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Hello and welcome to Telling Science Stories. Once a publishing course at Simon Fraser University, this show is all about what makes good science communication. From journalism to YouTube videos, I speak with experts in the field about the techniques and theories they use to tell better science stories. I'm your host Alice Fleerackers, and this podcast was originally recorded on the unceded and traditional territories of the Musqueam, the Squamish, the Tsleil-Waututh and Shishalh nations.

I'm very, very pleased to welcome Mr. Greenberg, who is the program director of the Story Collider, where he teaches storytelling and produces storytelling shows about science, so very, very relevant to this course. He's had a lot of different jobs and probably misses teaching math and high schoolers the most right now. I'm not sure why. He also loves writing about himself and is trying to learn from that process. Welcome to Telling Science Stories. It's really great to have you on the show.

Thanks for having me, Alice.

Briefly, for people who don't know the Story Collider already, could you just tell us a little bit about what it is and sort of what you do there?

Yeah, we've been doing it for 12 years and what is it? It is telling true personal stories about science. So it's like, we just break those words down. It's true. It's people telling true things that have happened to them, personal stories about science. And so we have, we really believe that science touches all of us and science is a part of everybody's life. But we have a lot of scientists tell stories. We have a lot of people who have had science happen to them. We have people all over the world tell stories on our stages, pre-pandemic, on live stages, in front of hundreds of people that we gather together to tell stories. And now we're doing mostly outdoor shows in the summer and some limited audience shows in the winter. And then those stories that we have on stage, we record and we put into a podcast that's been 12 years running. We have those stories go on to a much larger audience. And we also teach workshops to scientists to help them tell their stories, tell their personal stories about science.

This lecture episode is focused on the idea of story structure. And this is maybe a bit of an obvious question, but I still think it's important. Like why do we care about story structure? Why is this helpful or important to somebody who wants to communicate something about science?

Essentially what we're talking about with story structure is the idea that stories seem to sort of fall in line with certain expectations. And really what story structure is, I think Hannah Gadsby said it best in her standup special a couple of years ago, that essentially story structure is build tension, break tension. That's all it really is. I think we finished the interview. But it is just like build tension, break tension. And that has to do with how our brains process information. Our brains process information by trying to sort of guess what's next. And so stories are a really good template of what happens next. We go back to what we have heard before. So if we come from a certain culture, we hear stories and we line them with previous stories we've heard because that's how our memories even form. They form through stories. This happens, then this, then this, then this. And so what story structure offers is how do we give people a structure where they can follow along and then break their expectations in such a way that they are compelled to pay attention even more. Because yes, you can follow the same structure you've heard before, but after you've heard the same story over and over again, you start tuning out. And so the basic idea of story structure is give people a little bit of what they've heard before so that they can start expecting something and then break that expectation in some specific way. And that specific way becomes what your story is about.

And so to build tension, what are some strategies for doing that? What does that actually look like?

Well, I had a great storytime mentor who once said, all stories are just a tension between intention and reality. So it's what you want and what's in your way. And that's what's creating tension. I think of that as the engine of any story. The working against each other is what makes things move forward. I think of that want and obstacle. A story will get a lot in a workshop when you ask the overarching question, remember a time that your life changed. If we have mothers in that group, they will immediately gravitate to their child. Their child birth makes sense. What do you want in that moment? You want to give birth to this child. What is in your way is that it is difficult. And that's simple, but it is what causes the tension in that story. If you tell a story like, oh, so I wanted to have a baby and then I had a baby. It's not a story. There's no tension where we get what happened. If I wanted to have a baby, but there was complications in the pregnancy, my partner decided to leave me in the middle of it. These are all things that make it stressful. I feel you already stressing out with the partner leaving in the middle of that imaginary pregnancy that I made up. It's stressful, but the stress is what creates tension because it's not what we want to happen. We know what this storyteller wants and they're good. And not that just happened.

What does the release of tension then look like? Is it just the person achieving their goal? Is this like the big end of the story, the happy ending we're all so accustomed to? Or are these sort of smaller moments throughout?

