is that what one should do is a combination of the two to see where the truth meets in the middle. What the EEF fails to do, because it is rather inferior social science in my view, is it just

focusses on one branch. It does not try to triangulate the qualitative and the quantitative approaches. When you are studying human beings you are not studying atoms. You are looking at very complex systems with many factors and variables involved.

JR: You are talking about political bias with a small 'p' but let's talk about Political with a capital 'P'. I read a paper this week by Wolf et al titled "Do developer commissioned evaluations inflate effect sizes?" Which found that "Effect sizes for developer-commissioned studies were inflated, relative to effect sizes for studies conducted by independent researchers." Clearly this is Political with private companies using inflated effect sizes to sell their products to schools.

SD: That is an explicit and extreme example of my point that all research questions have a political component and one needs to identify the politics of all research questions.

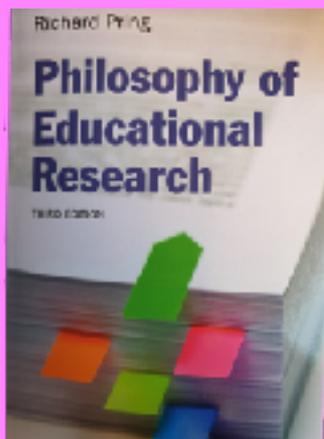
JR: How does one do that?

SD: This is where Socrates come back in to help us. You are

presenting a model of the work in which there is a single truth and research is aiming to find it. This is a scientific realist viewpoint. You could argue that relativism is important here. It depends on the time and the place. I have really struggled with this. Am I someone who believes in a single truth, or am I someone who believes in multiple truths? After years of thinking about it I will tell you where I have come down on this question; I am a realist because I do believe that there is a truth. This is based on my ethics, which is again why Ethics is one of the 6 E's and the truth is that we all know what is right and what is wrong.

JR: John Hattie writes of teachers that we should "Know thy impact." Maybe the single truth to which you refer could be simplified into whether or not a pedagogical strategy works for you in your classroom and with your students. I think it's incumbent upon teachers to work that out for themselves.

SD: I absolutely agree. Accept that there is a single truth, have a question that you then explore but be critical of it. Research should not be used to justify a view point, it should not be partial.



For some further reading we would suggest "Philosophy of Educational Research" by Richard Pring.

The three central themes running through the book are:

- The nature of social science
- The nature of educational enquiry
- The links between research, policy and practice



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Professor Ian Kinchin

Solving Cordelia's Dilemma: threshold concepts within a punctuated model of learning

This article was originally published by Ian Kinchin in the *Journal of Biological Education*. You can find out more about the journal at www.tandfonline.com/rjbe or visit the Royal Society of Biology www.rsb.org.uk for more information about subscriptions for teachers, schools and colleges.

Introduction

The idea of Cordelia's Dilemma (Gould, 1993) is taken from Shakespeare's *King Lear* in which Lear's daughters, Goneril and Regan, attempt to gain their father's favour by proclaiming their love for him in increasingly false and enthusiastic tones. Lear's third daughter, Cordelia, refuses to play the same dishonourable game of offering false praise for financial gain, and so says nothing in the belief that her silence would indicate that her love for her father was deeper than any verbal expression could convey. However, this is misinterpreted by her father who cuts her out of his inheritance. While Cordelia's response (silence) was technically appropriate, it was interpreted by Lear as no response at all. Her dilemma was therefore, either to respond inappropriately to placate her audience or to respond appropriately, but be misinterpreted as the audience was working within a different framework. This idea has been applied to the workings of the scientific community:

"Cordelia's Dilemma arises in science when an important (and often predominant) signal from

nature isn't seen or reported at all because scientists read the pattern as 'no data', literally as nothing at all."

(Gould, 2002: 765)

Cordelia's Dilemma was discussed by Gould (1993; 2002) as part of his explanation for the 'textual silence' exhibited in the palaeontology literature in its neglect of the widely observed phenomenon of stasis within the fossil record. The lack of documented commentary on stasis was interpreted by the community as an indication of the idea's lack of significance.

This status of 'hidden in plain sight' that Gould describes for the stasis that exists within the fossil record is also applicable to the periods of conceptual stasis within student learning. While there is extensive discussion in the literature that describes students' reluctance to relinquish misconceptions (see Carmichael *et al*, 1990; Driver *et al*, 1994; Pfundt and Duit, 1994; Wandersee *et al*, 1994, for reviews), this is typically framed in terms of students' failure to grasp accepted views rather than as a necessary part of their learning journey.

The literature focuses on the comparatively brief moments of change rather than the longer periods of stasis, as it is seen as a more interesting story to tell. Gould comments on the similarities between his work on the development of the concept of punctuated equilibrium in evolutionary biology with his observations on the nature of human learning:

"Only years later ... did I conceptualise the possibility that plateaus of stagnation and bursts of achievement might express a standard pattern for human learning" (Gould, 2002: 957).

This has been developed into a punctuated model of conceptual change by Mintzes and Quinn (2007):

"... conceptual change in science is most probably not a steady, gradual, and regular phenomenon, but instead it is marked by long periods of stasis and/or weak restructuring, interspersed with rapid, irregular, and explosive bursts of strong restructuring, in which higher-order concepts are replaced and integrated into cognitive structure."

