

Research Files Episode 10: Professor John Hattie

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Hello, and welcome to Teacher's latest episode of The Research Files. I'm Danielle Meloney. Today, I'm with Professor John Hattie. His 2008 book Visible Learning details the results of 15 years of research and synthesises over 800 meta-analyses on the influences on achievement in school-aged students.

It is considered to be a seminal piece of research into what makes a difference to student learning. Professor Hattie is here in Sydney for the Science of Learning Research Centre Big Day Out and the ACER Excellence in Professional Practice Conference, and has taken time out to chat to Teacher about his groundbreaking research and a new study on learning strategies.

Danielle Meloney: Professor John Hattie, welcome to The Research Files.

John Hattie: Hi, great to be here.

DM: First of all, can you tell our listeners about the aim of the research? What were you hoping to achieve back in 1990?

JH: I was trying to understand why everything in education ... works, why everyone can find a claim; I've never found a teacher who says they're below average, why every article we write always shows that this next thing works. And it didn't make sense to me that every time I met a teacher, I met an academic that could tell me what the answer was. So what I was trying to do was, could I put them all along a scale to get a relativeness of what was better than other things?

DM: So, what did the study involve?

JH: It was a synthesis of meta-analyses, I used other people's meta-analyses and I built on top of that. And that enabled me to get a reasonably large sample size and coverage very quickly.

DM: In the research, the influences on student achievement are measured by effect size. Could you explain to our listeners exactly what effect size is?

JH: Yeah, it comes from really two kinds of studies. One study is where you take a pre and a post test - so, a measure over time. From that, you can work out an effect size. Or you can take two groups. You can take a large versus a small class, you can take one kind of teaching versus a different kind of teaching. And, from that, you work out the means, the standard deviation, the spread, and from that you come up with this effect size which has the massive advantage of that you can compare it, regardless of the age of the kids, the subject of the kids, whatever the treatment was. They're all comparable, and that's its magic feature.

DM: It was in a school context. Were schools all around the world involved in the study?

JH: Nearly always in the western world - there's very few studies in the developing countries so I'd be very careful of generalising it. Primarily, [it was] students between the ages of four and 20.

DM: What are the implications of this research for school leaders and teachers on the ground?

Well the reason it took me the 20 years to write the book was to try to work out the story and answer that very question. The data aren't very difficult, many people can replicate it. I make the data completely available in all the books, and if anyone ever asks me. So it's working out that story about what the true implication is and it really comes down to not who teachers are, not what they do, but how they think. And if they think primarily that their job is to evaluate their impact all the good things follow. And that's a dramatically different notion to how many people see the teacher's job.

DM: Finally, what are the next steps in terms of the research in this area, and for other researchers around the world?

JH: I'm excited with things that are happening now. There's a group in Germany who is doing the same that I did to achievement, they're looking at motivation and affect. David Mitchell has just published a book doing the same that I did with special education. We've [the team at the Science of Learning Research Centre] just finished a meta-synthesis looking at learning strategies that students can use to make an effect on their actual achievement. And they go from looking at mnemonics, memorisation, self-regulation, talk aloud – lots of different strategies. In fact, we identified 480 of them. A lot of them are subsumed under the name of 21st Century skills, and there's lots of advocacy out there about that. And so what we've done, we've done a meta-analysis. It's not as large as the one in Visible Learning – it's only around 20 million students that we have in the sample. That's trying to say what learning strategies are most effective.

It turns out the answer is not as simple as it was in Visible Learning. In the achievement one there were very few moderators, there were very few things that actually made a difference. It didn't matter if you were five or 50, Physics or Phys-Ed. It didn't make much difference. But in this one it does. It dramatically differs in terms of the strategies when you first encounter something, compared to when you want to embed it and fully understand it – the strategies differ.

Take memorisation, when you first encounter something memorisation has a very, very small effect size. But when you want to embed what you've learnt, memorisation is incredibly powerful. Take problem-based learning. If you look at learning surface material – content – problem-based learning is pretty useless. In fact, it can be negative. But once you've got the content – and that's critical – once you've got it, to go into deeper learning, problem-based learning can be very effective.

The other thing that we've found is that the hardest thing in this business is to understand how to transfer your learning from one situation to the other. And it's been a dirty secret in education for many, many decades that it's very, very hard to find transfer. And certainly what we've discovered is that if you are given a problem,

in maths or history, and you do it, and then you're given another problem, the absolute important thing you must do as a teacher is stop the student. And, before they apply the strategy to a new situation ... they need to stop and say 'What's the same and what's different about these two problems?' If they don't do that students learn to over-generalise the solution and apply it anywhere, even if it doesn't work.

And so what we've looked at is that: we're looking at the difference between surface, deep and transfer, when you first learn and when you embed it, and the different strategies. And certainly where we're working at the moment, is that we've identified the three or four top strategies in each of those parts. We're now looking at the best way to teach them and the best way to measure them - and it's fun.

DM: Professor John Hattie, thanks for sharing your work with The Research Files.

JH: It's great to be with The Research Files.

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