Transcript

Hello, and welcome to *Doing Science Differently*, a podcast that explores issues in the culture and practice of research. We interview experts working on making the world of science a better place and learn how their pragmatic approaches can change practice in the lab or clinic.

Today, Constantin-Yves Plessen will be talking to Noémie Aubert Bonn about publish or perish, and her research on what success in academia means.

Yves
Hi, Noémie, thank you so much for joining us today. Let's dive right in. Could you tell us about your personal journey from psychology and cognitive science to meta research? And what motivated you to change fields?

Noémie
Hi, Yves. And it's very nice to be here. I think this is a great podcast, and I'm looking forward to listening to the other ones. So, what I, when I decided to change fields, so I'm someone who always thought that she wanted to do research, I was very passionate about the brain, about understanding humans, and how the brain works. So, I was studying cognitive neuroscience. And as you probably know, and as probably some of the people in the audience know, psychology is a very competitive field. So, there's a lot of people wanting to do psychology, and you have to be good to stay in. You have to be productive and be successful to stay in the field. So, from the beginning of my bachelor's degree, I was already told that I had to publish, and I had to create a network and do a lot of activities that were not necessarily there to help me advance my research, but they were there to advance my career. So that's kind of normal. And I, I followed the flow for a little bit. But then after a while, when I was in my master's degree, I helped my master's supervisor, prepare a tenure dossier. And then I realized all of the administrative work that went into a research career. I realized how much of the emphasis is put on the publications, and on nothing else. I mean, we were working in the lab all the time, doing amazing experiments, creating software and experiments online for people to, you know, like, all the fun and interesting stuff, crunching data. And none of that was considered in the tenure dossier. It was just – what did you publish? What did you present? What kind of money did you get? And that was it. So, then I realized, wow, if we do, I really love to do research. I really love to do science, but I don't want to do it just for the publications. I want to do it to increase knowledge and to do something that, to me, is valuable. So, at that point, I started to question how science work. And why do we need so many publications? And why are the publications organized in such a way? Are they, why do we need to convince people that all our results are positive? And that everything we looked for worked? Why do we need to prove the hypothesis? And all of these things came into my head, and I became very unhappy with the research that I had, that I was doing, because I felt that I couldn't be entirely honest. And then I thought, well, okay, I want to address this problem. I still like neuroscience, psychology. I'm still really passionate about that. But I wanted to address the problem of the overemphasis on publication, the pressure to publish, and the problems of the biases in how the publishing system works and what is expected of it. So, this is when, this is at the end of my master's in psychiatry. Then I decided to switch, I did a second master in bioethics looking at research

integrity, more particularly. I also worked as a scientific editor to understand a bit more how the editing process works. And then I decided to continue in meta research and to do a PhD in looking at research integrity, but from a perspective of the system and of how research assessments and research evaluation impact research integrity.

Yves
Thank you so much. That's a very interesting story on how you got into meta research. You already touched on research integrity. To many people this just means don't steal data, don't make up data, don't torture data until it confesses what you want to hear. What does research integrity mean to you after looking at this for so long?