We need, therefore, to start to see conceptual stasis as a phenomenon in its own right rather than simply the absence of change. Gould provides us with a clue to solving Cordelia's dilemma:

"The solution to Cordelia's dilemma - the promotion of her nothing to a meaningful something - cannot be resolved from within, for the existing theory has defined her action as a denial or non-phenomenon. A different theory must be imported from another context to change conceptual categories and make her response meaningful." (Gould, 1993).

The 'different theory' that can help us here requires us to move away from the assumption that learning occurs in a gradual and even manner, towards an appreciation of the punctuated nature of student learning. The mechanism for this may be explained by the action of threshold concepts within the curriculum (Figure 1).

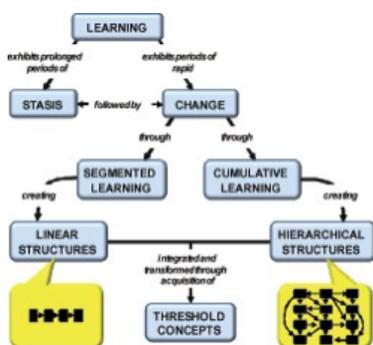


Figure 1. A concept map to show the links between the main ideas discussed within this paper.

Threshold concepts

There is an emerging theoretical framework, supporting a review of educational research and practice, that considers some key concepts within a discipline as thresholds that need to be passed before a student can develop his/her understanding beyond a novice level (e.g. Lucas and Mladenovic, 2007; Entwistle, 2008). Meyer and Land (2006) consider a threshold concept to be:

"... a portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress."

Meyer and Land offer a number of characteristics of threshold concepts that distinguish them from other important ideas within a discipline. Threshold concepts are likely to be:

Transformative: they result in a change in perception of a subject and may involve a shift in values or attitudes. *Irreversible*: the resulting change is unlikely to be forgotten. *Integrative*: it 'exposes a previously hidden interrelatedness' of other concepts within the discipline. *Bounded*: it serves to define disciplinary areas or to 'define academic territories'. Potentially *troublesome*: students may have difficulty coping with the new perspective that is offered.

Threshold concepts within biology are still to be charted. The nature of these concepts and the relationships between them are likely to be the subject of debate as the curriculum is reconsidered in terms of 'thresholds to be crossed' rather than as 'content to be covered' (Mintzes and Quinn, 2007). It is also likely that threshold concepts will start to be recognised as constructing a web within the discipline (*sensu* Davies and Mangan, 2007) that will emphasise the connectedness between elements of the subject. Some of these thresholds will then be seen as subordinate to others (Figure 2).

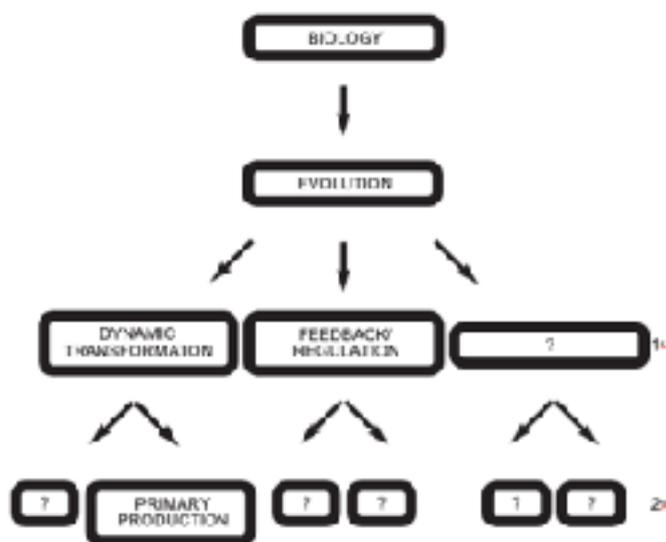


Figure 2. A tentative view of biology as a nested hierarchy of threshold concepts. Dynamic transformation and feedback/regulation are suggested as possible first-order thresholds. The disciplinary threshold concept of evolution is seen as the guiding principle for all subordinate thresholds. Most threshold concepts still remain to be identified within the discipline.

Consideration of threshold concepts in biology has been largely focussed on university teaching (Taylor, 2006; 2008). However, many of the fundamental ideas in biology are introduced within the secondary education sector, with universities assuming that those thresholds of understanding needed as a prerequisite for higher

education have already been passed. There is also the assumption that the degree of cognitive diversity (referred to as *pre-liminal variation* by Meyer and Land, 2005) that undergraduates exhibit will be reduced, with students having passed through several fundamental thresholds within the secondary school curriculum before approaching the micro-thresholds of the more specialised undergraduate curriculum. If unresolved at secondary level, fundamental thresholds may not be covered later within an increasingly fragmented and specialised view of biology that may be gleaned in higher education (as described by Gulyaev and Stonyer, 2002).

