

# Toronto Met University magazine

FOR ALUMNI AND FRIENDS


MIS-  
INFORMATION  
... PUTS  
EVERYONE  
**AT  
RiSK.**

HOW CAN WE

**BUST  
MYTHS**

AND  
**EMPOWER**

people  
**TO THINK  
CRITICALLY?**

SCIENCE EDUCATOR  
  
**ANTHONY  
MORGAN**  
and other experts  
on how to  
TALK ABOUT SCIENCE

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Anthony Morgan, PhD student and new co-host of *The Nature of Things*.

# HOW TO TALK ABOUT SCIENCE

In a world  
that's growing more  
polarized,  
TMU professors  
and students discuss  
how to battle  
misinformation

•PHOTOS BY.  
WADE  
HUDSON

•BY  
DAN  
FALK

ILLUSTRATION BY HANNAH BROWNE






# A SPRING AFTERNOON in 2014, DOZENS OF PEOPLE gathered TO WATCH AS

Anthony Morgan was blanketed neck-to-toe in garbage bags with the edges duct-taped to a glass window on a storefront on Queen Street West in downtown Toronto. With the tape ensuring an airtight seal, a vacuum cleaner was used to suck the air out of the bags, vacuum-sealing him to the window. An assistant pulled away the step-stool that Morgan had been standing on; still, he stayed firmly in place.

"It was easily one of the best days of my life," says Morgan, who has been enthusiastically bringing science to the public for the past 15 years. He's currently completing his PhD in TMU's Department of Chemistry and Biology. "I figured, if you go to a really busy intersection in downtown Toronto at five o'clock on a Friday and do something interesting enough, people will probably stop and look."

Morgan is now reaching an even larger audience as a part of the long-running CBC TV series *The Nature of Things*, sharing hosting duties with Sarika Cullis-Suzuki. Cullis-Suzuki, a marine biologist and science communicator, is one of long-time host David Suzuki's five children. After hosting the show for 44 seasons, Suzuki announced his retirement last year.

"In some ways, it was just luck—being in the right place at the right time," Morgan says of landing the gig at *The Nature of Things*. On the other hand, he's been doing science on TV for about a dozen years, working on shows that have aired on the CBC, TVO and the Discovery Channel (where he hosted a regular segment on *Daily Planet*). Through all of that, one question has kept him going: "how do you engage the public with science in ways that are unexpected and entertaining?"



In 2014, Morgan also founded Science Everywhere, a science-focused media and events company that was incubated in the TMU Science Discovery and Transmedia Zones. "We were doing pop-ups on the street, lots of weird science, designed to catch people's attention and get them asking questions," he says.

Morgan is keenly aware that science lies at the heart of many of the issues that affect our lives most deeply, from climate change to artificial intelligence to pandemics. Yet science communication has faced enormous challenges in recent years, especially with the rise of mis- and dis-information, the growth of online echo chambers and the tendency for just about every issue to get mired in divisive politics. The spread of misleading information puts everyone at risk. Without a shared notion of what's true, a shared reality, democracies themselves are at risk.

"And the timing couldn't be worse, because some of the challenges we're facing are existential," says Morgan. "Climate change is the most obvious one. But there's also developments with biotech and with artificial intelligence (AI) that are concerning."

And with misinformation comes polarization—something Morgan explored in his PhD research, which examines how polarization happens, especially in the context of controversial issues in science. Polarization is also something Morgan has witnessed over and over with the people that he meets. "More and more, if I know how you feel about climate change, I can now predict how you feel about a bunch of other topics," he says. "And you can pick any other range of controversial topics where that will be the case."

Morgan's research shows that polarization blocks cooperation as people get stuck in cycles of unproductive



Jessica Mudry, professor and chair of the TMU School of Professional Communication.

**THE** rise of mis- and dis-information are just one facet of a media landscape that's been turned upside down by the internet and, more recently, by the rise of social media.