Noémie
Yeah, that's a, that's a very good question because research integrity is quite often defined as what it is not. So, we say, to do research with integrity is to not conduct misconduct. And so, it's quite limited, we don't really have a definition of what integrity is and what it means. And it's so much more than just not committing misconduct. So, when you think about it, misconduct itself is broadly defined as falsification, fabrication and plagiarism of data. And if integrity is anything that is not this, it means integrity would be everything. In my view, it's a bit different. So, there's, first, when we talk about research integrity, about research misconduct, there's not just misconduct, but there's also questionable research practices. And so, these can be practices that are, you wouldn't be fired for them, but they're still damaging to the buildup of knowledge. So, they're still not helpful to advance science. For example, p-hacking, so trying to find the tests and the results, that is positive among your million tests, and just reporting that, not reporting the negative findings, creating a hypothesis after you have your data, so you make sure that you're going to, your results align with the hypothesis and *et cetera*. There's a lot of different questionable research practices like this. And I think research integrity, well, research integrity really also goes into these practices, and into creating, acting in a way that does not include these practices. But I also want to bring up a positive side of integrity. So, it's not just not doing negative and damaging practices, but it's also about actively embracing responsible research practices. And by that, I mean, even if you're not conducting any misconduct, and you're not conducting any questionable research practices, you can create, produce research in a way that has more integrity. For example, you can be more, as open as you can, you can be as transparent as you can when you report your findings and your result. You can make efforts to make your work reproducible when you can. This is all part of integrity as well. And I think it even goes beyond just the research system. Of course, this is not in most definitions of research integrity, you wouldn't hear about that. But I think it goes also into creating an environment that promotes research integrity around you. So, for example, when you peer review other people's research, putting in the effort to do helpful and an honest peer review, to me that's also part of research integrity. Also, adequately supporting and supervising students, being collaborative, being respectful. This is all elements that in your practice, and in your daily practice, they impact the integrity. So, it's really, in my view, research integrity really targets everything, of the research environment, of the research practices of a researcher. And, yeah, it's, it's something much more broad than just not committing misconduct.

Yves

It's really interesting. Was there something that maybe has surprised you doing your research on research integrity?

Noémie

Well, so you see, right now, in the beginning, the research that I was doing was really looking at misconduct and questionable research practices. And that was in 2013, I think. So then, the definitions of research integrity were not, it was not so much on the priority scheme. It was not so studied, still at that point. And we really focused more on the negative sides of it. But then, now the project that I'm doing, for example, it's a project called SOPs4RI, it's a European Commission project, and I'm helping in that project as a postdoc. And in that project, we, we created a topic map of all of the topics for research integrity, and if you look at that map, it's everything. It really targets everything because we realize that research integrity is not just about these commitments, but it's also about the whole system, the environment in which you are, the interrelationship that you have with your colleagues. And all of these things are embedded in the concept of integrity, they impact integrity, integrity impacts them. So, it's really something that's more interlinked with everything that researchers do. So, in a way, yeah, it is surprising when you reach that point, I think I did it so gradually that I didn't have the surprise effect. But now I, I realized, I couldn't go back to just seeing research integrity as not misconduct, and not questionable research practices.

Yves

Oh, it's really interesting, I would like to dive a little bit deeper in how research integrity can be in line with academic success, but also how it might be detrimental to success. So, before we dive into this, I would really like to get to know some definitions or conventional definitions of scientific success, and what is currently rewarded in terms of career and prestige.

Noémie

Yeah, okay. So. So, you know, that I conducted my PhD, the one of the first question in my PhD was – what is success in science? And what do we really mean by success? And what I realized, and what most people will be able to relate to, is that the way we look at success in science, is normally we look at the outputs of the research. So whatever researchers do, we take the outputs and by that, I mean, the publications, the patents, if there was any patents, and then the citations on these publications, the impact factors of these publications, and also the success of the researcher in obtaining funding. So, this is like the loop. So, the very beginning and the very end of this is all most of current research assessment, look at this, to decide if a researcher will be successful. We don't look at the process, we don't look at the other elements like the teaching quality, the supervision quality, the peer review quality, all these things are not assessed. So, what we realize is that research assessments are very limited in what they look at, but also in how they look at it. So, at the moment, it's mostly focused on metrics. So, we don't, let's say you want to assess if a researcher has good publications, you're not going to read the papers. You're just going to look at the number of publications they have, the impact factor of the journal where they published it. Maybe if you, even more lazy, you look at the h-index. So, you have one number for a mix of number of publication and impact factor. So, we use limited outputs. So limited overview of what the researcher is actually doing, using limited and reductionistic metrics to look at these few outputs. And