Candidate threshold concepts in biology

1. The disciplinary threshold - evolution

When Theodosius Dobzhansky made his much-cited comment that “nothing in biology makes sense except in the light of evolution” (e.g. Dobzhansky, 1973), he seems to have anticipated the notion of a threshold concept as one that both transforms and integrates the understanding of other ideas in biology. We can

consider evolution against the criteria for threshold concepts given by Meyer and Land (2003; 2006), that they should be transformative, irreversible, integrative, bounded and troublesome. The idea that the living world is a dynamic and changing system is at once transformative and troublesome. For many, evolutionary theory appears to conflict with other culturally held beliefs (i.e. religious beliefs), and may also be seen as counterintuitive - running against everyday experience - for example because of the timeframes involved in evolutionary change. Evolution has an integrative function in biology. An understanding of evolution brings the discipline together at all levels of focus from biochemistry to ecology. The criterion of boundedness may be more problematic than the other criteria of a threshold concept. The limits of Biology can be set as that which is physically influenced by evolution. However, the cultural context for understanding evolution requires that it interacts with ideas beyond the scope of biology (Anderson, 2007). At the macro level of the entire discipline of biology, it would seem that evolution is the disciplinary threshold concept that enables individuals, whatever their specialism, to *think as biologists*.

2. A subordinate threshold - the case of photosynthesis

Photosynthesis is known to be a troublesome topic within the secondary curriculum for a whole variety of reasons (see Driver *et al*, 1994 for a review).

“Students will memorise details of the process of photosynthesis rather than take the opportunity to think, in a holistic framework, about the significance of photosynthesis.” Taylor (2006: 90).

Students who have learned details of photosynthesis by rote are able to switch between frameworks to suit the context (Kinchin, 2000b), with students answering a GCSE question saying that *plants make food using sunlight*, only to tell you later that in their garden at home, plants *absorb food from the soil*. The elements that compose photosynthesis and combine to make it a difficult topic for students have been identified, but are considered in a manner that infers equal importance in gaining an overall picture of the topic (e.g. Kinchin, 2000a).

In order to fully appreciate photosynthesis, students have to disengage from the common belief that plants fundamentally act like animals and so must consume food from their environment. The concept of *production* in photosynthesis is one that needs to be acquired. However, even this is insufficient for the student of biology to appreciate the dynamic role of photosynthesis. Both production and consumption suggest a linear process. Carlsson (2002a; 2002b) has demonstrated how an understanding of photosynthesis in terms of *transformation* is required to be able to place photosynthesis in context alongside other environmental processes. This shift in understanding from a consumption model to a production model is troublesome for many students, but once

grasped is transformative, not only of plant nutrition but also of the energetics of ecosystems. The concept of *dynamic transformation* may, therefore, provide a threshold to the understanding of photosynthesis and other biological processes. Dynamic transformation is not a concept that would immediately spring to the minds of most biology teachers. The tacit nature of many threshold concepts is predicted by Ross *et al*, (2010) who emphasise that “while academics and teachers identify content knowledge as troublesome or problematic, the threshold concepts which underlie the

difficulty receive the least attention in teaching”.

Implications for teaching

Davies and Mangan (2007) have identified three important implications for teaching that stem from a consideration of threshold concepts:

1. The successful sequencing of threshold concepts requires that students have sufficient related prior knowledge for the threshold concept to have an integrative function. In other words, for integration to happen, students need the

appropriate cognitive ‘raw materials’ to work with. Therefore, the curriculum needs to provide opportunities for *segmental* and *cumulative* learning in ways that will allow the two to be complementary (Maton, 2009). [see box, p56]

2. The benefits of spending time on integrating prior understanding are likely to exceed the benefits of acquiring new knowledge that may remain isolated and unconnected. The degree of connectedness is an important issue that needs to be addressed when designing a curriculum to support the

Segmental and hierarchical knowledge structures

Several decades of research has shown that:

“all knowledge is not of equal value, that some propositions take precedence over others in the knowledge frameworks of experts, and that teachers and students should focus their efforts on those fundamental concepts that are critical to understanding.”
(Mintzes and Quinn, 2007)

There is an increasing recognition of the significance for student learning of the interactions between complementary knowledge structures in the development of expertise, creative thought and problem-solving abilities (e.g. Kinchin and Cabot, 2010; Vance, Zell and Groves, 2008; Hunter *et al*, 2008). However, one of the most well-developed conceptual frameworks for the generic consideration of the variation in knowledge structures is that based on Bernstein’s sociology of education (Bernstein, 2000).

Bernstein describes ‘horizontal knowledge structures’ and ‘hierarchical knowledge structures’. When elaborating upon horizontal knowledge, Bernstein (2000: 159) refers to a “segmental organisation” in which “there is no necessary relation between what is learned in different segments”. This resonates with the recognition of rote learning of content without understanding. In contrast to horizontal structures, Bernstein (2000: 161) sees hierarchical knowledge structures as attempting “to create very general propositions and theories, which integrate knowledge at lower levels and in this way show underlying uniformities across an expanding range of apparently different phenomena”. This resonates with the view of integrated expert knowledge structures that are often hierarchical in structure (Bradley, Paul and Seeman, 2006).

