Science Policy for Truth with Farah Qaiser

Nerdin' About Podcast Transcript, Season 3 Episode 4

Michael
Hey everyone, welcome to Nerdin' About! I am Space Michael, and with me as always is someone who if you ask on the spot can tell you exactly how many rats there are in New York City, and that is Dr. Kaylee Byers.

Kaylee
Oh, hello, you know, you're painting that a little differently than is true. I had to look up how many people were in New York to know that it was one per every four people. So, I'm not quite all the way there to that knowledge, but I do have that knowledge in hand. Why would you ask that question anyway, Michael?

Michael
Well, I host trivia nights here in Vancouver at a local bar, and we have these questions, which are designed to be really hard, but a number that people have to kind of guess to and then I would say higher or lower. I saw that question, and I immediately texted you, and then you figured it out. 2 million. I was just shocked, but I shouldn't be surprised.

Kaylee
Yeah, it's a lot of rats. We used to think that it was like one per one like one rat per person. I think everyone will be excited to know that it's not one per one, but maybe not super thrilled that it's one per four.

Michael
So, it's not like your life is inundated with rats. It's like you have one rat that joins your family of four.

Kaylee
Yeah. That's right. (laughs) Well trivia is a lot of fun. I always love learning new things. I find that whenever I go to trivia, I'm constantly amazed at how much I don't know, and that's one of my favorite things to realize is how much I don't know and learn more, and today, I'm going to be doing more of that. So today, we are delighted to be joined by Farah Qaiser who is the Director of Research and Policy at Evidence for Democracy, and also holds a Master of Science from the University of Toronto. Farah also co-founded the Toronto Science Policy Network and serves on the Canada Chief Science Advisors inaugural Youth Council, and the 500 Women Scientists leadership team, and I can tell you that the bio goes longer than this, but we're going to end it here. Hi Farah, how are you?

Farah
I'm doing really well. I did not know about having rats for a family of four. I don't want to know what the stats are like for the Greater Toronto Area.

Kaylee
Yeah, it's important to know that that's New York specific, it will change based off of wherever you are. We're really excited for you to be here with us today, and we're going to talk a little bit about the intersection of science and policy, something that is really interesting and very

relevant at all times, but it feels like especially today. So, before we get started, can you tell us what science policy is exactly?

Farah
So, science policy is such a broad word. It's not one that actually comes up during undergrad or graduate school or anything beyond. The way I like to think about science policy is this idea of policy for science, and science for policy. So, science for policy is the idea that science can help decision making, it can help policymakers and decision makers make decisions. So, we've seen this a lot - or haven't seen this a lot - during the pandemic where you see things such as the number of COVID-19 tests, the number of vaccine doses, dose one dose two, helping guide public health decisions in the pandemic. On the flip side, you've also got a policy for science. So, the laws, rules and regulations that you can use to better structure science. So that's things like, how do we decide how many scholarships there should be for early career researchers? How do we decide which parts of science to fund? Or do we just go for open competitions where you judge the best research? So, science policy includes quite a bit, usually categorizing it into policy for science, science for policy is just one way to sort out this messy, complex world.

Kaylee
I often think of it as the science for policy, but I love that you highlighted that it's actually really like a feedback or a reciprocal process where both of them affect each other.
So, you're currently the Director of Research and Policy at Evidence for Democracy. Congratulations on this new exciting role. What role does this organization Evidence for Democracy play in the science policy landscape?

Farah
Evidence for Democracy is very unique. It came into life almost 10 years ago with the Death of Evidence rallies. So, it's when scientists dressed up in Grim Reaper outfits, they held coffins mourning the death of evidence, and walked on the streets of Ottawa and across the country calling for attention to science and for science to receive funding, and for evidence to be used in decision making. That was the key event that sparked the founding of Evidence for Democracy. Today, the organization is nonprofit. It's the only science policy nonprofit that's really dedicated to promoting the use of evidence in government decision making. I know that sounds very open ended, but it really comes down to: how does the federal and provincial governments use evidence when they're making decisions? How do they take things like testing counts or vaccine doses and decide, should we get more vaccines? Should we be consulting more people? Should we be thinking of different ways to deliver? Our focus really is on both the science community and the policy community. We want to help scientists communicate with decision makers and how to do that better. We also want to encourage policymakers to really think about how they're using evidence, what are the challenges they face, and how can we address some of those challenges?

