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NASA

NASA scientist Josh Willis (left), who has also done stand-up comedy, celebrates success on a mission he jokingly called OMG (Oceans Melting Greenland).

LAB LIFE

How laughter in the lab can improve your science

Science is serious business — but it also shows humour can be a great thing for a team.

BY AMBER DANCE

The lab is sometimes a silly place — and perhaps it should be. A group that behaves in daft ways from time to time tends to be one that is positive, results-oriented and successful, says Michael Kerr, a business speaker in Canmore, Canada, who focuses on humour in the workplace. Jokes and pranks can serve as signs of a healthy workplace, and provide ways to foster trust and good communication among staff, Kerr says.

A 2012 meta-review of studies on humour in the workplace found that it is linked with strong employee performance, effective stress-coping mechanisms and sturdy group cohesiveness[1]. The study, conducted by two management researchers at the University of North Carolina, Wilmington, and a psychologist at Florida International University in Miami, also linked humour to reduced burnout among employees.

Although humour has its benefits, researchers caution that jokes and laughs must be appropriate for the workplace and lab members should avoid making fun of each other in potentially or clearly hurtful ways. "Make sure you're not harassing somebody or singling someone out," says Sophie Scott, a cognitive neuroscientist at University College London. "Banter can be bullying." And simply saying "I was joking" doesn't undo the hurt, she adds.

As any comedian knows, attempts at ▶

humour can fall flat or even backfire. Adam Ruben, a molecular biologist at Sanaria, a biotechnology company in Rockville, Maryland, worries that humour could ruin a younger scientist's chances of being taken seriously. Ruben does stand-up comedy on the side, but keeps his major scientific talks mostly free of jokes.

Newcomers to a lab group should get to know their labmates and principal investigator well before they start joking around, advises Bernie Chun Nam Mak, a lecturer at Hong Kong Baptist University who studied workplace strategies, including humour, during his PhD programme in applied English linguistics at the Chinese University of Hong Kong.

BURST THE STRESS BUBBLE

There's no shortage of hilarity in the lab where James Utterback, a PhD student in physical chemistry at the University of Colorado Boulder, works. His greatest prank (so far — labmates beware) was inspired by a laser system that arrived in late 2015 for the group's studies of solar photochemistry. It came in a crate with metres and metres of bubble wrap.

While another group was in a meeting, Utterback and his accomplices coated their student office's floor, desks and printer with the bubbly sheets. They hid in the office so that they could catch their colleagues' shocked reaction. Both groups laughed and entertained themselves popping the plastic bubbles.

But that wasn't the last of it. When Utterback returned to his office after a conference in mid-2017, he discovered he'd been replaced — with a bubble-wrap mannequin, complete with a wig and clothes. "He had been named James 2," says Utterback. "He became kind of like our group mascot."

James 2 regularly rotated between the lab's student offices, surprising people who turned on the lights to find him diligently 'working' at their desks.

"Working with James [1] was seriously delightful," says Amanda Grennell, a freelance science writer in Missoula, Montana, who earned her PhD in August 2017 from the same lab. "Pranks gave my brain a much-needed break from both work and stress."

Graduate studies and science in general can be frustrating and isolating, agrees Jorge Cham of Los Angeles, California, who earned a PhD in mechanical engineering from Stanford University in California. He started a PhD comic strip, 'Piled Higher and Deeper', soon after beginning graduate school, as a sort of art therapy to cope with the pressure cooker of academic training.

After a stint as an instructor at the California Institute of Technology in Pasadena, he switched in 2005 to cartooning full-time. He regularly lectures about the misery of graduate studies and the joys of procrastination.

This unusual career path has given Cham more fame than he probably ever would have earned in academic robotics — his original plan. The comics, which have drawn 188,000 followers on Twitter, have appeared in more than 50 US newspapers and been collated into 5 collections that have collectively sold more than 100,000 copies. They've helped many a stressed graduate student laugh through tough times, simply by showing readers that they're not alone in their academic struggles. "Burnout is so common, anything that can be done to help people keep perspective and enjoy what they're doing, the better the long-term prospects of the lab are," says Cham.

IGNACIO IZQUIERDO

Helena González teaches science through comedy.