Bernstein’s work has been developed by Maton (2009) to consider how “curriculum structures play a role in creating conditions for students to experience cumulative learning, where their understandings integrate and subsume previous knowledge, or segmented learning, where new ideas or skills are accumulated alongside rather than build on past knowledge”. The segmented learning described by Maton equates to a surface approach that on its own would result from the serial acquisition of knowledge chains, ultimately leading to cycles of non-learning (Kinchin, Lygo-Baker and Hay, 2008). The cumulative learning that is described by Maton equates to the meaningful learning espoused by Novak (2010) that is typically represented by integrated knowledge networks. Combining hierarchical and linear knowledge structures has been described as a *fundamental problem* in education (Novak and Symington, 1982) and is considered necessary to develop expertise (Kinchin and Cabot, 2010).

students' construction of productive knowledge structures (Kinchin, Lygo-Baker and Hay, 2008). This provides an argument for not overloading the curriculum with content.

3. The devices used by experts to define and interpret problems in the context of their wider understanding often remain implicit in the course of teaching. By making the links explicit between expert understanding and teaching sequences, the process of theorising can be modelled for students, so they can themselves start to *think like biologists*. A study tool for visualising understanding (concept mapping) has been developed by Novak and his colleagues (Novak and Gowin, 1984; Novak and Cañas, 2007; Novak, 2010) and explored in the context of higher education teaching as a 'trigger for the development of a student- engaged pedagogy' (Hay, Kinchin and Lygo-Baker, 2008; Kinchin, Cabot and Hay, 2008).

Conclusions

One of the strengths of the threshold concepts perspective is that it places subject specialists at the centre of curriculum enquiry (Cousin, 2008) and may therefore help to provide a safe trading zone between disciplinary (biological) discourses and educational discourses. Indeed, Entwistle (2008: 30) has commented that introducing the notion of threshold concepts to teachers seems to "open up their thinking about the nature of knowledge", so that "threshold concepts act as a threshold concept about teaching

and learning". As such, consideration of threshold concepts in biology may help to have an integrative and transformative influence on the development of the subject. It is also anticipated that biologists' familiarity with the complexities of punctuated equilibrium in evolutionary theory will help to scaffold the conceptual jump to a punctuated model of conceptual change - rather as it appeared to do for Gould (2002).

A consideration of threshold concepts at different levels of resolution (macro and micro) suggests that students need to have crossed many of the macro level thresholds before making the transition to higher education. These macro threshold concepts should form the core of the secondary school curriculum. The connection of threshold concepts as a web helps to construct an overall structure for the discipline with the concept of evolution forming the overarching connection. Acknowledgement of such a web of thresholds may help to establish greater disciplinary continuity for students making the transition from secondary school to university.

Threshold concepts provide part of the solution to Cordelia's Dilemma. The thresholds create moments of transformative change whilst the periods of conceptual stasis, rather than being 'nothing', are required to assemble the raw materials that will facilitate that change. Thus stasis is a prerequisite for learning - continuous change could not be sustained and would not be desirable. Conceptual stasis is not the same as non- learning (Kinchin, Lygo-Baker and Hay, 2008). Stasis is

required as part of the learning process: 'lining up' the segmental and cumulative knowledge structures for subsequent integration. In non-learning scenarios on the other hand, there is never any explicit intent to facilitate such change and so only the context-specific segmental structures are provided - the complementary hierarchical/ cumulative structures are absent so that students are hindered in their development from novice to expert.

Certainly a consideration of threshold concepts will challenge the ways in which we think about learning and teaching biology (Ross *et al*, 2010), and will have implications for curriculum design and assessment procedures. No doubt there will be considerable discussion and disagreement in the coming years about the nature of threshold concepts in biology, and the candidate concepts that might fill the spaces that are currently blank in Figure 2. It may also prompt discussion about the links that can be made between secondary and higher education, in order to ease student transition from school to university.

Please see <https://www.kcl.ac.uk/study/learningteaching/kli/research/pres-pubs/c-mapping/cordeliasdilemmajbe44-2-kinchin.pdf> for a full list of Prof Kinchin's references.



Director of Research and Development for Applied Minds: John Rodgers

Metacognition

Metacognition is the awareness of one's own thought processes, enabling one to learn effectively. There is good evidence that metacognition, if used correctly, can have huge impacts on the learning and progress of students.

There are many ways for teachers and students to break down the umbrella of metacognition into manageable sub-divisions. The High Performance Learning organisation use the term Meta-Thinking as one of their Advanced Cognitive Performance Characteristics. Below I have listed their 4 sub-divisions followed by a description of the highest performance level.

1. Metacognition - use the full range of thinking skills fluently and comprehensively, including unconventionally
2. Self Regulation - make insightful observations and comments to continually refine and improve own personal best
3. Strategy Planning - Use strategy-planning independently as a way to solve problems or issues
4. Intellectual Confidence - synthesise a wide range of viewpoints and evidence to make a coherent and compelling personal argument

Of greater use perhaps is to sub-divide metacognition in the following way:

- Knowledge of Self
- Knowledge of Task
- Knowledge of Strategies
- Planning, Monitoring & Evaluating

The EEF have written a guidance report on metacognition, to be found here https://educationendowmentfoundation.org.uk/public/files/Publications/Metacognition/EEF_Metacognition_and_self-regulated_learning.pdf

This includes 7 recommendations for educators and schools.