Kaylee
So, does Evidence for Democracy then build a knowledge base? There are some organizations that do rapid syntheses to collate all that evidence in one space? Or is it more involved in facilitating that dialogue, as you say, between scientists and policymakers?

Farah
I would say it's a combination. So, we have three arms. The first is research. So, for example, we carry out research into understanding how members of parliament actually use evidence.

We also have training. So how can we better train scientists to take part in the science policy space? The last piece is issue-based campaigns and advocacy. So, for example, in this last election, we ran the vote science campaign again, and we really tried to help Canadians have the tools they need to advocate for science. So, in our case, it was giving people templates so that they could easily contact their MP. So, it's through advocacy, through research through training, that we're really trying to help facilitate this dialogue.

Kaylee
Super cool. multipronged, I love it.

Michael
Those marches that you're talking about the Evidence for Democracy, I vaguely remember them. What year did that start?

Farah
That was in 2012. So, I want to say that it was right ahead of the federal elections that took place that year, during the Harper government.

Michael
Yeah. So, I certainly remember that was the first time that I had heard the word science policy, as that was really around the same time that I started my science communication career. So obviously, that's almost eight, nine years ago. In 2021, what would you say are the big science policy issues in Canada?

Farah
I mean, there's a long list, but I can narrow it down. I think one of the big issues is that Canadian science really has faced chronic underfunding. I'm honestly surprised that Canadian science is doing as well as it is today, given the severe underfunding and the many underlying issues. So that's kind of my optimistic but realistic take on that. The big issues that I have in mind are, are we finally going to see significant investments in Canada's science ecosystem? If you take a look at the past few budgets, there are scattered investments. So, budget 2018, had a really good investment in the three federal funding agencies.

Kaylee
When you talk about the three federal agencies, you're referring to NSERC (Natural Sciences and Engineering Research Council) which is engineering, and environmental science, SSHRC (Social Sciences and Humanities Research Council) which is social science, and CIHR (Canadian Institutes of Health Research) which is health?

Farah
Yep. All three of them, and budget 2019 invested in a lot of scholarships for young scientists, budget 2021, kind of had very scattered things. There were some for genomic strategy building, there was funding towards AI, there was funding towards quantum technology. I'm eft wondering, what's the strategy here? What's the bigger picture? How do all of these different investments actually play together? What's the bigger picture happening here? I'm interested to see whether there will be additional investments in Canadian science, I'm curious to see what the strategy in the big picture is. I'm curious to see what our new minister of innovation science and industry will do. There's also a new standing committee for science and research that's going to be taking place in the House of Commons so I'm curious to hear what they'll discuss.

Michael
When you say that there's more investment into these different areas, is this a new thing for Canada? Is Canada investing more money into science and like how the song goes “more money, more problems”? Is this the place that we're in because we're putting more money in, but we don't really have a clear path? Maybe we just need to take, as you say, a more specific approach to making some policy around these decisions that we're putting our money towards.

Farah
I don't think we're at a more money, more problems approach just yet. (Laughs) We are still significantly underfunding Canadian science. I would love for us to have a more money more problems situation, that would sound awesome, but unfortunately, we're underfunding certain areas in Canadian science such as just supporting basic fundamental research. When we do have targeted investments, it's just that there's no clear picture yet.

Kaylee
It's hard too, right? The money must come from somewhere, and that's always something that I try to remind myself of too. We would love to see more investment in science, and we also have to think of where the money comes from.

Farah
I think we have a tendency to really look at countries like the US and the UK, which is awesome. We should be aiming higher, we should be investing more in science, but Canada is a small country, and maybe not geographically, but we are smaller when it comes to population, we're smaller when it comes to capacity, we don't have the same resources at hand. So comparing us to Nordic countries is a better bet. You know, we can aim high, we can think about investing more in science, the way governments in the US and UK are doing after the pandemic. Yeah, well, during the pandemic.

Kaylee
I know, we're still here.

