

Participant #3

Field: Environmental Science

Rank: Professor

Q: Why did you choose to become a scientist?

A: It wasn't so much a choice, but a trend from choosing science subjects at school, then doing a science degree at university and a PhD place opening up that was science based, then a postdoc. What I have done is move from being in a very biological, pharmacological department, move into botany, and then moved into environmental science, and now moved into geography and environmental science. So, it has been a progression of moving away from laboratory based studies into more field work and paleo based studies. I definitely don't feel that I've stayed in the same discipline and that's had its challenges, trying to learn new stuff all the time. I haven't stayed in the same place either, so you make new contacts, and I actually think that's quite important to do. I've had colleagues who have been here [current university] for 30 or 40 years. I'm kind of glad that I had that shift.

Q: How would you define what a scientist is?

A: That's a good question. Being in geography I have many colleagues who were scientists who have become geographers, but never a geographer that has become a scientist. I would say that being a scientist is a way of creating hypotheses that you can test using either experiments or test using data. So, to be a scientist you don't need to work in a science department, for example, if you're looking at theoretical linguistics you're building models of language all the time. You're using data for how people speak, to me, that's science. Whereas a non-science subject would be more qualitative approach, or conversational approach, maybe even your own bias feeds the research you do, and you can get something out of it but in science you're meant to be as unbiased as possible. So, I guess that's the big difference, the objectivity.

Q: Some define scientists as being truth seekers or perhaps as explorers, would you agree with that? Or would you describe your work in a different way?

A: I don't. I guess ultimately they are all trying to get to some kind of truth thing, but again to me that sounds a bit kind of pretentious. 'I'm really trying to seek the truth out of this, some holy grail.' For me, it's about gaining knowledge that ultimately can have a benefit in society. When I'm trying to work out how a lake has been impacted by pollution and I want to go back in time and look at the historical records to see when the pollution started, was it because of human activity or was it some sort of another cultural cause or industrial cause. So, there's

that kind of seeking truth, I guess. But I would rather call it knowledge creation rather than a truth, I think.

Q: When you were younger, perhaps as a teenager, is that how you understood science? As objective, truth seeking, or knowledge creation?

A: I don't think it was ever presented to us like that, but it definitely, if your brain works a certain way, at school you're kind of like honed into 'oh, you're good at analyzing, you'll do the sciences.' So, from a very early age it's instilled in you that you should play to your strengths at school. But I guess I didn't really think, 'oh, I'm going to become this great scientist.' But you want to keep on learning, so it's the direction you go down. And, I think, if I was being honest, I grew up in a very rural area and going to university was a way out. So, it could have been anything. It could have been science, it could have been humanities, it would have been anything to get to that first stage of education. It's just that I was good at science.

Q: When you're getting ready to publish, what do you look for in a journal?

A: When I'm publishing I look to a journal that I think has the best fit and audience for what I want to get across, and so I don't tend to go down a really specific disciplinary journal route. I tend to choose journals that are more the broader discipline. But I don't look to publish in high impact factor journals like Nature and Science for initially personal reasons and now I've kind of gotten over that. So, I guess, general disciplinary journals.

Q: So, high impact factor isn't important to you?

A: No.

Q: Do you feel pressure that you're supposed to value that?

A: Yes. When I first applied to a promotion to a Reader and I didn't get it, I was really quite upset, but the Dean came to see me and said, 'The reason you didn't get readership was you should be publishing in Science and Nature, you should be the top 5% of your field.' That kind of stuff. And this is a person who was telling me this who had much fewer publications records than I did, and I was just a lecturer and he was a Dean. I was absolutely shocked that to get promotion at any kind of level that you need to publish in, what I would say, these vanity journals. I thought it was absolutely abhorrent. I vowed that I would never try to publish in those journals to get promotion. So, now I'm a Professor and I've down that. You do feel a pressurized to publish in those sometimes, but I think that's wrong, and I actually think it's quite amoral to put that pressure on the people. I've kind of gotten over it now that I

have a Professorship and if I want to publish there then I will, but I would never ever have that put on anyone. And in geography, you don't need it.

Q: Do you not see your students feeling that pressure because of the field?

A: I wouldn't put them under that pressure. If a PhD student came up some brilliant data that challenged the way we thought about something, I would say to them, 'OK, maybe this is worth a really high impact factor journal, because it's going to get lots of readership,' but I would never say that you must publish here.

Q: Do you see your colleagues or collaborators outside of geography feeling that pressure?

A: Yes, especially in the harder sciences, biomedicine, the pressure to publish in Cell or something. Even some of the younger colleagues here have done their PhDs in the UK, but have gone to America to do their postdocs at Yale and stuff, and they've come back --- and those younger academics when they've been in America have been pushed into publishing in Nature or Nature Geoscience or Nature Climate Change --- and they'll come back with that ethos, this is how they think, they know how the journal thinks, and their first protocol will be to try one of those journals. And if they don't get it in, they just go down this list. You know the acronym for PNAS, post Nature and Science. So, if you don't get into Nature, then go to Science, and then go to the next. But I'm just not interested in that. I think if you're encouraging PhD students, you should be encouraging them to publish in the best place possible. If all you're going to say is try to publish in a journal that is going to publish 90% of manuscripts immediately, that's not good encouragement for people. If they do get it in, does that make you better than everyone else? No, of course it doesn't. It just means that that journal thinks your subject is trendy or on trend at the moment. And it won't be in six months time.

Q: When you were a PhD student and postdoc, did you feel a pressure to publish?

