

Plenary Report: A Stand-up Comedian's Guide to Science Communication

SPEAKER:

Kasha PatelDeputy Weather Editor
The Washington Post

REPORTER:

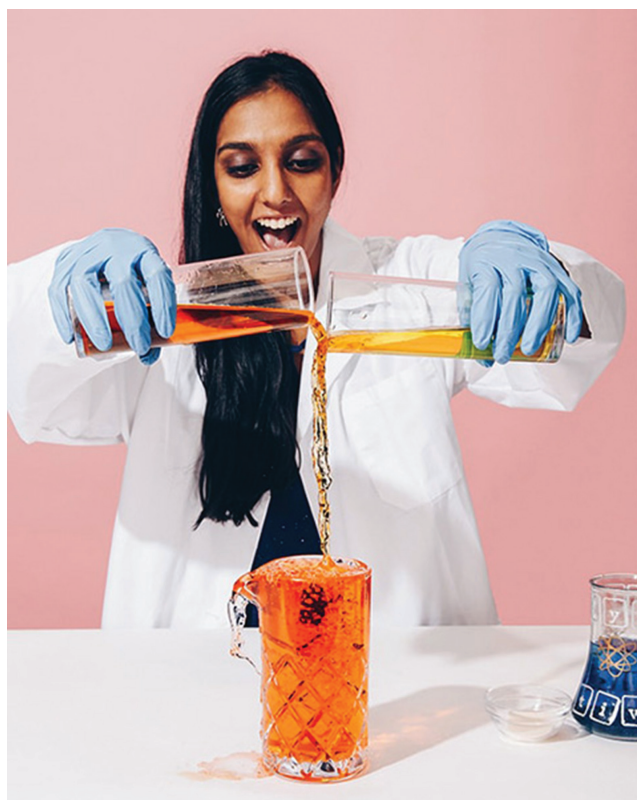
Peter J Olson

JAMA Network

Science editors are a lot like cats: they spend most of their time on computer keyboards and only annoy writers in the process. [Insert laughter here.]

That one-liner may or may not strike you as funny—but regardless of whether it made you giggle or groan, I couldn't resist employing one of the comedy tactics suggested by Kasha Patel during her Plenary Address at the CSE 2023 Annual Meeting in Toronto, particularly given her assertion that just about anyone can craft a joke if they really put their mind to it. A science journalist by day and comedian by night, Patel kicked things off with a lively, rib-tickling routine that focused on her formative years as a self-described nerd—including naming her phone charger "Mitochondria" (because it's the powerhouse of her cell) and taking on a dubious position in the world of sports (as treasurer of her ultimate frisbee team)—and highlighted a previous and pivotal stint at a "small science startup called NASA." The latter experience yielded a wellspring of content for her burgeoning career as a stand-up comic; beyond that, it would inspire an extensive empirical endeavor that would help her assess the connections between comedy and science and explore the use of humor as a tool for effective communication of scientific principles.

A chemistry major in college, Patel enrolled in a master's program for science journalism at Boston University while preparing for a run at medical school. One fateful day, a colleague invited her to a local comedy club where a mutual acquaintance was performing—an experience that would ultimately inspire her own foray into stand-up comedy. The typical Tuesday-night open-mike crowds didn't respond all that well to science jokes; yet Patel persevered, and it wasn't long after her move to NASA that, with the support of her new colleagues and the D.C. Science Writers Association, she performed her first science comedy show in Washington, DC, in 2014. The show, simply called Science



Kasha Patel

Comedy Night, quickly garnered an audience—and to this day, the science-focused variety show features comedians and scientists alike, as well as the occasional noncomedian/nonscientist who wants to throw their hat in the ring.

As much as Patel enjoyed the early successes of her show, the scientist in her wanted to know: Are science jokes actually funny? To find the answer, she took an appropriately analytical approach. Using a sample of 500 of her jokes, she measured the amount of time it took her to say the premise of each joke, then measured the number of seconds of laughter that followed to come up with an efficiency ratio. The results? Although her science jokes represented only 25% of her sample and generally had longer setup times, Patel found that they performed better overall when it came to tickling audience members' funny bones.

<https://doi.org/10.36591/SE-D-4603-02>

CONTINUED

Like any good scientist, Patel shared her interpretation of her findings. “I think science and comedy have a lot of things that complement each other very well,” she said. “For instance, science is all about truth and facts, and comedy allows you to exaggerate those elements... [and] nothing is funnier than the truth.” Opining that “a lot of people just don’t realize the inherent humor that you can find in certain science topics,” Patel suggested that applying a comedic edge to the scientific enterprise could serve to ameliorate its seemingly unwavering reputation—among scientists and nonscientists alike—as an innately rigid and humorless field. Not only that, a separate, subsequent Twitter poll she conducted revealed that most respondents viewed science comedy as an effective means of science education.

The literature further supports the harnessing of humor to promote effective science communication; at least one study has shown that where scientific topics are concerned, an audience’s perception of a comedian’s expertise in a particular topic goes up the funnier the comedian is.¹ Patel decided to expand on this concept in her own experiment: She trained several comedians to perform her own science comedy routine, then introduced some of them as “a scientist” and others as “a comedian” before their performances. The audience feedback was telling. If a joke was generally funny, the audience felt the speaker’s communication of the joke was effective regardless of whether they were a scientist or a comedian; however, if a joke fell flat, the scientist was tagged as the worse communicator. Here again, Patel referenced the aforementioned stigma of science as a potential reason for this general perception.