I do think at the end there is a fundamental release of that tension. You should be building a specific tension through the story and then you should release that tension at the end of this. I mean, foreshadowing is a form of releasing tension to some extent, but too much foreshadowing ruins the story. That's what spoilers are, right? Spoilers are pre-release of tension. You know what happens at the end and so you don't get as invested in the story. What does that release of tension look like? You pointed out like, oh, it's the big aha reveal. I think there are a lot more ways that it could be. And I think this is where when you want to get really nerdy about storytelling and get into like cultural differences in forms of storytelling, a lot of that tends to focus on how do we feel that release culturally. I'm used to that release looking a certain way, but that isn't true of especially indigenous cultures across the world, that there's very different ways that that release of tension looks like. I would say in our Americanized version of storytelling, I think it follows almost the serenity prayer. I don't know if you know the serenity prayer. God, give me the wisdom to change the things I can and to accept the things I cannot and the wisdom to know the difference. And essentially, I think in our Americanized storytelling, we have two endings to any story that we've ever told. We change how we exist in that world or we accept that we won't get that. We accept that our want was invalid. And the tricky part is that third part of the serenity prayer, the wisdom to know the difference. I think that is becomes what most people struggle with is, did I actually change or did I accept?

The structural ideas you just discussed, they're pretty fundamental. You've got these two building blocks. It sounds like you can use them in any story. But we often see these listicles about the seven basic story structures or the four story structures. Are these helpful or is this just a click-bait approach to a story structure?

Kurt Vonnegut proposed that there are six basic structures of stories. And then computer scientists were like, well, let's see if that's true. And they mapped out every story, every like the last hundred, whatever, incredibly westernized. They mapped them out with the Y-axis being good fortune at the top, bad fortune at the bottom, time being on the X-axis. And they found that yes, all of these stories somewhat aligned with these six basic structures. What I think is super interesting about that study is if you go back to what Kurt Vonnegut was actually saying in the beginning when he proposed this, he was poking fun at the idea that we could think of story in this way. He was saying like, look, yes, they have existed in these six basic structures. I can predict what's going to happen based on what has happened before. Because I've read enough stories that I know essentially like if we're at page 35 of a book and there's 350 pages and we've already experienced going up in one fortune and down another, I know where we're going to go next. We're going to go up in fortune. We can't just keep going down. He was joking. What he was proposing was that we need to start thinking outside of this box as scientists are wont to do. Sometimes they miss the joke and then interpret the data. To get back to your question, there are these basic structures, but I would say all of those structures really fall into one

basic structure. That one basic structure is that something has to change. That's all. When you look at all six of those graphs, the only truth about all six of them is that it changes.

I guess that goes back to what you were saying about the fact that there's these sort of cliches and these cliched endings and that we get bored when we hear the same story structure over and over again. Maybe we can use one of these basic structures as a starting point, but getting totally focused in on this, probably going to be a more boring story than if you create something a little bit tailored to your own context.

I tend to think of story structure actually as a really good editing tool. It's almost like a retrofitting of how I think about storytelling. Stephen King, I don't read much Stephen King, to be honest, but his book on writing is just a really sort of, it's beautiful insight into the mind of what it means to write as prolifically as Stephen King has written. One of the things he says, so it stuck with me, you write the story first, you just write it out, and then you go back and figure out what it's about. I think the same thing is true with story structure. I work specifically with true personal stories. That means I'm really just trying to detail out the facts, what happened, and then I look at it and I think story structure is a really good way of being like, oh, I'm starting to notice, I feel like I'm on top of the world by the middle of the story, but by the end, I've lost everything. Therefore, I can sort of highlight those parts.

This was actually a question I have for you. You've actually helped me tell a story that was true and personal about science. What I remember from that experience is you were asking a lot of questions or digging at a lot of things. You did this, a bit of this smoothing out that you're talking about, but I'm wondering if you had to describe what you're doing when a storyteller is challenged with their science story. What are some of the strategies you use to help them find that structure or that plot through their experience?

Well, I look for that engine. It can't be about every single thing that's happened in somebody's life. That's too much for an audience to take in, and it's too much for a person to tell. Specifically, the format that I typically work in is this sort of 5 to 10 minute, 5 to 15 minute personal story told on stage. That in oral form, you really only have space to give the audience one story to pay attention to. What I'm looking for is what is this story really about? What did you want? Was that something that had an obstacle? And if it doesn't have an obstacle, if it's just I wanted this and then I got it, then it's like, there's no story there. We have to look at what did you want that you didn't get? And once I find that, I then start to look at where does either the want or the obstacle show up in the narrative arc of this? What are the things that are superfluous to the tension between wants and obstacles? So I worked on a story with woman Janice Matias, podcast now. She had a long story. It was like a sort of her whole child of her mom being an abortion doctor pre Roe v. Wade in New York City and sort of giving abortions out of their apartment and her not really knowing that as a kid. There was two major issues trying to, they were trying to struggle with. One was trying to keep her in the moment of what she knew as a child and so that she wasn't giving it away. Also trying to figure out what is the story really about? This could be about many things. It could be about secrets. It could be poverty in New York. It could be about women's rights. It could be about a lot of different things. And what she realized it was about, it was about her growing up, wanting to be an adult. And like adults seemed like this thing that her mom was and that she couldn't quite be there because the secrets were sort of keeping her from being an adult. There was something going on that she didn't understand. And so by the end, when she learns, when she really realized what she's done over this course, she gave her mom an abortion when she was like 12 years old and her mom taught her how to give her an abortion. She didn't know what she had done. She doesn't realize until she's an adult that she's until she's 16 and she's talking to her mom and her mom gives her an abortion. And that's sort of the realization of like, oh, I'm an adult now. Once we found that's what she was, she wanted that she wanted to be a big girl as she frames it, that becomes the narrative arc of the story. And we cut out superfluous details that are about while they're really interesting, we don't need to have the details about her relationship with her dad. We don't need to have their details about what it was like at school with this boy that she was, you know, sort of dating. We just needed the details that had to do with her growing up.

