Telling Science Stories. Episode 1: Scicomm Models with Jennifer Metcalfe. January 28, 2023.

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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.

Today's special guest is Jenni Metcalfe, who is a senior science communicator who loves to find, tell, and share people's stories, help scientists use the right communication strategies to truly engage people, and train and mentor scientists and others involved in science to communicate. Jenni has been operating her own science communication consultancy, and is currently the president of the International Scientific Committee for the Public Communication of Science and Technology Network, which I should know how to pronounce better because I'm also a member of that committee. Thank you so much for being here today, Jenny. It's really a pleasure having you on this show.

It's a pleasure, Alice. And before we start, I should acknowledge the traditional owners of the land on which I am currently on, which are the Yagara people who have lived on this land for many, many years, and I pay respects to the elders past, present, and emerging.

So to get started, I wanted to just cover some basics that students or other sort of new science communicators might not be familiar with. And the first is this idea of the science communication model. I see this written about a lot in the research, and you know, there's a lot of debate, which I'm sure we'll get into, but my first question is why? Like, why do we care about models? What is the value of having a model when we are trying to communicate science?

I have been so immersed in models for a long time. It was in fact, the focus of my PhD, which I completed at the beginning of 2019. Models have been around in my mind for a very long time. And so your question made me stop and think, what in fact is the value of a model to a practitioner? And so I really like that question. And I think in many respects, you can do a really good communication without any model. So I've been a communication practitioner for some 36 years now. I'd like to think that I had, before I even knew about models, that I was doing good science communication. However, I think what models adds to my practice is a way to organize how I think about what I do. And so as we explore models a little bit more in this conversation, hopefully that will become apparent. But when I'm planning science communication, for example, I try to include a mix of different types of objectives that reflects a number of different types of models. And I think that mix makes for good science communication.

Got it. And the model that I see written about the most in research is actually a model that seems to be going a little bit out of fashion, the deficit model. Can you briefly explain to people who are not familiar with it what that model actually is?

Well, this is a one-way communication model where knowledge goes from scientists to the public. Now, it's called the deficit model because researchers theorized that the public had a deficit of knowledge that needed filling by scientists, which is, I think, a big presumption. I actually don't think there's anything wrong with this model of communication. I don't think it should be thrown out, like many people say, because there is a demand for knowledge from scientists. Just look at COVID. In the last couple of years, the public have really wanted to know the best possible science about the virus and about the ways to treat it, deal with it, and more recently, the vaccines that are around it. So I don't think I prefer to call it the dissemination model because it's a one-way form of communication, which may happen through mass media and may happen through public lectures. It may happen these days, of course, through the internet and social media. Even though it's called social media, it's often still a one-way form of communication.

So you've mentioned that this model has kind of... Some people feel we should throw it out, that it's become less popular. Why is that? Why is it that researchers think that this model needs to be either done away with or revamped?

Well, it's not the only form of communication, and it's not always the most effective form of communication because scientists providing facts and information doesn't actually necessarily change

how people think or how they behave. So other forms of communication are also important, which doesn't discount the importance of what I call the dissemination model of communication, but it just means that it's not enough by itself. And certainly, there's still a dominance of that sort of type of communication. So we need to look at other forms of communication if we're to create real positive changes out there.

Got it. And so some of these alternative models, these other ways of communicating, can you tell me about sort of what these newer models are? What's replacing or sort of complementing the deficit model today?

Well, there's been what researchers often refer to as a bit of an evolution of the thinking about models, and I certainly had my own personal evolution in that sense. The next model to commonly come into vogue was what's called the public understanding of science model or dialogue model. And that actually is where there's a two-way conversation between scientists and publics. And in this conversational model, it is presumed, and not always the case, but it is presumed that other forms of knowledge other than science are acknowledged, valued, and potentially even used. And that includes Indigenous knowledge. It also has the idea that if scientists can better understand the people they communicate with, then they may be better at communicating with them, which of course is true. This sort of conversational style of model was really important. But a lot of people talked about the dialogue model reinventing the deficit model and being an excuse for doing the deficit model better. And in some ways it was because it was still directed by scientists, science institutions, science communicators. So from that there arose, about 20 years ago, calls for a more participatory form of communication where various people were encouraged to be part of the communication and part of even the research, to even perhaps direct what researchers do, which is a whole different change in the power dynamic of the whole situation.

I always find it challenging to differentiate between these in practice, and we'll get more to the paper you did that's quite relevant to that. But if you could just give some examples for students, like what would you see as a deficit, sort of traditionally deficit model, a dialogue model, and a participation model?

Okay, so the sort of activities that are typical of, I'm going to call it dissemination model, are our lectures, our articles in the media, our lectures, our lectures, our lectures, are those sort of one way types of communication, even doing a demonstration is one way from the scientists to the public. Dialogue on the other hand, it may be that scientists go out to science communications go out and they ask questions of people. What do you think about this new technology? Do you have any concerns about it? What would you like to know about it? What's your situation? What's your context? Do you have any information or knowledge that might be useful in dealing with this problem? It could be a debate, it could be a conversation, it's some form of interaction, and that's dialogue. In terms of participatory science communication, well, we've seen a huge rise in citizen science, and that's one form of participatory science communication. At its very basic level, it's helping to gather data for scientists. But to me, that's just gathering data for scientists doesn't realize the whole potential of participatory science communication. So there are short term things like consensus conferences, citizen juries, where citizens come in and they hear about the science and then they make decisions based on those sorts of things.

