



I'm a Scientist: Supporting Science Capital

Our research found that students' experience of *I'm a Scientist* (IAS) aligns well with the Science Capital Teaching Approach (SCTA) and its pillars of *Personalising and localising, Eliciting, valuing and linking* and *Building dimensions of science capital*.

The study indicates that all the elements of *I'm a Scientist* together (CHAT, ASK, VOTE and so forth) form an integrated whole, through which the SCTA is enacted and which contribute to building students' science capital.

After speaking to the scientists, it gave science and everything that follows a bit more of a sense of reality, because I've never spoken to a scientist before. So it kind of made it a bit more reachable as a goal, and it makes you understand that no matter where you come from or how much knowledge you have you can still work for it.



Student

We were talking to him about snowboarding and stuff, yeah, it's just like they're normal people that are doing research, I guess.



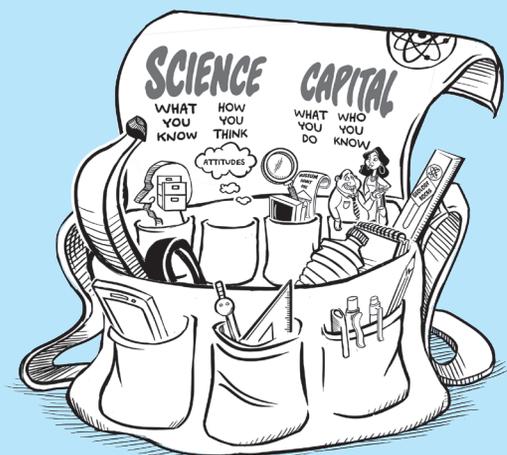
Student

What is Science Capital?

Science Capital is a set of resources that helps individuals engage and identify with science. Young people with higher levels of science capital are more likely to see science as 'for me' and to choose to study science subjects at a higher level.

The Science Capital Teaching Approach (SCTA) was developed to support young people's engagement with science. It involves three main pillars:

- 1. Personalising and localising:** going beyond contextualising, to connect to the actual experiences, understandings, attitudes and interests of young people
- 2. Eliciting-valuing-linking:** inviting students to share their own knowledge, attitudes and experiences; recognising these has having value; and connecting this back to the science
- 3. Building the dimensions of science capital:** considering the eight dimensions when developing activities, lessons or programmes



SCTA Pillar 1 Personalising and localising

I'm a Scientist is online, pseudonymous, and informal. These characteristics encourage students to ask personally relevant questions and have direct interactions with scientists that create a sense of authenticity.

Anonymity breeds confidence. Being out of the spotlight of a face to face meeting makes it easier for students to ask questions that are personally relevant to them:

[face to face] I would get extremely nervous and start mumbling, make no sense... they wouldn't be able to understand me.

Student

If you had a more personal question about, their life or something, you might think, oh, other people aren't interested, but if it's online, like, it's easier to do, so...

Student

Students getting their questions answered directly by real scientists, is absolutely central to the impact of *I'm a Scientist*. Knowing who is answering the question (and that it's someone they know something about) contributes to a sense of authenticity and trust:

Their specific questions get answered. It's that one to one interaction, that personal interaction. There's a to and fro and they can continue with the conversation and other people can kind of chip in.

Teacher

In addition, while the immediacy of the live chats contributed to a sense of connection and of getting to know the scientists personally, the extended length of the activity and being able to ask further questions in ASK further supported this connection:

[when] asking them in person you might only have limited time to talk, but online it's over about two weeks – so if you think of [a question], later that day you can always put it on there, it doesn't necessarily have to have it there and then.

Student

SCTA Pillar 2 Eliciting, valuing and linking

The ASK section and, especially, the live CHATs, map on well to this second pillar of the SCTA. The very nature of the experience elicits students' interests and experiences, which they can express via their questions. By replying to the questions, scientists value what students have offered (or asked), reflecting that these are the kinds of questions that do belong in a science lesson/science context – broadening 'what counts' in this setting.

The interest showed in their responses from our questions, they seemed really eager to answer our questions and to, like, show us what they do.

Student

Having a VOTE highlights to students that a science context is one in which what they bring is valued.

Voting is good, 'cause it makes you want to know more, to make sure that your vote is, like, good, so...

Student

I very much sold it on that aspect of the power is in your hands, you decide. So I think that is a real big part of the whole experience.

Teacher

SCTA Pillar 3 Building the science capital dimensions

Our research found evidence for IAS supporting four dimensions: *Science literacy (1), Seeing science as relevant to everyday life (2), Knowledge about the transferability of science (3), and especially Knowing people in science-related jobs (7).*

The heart of *I'm a Scientist* is connecting students with scientists. The programme allows students to get to know a range of participating scientists and come to develop a rapport with them. Our research found that through IAS, students come to see scientists as 'normal' people, developing understanding of their lives outside of work and having 'clever scientist' stereotypes challenged.

They also develop a better understanding of work in science: of the diversity of jobs, the routes into them, and the nature of the work.

Scientists as people

A key science capital-related outcome, which often comes from knowing people in science-related jobs, is that of seeing scientists as 'normal' people, who might be 'like me' and who work in jobs that may be possible 'for me' as well. That is, *I'm a Scientist* helps 'normalise' scientists and jobs in science for participating young people.

One feature of *I'm a Scientist* that helps normalise scientists are the live CHATs, in which a conversational rapport between scientists and students can often be seen developing.

He's just very enthusiastic, every answer you have is, like, he gives his own opinion on it, which really makes his answers strong and it really makes a statement, yeah.... He gave really explained answers.