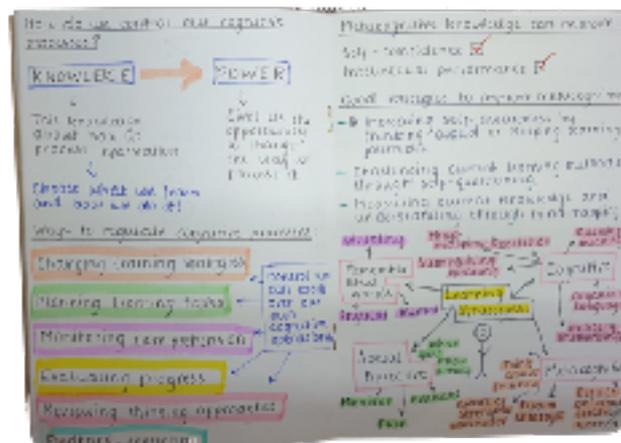
1. Teachers should acquire the professional understanding and skills to develop their pupils' metacognitive knowledge
2. Explicitly teach pupils metacognitive strategies, including how to plan, monitor, and evaluate their learning
3. Model your own thinking to help pupils develop their metacognitive and cognitive skills
4. Set an appropriate level of challenge to develop pupils' self regulation and metacognition
5. Promote and develop metacognitive talk in the classroom
6. Explicitly teach pupils how to organise, and effectively manage, their learning independently



7. Schools should support teachers to develop their knowledge of these approaches and expect them to be applied appropriately

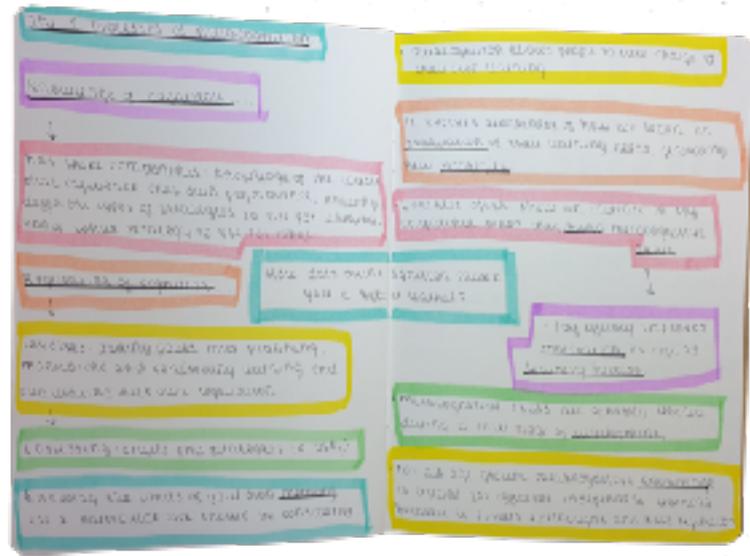
Last year I attempted a bit of in-class research to see if metacognition would help students in one of my science groups.

The first idea was a metacognition journal that the students would use to record any instance of explicit metacognition mentioned in my lessons. This focussed my attention on planning for such explicit episodes and allowed them to use the journal as a learning record as much as a useful book of strategies.



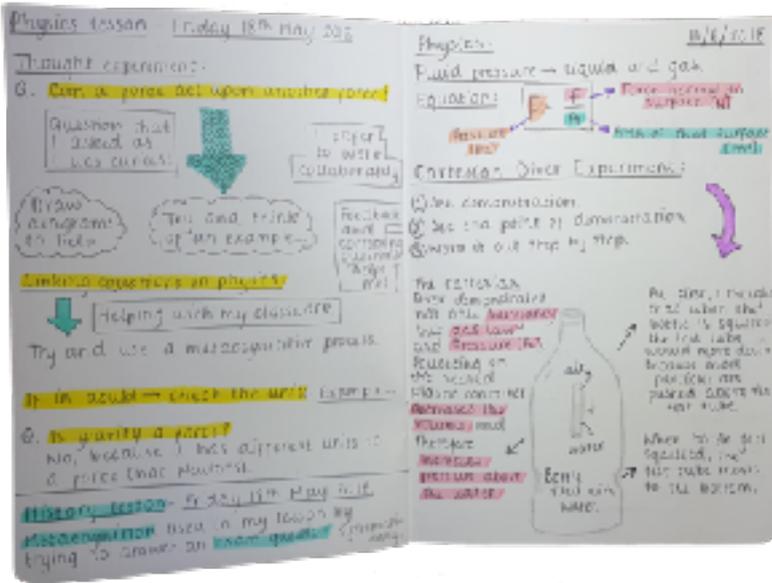
I quickly found that metacognitive strategies became embedded in my teaching. I soon got the hang of modelling my own thinking when going through exam questions, or approaching particular problems.

questionnaire that attempted to measure different aspects of metacognition. They then re-assessed



themselves at the end and had all increased in their awareness and effective use of each aspect.

to plan for 10 of the highest impact strategies. If you would like a copy of this or the metacognition slide deck, please email me at jrodgers@mountsbay.org.



