FEATURE

The ART of Science Storytelling

TEXT
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PHOTOS
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The PASSION began at a young age.

"My parents fostered a sense of curiosity about the natural world," Cylita Guy said. "We went to the [Ontario] Science Centre a lot." The experience inspired her to join a school program where she spent a semester in grade 12 at the Ontario Science Centre. When she discovered they were short-staffed during her undergraduate degree, it was only natural that she would be hired to teach students much like herself just a few years earlier. She had unknowingly ignited a passion for science communication.


Alexandra Gellé


Cylita Guy

Following her Ontario Science Centre days, Guy completed a PhD in ecology and evolutionary biology at the University of Toronto, and set out on her quest to transform the world of science communication. Together with her passion for science, Guy also wanted to showcase that women, and those from diverse backgrounds, could be leaders in their respective fields. Right now she's a data scientist at Assurance IQ and working on her first children's book for Annick Press.

Alexandra Gellé also fell into science communication unwittingly. "I didn't realize I was doing science communication when I was," Gellé said. "I had always been telling people that without chemistry, we couldn't do anything. I just didn't realize that this was a form of science communication." Gellé is currently working on her PhD in chemistry at McGill University where she is designing sustainable ways to speed up chemical reactions. She had felt that her own research didn't sound very life-changing to people outside of her field, so she wanted to reshape the way people viewed chemistry.

What is Science Communication?

"[Science communication] is anything but speaking to your own peers," Gellé explained. "You want to share your research with people who are not experts in your field and speak about science in general to lay audiences." It's about telling a story – engaging people who may not otherwise be interested in, or knowledgeable about, a particular field of research. Moreover, science communication is about "sharing

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a message with people and using that message to persuade them to take action," Guy said. Now, arguably more than ever, during the COVID-19 pandemic, it is critically important for scientists to effectively engage with non-scientists. Scientists need to be able to communicate the severity of viral transmission and infections such that provincial and federal leaders can make decisions about which sectors of society should remain open or whether a state of emergency should be declared. Provincial and federal leaders then need to be able to knowledgeably address members of the general public on the importance of, and reasons for, good hygiene practices and proper social distancing. All of these steps require science communication skills to effectively reach the target audience.

Breaking into the SciComm World

"Communication – like any skill – is something that we learn and develop through practice," Guy said. "It's helpful if you can find a communication course to take if you aren't comfortable talking to people outside your discipline." Attending a science communication workshop or conference may also be worthwhile. Guy and Gellé are two of the founders of ComSciConCAN [1], an offshoot of ComSciCon [2]. The brand encompasses a series of conferences from Harvard University that brings together graduate students already engaged in science communication to network and broaden their skills. Both Guy and Gellé were among the first Canadian attendees. Following the first ComSciConCAN conference in 2019, the organization is now planning smaller local meetings across Canada to train graduate students who are new to science communication. The first French-only meeting took place in June 2020 and the first Toronto meeting will be in fall 2020.

In addition, Gellé is the director of Pint of Science Canada [3], an informal science speaker series that takes place in bars across the country. Speakers give short, interactive talks to an audience with a wide range of knowledge on the subject and then answer audience questions for the rest of the session. Attending these talks given by more advanced science communicators can instill you with ideas for how to make your own presentations more engaging. Once you've acquired some skills in science communication, signing up as a speaker for this event can then help further hone your abilities.

Guy notes that one of the fundamental skills of science communicators is understanding your audience – whether it's young children, adults who may not know anything about science, or scientists in a different field [4]. Depending on who you are speaking to, you will need to change what message you are conveying and how you share it. You may use more science jargon when talking to other scientists, but not when talking to children or adults outside your field. Nevertheless, "it's important to be empathetic," Gellé said. "People often talk about having to 'dumb something down,' but instead they should be talking about how to rephrase using common terms. Your audience may be very knowledgeable, just not about your field of research." Being able to relate to your audience will help you present your message in a more meaningful way [4].

Science communication can also manifest in different forms. Traditionally, journal publications as well as conference posters and talks have been the primary platforms for science communication. However, they are limited in scope such that only those who

> “YOUR AUDIENCE may be very knowledgeable, just not about your field of research.