Michael
So, I certainly think about that in the space industry. Because in Canada, we're very close to the United States, and when the United States started to become more of a presence in space with the Apollo missions. Canada had already started sending satellites into space, we sent a satellite before the United States did. Then we pulled a lot of money out of that field as there was no way that Canada was ever going to spend as much money as the Americans were doing in space. Now that's slowly coming back, we’re taking the approach of not building space stations, but helping other countries, like a company, like a corporation, where they're investing in these very specific fields like AI and robotics and things like that. Are you seeing Canada approaching things a little bit differently when it comes to making those money decisions?

Farah
So, I would not claim to know everything about Canada's science related investments, but I think that seems to be the approach. I know that for example, Canada invests in the Canada Arm, that's kind of been our contribution to the upcoming excursion to the moon. So, we are seeing more of that here. I always wonder given that Canada is such a small country, should our focus really be on being the best in every field? Or should we really be focusing on target

areas where we're really going to excel at, and for these other fields, we're going to aim to be good enough.

Michael
The classic Canadian motto, “Canada, we're good enough”. You know, I'm fine with that. Honestly, it sits well with me. That seems weird, but I'm honestly okay with that.

Farah
Unfortunately, Canada does face so many different issues. We've got to really address the issue of reconciliation about systemic barriers for Black, Indigenous and People of Colour that it really comes down to hedging bets, what are you going to prioritize, and I want Canadian science to be prioritized, but we can't prioritize Canadian science at the expense of every other issue that we need to address today.

Kaylee
Exactly.

Michael
Well, let's get into some specific policy changes. There's a parliament in session currently. So, what should Canadians be looking for with these potential policy changes?

Farah
I would be interested in seeing how much of the follow-through we'll see on budget 2021. There's supposedly a new biomedical research fund that's coming in, there were a couple of millions committed to that. So, I'm curious to see what that looks like, and how is that different from CIHR? Other things that are interesting are this new standing committee for science and research. The thing is, there have been a lot of committees in the past related to science in parliament. This isn't something new, but this is our next opportunity to really take advantage of everything that has unfortunately happened because of the pandemic. The pandemic really put science in the spotlight, you now see more people talking about things like mRNA vaccines, epidemiology, virology, genome sequencing, like this was kind of that science crash course, at such a global scale that you never thought of. So, the standing committee really gives you the chance to keep science in that conversation with policymakers. I think about how we can use science to make those big decisions, because we've got more issues coming down the road, we've got climate change to think about, we have other big systemic issues to think about, and really turning to science and evidence is one way to answer it. So, I'm really hoping that scientists will keep an eye out on this new standing committee and that they'll serve and participate on the parliamentary committee if their expertise matches.

Kaylee
I mean, I've definitely got my eye in terms of the science landscape, climate change was such a big part of this past campaign, and it's one that still feels like it needs more attention. What will be the follow-through on this issue that feels so big and intangible? Have you already seen some movement towards changes? I know they're just in parliament as of yesterday, but have you seen the conversation about moving towards some of those changes?

Farah
I'm going to be a complete nerd, and just point out that yesterday, technically, there was a new federal cabinet that was announced, and the actual parliament will head into session on November 22nd. So, they have about a month all these newly announced ministers to get

ready, which is like getting ready for the first day of school, I guess they're going to go through a very jam-packed orientation. On the climate change front there's something interesting, there's now going to be a Minister for Natural Resources and a Minister for Environment and Climate Change. So, they've broken up that portfolio. Is this signaling that there's going to be more of a focus on climate action? I don't know. I've got all my fingers crossed here for that.

Michael
I love thinking that they're going back into parliament, on the first day of school, and they get special pencils, a special pencil case. Somebody has put their name scrawled on the bottom with a little marker. (Laughs) Farah, if you cannot be objective in your role as the Director of the Evidence for Democracy, what would be some things that you would love to see for your own personal wishes and hopes?

Farah
I mean, if I become very selfish, I think one thing I would love to see is more focus for the next generation of scientists. So that means more dedicated scholarships and awards to help more people pursue graduate school, and more scholarships and fellowships to help people go beyond. So, let's give people more funding support as they go and pursue these postdoctoral fellowships. Let's also give more support as they branch out into science policy into science communication, let's get these early trained scientists into government, into different sectors, and give them that financial parachute, security/support, whatever the right word is, as they go off and pursue these careers. I'd also love to see more of a focus on EDI. I know that there are so many things in progress. So, there's this program called the Dimensions Program where 17 post-secondary institutions are taking part. They're assessing the stats of students and faculty right now. Let's keep making improvements. Let's see where we'll be in a few years. I'd like to see all Canadian institutions taking part, and this should just be the baseline for how we are going to make sure that our student populations and our faculty populations are representative of the entire country.