These data provide strong support for including comedy as a component of science communication—the trick is finding the right mechanisms for doing it. In an interview with climate change communicator John Cook on her podcast *Science Comedy Paradox*,² Patel and Cook discussed the concept of *parallel argumentation* and explored how incorporating humor into an argument can be a powerful means of combating misinformation. By simply extracting the logic of a situation and applying it to a different, more ridiculous situation, the ludicrous result will not only elicit laughs, it may also help you make your point. Cook applies this tactic in his ongoing efforts to combat climate change denial, and he also used it in an attempt to dispel antivaccination sentiments during the COVID-19 pandemic, often in the form of cartoons. In one depiction, Cook equated the common pandemic-era sentiment of “The curve is flattening—we can stop social distancing” to a skydiver deducing that “The parachute has slowed my fall—I can take it off now.”³

Cook’s creative approach of injecting humor into science communication is just one of many. Comic books are becoming a popular means of reaching new audiences.

Social media outlets offer a steady stream of science comedy, and even science-oriented government agencies are getting in on the fun: in particular, the Washington State Department of Natural Resources and the Oklahoma Department of Wildlife Conservation are renowned for posting clever public service announcements on Twitter. And of course, there’s YouTube, which is rife with comedic content designed to educate the general public about science-based topics—from middle school students rapping about vaccines⁴ to the US Consumer Product Safety Commission discouraging the deep-frying of turkeys⁵ to Patel’s own expedition to Antarctica to determine whether penguins have a sense of humor,⁶ there’s no shortage of science-themed laughs to be found online.

But let’s get down to brass tacks: How do you make science funny?

It may be unsurprising to hear that there is a science to comedy. Peter McGraw, a professor at the University of Colorado Boulder who directs the Humor Research Lab (HuRL, of course), developed the theory of *benign violation* with his coinvestigator Caleb Warren.⁷ Benign violation theory suggests that if you take a situation that defies accepted social mores (i.e., a *violation*) and frame it within the context of an acceptable norm, the situation is then perceived as being perfectly fine (i.e., it becomes *benign*) and consequently humorous. And although odds are low that comedian Chris Rock would ever be mistaken for a scientific researcher, his lifelong, real-world experimentation has provided him with an insight about comedy that Patel recognized as a vital one: The most important part of a joke is not the punch line, it’s the premise. If an audience doesn’t understand the premise of a joke, there’s no way they’re going to follow you to the punch line. Communication is key, and this holds true for both science and comedy—combine the two, and communication becomes an even more critical factor when engaging in science comedy.

Patel closed by offering a few tactics for those who might want to try their hand at science-inflected humor:

- **Alternative explanations.** “A Pew Research survey says that 80% of Americans say science has improved their eating habits and overall well-being. The other 20% are PhD students.” The all-important premise here is the survey respondents who think science is a good thing. As for the punch line, it’s rooted in the unexpected: What is a surprising group of people who might think science is bad?
- **Comparisons and metaphors.** Patel noted that you most often see this approach in the form of memes.
- **Analogies.** Patel often weaves amusing analogies into her articles at *The Washington Post*, as when describing a moon-like crater in Canada: “Much like most of my

CONTINUED

dating life, the remote location of the crater is isolated from most humans and mimics the aloneness felt on the moon.”⁸ Patel crafted this quip by first listing the realities of dating, then listing the properties of a crater—and then looking for the similarities between the two.

- **Wordplay.** Patel noted that the universal appreciation of wordplay is why article titles such as “Uranus Might Be Full of Surprises”⁹ appeal to audiences, thus making them more inclined to actually read the full article.

Finally, Patel invited her audience to tap into their inner comics via a game of fill-in-the-blank:

“_____ are a lot like cats: _____.”

Go ahead, give it a shot. It’s fun to try, even if the result doesn’t kick-start a second career in stand-up science comedy. Then again, you never know...

References and Links

1. Yeo SK, Anderson AA, Becker AB, et al. Scientists as comedians: the effects of humor on perceptions of scientists and scientific messages. *Public Underst Sci*, 2020;29:408-418. <https://doi.org/10.1177/0963662520915359>
2. Patel K. Cartoons and climate change [podcast]. *Science Comedy Paradox*. Apple Podcasts. 2020 Apr 29, 42:46 minutes [accessed 2023 Jun 24]. <https://podcasts.apple.com/us/podcast/cartoons-and-climate-change/id1502046611?i=1000473102409>
3. @johnfocook. I’m always on the lookout for a powerful metaphor. Twitter; 2020 Jul 20 [accessed 2023 Jul 18]. <https://twitter.com/johnfocook/status/1285197015207600128>
4. My shot (vaccine version)—Science Rap Academy [YouTube video]. *Science With Tom*. 2017 Jun 21, 2:32 minutes. [accessed 2023 Jun 25]. <https://www.youtube.com/watch?v=AEX8oFNMOFE>
5. Cook the turkey, not your home [YouTube video]. *US Product Safety Commission*. 2022 Nov 23, 0:50 minutes. [accessed 2023 Jun 26]. <https://www.youtube.com/shorts/KJe8xFUztGU>
6. Do penguins even have a sense of humor? [YouTube video]. *Kasha Patel*. 2020 Nov 9, 5:34 minutes. [accessed 2023 Jun 26]. <https://www.youtube.com/watch?v=GtCIP9zo2SQ>
7. McGraw AP, Warren C. Benign violations: making immoral behavior funny. *Psychol Sci*. 2010;21:1141-1149. <https://doi.org/10.1177/0956797610376073>
8. Patel K. Can’t go to the moon? This crater in Canada is the next best thing. *The Washington Post*. November 16, 2022. <https://www.washingtonpost.com/climate-environment/2022/11/16/mistastin-crater-moon-astronaut-training-artemis/>
9. Feltman R. Uranus might be full of surprises. *The Washington Post*. November 14, 2014. <https://www.washingtonpost.com/news/speaking-of-science/wp/2014/11/14/uranus-might-be-full-of-surprises/>