this is basically what defines success right now, if I'm being a bit over simplistic, but yeah, this is a bit how it works. And so, what does that have to do with research integrity? Well, it's a, there's quite a big connection here. And I cannot, I don't have the data to say it's a causal relationship, of course. But we know, for example, that research assessments shape the practice of researchers. So, we know there's a very interesting paper by Sarah de Rijcke from Leiden University, where she showed, they studied the outputs of different countries when they change regulations for research assessments. So, when they move towards impact factors instead of publication counts, and you can see that the publications patterns really change. So, we know that the way we assess researchers changes practices. Now, do we know that wrong assessment mean wrong practices? Not necessarily. But we know from the literature, for example from the literature on research integrity, that most research on research integrity blames pressures, competition, and wrong incentives for misconduct, for questionable research practices. So, we know there's a link there. It's not causal, but there's a relationship there. And also from well, from experience and from logic, from just understanding how our system works. And it seems logical that the correlation is there as well. So, from my PhD research, I conducted focus groups and interviews with different stakeholders asking them about success and about problems of science. And what I found was that many of them said that there's the problems lead to problems in practices. So, for example, we overvalue the outputs. So, what do we encourage? We encourage quantity, we encourage people to produce a lot, and not necessarily have high quality because we use reductionistic metrics, so the quality doesn't really matter. We normally ignore the processes of how research is done, so that discourages rigor. And, and you don't want to spend all the efforts of making your research reproducible, and transparent, and *et cetera*. So, it changes the practices like this. We also expect exceptional outputs. So, people are not tempted to be realistic. We're tempted to make a story out of our research, to make it more grandiose than it might be. And we also look at researchers individually, and in a competition, so we discourage competition, or we discourage collaboration, sorry, and also, openness. People want to keep their data to themselves until they're ready to, until they've published everything they could, and then they will share their data with others.

Yves
Are you in favor of developing or using an open science metric, like an open science score that claims 98% open or something like that?

Noémie
Well, I'm always, I'm always a bit dubious about metrics, like just very, very simple metrics. I think we need more visibility of the open science. We definitely do. And while you probably know about the badges on the paper, that's something we could count. We could look at the percentage of open access papers that teams have. But at the same time, I think it would be one of the key elements, and I'll probably get back to that later, but one of the things we need is more diversity in what we look at. So, if we say, okay, we drop all the impact factors, we drop everything, and we focus on open science. So, we want everything to be open, and this is going to be our, our aspect of quality. You will get back to a system that is reductionistic. That is looking at something that has probably more value, but at the same time, that can be gamed, and that that can be played with. So, I think yeah, we need more visibility to open science. We need people to explain why they open their science as well, and how they open it because it's one thing to put a massive data file, cryptic data file online. And it's another thing to make an open code where

you describe everything and where you make it user-friendly for other people to reuse. So, we need more diversity and more options for people to do good science in general. But it's a good question.

Yves
Maybe going a little bit in a different direction. For a very long time, the idea of a successful scientist was this alone single genius, having great ideas and then publishing some very flashy findings. But recently, some scientists within the community have become skeptical about these ideas of single genius scientists. Could you maybe talk a little bit about the skepticism and how team science has emerged?

Noémie
Yeah, yeah, that's a very good question. I think, I think even in movies, even today, if you watch movies, and there's scientists, it is still depicted in that sort of distracted and crazy genius that works on his own in his garage. That's really, it really stays with the perception of the scientist for the public. But more and more we realize, I mean, we're all scientists, I don't work in my garage, I work in my living room, which is quite the same. But it's, it's still, science has become so interactive and so collaborative that it's, it doesn't make sense to think that someone could work on their own. So, there's the conception of seeing the genius scientist, as someone who is, first of all, a genius. So, a genius in what? A genius in everything – and then working alone? And then having, making experiments that are completely innovative, and not dependent on funding. That's, that's completely unrealistic. But what we're realizing more and more now is that, even if we know this conception is unrealistic, we still continue to evaluate scientists individually. So, when you ask for a grant, you don't ask – so what's your team? What's your role in the team? And how do you work within your department? We ask you – what's your CV? What have you published? And why are you the leader of this field? But if everybody's a leader of their field, that makes us in a very difficult situation. And that doesn't make us have a very good team to advance the knowledge. So, I think we need, we are realizing little by little that we need to look at different profiles. We need to embrace the fact that there's different skills and not everyone has the same skills, and not every PI needs to be publishing 100 papers. And not every PI needs to supervise 20 students. Like we have different things that we're good at. And we need more diversity in, in what we recognize. Also, to create teams that are functional. I often use the example of a soccer team. So, if you have, it seems like in science now, we have PI are all meant to be strikers. So, we want a soccer team, football team if I'm more European, so we want a football team full of strikers. We don't have any defenders, we don't have any goalies. We don't have, we, we don't even have the coach, like. It's just everybody has the same role, and it will not work for. Yeah, I think we're not helping science by expecting this typical uniform view of the researcher.