Kaylee
Yeah, as someone who's gone through some of that funding process, I would also love to see that. I think it's a great point that investing in science involves investing in the people who do science and making sure that access to funding is more equitable, and that we're supporting people throughout their career stages, instead of just in the first phase, for example. Something you touched on earlier was, conversations around science are mainstream right now, which is really exciting. Like, as a scientist, I find that so exciting. I talked to my Dad on the phone today about mRNA vaccines, it was great. At a time where we've got an infodemic on our hands, and as a good science communicator, I will also then define that an infodemic is where we've got lots of information coming our way all the time. Some of it right, some of it is misinformation, and that's problematic, because that misinformation also impacts policy decisions, it can make it harder to implement them and navigate the communications landscape. So, I wonder, are there any tools that you're using to help counter misinformation in your own work?

Farah
I mean, before I was in the Evidence for Democracy role, I was pretty active as a science communicator. I would write about science for media outlets, I would volunteer for organizations like COVID-19 Resources Canada, but there's only so many hours in a day. Now I really try to focus on my science policy research. I guess my focus has now shifted to thinking about

misinformation both in the science policy world as well as in the policy space. So, what does misinformation look like, for example, in the federal government? Well, in that case, you're thinking about how Members of Parliament, so the folks that we elect to represent us on a federal level, how do they find information? How do they use information, and how do they decide if information is even credible? What I see is what to think about when you're thinking about misinformation. We know from a study that Evidence for Democracy did in 2019, that Members of Parliament face a lot of challenges when they're trying to access information. So, they've also pointed out to this infodemic, there's just so much information that they're being bombarded with. So many people are approaching them. How do they know who to trust? How do they know even how to find those experts? How do you navigate all this information given that science often has conflicting views? What do you go with? So that is an issue that Members of Parliament have pointed out in their work. Another issue that they've pointed out is that they don't know how to find scientists, even though you've got so many scientists on Twitter, in institutions, it's still hard to get that access point. So that, for me, is something that I'm thinking about more and more. How do we really make it easier for Members of Parliament to draw upon all these researchers, that so much of public funding supports? This should be easier, and I don't know why it isn't. So that's something I'm thinking about,

Michael
You mention how to find scientists, and a lot of people, of course, use Google and other methods, but one website that a lot of people use is Wikipedia. You have led Wikipedia edited-a-thons to create pages about underrepresented scientists. Now I'm thinking can we get one up for Dr. Kaylee Byers?

Kaylee
Rat detectives are really underrepresented.

Michael
Maybe talk a little bit about that work. Is it hard creating these spaces of recognition? Are there other places besides Wikipedia that people can go to find these scientists?

Farah
Firstly, that is such a smooth transition. (laughs) Wikipedia is a special place. It's the fifth most popular website in the world, which is wild, it gets over 30 million views a month, fact check me on that (fact check: 255 million). So, it is a place that people really turn to, for information to look up someone and to find out about a topic. I know that we've all looked it up at some point for homework, or even just learning more about something that you really should have known in graduate school. Not going to comment on what. (Laughs) I think Wikipedia is an important space, but the wild part about Wikipedia is the fact that anyone can edit it, if you have Wi-Fi and you have some time to spare, and you have some credible sources. Despite it being open to anyone, only 18% of English Wikipedia biographies are about women. 18% is a tiny number, and it's gone up from 14%, which was in 2014. So, it blows my mind that there are so many gender biases built into Wikipedia. Part of it reflects Wikipedia editors. So, Wikipedia editors tend to be men, they tend to be living in the western hemisphere of the world, they tend to be 20 to 40 years old, and they tend to primarily edit in English. So, we have a bias in the editing community and who edits Wikipedia matters, your biases will tend to reflect out on the encyclopedia. It's also a reflection of the world. For someone to have a biography on Wikipedia, you must meet a certain notability criteria. So, you should have an international award or a recognized appointment, or you're a president of the university, or you've been elected to an

