

Uncertainty in academia (27)

[00:00:00] Hi I'm glad you are joining the ETH podcast, my name is Jennifer Khakshouri.

[00:00:08] And with this episode we're ending our series on uncertainty but we're continuing the ETH podcast.

[00:00:15] In today's episode we're talking about the usual uncertainty in research and academia.

[00:00:21] We'll hear two two people with two different perspectives. My name is Eric Burns, I just recently graduated from the

[00:00:30] doctoral program at ETH. I was studying in the department of chemistry.

[00:00:37] And I conducted my research at the Paul Scherrer Institute which is a Swiss ETH level domain research institute.

[00:00:44] I've done a lot of farm yards of work of farm fields of Aargau.

[00:00:49] I just finished my PhD about 2 months ago so I'm really happy to look back and review some of my thoughts

[00:00:58] especially about uncertainty. Eric who grew up in the United States is in the middle of the trail

[00:01:04] finding out where to go and what to do with his degree and he is searching for a job right now.

[00:01:09] The other guest is on the other end of the academic and work trail but despite being a senior she still very active her name is Helga Nowotny.

[00:01:19] I am a professor emerita of ETH Zurich and the former president of the European research council.

[00:01:27] Helga is an internationally recognised science researcher and she has been a professor of social studies of science at the ETH Zurich.

[00:01:36] She's still in various scientific advisory boards in and outside of Europe and Helga

[00:01:42] published several books, one of them is called "The Cunning of Uncertainty".

[00:01:47] I have a much more positive attitude towards uncertainty than many other people, there were some moments in my life when I

[00:01:58] weight

[00:01:59] pro and contra and I could really not decide on a rational basis and then I thought "Well you know, this is chance" and I trusted chance

[00:02:09] and this is part of my attitude towards uncertainty.

[00:02:14] I spoke to Helga and Eric each separately and I let Helga listen to excerpts of Eric and me talking.

[00:02:20] What is it like researching and having to deal with uncertainty not knowing if your research will lead to a goal?

[00:02:28] Every person has a different response to facing uncertainty. For myself I like some of the flexibility there.

[00:02:37] This chaotic uncertain environment can afford, it allows me to create.

[00:02:42] But at the same time of course it's super stressful of course.

[00:02:48] When I was doing my master's and also at the beginning of my Ph.D. when I wanted to continue in academia, I thought I would continue to have the track professor, a lot of people think about that.

[00:02:59] Or at least try.

[00:03:01] You're uncertain results are the same results that determine your fate and you have to create something.

[00:03:11] But of course, no one knows, not even yourself what you can create, and oftentimes you don't even have full choice over the topic so lot of your life is determined of course.

[00:03:21] It feels as if your life is determined, the outcome of your performance is determined by your work but at the same time you know it's not, because you know that the topic is potentially defined

[00:03:30] by the people. You also know that the limitations of the equipment or the institution or their politics also play a role in academia.

[00:03:38] And luck, of course, plays a really big role as well.

[00:03:42] Helga reacted approvingly to Eric's statement: "Oh I completely agree and this was part of the reason why I wrote the book

[00:03:50] because this was also my experience during the time with the European research council,

[00:03:57] because as you know the ERC is at the forefront of the production of knowledge and uncertainty is exciting for scientists,

[00:04:08] because it opens up what you do not know as yet

[00:04:12] and research itself is inherently uncertain. If you know already the outcome you're not engaged in basic research you're applying knowledge that you already have

[00:04:22] to reach a certain goal or to

[00:04:25] provide certain answers to well-defined questions. So this uncertainty is exciting at the same time and I agree with what I heard you know it can be frightening because you want to succeed you want to

[00:04:41] turn the uncertainty into something that is known. Like Eric

[00:04:46] also Helga points out the importance of luck. Luck is part of human existence I would say being at the right moment at the right time or unlucky you are the wrong place at the wrong time. But

[00:05:01] another level of luck is deeply connected to research when something totally unexpected happens and opens the scientist's eye.