Yves
That's a very, really great metaphor. Thanks so much. What way of looking at being successful in science would you prefer?

Noémie
I mean, I've been trying to say that in quite a few very lengthy papers, and I still don't have, I don't have an answer I could say in a few minutes now on a podcast. But what I, what I think is really important is that we have to, we have to start looking at why – why do we evaluate researchers? And what do we expect from researchers? So, if we want to hire someone, or if we want to fund someone, there must be

a reason for it. And in most companies, so not in academia, but in most companies, they would look at the profile of the person and see – does that fit in the team? Does that fit the role that we want? And does that fit, yeah, what we want to achieve by hiring or by funding this person? And in science, we sort of have a different view of, we evaluate people to see – are they the best in their field? And are they the most leaders, and the ones that have done the most? And if yes, then they deserve the money. It doesn't work like that. If we evaluate someone, we need to find a reason why we evaluate them, why we give them the money. Are they the right person to do the task? Are they the right person to do the job? And more and more, I think this is becoming, this is picked up in funders application. So, for example, now they ask you, they don't ask you for your list of publications, they ask you for your five most relevant publication. Not your five most impactful, your five most relevant for this call, and then you explain why. This is, I think this is the system that we're going towards, and it's what I would like the most. So, a system where people are assessed for, yeah, for what you, for their qualifications in undertaking the role. But at the same time, we also have to consider diversity. We also have to consider that not all profiles can be compared. So, there's different levels of seniority. There's different profiles. Some people who start an academic career at 35 years old, they don't have the papers than someone who started at 20. But they might have an amazing experience in the clinic or industry that they can bring to a team, and it can really enrich the way the research works in that team. So, I think we, we have to be very qualitative. We have to think when we assess people and be more, I would say, subjective, but it's not subjective, you know. Like just to consider the different elements that we are looking for and to understand if, if these elements are in the person, and if the person will also benefit from the position itself. It's not very clear.

Yves
No, that's really great to hear that I'm more than my h-index. So, I believe this really inclusive way of looking at the scientific career is just nice to hear about because even me, as an early career researcher, I'm aware of this publish or perish culture. And feel bad if I don't, I don't know, publish like three papers a year. So, it's nice to actually combine so many different ways of looking at success. One thing I found really interesting, to see the concept of luck pop up in your research time and time again. Could you maybe tell us a little bit about what luck has to do with success in science?

Noémie
Yeah. Well, that that was a super interesting concept. So, when I conducted focus groups and interviews, luck kept coming up. As I was asking them – what is a successful researcher? And then there was always luck coming up. And then I started, like, looking at my transcript, and I decided to look at where this luck come up. So, I looked for, to search for the term 'luck', and I found it everywhere. And I realized that luck is used to basically explain where the system fails. So, it's kind of weird but let's say a student had bad luck, he was unlucky, because his experiments were negative. So, this was considered to be bad luck. They considered it's so unlucky the experiments were negative. Instead of saying – well, the student had negative experiments, but the system doesn't work well because we didn't consider the negative experiments. So, then we blame it on luck. Also, the same for good luck. So sometimes they were saying – oh, he was just a lucky, lucky researcher. He got ahead or he was lucky, he was in the right topic. So, these were researchers that were not necessarily more deserving than others. But they moved ahead faster than the others. And then, instead of saying, yeah, the way we evaluate researchers might not be so fair because some people move ahead of others without deserving it more, without the real reason.