awesome society, like the Royal Society of Canada or AAAS (American Association for the Advancement of Science). So, you have to have one of the criteria. On paper, that sounds fine. Awesome. Kaylee Byers has won a super awesome postdoctoral fellowship that counts. The issue is that if women aren't being nominated for these awards, if women aren't being nominated for leadership positions, if they're not being recognized for the work they do, if they're not even being cited or interviewed as experts on TV, media outlets or podcasts, then how do you even meet that notability criteria in that first place? So, Wikipedia has a gender bias. Yes, it's a reflection of their editing community, but it's also a reflection of the world. All the systemic barriers that we see play out in science are also playing out in Wikipedia, and that's one of the things that I've been trying to address through edit-a-thons. I get to meet awesome people. I've partnered with different science museums and science centers. We've hosted Wikipedia edit-a-thons, it's a space for collaborative editing. So, folks can come they can learn about Wikipedia, they can create new pages about women about non-binary scientists, about sciences belonging to a specific equity seeking community. We get to edit and create pages, and it really adds up. I think, if I remember the numbers right, I've hosted over 10 edit-a-thons right now. I think it's been over 200 folks who have attended, and all their edits have been viewed over 14 million times or was it 40. So, it really adds up, every edit that you make can be seen by so many folks. Coming back to your point, Michael, I think Wikipedia is a source of information that a lot of folks' use, including Members of Parliament. So, if we can get something as open access and large as Wikipedia, more representative of the world, that might be one way to get more scientists up and out in front of the public too.

Michael
Well Farah. Thank you so much for answering your questions. We've got a couple more for you. You know from who Kaylee?

Kaylee
Is it from the nerd herd? (Song)

Michael
If you want to get in the nerd herd questions, we post for questions on our social media @NerdNiteYVR on Twitter, Instagram and Facebook. Our first one comes from Christine who has two, the first one is "what other factors do policymakers need to weigh in on when making decisions besides scientific evidence?"

Farah
So, a lot of different things go into consideration when making decisions kind of thinking about what are societal views of this topic? What about economic factors? Let's do a cost benefit analysis. What about politics? What about what's in the news? Science is just one of the many inputs that goes into decision making. It's really a bit of a balancing act deciding how to go forward with what decision to make.

Kaylee
That's a good point. I think about climate change, right? The science around climate change has been here for quite a while. Since the 1970s we've had publications about climate change, but now there's much more recognition of it in the public space, which then in turn puts pressure on policy, right? So, if we're thinking about evidence for decision making, so the second question from Christine is "what can we do to increase public demand for evidence-based decision making?"

Farah
It sounds like such a demand and supply question. I feel like I'm in economics in high school, but that is a really great question. I think it's both at an individual and institutional level. So one, you've got organizations like Evidence for Democracy, we're meeting with Members of Parliament, we're meeting with different organizations, we're trying to really understand what the obstacles to evidence informed decision making are. How can we help foster this ahead? At an individual level, it really comes down to you speaking to your Members of Parliament at a federal level or reaching out to your MPP or the equivalent at the provincial level, and asking them "what are your roadblocks when it comes to decision making? How are you using science? Do you have access to scientists when you reach out on the next issue, and kind of just putting it out there? “Hey, I'm a rat detective. Question about rats, you know who to call?” You never know, a question about rats will appear? (Laughs) If elected representatives are struggling to find scientists, the simplest way forward is just to reach out to your local elected representatives and say "rat detective here, genomics researcher here. I would love to chat with you whenever you have time, and if you ever have a question about my very niche area of expertise, I'm here." And they will come one day.

Kaylee
One day, they'll be knocking down the doors with their tiny little paws. Is there a website or some central resource? I'm thinking of UBC who has a website that has experts. I know I’m on there or was as a rat detective at one point. Is there something that policymakers have access to where they could access this list of people in their expertise?

Farah
As far as I know, there's no public facing list. But I know that different organizations have different databases. So, universities tend to have a blue book or a media book. So, anyone who's interested can reach out to any of their professors. At 500 Woman Scientists, we've got this database called Gage, which is this awesome directory of women and gender minorities and all different STEM fields across the world. If you're really focused on Canadian media, there is an organization called informed opinions, and they've got a list of women experts, so really trying to push the dial on gender diversity in the news, but there is no list of Canadian scientists. So, if someone's listening, if you've got some awesome database development skills, this could be your colleague.