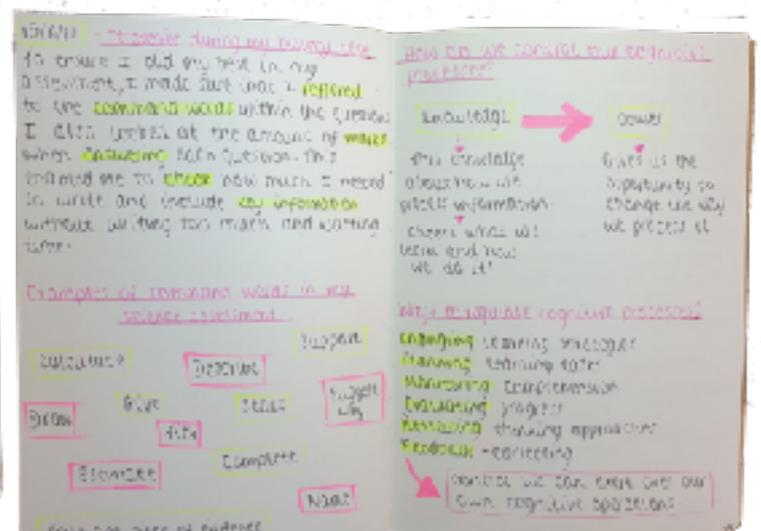
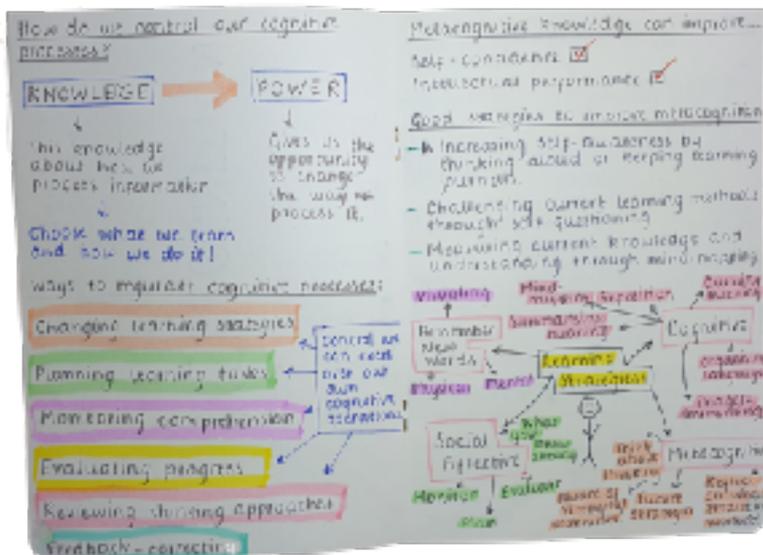
I directed the students to lots of YouTube videos on metacognition. I also used the internet, as we all do, as a source for other metacognitive strategies that I could try out in class. I have collected many of these, as well as my own ideas, into a Google Slide Deck. Opposite I have printed an Evidence Based Teaching version of the 5 Minute Lesson Plan inspired by the original but including space

Metacognition is a powerful tool to have in your cognitive toolbox. It can have a big impact on students' learning and progress.



Shown here are some photographs from the student metacognition journals. They were free to record what they wished in any method they wished. All I did was mention that a particular episode was "metacognitive".

At the start of the process each student also took a self-assessment



The 5 minute EBT Lesson Plan

....prompts for planning outstanding lesson that have high impact

The BIG picture?



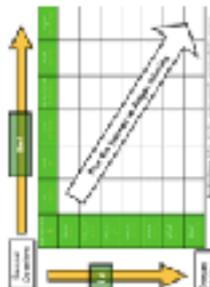
Feedback:

opportunities for quality feedback (Growth Mindset)



Objectives: — be clear what you want your students to learn

Questions: check understanding, BLOOMS & Q matrix



Collaboration



Learning Episodes

Tell students what they need to know & show them what they need to be able to do

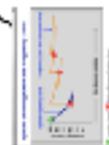
Strategies: ways of thinking and solving

Metacognition: opportunities for nurturing



Graphical Summary: opportunities to summarise info graphically

Spaced Practice/Revision:



Allow time for every child to succeed



Cognitive Biases: What they are and how to avoid them

The idea of cognitive biases was first developed by psychologists Tversky and Kahneman in the 70's. Almost all current theories of decision making and heuristics are based on their work.

There are 4 main groups of cognitive bias: **social**, **financial**, **failure to estimate** and **short-termism**.

Below we share a few that could be relevant in educational thinking. Opposite we present another model of cognitive biases from John Manoogian.