Instead of that, they said they were just lucky. So, I thought it was an interesting concept that kept coming back again and again as something that is needed for success, and as something that when you don't have it, you can fail even though you're excellent and you deserve to become a full professor, you know.

Yves

That was so sad actually to read that babies are considered bad luck. So that a baby, oh terrible, actually, is not really great in the current system to advance your career as a researcher. It's really strange.

Noémie

Yeah, that's an, now you make me think of something else. But yeah, that's, uh, I think it's a way to explain, I see it as a way to explain that our system is faulty. So, when you say it's bad luck, instead of saying it's bad luck, we should say – oh, we need to fix this – you know. But yeah, the fact about the babies and about the mothers, one of the other things that I understood from my respondents was that one of the biggest elements for success was having time. And a lot of people mentioned, you know, it's people who stay after working hours, it's people who stay in the office, and they work all the time. So, on the one hand, you can think, okay, well, hardworking people are more successful. But on the other hand, and then there's one of my interviewees that mentioned this, woman who have children at home, or parents, it can be a man, but parents who have to pick up their children, they cannot stay in the office over time, they cannot stay until 8pm, and then go pick their children up. So having a family, having a life outside of academia, was also seen as bad luck, and as something that could block you from becoming successful.

Yves

Could this bad luck or this just faulty system be the reason for academic brain drain, so that people just have to leave academia at some point?

Noémie

Well, that's, that's interesting. So, you raise a good point. So, I don't know if it's the same in all countries. But in Flanders, in Belgium, where I did my research project, I understood that for every 10 PhD students that start in research about one or two that will become a faculty researcher. So, there is a huge brain drain from academia to non-academic careers, let's say it like that. Is it because people want to have children? Is it because people want to have a stable career? Well, it can be. But I will also say that there's also just not enough senior positions. So, there's studies, and this is not my work, but there are studies that have been done with PhDs and postdocs in the Netherlands and they showed that, I think, I think 68%, I'm not entirely sure about the percentage, but over 60% of PhD students want to continue in academia. They want to become a professor and 10 to 20% managed to do it. So, it's not that everyone who leaves does it because they want to. And also, another point that's quite important to consider, in the people that I interviewed, I included some people who left academia. So, some people who started either PhD, well, either they left within a PhD, after a PhD, in a postdoc, or even in a professor track, so tenure track, and I interviewed them about their experience. And I realized that for all of them they felt like a failure. So, they felt it was not like – oh, I left academia, it was awful. They had, there was a bit of

that, but there was also a bit of – I wasn't good enough or I gave up. I was not, I didn't have enough time. Someone said I'm the idiot that gave up. So, we had this kind of feeling of failure that kept coming back and back again. And I realized, this brain drain is not necessarily just because people want better jobs elsewhere, but it's also not always a choice. And when it's not a choice, it can become very damaging for the people.

Yves

It's a really interesting, especially because PhD students seem to be an infinite resource. So, a lot of people try probably to stay within academia, but there are just not enough positions to fill. Maybe we could switch a little bit to solutions to these problems we have been, we have been speaking about. Would you think just limiting the number of PhD positions would be a feasible way of dealing with this?

Noémie

I don't really have an answer for you for that. I tend to say no. When I started my PhD, I thought – why do they accept so many? There's not so many positions afterwards. And that was one of my strong position. Then I read a lot of articles, especially from the US. There's Bruce Alberts, who did a lot of well, a few articles describing these issues in the in the US. And they say that we should not limit the number of PhD students because this would be limiting education to a selected few. And I have to agree with that. I think what should really happen is that we change how a PhD works. So, if we know that only 20% of PhD students make it to academia. Let's not make a PhD just the first step of an academic career. So, let's teach PhD students something else. And not just how to publish papers and how to live in the academic system. But let's teach better skills to everyone, also those who continue in academia. But I think we really need to build a more versatile skill sets for PhD students, for PhD education, so that people, when they leave academia, they don't feel like they've only learned how to live in academia, now they start a new job, and they don't know how, how to deal with it. They're over specialized. I think we really, we have the room, and we should teach more diverse skills to the PhD students. We should also prepare them so that when they start in academia, we don't just talk about the professor, and we also help them navigate the system and navigate the chances that they have to remain in the system. And finally, I think it's really, really important to also train the supervisors on what it means to be a researcher right now. What it means to do a PhD right now. Because there's a few papers in the literature that show that supervisors, as soon as you tell them, you don't want to stay in academia, or, as soon as it's clear that you're not going to stay in academia, they give you less attention. And they care less, and they're not open to talk about careers beyond academia. So, we need a real education and awareness raising at the level of the supervisors as well, if we want to change this, this issue that the brain drain is causing right now.