A: No. And again, maybe that's being in geography department. There's definitely a pressure to publish your results, because what's the point in doing the research if you're not going to get it out? And funding bodies, why would they fund you again if you had no output from it? So, there is a pressure to publish, but a kind of good pressure to publish, for the good of society, or you've done all that work. There's all sorts of ways you can pressure people into publishing, but for good reasons, I think. And looking back on where I would first be publishing it was based on reputation. I looked to where my peers were publishing, what journals they were selecting, and was it a good journal, right, I'll try to get into there.

Q: You drive to publish seems to be the belief that your work and research should be shared, is that accurate?

A: Yes, I think there's a responsibility to ensuring that your work tries to be published whereas before there was never that kind of responsibility, but the way that our funding of science and research in general has changed it's much harder to get funding now.

Q: Do you think there's a greater pressure to publish coming from funding bodies than universities?

A: No, but I think that there's an obligation on you to try to get your data or findings out there. So, how long should you have your data before you put it into a repository that anyone can use? That type of thing. That really started to get going about 15 years ago, but now I see it becoming more and more essential that people do that, the funding bodies are requiring that whereas before it was voluntary. So, before I didn't see a need, you do your PhD and you don't get your data out, it's fine, but now I would say when I talk to my students, do your PhD, give them [data] to me in a way that'll become obsolete and we'll see about submitting it to a repository in 2 or 3 years. So, I think that has changed a bit and there's an obligation to get as much stuff out whether it's thought up and written as a paper or if it's the raw data themselves and other people can work on it.

Q: When it comes to publishing and citations, do you feel someone's status as an academic scientist is dependent on publishing and being cited?

A: Yes, absolutely. If I'm being honest, if I'm talking to another academic and they hardly have published at all, I would question... maybe I'm being snobby... but I would want to know in my head, why haven't they published in the last five years? I'd be questioning, has something happened to them? Or are they just not publishing? I think, again, I'm probably being a bit snobby, but would I put as much kudos on what they were doing as a researcher? I'm not sure that I would.

Q: Why do you think that's is?

A: I'm not sure. It's quite easy to publish now. There's a lot of journals out there. So, if they're not publishing, and that should be a big part of their academic career, are you really being a true academic? Because you're basically not doing a third of your job or 40% of your job, so what are you doing?

Q: Do you think that's tied into how you've learned to judge science as trusted peer reviewed publications that are being cited?

A: I actually don't place much on number of citations. Because you can have a methods paper that has hundreds of citations, but you have something that you think is your best work and it doesn't get any citations. I am equally guilty of writing a paper and the title and the abstract is wrong, and nobody is going to read it, because you haven't done the most that you could, I think. So, I am not that hugely bothered by citation rates, but I am bothered by someone who isn't publishing. I would want to know why they aren't publishing. I think that's important partly because as I become more senior I've had responsibilities with working with the REF and are people publishing, and being deputy head of education for the department. I see most people working really hard to do the research and the teaching and the admin, and when someone isn't doing the research they are basically getting paid potentially 50, 60 grand a year for not doing 2/5ths of their job. That's unfair on everyone else. So, my skepticism comes from them not being a great researcher, but them not being a great academic, because you always got those three things you should be doing.

Q: What role do you think Open Access has within science?

A: When you're looking to place your own -- from an academic point of view -- when I am looking to place my own research in greater context, and if I'm working from home I cannot access many articles, and that is annoying. So, just from a very general level there's a media block to what you can discover by things not being Open Access. so to take that to a greater level is that I can eventually find that article, I can come into work or I can go through a server, but if you aren't part of a major university like [university name] the chances are that you'll never have access to the article unless you pay 30 dollars or pounds. These things have been paid for already usually by government money, so I think there's a huge restriction on knowledge dissemination and ultimately knowledge creation by things not being Open Access. That's not to say that everything has to be Open Access all at once, these things need to be paid for, science is not cheap, but it becomes a bit more crystallized when you see the levels of profits being made by publishing companies, which are 35-40%, not even the huge multi-nationals like ICI even have that level of profits. We seem to be happily going along with it and I think that's problematic. That needs to be looked at.

Q: Earlier you mentioned how academics aren't doing their full jobs without publishing and that this work is being funded often with governmental money. Do you think that if science is being publicly available?

A: I don't think that not being Open Access means that it is closed. By far the majority of things I publish are for other scientists in my field to read, so I'm not publishing for the public. I think in the last five or ten years there are greater emphasis on public engagement with the

research you're doing. So, I don't think non-Open Access means closed, but again I think that the thing that gets me is the profit margins. I completely accept that all companies need to make profits or they wouldn't exist. It's been suggested to me that maybe universities should take over publishing. I don't think that's the right way to go down. Publishing companies are good at what they do, but it's costing a lot of money to do the research and it's costing a lot to get it published and I think there's a bit of double dipping, so that needs to be looked at.

Q: One final question. A previous interviewee told the story about their supervisor, that the first time he published he was excited, but the first citation is what made it important to him. Do you feel the same way? Did you experience that?

A: I am of the age, back in the early 1990's, where I would have every Friday these request slips specially made that you'd post to the author of the paper and then they would send you a PDF of that paper. You'd have 25 or 100 PDFs that the publishing company would give to you. For me I remember being very excited asking for a copy of my paper. You couldn't get anything hardly online then, it was all done through libraries, so then that was very exciting to me. You didn't know who was citing you at the time, people didn't tell you were being cited, so that didn't really exist. So, the exciting thing for me in my early career was getting these slips asking for my paper. Okay, people are interested in the work that I'm doing.