[00:05:09] In science we speak about serendipity

[00:05:12] and serendipity means you encounter a phenomenon that you have not been looking for but and that's an important but you recognise their significance

[00:05:23] and this is a very strong ally off during science

[00:05:28] and I've encountered many examples when scientists were speaking exactly about, you know, encountering serendipity and how much it helped them to move along and to see things, the significance of things

[00:05:43] that they would have missed otherwise. Serendipity or we can also call it a happy accident

[00:05:49] can only appear in a climate of uncertainty. Having room for serendipity would be the ideal but the atmosphere in academia

[00:05:58] is challenging for today's young researchers.

[00:06:01] There is so much more pressure on young people there are so many different tasks so many different dimensions that they are

[00:06:10] are expected to accel in. So it's not enough to be a good scientist you're expected to be a good communicator you're expected to have an entrepreneurial spirit, you are expected to ...

[00:06:23] You know, you can go on and on and yet every day has only 24 hours and therefore it's it's very stressful.

[00:06:32] You know for many people, young people they know it's publications that count

[00:06:38] and more publications and publications in these journals that are a bit higher ranked than other journals they would get you further and it becomes very confining in a way, the pressure is there

[00:06:52] but it becomes more confining and perhaps also for this reason in a very rational way less daring

[00:07:02] because the risks are greater. Dealing with multiple uncertainties as a young scientist is stressful.

[00:07:10] On the one hand the pressure for results for instance fuels the uncertainty of getting a steady position or not and on the other hand to be successful in researching

[00:07:21] you need to accept not knowing where your results might end. It's super common to talk about uncertainty amongst PhDs post-docs.

[00:07:31] It's not so common, honestly, to talk about this with your professors. Do you think this would help though if you could

[00:07:37] talk to professors also away from the research if you speak about uncertainties regarding your career path because I mean that comes hand in hand with the uncertainty in research,

[00:07:48] it's difficult for me to say of course I could say on one hand yes I think information is important for people to share and access

[00:07:56] but how to get that information, how to make it comfortable for all parties is also a difficult problem and I guess part of that aspect becomes about the precarious nature of a a PhD or a post-doc.

[00:08:08] You're there for a short time, you are expected to accel both internally, you expect this.

[00:08:17] But then also externally you're hired for a short time, you need to create something.

[00:08:22] And then to complain about that uncertainty to something that I guess people feel that they took upon themselves and then if they admit it then they feel maybe I'm not skilled.

[00:08:31] It's an ego problem for yourself and I think also at every level honestly of academia.

[00:08:37] But also at the same time it's a challenging precarious situation because you have the temporary contract.

[00:08:42] You need to perform to do it and if you say that you're not performing then what's going to happen? There's also that level of uncertainty about jobs.

[00:08:49] And how well your career will advance if you actually open the advocate for the uncertainty. What crosses your mind when you hear that?

[00:08:59] Well it reminds me of an interesting episode I had at ETH Zurich. There was a professor incidentally also in chemistry.

[00:09:09] Who had a PhD student.

[00:09:12] And the PhD student had engaged on his PhD together with a company

[00:09:19] and then one day the company said he can no longer use the data had been working on. So the student was desperate

[00:09:28] and the professor said: would you like to become a supervisor of the student

[00:09:34] together is in in a team so I said well it's an interesting experience so I agreed and then what I did with the student I talked to him and I said

[00:09:45] I want you to write a diary on your PhD journey.

[00:09:53] And like many you know natural scientists he wrote

[00:09:57] very short sentences but very concise, so he showed to me what he had written and we talked about it. Then he had another obstacle and a third obstacle

[00:10:09] and finally he was able to finish and everything was alright.

[00:10:14] But this helped him a lot and then I insisted with the other members of the committee to accept the diary as part of the PhD.

[00:10:25] But this is very easy revolutionary - and and I think it should be done much more often.

[00:10:30] And it helped him because in the diary he said today I went to see Mr so-and-so at the company and we discussed this and that and we agreed

[00:10:43] then two weeks later it turned out the data there when some data was missing so he had to go back to negotiate again etc., so it helped him to get a more distanced view

[00:10:55] of what actually happened.

[00:10:58] And it helps him also with his professor because he had documented, so the professor of course intervened because he knew the people of the company and the other company etc.

[00:11:10] You know, I thought this should be done with every PhD but my suggestion was not taken up but there's still room for improvement.

[00:11:20] It sounds like an excellent idea to keep a diary during the process of researching.