And you mentioned earlier that in the dialogue model, it might be more useful because there's some listening, you know, you're trying to understand what the audience or the public you're speaking with cares about what they already understand, and then it's better for your communication or for your message. But why is the participation model sort of seen as useful or valuable? Like, what is it bringing to the table that the dialogue or dissemination model isn't quite able to get at?

The participatory model is hard to do on a large scale. So it's usually with a smaller group of concerned, often called the concerned group. And what that can really do, what that can really achieve is this is a deliberation about science, it can change attitudes and opinions, it can, if it's done over a longer period of time, a lot of it is just short term, but I've been involved in longer term participatory programs. And it can develop relationships of trust, where various groups of the public, you know, I've worked with farmers, start to trust the scientists and they form friendships and relationships. And the really interesting thing about that that I've found is that once those relationships of trust happen, dialogue happens in a much better space. And that dissemination of information within that so called deficit model also is far more effective because publics are trusting scientists and scientists are trusting the public.

That's really nice. It's like the key to the all the other forms, which is maybe a good segue for the next thing I wanted to ask you about, which is this paper that you wrote, I think back in 2019, that

I think about all the time when I think about models, where I think it's called comparing science communication theory and practice and assessment and critique using Australian data. So I'm just wondering, can you tell us really briefly what actually inspired you to write this paper or to take up that research?

I was involved in 2012 in a national project in Australia. The interesting thing is that they didn't define what engagement was, but we defined it as being anything to do with science communication, actually. And so the purpose of that was to get a snapshot of the sorts of activities that were happening in the science communication space in Australia. And from that would inform our national government about the sorts of things they might put into their strategies to roll out after that time. So we did that project and it was really interesting. We looked at, I think we managed to gather in over 500 different activities and we wrote a report about those activities. The same time I started my PhD, it was very much part time because I didn't finish it to 2019. I thought, wow, we've got all this data. It would be really interesting to see if I can work out what sort of model was dominant in these activities in terms of the deficit dialogue and participatory science communication space. So that got me intrigued. And that's why I did this research looking at this data to look at how these theorized models were actually playing out in practice.

I'm wondering, so what was sort of your key finding? What did you get from that project?

Probably the two most interesting findings. The first one is that most of the activities, despite considering themselves to be about science engagement, were very firmly situated in that deficit, simple dialogue space by far. There were very few activities that were designed to be participatory. That was the first interesting thing. But to me, perhaps even more interesting was that I discovered it was actually hard to classify an activity as being just deficit, just dialogue and just participation. And I found that many activities had elements of all of those things. So while an activity might be mostly about demonstrating to school children the fun of science, there may be an element of discussion there where the demonstrator talked to the students and had them ask questions. So the dialogue model was coming in. They may have even got some of the students to come up and help with their demonstrations. So very simple participatory coming in. They were all mixed up. They weren't necessarily separated out.

That's really, really interesting. What does this mean for people who want to do science communication? To you, what is the big implication or takeaway for practitioners like yourself?

Well, for me, it means that we need to try harder to build in more sophisticated dialogue into our communication practice. And we need to look at ways to be more participatory in what we do. Now, participatory science communication can be very expensive, and it can be very challenging. And I think that was one of the reasons why it wasn't happening in practice. And in fact, we actually ran some focus groups for science communicators in Australia. And there was certainly a clear aspiration to do more of these sophisticated science communication activities in the dialogue and the participatory space. But clearly, they weren't getting the resources that they need. The challenge that I think is to find low cost ways of doing it, one, and two, to find resources to do it properly, particularly on important issues. Like for me, important issues include things like climate change, waste management, achieving a circular economy with zero waste, and the concept of waste not even part of our language. Those sort of issues, I think, really require that more participatory approach to communication.

And what kind of resources do you think people need?

Certainly I think the biggest barrier, and I'm sure anyone involved in communication anywhere in the world would probably say this, is that lack of institutional support. If you're working for an organization, often they don't see the value of communication. Or, even worse, that their perception of communication is a brochure. It is a website. It is those more one way forms of communication. They don't actually acknowledge that dialogue, that participation can be part of that whole space of science communication, and in fact, need to be part of that space in science communication. My own personal mission is changing that mindset. One step at a time. And as I said, I've been doing it for 36 years, and it's not an easy thing to do.

Well, hopefully this interview helps. I guess the last question I have is if you have any other piece of advice or guidance that you would like to offer someone who's just getting their feet wet in this wonderful world of science communication.

Well, I think the most important science communication skill is the ability to listen. And none of us are particularly good at it. We always want to jump in with our own ideas, our own thoughts. And

that's where I think good dialogue, good participation can really happen when you as a science communicator step back and listen. Listen to other people's thoughts, their ideas, their values, their new innovations, and a whole lot of things can change when we listen and when we listen actively. And that includes people involved in science communication practice listening to researchers and researchers listening to practitioners, because it will improve what we do on both levels. I mean, I'm lucky in that I'm both a practitioner and a researcher, but I learn all the time from other practitioners and other researchers.

That's really, really great advice. And I have to say, I learned a lot from this dialogue with you. So thank you so much for being here virtually from across the world for making time to share your knowledge with us.

Thank you so much, Alice. It's a pleasure.