Social

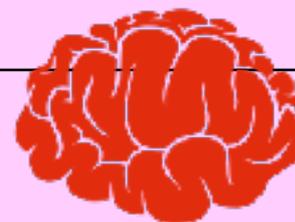
Bandwagon Effect: uptake of beliefs and ideas increases the more they have already been adopted by others

Blind Spot Bias: viewing oneself as less biased than others

Courtesy Bias: giving an opinion or conclusion viewed as more socially acceptable

Stereotyping: assuming a person has certain characteristics because they are part of a group

Financial

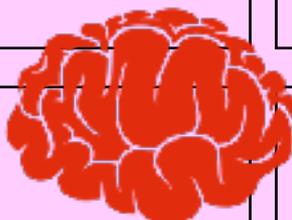


Endowment Effect: The tendency to ascribe more value to an idea or strategy because you already had it / are doing it

Hyperbolic Discounting: preferring a smaller, sooner payoff over a larger, later reward

Post-purchase Rationalisation: the tendency to retroactively ascribe positive attributes to an option one has chosen

Failure to estimate



Confirmation Bias: focussing on information that only confirms existing beliefs

Availability Heuristic: overestimating the importance and likely value of an idea given the greater availability of information (e.g. I have seen lots of stuff online about learning styles so it must be important and true)

Clustering Illusion: Erroneously overestimating the importance of small clusters or patterns in large data sets

Short-termism

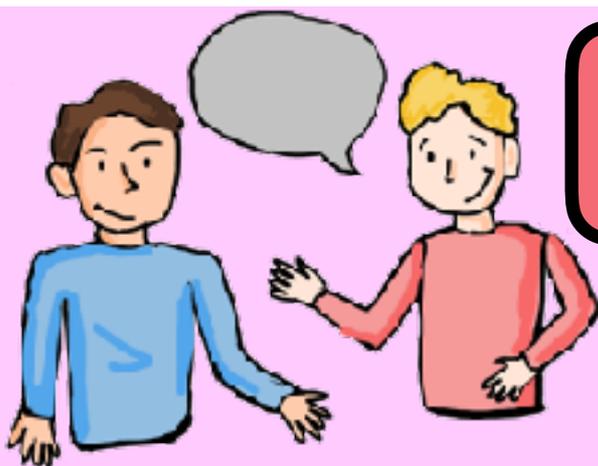
Anchoring Effect: relying too much on the initial piece of evidence offered when making decisions

Status Quo Bias: preferring the current state of affairs over change

Illusion of Validity: Overestimating our ability to make accurate predictions, especially when the data appears to give a coherent and consistent narrative

P.S. According to Lorwyn Randall at a recent meeting, teachers are 3x more likely to believe something if it has the image of a brain attached!

<https://www.visualcapitalist.com/18-cognitive-bias-examples-mental-mistakes/>



The Dialogue Pages

Conversations are dialogic. In a new feature starting this issue we present "The Dialogue Pages". Here we will publish articles, letters, questions and comments from contributors relating to previous themes, issues and content in The Conversation.

In response to the theme of the last issue, [Elle Wheatley](#), an SLE and History Lecturer at Truro and Penwith College, lays out her vision for the curriculum.

What should be in the curriculum? Why? What should the curriculum not include?

The curriculum we teach should, most broadly, prepare students for life as adults. It should engender self-discipline, self-esteem, open-mindedness, the responsible treatment of others, resilience and courage. Whilst there are compelling philosophical arguments against my rationale which, understandably, some readers will espouse, my reasoning here is informed by a Kantian sense of duty – that we ought to mentor and guide our students to hold themselves and others in equally high esteem so they are happy, in the Aristotelian sense of the word, and beneficial to society. 'To be happy' and 'to leave the world in a better state' are two overwhelmingly mainstream life goals and a curriculum which does not allow, or distracts us from, our opportunity and responsibility to assist students to these ends would be as useful as an outdoor toilet on a submarine. I think this is what the

government are aiming at with their 'British Values' episode (to instil those qualities, I mean, not refit submarines).

Our curriculum should offer the richest variety of subjects possible, to enable students to discover their natural talents and – all importantly – what they are passionate about. School is the prime opportunity for children and young people to develop passion in one or more areas of the curriculum, and because of this, subjects such as art, photography, languages, graphic design, music and drama must not be relegated in terms of either timetabling allocations or the language we use to attribute value to subjects. Discovering what you are passionate about is not only fun, but, once discovered, builds self-identity, self-confidence and ambition. The curriculum then should champion creative subjects as a way for students to achieve these beneficial outcomes which are a bulwark against some mental health problems, but also to take

responsibility for future employability and the vital role creativity will play in national economic terms.

The topics and issues we select to create our curriculum should certainly be diverse but also fascinating, if not enthralling. I can generate excitement over most things in life, but this general enthusiasm stalled when I recently purchased Triops for my son.



I sat down with the information booklet, however, and five minutes later my excitement matched his at the thought of growing tiny pond-life in a tank on the windowsill! It did not escape me that the author had executed a brilliant job in making the life of Triops seem absolutely compelling, and I think our curriculum needs to be filled with topics we have the conviction to 'sell' in this way. This is because the curriculum, and our delivery of it as educators, must fulfil the task of creating lifelong learners out of our students. This can be achieved through

enthusiasm, passion and expertise on the part of the teacher, of course, but also through modelling, by showing our students we continue to thrive and challenge ourselves through learning, whether we are studying post-graduate degrees or downhill unicycling.