Michael
Another thing we could do Kaylee is to set you up maybe down by the Art Gallery and just sit behind a desk with a little coffee mug that has a rat on it, with a little sign that says, “Ask me anything about rats”. Then I'll be there too, right next to you with my little sign. Do you know what that's going to say?

Kaylee
Ask me anything about space?

Michael
Whatcha nerdin' about? (Song) All right, if you want to get in on the nerd outs, send us a message. Tell us what you've been nerding out about, as you just heard, we are dying to read more things as we're not needing to read things for work as much. Let's start with you. Farah, what have you been nerding out about recently?

Farah
The nerdy answer is that I've been impatiently waiting for the new federal cabinet. So just wondering, is there going to be a shake up in the Minister of Science role? Will we see a dedicated Minister of Science? There was no shake up. We still have Minister Champagne as the Minister of Industry, Science and Innovation, which you know, was fine. I was just hoping for a little drama. No, drama is fine, too. Other than that, I think I've just been nerding about The Office. I've been watching it for the very first time, and Michael Scott really is a character.

Michael
I was just laughing because my friends' eight-year-old is taking parkour lessons. I cannot think of that word without saying "parkour!". You know, as they're jumping around the office doing parkour. There's only one way to say that word is "parkour!".

Kaylee
Is that why you used an Office GIF earlier today about joining the party planning committee?

Farah
Yes, that is that is where I'm right now.

Kaylee
I love it. I'm watching The Sopranos for the first time, and I have a feeling that my GIFs wouldn't be quite as fun. Michael, what are you nerding about? Any drama? Any drama you're looking for in your life?

Michael
Oh, it's going to be very dramatic tonight. So, talking about saying no to things I couldn't say no to the offer that came my way, even though I don't have much time these days, and that was to be the opening act to a concert tonight. So, and I'm not a musician, what they wanted was some science demonstrations. So, I was like, okay, yeah, I'm going to go back to my happy place, which is doing science in a bar, which is how we got started Kaylee. Tonight, I'm putting together a few demonstrations but also telling a story. So, because it is a haunted piano show, I am telling the scariest story in the universe. Spoilers, it eventually gets to the scariest thing, which is humans. So, I needed a few flashy fire demos for the beginnings of the universe, stars fusing atoms, eventually, we get to the climax, which is the comet that will eventually bring the building blocks of life to Earth, but the key there is water. Of course, when I dive into these little things, I need to spend a little bit of research because I want to know about just why water is a special element. It's really the catalyst, water was here, but then that comet brought those amino acids that really kick started it. So, water isn't life, but water is like that place where life got started. So as water goes, they know it carries these chemicals, minerals, nutrients to support those living things, but it's the polarity, that was the key thing I didn't really know about water, the water molecules. The hydrogen and the oxygen atoms create this polarity, which means that they're strongly attracted to one another, and that's what gives water it's high surface tension. It's got a high heat capacity so it can freely flow from its different states, liquid, ice, and vapor. It's such an interesting substance as it turns out to be a weird and unique one when it comes to liquids. So obviously, I don't go into super detail in my bar science presentation, but I'm keeping things light for the crowd and flashy, I'm getting some dry ice, people love that stuff. We really need to bring Alan Shapiro on because whenever he's been on our stage talking about water, I've learned so many cool things. Now I'm nerding out about

water these days. Such a wonderful and scary thing that was brought into the universe, which is humans,

Farah
Oh, a side note. Jesse Hildebrand has done a seven-minute summary of the Big Bang and how life came to be. I think that's an awesome party trick.

Michael
I should ask Jesse about this.

Kaylee
I have a very important question. Is this going to be recorded? And will I get to see it?

Michael
You're going to have to come to the Lido tonight, if you're going to it's this is a one-time only

Kaylee
Opting out. Can I have a personal presentation?

Michael
All right. I'll think about it. Although the thing is, I have to go and pick up the dry ice in a couple hours, and it only lasts, like maybe a day before it evaporates away. You know that special property. So yeah, not with a dry ice demo.

Farah
Where are you getting dry ice from?

Michael
Well, that's a good question. There's only one place in Vancouver that you can buy dry ice. It's called Praxair. You can get a small bag that people use for party tricks and things like that. There's likely one place in Toronto as well if you want to host a party and have some dry ice effects. It's really cool.