"People don't go to the library anymore; they go to Google," says Jessica Mudry, professor and chair of the TMU School of Professional Communication. "We just assume that the first thing that Google spits out, at the top of the page, is somehow the most important or the most veritable piece of information out there. But that's not necessarily the case."

And then there's the problem of bad actors intentionally disseminating fake news—which is compounded, says Mudry, by the fact that technology now makes it relatively easy for anyone to spread "news" that looks like the real thing. "Someone can present something in a scientific-sounding manner, with 'data' to back it up, and it might look just like a paper that's been peer-reviewed in a scientific journal. If a bad actor can figure out how to present material in what looks like an objective way, then anything can look like a fact."

Our news consumption habits have also been evolving. Today, about one in four Canadians gets their news primarily from social media—and the information they find there is not necessarily reliable. In another survey, more than two-thirds of Canadians reported encountering COVID-19 misinformation on at least one of the social media channels that they use.

conversations. Better conversations can be nurtured by identifying shared values, practising curiosity and increasing the amount of informal contact. That doesn't mean everyone has to see eye-to-eye on everything—Morgan welcomes a diversity of viewpoints—but where science is concerned, he would love to see more consensus building.

"I'm concerned about our inability to reach a shared understanding of what reality is," says Morgan. "That makes it really challenging for us to move forward in a cooperative manner, as a species."





**THE** COVID-19 pandemic has been especially challenging for those trying to ensure that ordinary people have access to accurate, authoritative scientific information, says Craig Silverman, a reporter for ProPublica and a visiting lecturer in the TMU School of Journalism, where he holds the title of verification expert in residence.

“There was a huge communication challenge inherent in something like COVID-19, which was a brand new virus that was deadly, fast moving and global,” says Silverman. “And so we have a volatile cocktail in that sense, when it comes to communicating about COVID with the public.”

Public health officials, for example, were anxious to get the best science out to the public—but the “best science” evolved over time (with masking protocols as a prime example), which sometimes left the public confused.

Rapid access to varied public opinions through social media added another layer of complexity.

“It’s become incredibly difficult for the average social media user to recognize what’s credible and what’s not,” says Anatoliy Gruzd, a professor and Canada Research Chair in Privacy Preserving Digital Technologies in TMU’s Ted Rogers School of Information Technology Management. “You may assume that if a platform like YouTube is recommending a video about, say, how bad vaccines are, that it’s credible information.”

To compound matters, those who put fake news on the internet know exactly what kinds of materials will hold our attention. On YouTube, for example, fake-news videos “tend to be very engaging,” says Gruzd. “They appeal to your emotions, and you spend more time looking at them—and so they get ranked higher in the recommendation algorithms.”

While our desire to consume news in short video clips might seem like bad news, there’s also an upside, says Gruzd. His research has shown that some of the most-watched pro-vaccine videos were actually snippets from popular U.S. late-night TV talk shows—old-school media that was being circulated in abridged form in a new format.

Still, the power of large companies like Meta (which owns Facebook and Instagram), Google (which owns YouTube) and Twitter (now known as “X”) has left scientists and science communicators struggling to adapt. “This information environment is heavily dominated

by some very large companies that run very big digital platforms with a profit motive,” says Silverman. A lot rests “on what those companies do or don’t do, how they build their systems, and what they choose to promote or to remove.” (Gruzd points to a study that showed how, in 2020, a single tweet was able to spiral into a full-blown conspiracy theory about COVID-19 on Twitter, based on supposedly empty hospitals.)

Still, there have been positive steps. Silverman points to the European Union’s *Digital Services Act*, which went into effect last year. The legislation holds tech giants accountable for the content they host. However, the major social media companies hold a lot of power, and there’s “a real battle over what to do about it,” says Silverman.

Another step forward, says Silverman, is that mainstream media outlets are recognizing that not every story needs to include two opposing voices (even though this need for balance has been taught in journalism schools for many years). “I think over the last 20 or so years, there’s been a real sense of pushback—that you don’t just, by default, go out and find dissenting voices and include them. Because there actually are issues on which there is clear factual evidence, and the people who choose to deny that don’t deserve to get equal time alongside actual verifiable facts and evidence.”