Further to this, our curriculum must offer students access to language, ideas and forms of expression that ensure equality of opportunity. This is the key to our success as educators. My children know a sizeable chunk of *The Rime of the Ancient Mariner*, and, while 'Eftsoon his hand dropped he' is not going to come in handy in the playground, I want them to have been immersed

in a variety of cultural expressions so they are able to converse at different levels, some of which will represent the point at which the concept of class and the reality of unequal opportunity meet. The curriculum must empower students to feel



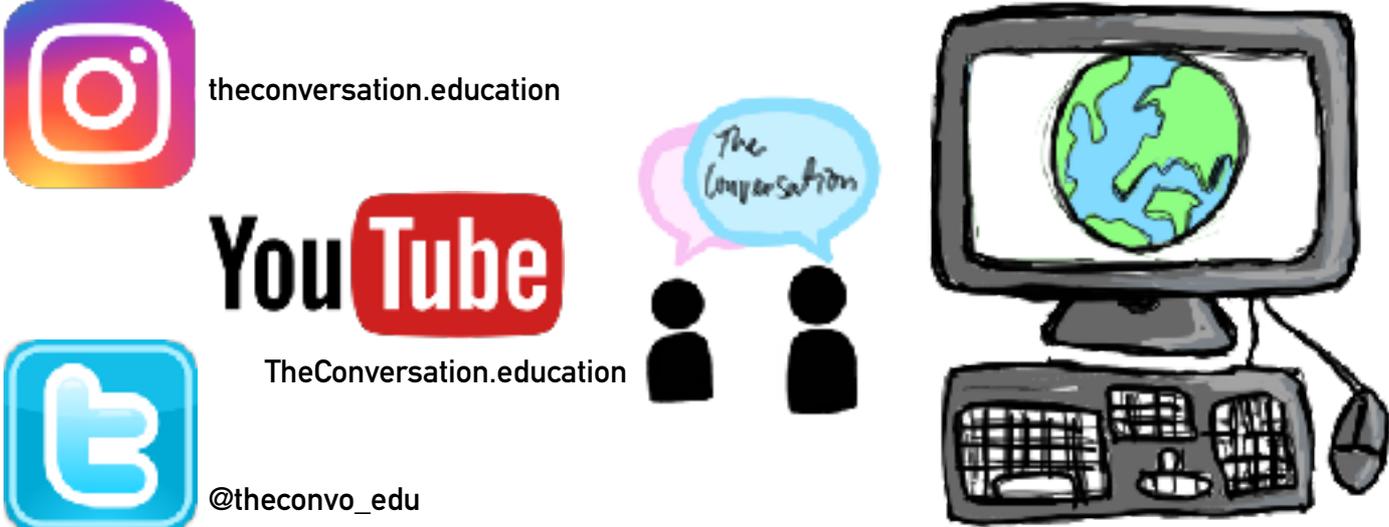
confident to engage in conversations which tend toward achievement and success. This is the purpose which stretches against the collapsing of our curriculums into a narrow focus on exams. Although both ostensibly seek student success, I suspect streamlined exam content proficiency is a short-term win at the expense of the lifetime of confidence and opportunities a broad and varied curriculum could afford.

Finally the curriculum should prioritise skills to help students succeed with their assessment and the practicalities of being measured in the workplace. Resisting the reality of a situation is both unhelpful and a

misuse of energy. Schools, like workplaces, measure success and hold people accountable. For as long as exam performance has currency as a measure of success, the curriculum should be one that provides the optimal contexts where the assessable skills that our students must demonstrate can be grasped, practised and refined. We must heed Bloom and uphold the distinctions between what students know and what they can do, instead of seeing content as an ecosystem ready to be populated with skills of increasing complexity.

We would love to hear from you and publish your ideas, thoughts, comments and responses in "The Dialogue Pages". To get in touch, please email, visit the website, our YouTube channel or check out the social media accounts.





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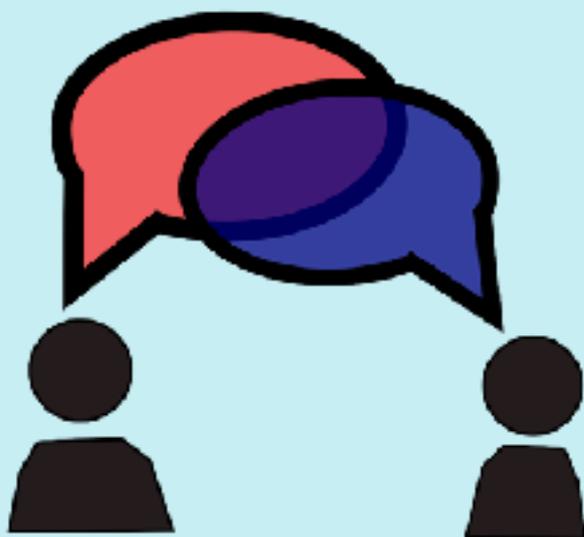
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The Conversation Manifesto



The Conversation has the following aims:

- To encourage more conversations between education professionals
- To increase incidents of serendipitous knowledge exchange
- To provide stimuli for conversations through the magazine
- To provide content that challenges, inspires and provokes
- To be a vehicle to carry content created by education professionals
- To provide a forum for conversation through the website & social media

The aim of this magazine is to stimulate conversation. Whether you agree or not with the ideas of our contributors please discuss them with colleagues. Be challenged, be inspired, **have a conversation**.