Kaylee
Fun fact, anytime I had a science thing I had to do in school, my Dad would show up with dry ice, whether it was relevant or not, and that was always my question too "where does this come from?". He's a chemist, so I just assumed he had hookups. I was like, I'm building a slingshot. I don't need dry ice. (Laughs)

Michael
No, you absolutely always need dry ice. It's the best substance.

Kaylee
It turns out I did because I had to hide how horribly the slingshot actually worked. Like, who knows how far it went?

Michael
The key is to never actually touch it with your hands. It is way too cold. It is possibly the coldest substance that I've ever touched in my life. Kaylee, what are you getting haunted and scared about these days?

Kaylee
Well, I would say that this is a little bit haunting. I feel like I'm always nerding out about podcasts. I listen to a lot of podcasts. I've just discovered a new one called Science Diction, which obviously 11 out of 10, great name for a podcast. It goes into the history of words, where words come from, how we use them how words change, and there was a recent episode specifically about language changing, which is interesting to me, and how words can gain new meaning and sometimes how the words we use today actually came about incorrectly. So, I must share my two favorite examples from this episode. First, what do you call an adorable little four-legged animal that is semi-aquatic and is part of the salamander family?

Michael
Oh, they're called newts.

Kaylee
Yes, they're called newts. So, newts are adorable, but they weren't always called newts. Originally from Old English, they were called ewtes. So, you might call a newt "an ewte" but then the N jumped over to the e-w-t-e and it became a newt. So, the first known use of the word newt was in the 15th century, according to the Merriam Webster Dictionary, so it wasn't always new. It used to be an ewte, which I agree with the podcasters is much more adorable. The second one that I really liked was the word apron. So, in medieval French, a form of the word tablecloth was napron. In the 14th century, the word "napron", appeared to talk about a cloth that you put over tables, but in English, it ended up being a cloth that covered clothes. Like an ewte where the N jumped over, we had something similar happen, where napron became an apron. So, a napron, an apron. So new words came from somewhere, but we got them a little bit wrong in the translation. Anyway, so the guests of this episode of Science Diction, also co-host a podcast called Word Matters, which as you might imagine, I have just subscribed to. That's what I'm nerding out about.

Farah
So, what you're saying is that bad handwriting has decided what words we use today?

Kaylee
Yeah, totally. It's interesting thinking about how language changes based off how we use it, like another one they talk about is regardless, and irregardless and how people get mad that we use both the same way. But English is cool with that, but people aren't cool with it. It's just so interesting to me,

Michael
This has now got me thinking that just as you said how language changes because of how we use it. If we have bad handwriting or want to conjugate things, you make things shorter. So, we went from hieroglyphics to using letters, but now a lot of our communication is texting on our phones. Now emojis are part of our communication, are emojis now going to be like replacing words and now becoming how we say words, not going to say the word or write out the word anymore. We'll just use emojis. I'm thinking about the future, that's how communication is going to be.

Farah
It feels like we're cycling between languages. So, we've gone from hieroglyphics back to emojis. So, we'll go back to handwritten letters at some point?

Kaylee
Yes. Or the typewriter.

Michael
Typewriters are coming back.

Kaylee
Well, they're cool.

Michael
Farah, thank you so much for taking time out of your very busy day to join us here on Nerdin' About where can people learn more about you and Evidence for Democracy?

Farah
Thanks for having me. This was fun. I don't know many people who want to talk about science policy on a podcast, so I can now tick that off the bucket list. You can find Evidence for Democracy at www.evidencefordemocracy.ca. You can also find them @e4DCA across all social media platforms. If you want to hear me being more nerdy you can check me out on Twitter @This_Is_Farah and maybe don't send me an email. I've got enough. You can find me on www.farahqaiser.com. I will answer your email eventually. (Laughs)

Kaylee
Well, I can't wait for all the extra nerdy stuff that comes to your Twitter feed. Definitely one of my favorite folks to follow. Thank you so much again for hanging out with us. It's always a joy to see you. Thank you to everybody for listening. If you want to hear more from us, you can follow us on our socials @NerdNiteYVR on Twitter, Instagram and Facebook. This episode was hosted by us big surprise, edited by me and audio mixed by Elise Lane. We'll be back in a couple of weeks but until we meet again, add some science to those decisions.

Transcribed in part by Otter.ai