I have a friend who used to work in journalism and she would always say, like a story is not about what you put in. It's about what you leave out. About that a lot, because as a writer, you always want to put in more nuggets and details and interesting sort of tidbits, but people have limited capacity. So we've talked a lot about story in this sort of abstract

sense, but I guess one thing I'm wondering is in the context of science, what is there in one of the main challenges that comes up when you're trying to tell us through a science story?

Science aims to be objective. The fundamental aims of storytelling, a personal storytelling, are that it is subjective and that it only has to do with you. So those two things, you can't really square that circle. They're totally at odds with each other. What you can do is understand that each of us is a data point in this infinite universe of data. There is value to the individual data point, even if science aims to sort of essentialize lots of data. I think there are a couple of different ways of thinking about what true personal storytelling about science is. There's one aspect of it, which is telling the process of science through a subjective lens. Historically marginalized communities feel alienated from the process of science because they haven't seen themselves doing it. So if you can show the human process, the very subjective individual human process of doing science, you're actually opening doors for other people to come in and do that and not feel like it is some alien thing in an ivory tower. And the other aspect of it is like science is a process. It's not facts. We come out with facts. And I think we oftentimes at a very young age, I know I memorized lots of facts about dinosaurs. As a kid, I thought that was science. And while it's science adjacent, I would suggest that it's not science at all. It's just memorization. It's the same as memorizing the capitals of every country. It's the same as memorizing all the colors in everybody else's house on your block. It's a memory tool. But science is the process of understanding where those dinosaurs came from, how we understand the history of those dinosaurs. And all of that demands a sort of narrative understanding of the process. The process itself is a and then and then and then and then and then. So therefore, you need a narrative structure to understand that in order for us as a listener to truly process the process, our brains function in story form. They are able to put dots together through a story instead of just a series of facts.

I mean, that is really powerful because we're seeing a lot of this during the pandemic, but sort of members of the public don't necessarily understand the process of science. And that's making it so hard to communicate about some of these really important evidence that could be lifesaving. And yeah, maybe we all need to be a little bit more of a storyteller. But last question I want to ask is whether there's sort of any advice or some tips you would offer to somebody listening who's interested in telling their first true personal science story but don't know where to start.

You know, well Story Collider, I'll say Story Collider, we offer now online Story Slams. We try to do those every other month now. So you can come and throw your name in the hat to tell a personal story. So I think just getting out there and telling stories is helpful. I know in Vancouver, there are some story-centric open mics to tell stories. I would also say just keep writing, journaling. You don't find your voice until you try to find your voice. And it is a muscle that needs to be worked out and it atrophies. I felt it many a time. I start writing and I realize I haven't written in a while. And it feels like a slog to get through the first couple sentences. And then if I keep writing every single day for weeks, I start getting into a rhythm. I can pick up a pen and I can just start writing right away. That has to do with knowing how you talk, which we don't do that meta-analysis in our general conversation. It takes really doing that meta-analysis of like writing down what you're saying or speaking what you're saying into a device nowadays. That's how I write is I just, I record myself talking and then I listen back and getting over the hump of like hearing yourself talk. It's amazing how valuable that is to start seeing like, oh, I always sort of talk this way. What if I tried to take out all the qualifiers? I try to add it to every single moment that I'm talking. What if I just try to get through stuff and hope that I've qualified enough just by existing. Then look at like, what do I actually need to qualify at the end of that? What actually stays confusing? Edit what you write, figure out what you like about what you are saying. Don't try to write what somebody else is saying. Figure out what it is that you like about your voice.

That's a very nice, sort of wholesome and inspiring moment to wrap up this interview. Thank you so much. I really enjoyed speaking with you and I'm sure that Steven as well enjoys listening as well.

Yeah, thanks. They better. I'm charming.