[00:11:25] Back to the path of the young academic Eric, he's struggling now after his PhD.

[00:11:33] The one thing that isn't really talked about so much is how do you stay on? Switzerland and the ETH

[00:11:39] is recruiting tremendous amounts of international students and talent from overseas to study there and they can have a tremendous potential to contribute to the economy.

[00:11:52] No employability wise ETH markets themselves as very

[00:11:59] high employable institution. Rightly so there's a lot of very marketable skills that people get but I think part of the problem also is that in order to then stay as an international student, especially non-EU,

[00:12:11] in Switzerland is extremely difficult, you need to sell fun

[00:12:15] for that period. It's almost impossible to get RAV, I'm not getting unemployment, I am paying for myself for these next 6 months and in addition companies need to sponsor your visa, often times this will take you

[00:12:27] through a very arduous process that makes it very difficult for them to hire you and in addition to that oftentimes it takes about 4 to 5 months you can start immediately

[00:12:36] for them to sponsor you and work through all the paperwork. As Eric says it's hard to stay on, once you've finished your PhD

[00:12:44] new uncertainties arise. Can these new uncertainties be diminished or even avoided in advance? ETH is still much better in this respect than many other universities.

[00:12:56] And also as a PhD advisor I think it's part if not of your formal but of your moral duty

[00:13:05] to discuss with PhD students and to help them as much as possible to find their way. What is true in general regardless of where you go

[00:13:16] is that very few PhDs end up as professors and stay within academia

[00:13:22] and this is something that should be communicated much earlier

[00:13:27] instead of nurturing this reproductive urge that many main professors have you know they want their students to be exactly like them because they think they're the greatest

[00:13:38] to tell them it's very unlikely that you will end up instead of me in this place

[00:13:45] but I will give you whatever knowledge and skills I can add onto you to make your way in the world and there are many more opportunities, so this has to be communicated repeatedly and much earlier

[00:13:59] but I think it's also the duty of the PhD advisors to help them. Having said that I realise how many obstacles there are of a

[00:14:11] geopolitical nature in terms of visa? This was also much earlier for previous generations I never

[00:14:20] you know worried about a visa in my whole life, so this is a new reality that we have to cope now. On the one hand universities push everywhere for internationalisation,

[00:14:34] you want more international students this even becomes a cash cow for some universities in some parts of the world.

[00:14:43] And otherwise you know we prevent them from gaining the position that they would gain if they had another passport.

[00:14:51] But this is something, it's an issue that goes beyond academia, it's part of the geopolitical situation in which we find ourselves now

[00:15:01] Speaking about the geopolitical situation in the state the world is in since the pandemic increased many uncertainties

[00:15:08] Eric sees the higher education system fundamentally challenged. The higher level education industry as a whole:

[00:15:17] How will the institution change in the next decade,

[00:15:23] There's many things that I think will be the changed.

[00:15:27] Coronavirus has indicated to all of us that it's now possible in fact actually sometimes even better for people to have digital learning. This doesn't necessarily apply to PhDs or post-docs but our people are gonna be paying especially in the United States

[00:15:42] 30-, 40-, 50.000 for online courses. How can these organizations be more flexible

[00:15:50] adapt to these changes? And then in addition potentially how can we build an organization that can still have a rigorous high level

[00:16:01] laboratory research

[00:16:03] while adapting for a more fluid and flexible administration? There is no doubt the pandemic will

[00:16:11] shake up also higher education and universities will have to face some pretty tough questions

[00:16:19] and one of them will be now that we know what is available content wise and in terms of quality also in digital ways?

[00:16:30] Is the university really a place that is reserved for 18-years-old and until they're 24-26 or is this not something that is anachronistic?

[00:16:44] And we have to provide the best of content to you know to everyone and you have another kind of academic markets that will arise

[00:16:55] and the on-campus experience in the US which we don't have in Europe as you know because students live in town and there is no sorority and fraternity life like on American campuses

[00:17:12] this is a historical fact that has arisen because there were no no old towns with university tradition

[00:17:21] in the US so it may disappear again. On the other hand laboratories will become more important.

[00:17:30] And it is well possible that around laboratories new kinds of teaching and doing research with emerge

[00:17:39] so many possibilities are open and I don't know

[00:17:45] what the development will be but it will shake up the higher education sector as we know it now.