A light attitude can also help to diffuse tension that arises from failures or errors. Cham once spilt a bucket of mildly toxic resin in another lab that had a group leader he found particularly intimidating. He was horrified. "I vividly remember my life flashing before my eyes," recalls Cham. "I never thought that was something that actually happened."

But the postdoc supervising Cham took it good-naturedly, simply telling him he was allowed to make that mistake — once. That helped Cham to move past the error.

As that supervisor so deftly illustrated, humour can be a powerful tool for leaders. The meta-analysis of workplace humour found that when those in power were viewed as fun and funny, their subordinates performed better and had stronger teamwork. Staff were also happier with their jobs and their bosses. And a fun, lighthearted lab group might produce better science than one that is perpetually solemn and serious. Humour, says Kerr, is a positive catalyst for thinking creatively. Or, for mathematicians: "Ha + Ha = Aha."

Light-heartedness can also reduce embarrassment when inevitable mistakes happen in the lab. "Humour can help workers, especially superiors, to imply something negative to each other in a less face-threatening way," says Mak. He once observed a situation in which a worker made a mistake on an Excel spreadsheet. Her supervisor admonished her by making a wry joke about the error, and they both laughed it off.

LEAD WITH LAUGHTER

A humour-filled lab might not happen spontaneously, so leaders might wish to actively encourage it. Scott, who studies speech and laughter, makes a conscious effort to build a happy team.

But leaders should be wary of forcing humour onto junior scientists. "They have to feel comfortable first," says Scott. "They have to feel part of a group." She pays particular attention to new lab members — especially when they're from other countries — ensuring that they feel comfortable, and not left out. If they're laughing and joking, she knows that they're settling in.

To help foster a positive group dynamic, Scott often organizes lab social events and includes both personal and scientific discussions in casual lab meetings over coffee. The personal sharing is optional, of course.

"The demeanour of the principal investigator will affect the atmosphere of the whole meeting," she says. "I try to keep a positive and friendly mood."

It might seem simple for Scott's group to spice their work with humour — they study laughter, after all, and their work entails developing funny videos to make viewers and subjects chuckle. But no one has to be a stand-up comedian to infuse some humour into the lab. Kerr says that there are plenty of ways to make work fun, even for the less comedy-inclined. One option he likes is to put up a 'humour bulletin board'. Lab members can contribute funny statistics, research results or cartoons.

Starting group traditions is another way to make work enjoyable. Kerr suggests

giving out fun awards, such as the 'Most Likely to Overdose on Caffeine Award'. Employees feel appreciated, and everyone has a good time.

Ruben recalls a fun tradition from his PhD lab at Johns Hopkins University in Baltimore, Maryland. Each scientist picked an orange test-tube stopper, or septum, and drew a little face on it. Once a week, they'd take a break to place the stoppers on a shaker; whichever stopper stayed on the longest before bouncing off won its scientist US$1 from each of the other entrants. That two-minute break provided a valuable bonding experience, Ruben says.

And if one wonders what to joke about, "the easiest person to laugh at is yourself", advises Josh Willis, a climate scientist at NASA's Jet Propulsion Laboratory in Pasadena, California, who has trained with comedy troupes The Groundlings and Second City. He christened one of his missions OMG, an initialism for 'Oceans Melting Greenland'.

Willis is perfectly willing to engage in a bit of self-deprecating humour, and one of his studies made it easy to do that. In 2006, early in his career, he collected data showing that, despite the effects of global warming, some of the world's oceans had somehow cooled between 2003 and 2005 (ref. 2). Willis endured a fair bit of ridicule for this 'discovery'. Even conservative pundits got in on the harassment, using Willis's paper as evidence that left-leaning scientists are clueless about climate.

Willis, trusting his data, took it all in his stride. Then, in February 2007, he discovered the error he'd made. No, the oceans weren't getting colder: certain temperature sensors had given bad readings. He published a correction shortly afterwards[3].

In response — playing on the talk-show punditry that Willis had endured — his wife gave him a set of business cards imprinted with the title 'Idiot leftist scientist'. He still carries the cards in his wallet. "That dose of humility and making fun of myself — in the long run, I think it benefited my career," says Willis.