Yves

That's really interesting. What would you recommend to a current early career researcher on what to do to have a successful academic career, but also to not sacrifice his or her research integrity?

Noémie

Just do meta research because then you can be, you can study what you like. Now, I, I'd say, luckily, things are really changing and they're changing really fast. So, I think young researchers right now, they have more room to, everybody understands the meaning of open science, for example, which was not the case five years ago. And now because of the European Commission, the Plan S, the fact that most funders are asking you to publish open access articles, to publish the data. There is much more awareness. So, I think this is coming in all levels of research integrity. So, if you're a young researcher, I would say follow what voice what you believe in. So not necessarily only published preprints, which is what I wanted to do initially. I thought, I will just publish preprints, I will not deal with publishers. That didn't really work out. But voice it. So, when you have a chance, when you have a discussion with your supervisor, say what you believe in. Follow what you really think is important in science. I'll give you one small example from my own experience. So, I really think that authorship is something problematic in science. This is not because of the results of my PhD, it's just my personal perception. I think authorship creates a sort of hierarchy. And I really think we should move towards credits, so can alter contribution using the credit taxonomy. And I told my supervisor about this, and I explained how this works. My thesis is only with contributions. I don't have authors. It's all contributions of who did what in each chapter. And I really see more value into that. So, I think, by discussing about these issues you make people aware of the problem, and then you can change things little by little. How to be successful, even if you don't, even if you only follow your integrity, I'm, I'm in the wrong position to answer that. Because really, I could, I could push for, I changed fields, because I wanted to follow my own integrity. So even if I am not successful, I don't really care, I want to follow my own integrity. But I know, I understand that not everyone has this luxury. I can maybe pinpoint you to a good article from some friends, colleagues of mine. So, I don't know if you know, it's a short article in *Insight*, in the journal *Insight*, which is fully open access, and it's from Véronique De Herde, Toma Susi, and Mattias Björnmalm. And they just talk about their experience in navigating the system of trying to be successful and trying to be, to have an academic career while remaining with the highest standards of ethics and integrity. So, I think it's quite interesting to read their experience. And there's a lot of room to, to play with. But I'd say the most important thing is to be honest, and to voice what you think is wrong, because then things are really changing.

Yves

We will definitely link to the article you mentioned in the show notes, and I will have a read. Thank you so much. Maybe on a similar note, how can early career researchers engage with these types of questions on research integrity and research assessment? If they also want to dive deeper into these themes?

Noémie

Okay. Yeah. Well, there's, there's a lot of opportunities. I think I'm very lucky because I, I see a lot of the circles of meta research. And then, every time you go to a conference, you meet a lot of groups that are just there to discuss these questions and to discuss these issues. I can, I can say, there's always a community of young researchers that, I say young, I'd rather say there's always a community of early career researchers who will try to fight these problems. In all the countries I've done conferences, in their work, local groups from the university, sometimes it's the library team, sometimes it's the little group that's been built by students. So, there's always some small communities in different universities, journal clubs,