Student

Student: *have you ever heard of panic! at the disco??*
(scientist): *@Klance15 I used to listen to them growing up!*
St: *yaay danny, you know panic!*

The range of scientists who participate also increases the odds that students will encounter one with whom they can form a personal connection.

Because there were so many different categories of science you could ask any question, and at least one of them would have the answer.

Student

Such an impression is further reinforced by the scientist profiles, which reflect the scientists' lives, not just their work, and are designed to let their personalities come through.

It makes them a bit more human, even though obviously they're over a computer, I like that they had their profile, what are their favourite foods and what their favourite joke was, I thought that was a really good touch.

Student

One specific way in which *I'm a Scientist* helps make scientists appear more 'normal', is by challenging stereotypes of scientists as extremely clever. You don't have to be intelligent, you have to try hard. And if you try hard then you can achieve anything you want.

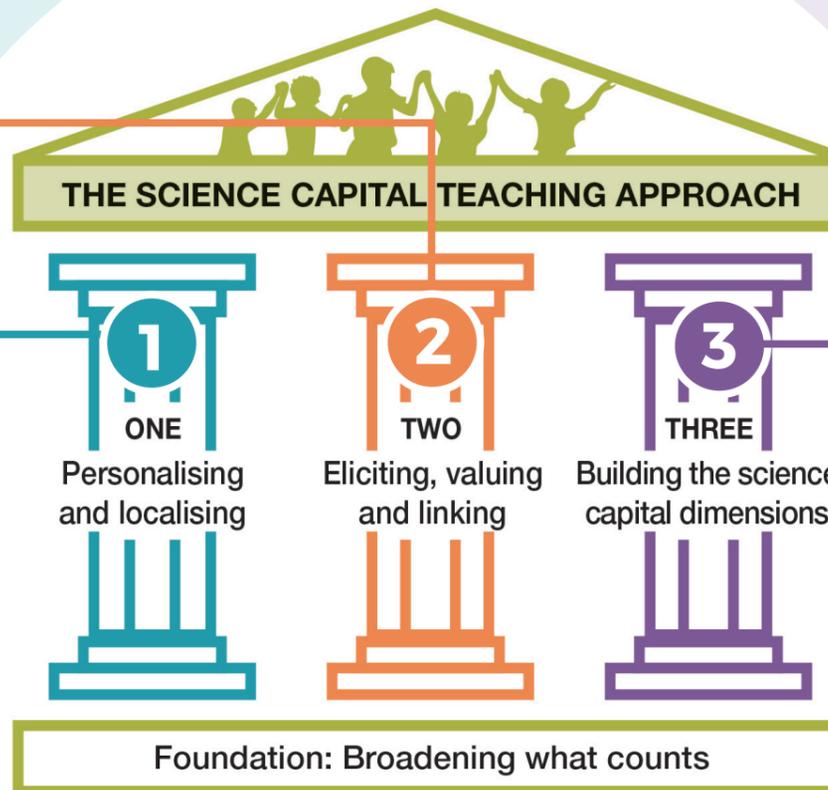


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Work in science

IAS helps students become more aware of the diversity of nature of, and routes into jobs in science. It challenged students' impression that a job in science was all-consuming and based in a lab.

Originally I thought it took out most of your time and you wouldn't have much time to do anything else, but I realise that you have a lot of time to have hobbies still, your job isn't your entire life, it's just a part of it.



Student

IAS also challenges the belief that becoming a scientist needs to have been a long-held ambition.

I learnt that u can be whatever u want to be and science doesn't have to be your favourite subject to be a scientist



Student

Other science capital dimensions

While *I'm a Scientist* clearly and strongly supports Dimension 7 of science capital, our research also found evidence linked to Dimensions 1, 2 and 3.

Science Literacy

Dimension 1

Students reported learning science content, for example, about global warming and how it affects sleep patterns.

Seeing science as relevant to everyday life

Dimension 2

Some of the survey responses also suggested an increased sense of the relevance of science:

I have learnt that science is related to everything we live for



Student

Likewise, in the focus groups, there was some indication of the way in which *I'm a Scientist* made science seem more relevant to their lives and interests, especially compared with science lessons:

*Well I found it easier (to connect science to my own life) in *I'm a Scientist* because you could actually talk to people that know about what you want to know about*



Student

Transferability of science (skills, knowledge and qualifications)

Dimension 3

Our research found some evidence of increased awareness of the transferability of science. In line with this, some students seemed to feel that a science qualification might be more relevant to their interests or aspirations (even if those are not in science).

Research methods

The evidence in this report was gathered between November 2018 and April 2019 through five focus groups, six teacher interviews and analysis of survey responses, questions and CHAT transcripts from *I'm a Scientist* Zones occurring during that time.

About the researcher

Following over ten years as a Senior/Research Fellow at King's College London and UCL Institute of Education, Jen DeWitt, PhD, is an independent research and evaluation consultant. Internationally recognised for her work on ASPIRES and research and evaluation on informal science learning and enrichment, she is a member of the core team developing and applying the concept of science capital.

What is *I'm a Scientist*?

I'm a Scientist, Get me out of here (<https://imascientist.org.uk>) is a student-led, online science enrichment activity where students interact with scientists. One of its main aims is to encourage students to engage and identify with science, supporting the development of aspirations in science and coming to see it as 'for me'. In attempting to achieve these aims, *I'm a Scientist* has been strongly informed by research around science capital.

About Mangorolla CIC

We're a social enterprise running online student-led enrichment programmes to provide an equality of opportunity for students regardless of where they go to school. Our team has been running online engagement activities since 2003. It's been fulfilling.

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