TREAD WITH CARE

Some joke topics are simply not acceptable in any workplace, notes Nicki Fuchs, a stand-up comic and biochemical engineer at MedImmune in Gaithersburg, Maryland. Gender, politics, race and religion, among other matters, are off the table, she advises.

Those rules still leave her with plenty of room to jest with her labmates. And it's useful for her to joke about work, says Fuchs, because it helps her, a 30-year-old woman, to connect with the rest of the lab members — all older men. A recurring wisecrack is about whoever most recently left the water running and flooded the lab — a not-uncommon occurrence, because their work involves filling up large, pressurized bottles.

Jokes may fall flat in some settings. In graduate school, Ruben often ended his lab-meeting presentations with a joke slide. But during one such presentation, his adviser was already unimpressed with his scientific progress, and Ruben suspects that his joke slide — a colleague's head that was Photoshopped onto a goat's body — deepened his adviser's doubts. Since then, he uses jokes only in informal presentations or talks about science careers.

Scientists should also be careful about humour that might not work well with people from other cultures. What's funny to one ethnic group can be incomprehensible or offensive to another, Mak notes. It's fairly simple to learn about the sense of humour in a geographical region to which one is travelling or moving, adds Kerr: he just Googles it.

Humour is a positive catalyst for thinking creatively. Or, for mathematicians, "Ha + Ha = Aha."

Of course, some topics that scientists study — cancer, for example — aren't funny at all. Yet jokes can help to ease tension and discomfort around specialities that deal with tragic subjects, says Helena González, who earned a PhD studying the epigenetics of cancer in 2013 and is now a science communicator with the comedy troupe Big Van Science in Barcelona. "That kind of black humour releases your feelings and makes your work much easier," she says.

Still, she adds, scientists need to be careful about where they make any such jokes. Generally, among a few close colleagues in the lab, it's fine. When dealing with patients or the public, it's not.

And although pranks are fun, those that might endanger personnel, equipment or experiments have no place in the lab. Ruben recalls one supervisor he had at a summer job, who dropped a lit match into a recently emptied jug of ethanol. "A column of fire shot up to the ceiling," Ruben says. "He probably shouldn't have done that."

That said, everyone can use a chuckle now and then. If you're planning a — harmless! — April Fool's lab jape, be sure to share it with @naturejobs, hashtag #AprilFools. ■

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MENTAL HEALTH

Degrees and depression

PhD and master's students worldwide report rates of depression and anxiety that are six times higher than those in the general public (T. M. Evans *et al. Nature Biotech.* **36,** 282–284; 2018). The report, based on the responses of 2,279 students in 26 nations, found that more than 40% of respondents had anxiety scores in the moderate to severe range, and that nearly 40% showed signs of moderate to severe depression. The high rates suggested by this study are alarming, says Teresa Evans, a neuroscientist at the University of Texas Health Science Center at San Antonio and the study's lead author. She notes that students suffering from anxiety or depression might have been especially motivated to take the survey, which could have skewed the results. But she believes that the findings underscore the severity of the problem and the need for a response. Evans adds that universities should provide students with training to help them manage their time and cope with stress.

GENDER

Female authors scarce

Female authors are scarce in the pages of high-impact journals, according to an online analysis (Y. A. Shen *et al.* Preprint at bioRxiv http://dx.doi.org/10.1101/275362; 2018). Researchers at the University of Washington in Seattle gathered names of first and last authors from papers published between 2005 and 2017 in 15 major science and neuroscience journals, including *Nature, Science, Proceedings of the National Academy of Sciences* (*PNAS*), *Nature Neuroscience* and *Neuropsychology Review*. Women accounted for roughly 25% of first authors in *Nature* and *Science* and just over 35% of first authors in *PNAS*. Female first authors outnumbered men — by 53% to 47% — in only one journal, *Neuropsychology Review*. Women represented about 15% of senior or last-author spots in *Nature* and *Science* and just under 40% in *Neuropsychology Review*. The study found an inverse relationship between the prevalence of female authors and the journal's impact factor: the higher the impact, the lower the proportion of women as first or last authors. Co-author Ione Fine, a neuroscientist, and colleagues suggest that journals could reduce the possibility of bias by adopting mandatory double-blind reviews. Nature Research, which includes all the Nature-branded journals, said that the brand "is committed to gender equality and our journals strive to support women in science".