But as Mudry points out, talking about issues such as climate change in a responsible manner involves more



**IT'S DIFFICULT FOR THE AVERAGE SOCIAL MEDIA USER TO RECOGNIZE WHAT'S CREDIBLE**  
—ANATOLIY GRUZD

than just journalists. “We still have weather forecasters—let’s say it’s early November—who will come on and say things like, ‘Oh, it’s going to be a beautiful weekend, it’s going to hit 25 degrees Celsius.’ That’s not normal for November, so let’s stop talking about it as though we’re going to enjoy the weekend. For me, it’s all about framing. Whenever we have unseasonably warm weather, the framing is inevitably positive. It shouldn’t be.”

While there’s room for everyone to try harder, Mudry says those at the eye of the storm—the scientists—are not necessarily doing anything wrong. “I don’t think the scientists have been at fault here,” she says. “It’s not their responsibility, necessarily, to educate the public; it’s their responsibility to do the science.” While it would be great if scientists were also great communicators, she says those skills aren’t necessarily seen as valuable, and that science graduates don’t always receive adequate training for addressing the public. Adds Gruzd: “We have a number of scientists who are media savvy, who develop an online presence and a strong following—but that’s rare. Most of us are trained to do good research; we’re not trained to be professional science communicators.”

Members of the public, meanwhile, might not be in a position to judge between competing scientific theories, or even to follow the details of a technical argument in a scientific paper. “We can’t expect the average person to read a research paper about climate change, or see the difference between two papers,” says Silverman. “That’s not reasonable to expect. And so we have this challenge of how do we, as the media, and as experts in the scientific community, find ways to effectively communicate what can be very technical, evolving knowledge, and do it in a way that is not talking down to people; in a way that respects them.”

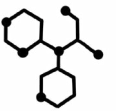
Even so, there are things that can make science, and the media landscape it inhabits, easier to navigate. An easy starting point is to be more careful about what we consume and disseminate on social media. Education and media literacy training can play a role, Silverman says, but that may not be enough. “Recognizing and fighting against false and misleading information is important—but those things are a symptom of this new, different, rapidly changing and easily manipulated information environment.

“The best route for equipping people to navigate this information environment is not to tell them, ‘here’s a list of good websites; here’s a list of bad ones’—it’s to help them gain the skills to read and think



critically,” says Silverman. “That’s not a new idea—but figuring out how to do it in the digital environment, where the signals of credibility can be very easily fabricated or manipulated, creates new challenges.”

Education for journalists, meanwhile, is particularly important. “We need to focus on educating journalists so they can produce good quality work, and be trusted guides for the public in this environment.”



**MORGAN**, meanwhile, is eager to start this new phase of his career with *The Nature of Things*, where he debuts as co-host in January 2024. He also recognizes that he has big shoes to fill, given how beloved Suzuki has been with the Canadian public. As Morgan said when he got the news he’d be joining the show: “I don’t think anybody can be David Suzuki, because he really is this kind of singular, inimitable character. So I think the challenge for me is going to try to be myself and allow myself to genuinely follow my curiosity the way that I always have.”

And while he recognizes the power of television, he also believes there’s no substitute for getting out into the real world and meeting people face to face. He appreciates that different people bring different experiences to how they navigate the world—and that’s okay. “I think our primary concern should be how we think, rather than what we think,” he says. “We all have blind spots in our thinking that are, by definition, invisible to us. We don’t know that they’re there. And the best way to find your blind spots is to talk to people who see things differently than you.”

For Morgan, science communication is about more than mere facts. It’s about actually getting to know people—to make connections, and, especially, to meet those outside one’s electronic “bubble.” While social media platforms like X and Facebook can be divisive, “most people are actually pretty reasonable, when you talk to them,” he says. ●

Dan Falk (@danfalk) is a science journalist based in Toronto. His books include *The Science of Shakespeare* and *In Search of Time*.