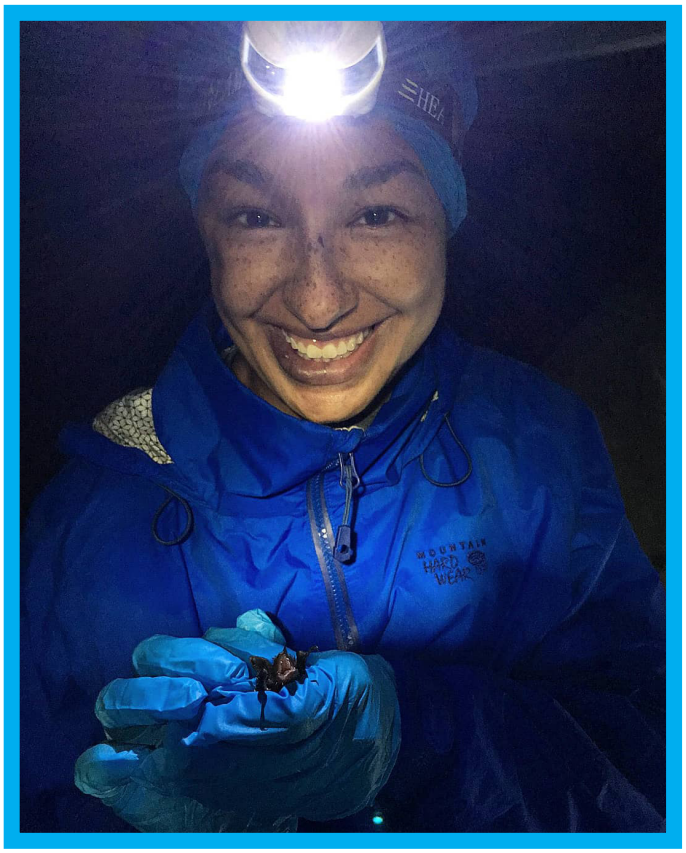
have access to the journals or conferences, and understand the jargon, are able to receive a scientific message. Science communication can also be conducted in ways that are more accessible to the general public, such as through working in a museum or science centre (like Guy), assisting government policy makers, or writing for a magazine or journal that the general public would read. In recent years, social media has become another platform for science communication, with Twitter being one of the major sites used by scientists to network and share the latest developments in their research [5]. Live-tweeting from conferences also allows researchers not in attendance to stay on top of cutting-edge research in their field and participate in conference discussions remotely [6]. For both Guy and Gellé, social media has fostered a strong sense of community as well. “It has helped me meet a lot of other people with shared interests as well as other ecologists with diverse backgrounds,” Guy said. Gellé adds that social media has helped her stay in contact with other science communicators that she has met at conferences. Both agree that the networks they have developed through social media have led to collaborations with other scientists as well as invitations to give talks and workshops that otherwise may not have transpired.

Joining the Social Media Crusade

In this digital age, social media can be used to share many different pieces of information through the click of a button: statistics showing the number of active COVID-19 cases in a particular region, videos on what songs to sing while washing your hands, articles touting miracle cures for COVID-19, and blogs about the latest baking trends during quarantine. Information – and misinformation – can be shared and absorbed instantaneously. Therefore, it is important for readers to remain vigilant. “Many people claim to be an authority on a particular subject, so how can we help people determine which articles are truthful and which aren’t?” Guy said. This is a question that science communicators have wrestled with for decades, and the anti-vaccine and climate change denier movements are evidence of the continuing struggle. For Gellé, addressing misinformation is important. “If I see a post on social media that I know is untrue, I will reach out to that person and engage with them about the topic.” Again, knowing how to relate to the person you are addressing, and understanding where they are coming from, will help you

better interact with them.

Taking it all into consideration, creating a social media account for science communication may seem daunting and time-consuming. On Twitter alone, there are many different things to consider – a personal bio, character limits, tweets, retweets, hashtags, followers, tags, etc. Guy has developed workshops that focus on using social media to communicate science and has some tips. "First, you need to decide on your personal brand," Guy said. "What do you want people to know about you? Then you need to make sure the content you post aligns with that brand." In other words, knowing what you want to accomplish through your social media presence will help you shape your online interactions [6]. In terms of which social media platform is best for science communication, Guy says it depends on the message you want to share. With Twitter, you have a character limit, but with Instagram, you can make longer, more visually appealing posts. Regardless of the platform, Guy emphasizes that "using elements of storytelling in your social media posts is important. Thinking about what you want to convey, who the main character of the story is, and how you can pull the reader in will make your posts more engaging." In these times of physical distancing, social media will likely become even more popular among scientists to develop and maintain networks and share their research. Virtual conferences taking place on Twitter or other platforms may become the new normal for the time being; learning how to effectively communicate scientific research through social media is timelier than ever.



Creating Space for Every Voice

While science communication has certainly advanced in recent years, the field, like many, could benefit from improvements that come with increased appreciation. Guy and Gellé agree that minorities, such as certain science disciplines and audience backgrounds, are often not involved in science communication. Gellé said that research in certain areas of chemistry or physics, for example, may be more difficult to communicate to the general public because it isn't as fun or trendy or easy to visualize. As a result, the general public is less aware of the importance, or even existence, of these fields of research. More researchers in these fields with a passion for creativity and science communication may help to change this. "French communities, for example, often lack voices," Gellé said. "We need science communicators who are able to spread information to these communities as well." Likewise, while Guy knows many other amazing diverse science communicators, the field is still dominated by White voices. "Highlighting the work of diverse communicators is critical if we want to engage and encourage the participation of all communities in science," Guy said.

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Making a Difference

Ultimately, developing skills in science communication will help you become a better scientist. Not only does it strengthen your understanding of your own research, but Guy said it also provides an avenue for people in the audience, who might not have otherwise heard of your work, to collaborate with you or use your methodology. In addition, by promoting your latest paper on social media, you could conceivably expand your paper's readership and, consequently, the number of citations your paper receives [7]. Being able to effectively communicate your science can have a positive impact on your career and the quality of your research. It can also satisfy the underlying motivation for many scientists – the desire to make a difference. Both Gellé and Guy cite this as the reason they are so passionate about science communication. "People often forget about chemistry and how important it is to their daily lives," Gellé said. She found that the most rewarding feeling was when children come up and tell her they want to study chemistry after attending one of her workshops.

It's a feeling of accomplishment she can't get working in the lab by herself. Guy feels a similar way. "I want people to feel like they have the right to do what I do," Guy said. "Helping people get excited about something they didn't know or didn't understand or didn't feel like belonged to them before – that's why I love doing this."

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