et cetera, where you can raise these issues. And if there's none in your institution, I would say it's really worth, maybe, starting one. Speak with a few colleagues, and then say – why don't we start something like that? Also, on the internationals, on the international scene, there's a few things existing. So, I don't know if you know about ReproducibiliTea. So, it's t-e-a, like the drinking tea. So, they're journal clubs that are organized in different cities, and I think now they even have online versions of these journal clubs. They read papers, a lot of them on meta research. And they discuss the papers. And they also create a forum for discussion. So, these are very good forums where you can discuss these ideas, where you can talk about it. Also, another thing that's really good, is that a lot of journals and funders and different types of organizations are now looking for early career researchers. So, I don't know how to tell you to, how you can find this. But I know for example, that UKRI in the UK, has an early career researcher forum. I think a lot of publishers, and editors, organizations are starting to have one. *eLife* has one, the Research on Research Institute. Like there's a lot of meta research happening. And we like, when more people join us. So, the community is there, the discussions are there, most of these conferences, because we are so pro open science, most of the conferences will be free. So just get into a conference, random one. Start chatting and join the Slack group. And there will be a lot of exchanges there. I'm pretty sure.

Yves
That's really great to hear. Overall, our discussion made me quite optimistic that things are changing. Sometimes, I'm also confronted with this argument that change is not coming fast enough. What is your perspective on that?

Noémie
I am always the optimistic person. I mean, I was a, I changed field because I was thinking that I could, that science could change. And if I'm honest, between the day I started my PhD or the day I left my field and started doing publication ethics, the first presentation I did was about the over-production of papers and about the publication ethics around that, that was in 2012. And nobody was talking about it. It was, I just felt like, I was discussing with some publishers and some editors, but people were not so interested into that. And now, we're exactly 10 years later. It's booming everywhere. Most people know what DORA is. This is something that even three years ago, nobody knew what DORA is. Most people understand how preprints work, thanks to COVID, maybe. But there's so much of an explosion of awareness and consciousness around these issues. That I think it really is changing. Because one of the points that we need to consider is that we're in a problematic system, we're in a system that has a lot of problems. And it's very difficult to change the system. It's, it seems impossible. But this system is also a system because it's made of people. And now that the people are starting to change, we're starting to change the cultures for real. And I'd say it is changing. There's big institutions like the European Commission, that is, they just published a plan that they want to move towards a reform of research assessments. Well, this, this is huge. This is so many countries involved at the same time. Wellcome Trust has also, which is a big funder in the UK, also has put public awareness on the issues, the Global Research Council. So, these big, big, big players are getting in the game. But most importantly, the researchers are becoming more and more aware. More and more active. More and more, yeah, they, they own the problem, and they want to change for real. So, I, I'm staying optimistic and saying that in a few years things will have changed for real, concretely. And, of course, it's never going to be passing from one system to another and the other is perfect, but these little changes will really make a difference.

Yves

Thank you so much for this prognosis. I'm looking forward to maybe finding you at a conference in 10 years and congratulating you on your correct prediction that this went in the right direction. And thank you also so much for this interview. I would like to end this episode by asking you one last question, is there a book or paper that stands out to you, and that you would recommend to our listeners?

Noémie

Ah well. So, there's a lot of great resources out. There's really a lot that is happening. A lot of books that shaped how I view things. And I, I'm happy to send you a list later on. But I want to say if, if you're a young researcher, or an established researcher or a senior researcher, who's interested in the topic, I'd say follow the DORA website, the blog. They have resources, they have cases, and it's really showing the state of affair of the debate right now on research assessments. Also, a lot of points relating to research integrity. So, for the most up to date information, that's where I would point people to. And then I'll also add some books and some more specific papers on specific topics. But for anyone interested, I think the DORA website, which is sfdora.org. is very, very useful. And I'm not paid to say that by the way.

Yves

Perfect. Thank you so much for your time. It was a lot of fun talking to you.

Noémie

Thank you so much.

Doing Science Differently was produced by the SPOKES Think Tank, a group of early career researchers funded by a subproject of the Wellcome Trust Translational Partnership at the QUEST Center at Berlin Institute of Health.

This episode was hosted and produced by Constantin Yves Plessen. Credits by me, Christine Knoll. We would also like to thank Constance Holman, Friederike Kohrs, and Tracey Weissgerber for their help running the SPOKES program.

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