[00:17:52] Would it also shake up the forms of hierarchy at universities and in research? There are people who criticize the power dynamics and the hierarchy in universities as being ok.

[00:18:04] Well, I found ETH had very flat hierarchies.

[00:18:10] And 68 was the year in which the old hierarchical university was really shattered.

[00:18:18] So there's still some way to go but there will never be an institution without any hierarchy at all

[00:18:26] the question is how to do it in a responsible way and how to take in young PhDs as the junior partners and in a laboratory, you can easily see

[00:18:39] that people are treated much more equally because everyone has to contribute something so teamwork will become more important and teamwork means

[00:18:49] there is less hierarchy

[00:18:51] in a team because otherwise you'll end up in a military structure and that's not the most efficient. I wonder what the open possibilities might lead to in the long run.

[00:19:01] As we have realized the pandemic reframed many uncertainties and worked as a catalyst speeding up things that have been simmering before.

[00:19:11] Helga points out that it is essential to be connected to other scientists in similar situations and to be part of a network.

[00:19:20] As a board member of the association of the scientific staff at the ETH Eric did precisely that:

[00:19:29] The association is exclusively for mid-level scientists who represent the staff at the ETH politically and also bring people together.

[00:19:40] After his PhD Eric stepped down from the board but he's still part of another association called "MeWell".

[00:19:48] "MeWell" is called the mental well-being community. This organisation started in

[00:19:53] the summer of 2019 before coronavirus and I co-founded this organisation with another guy and both of us realised that

[00:20:04] there's a tremendous lack of understanding of mental health and tremendous life of discussion around mental health, particularly in academia.

[00:20:13] And we wanted to do something to change that.

[00:20:16] So we founded this organization and we're really happy about where we are at right now, we're officially recognized by VSETH, the undergraduate organization, and we are recognized by AVETH, also on the rectorate's websites and we provide

[00:20:30] mental health awareness events twice or more a month.

[00:20:35] And we're trying to break the stigma again around mental health. Needless to say, health issues increase uncertainty in any situation

[00:20:43] especially stressful ones. Eric experienced this himself, he suffers from a kidney disease and

[00:20:50] during his PhD the medication that he had to take lead to difficult mental situations.
That's why

[00:20:59] Eric knows how important it is to raise awareness of mental health issues and he's happy that people are reaching out to his association "MeWell".

[00:21:10] Eric is an active young man, ready and motivated to start working and reach out to anyone who seeks his adviser help.

[00:21:18] His frankness about struggling with uncertainty moved me, Helga on the other side embraces uncertainty.

[00:21:26] I mentioned at the very beginning of this episode Helga wrote a book called "The cunning of uncertainty" a few years ago.

[00:21:34] What's actually cunning about uncertainty today? Well it continuous to be cunning I would say and

[00:21:43] the pandemic has shown to us we are not as much in control as we thought.

[00:21:50] So it's a kind of healthy shake up I would say to a kind of overconfidence that may have lead us into a more unsustainable future path in any case

[00:22:03] now we face uncertainty in various dimensions because very much comes together, it's not just the future of work, it's the future of the planet

[00:22:14] it's the future of individual lives, individual careers but also connectively.

[00:22:20] You know, we have a much stronger sense of both the strengths but also the vulnerabilities of being globally connected so this has changed so we have more uncertainty.

[00:22:33] You know, cunning means there are unexpected, no perspectives that arise, no opportunities that arise.

[00:22:43] It shows the limits of our confidence in planning ahead.

[00:22:48] Thank you Helga Nowotny and Eric Burns for being part of this episode.

[00:22:54] This was the last uncertainty episode of our series and in our series we talked to students and ETH rector Sarah Springman,

[00:23:02] about the challenging year 2020. Later we touched on topics such as uncertainty in climate change, cyber security

[00:23:11] and psychology. If you've missed any of these episodes listen to them on our

[00:23:16] podcast feed. In the next episode of the ETH podcast we will be dreaming of becoming astronauts. I'm Jennifer Khakshouri

[00:23:27] together with This Wachter's Audio Story Lab and sound designer Luki Fretz we bring the highlights of the ETH Zurich to your ears.

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