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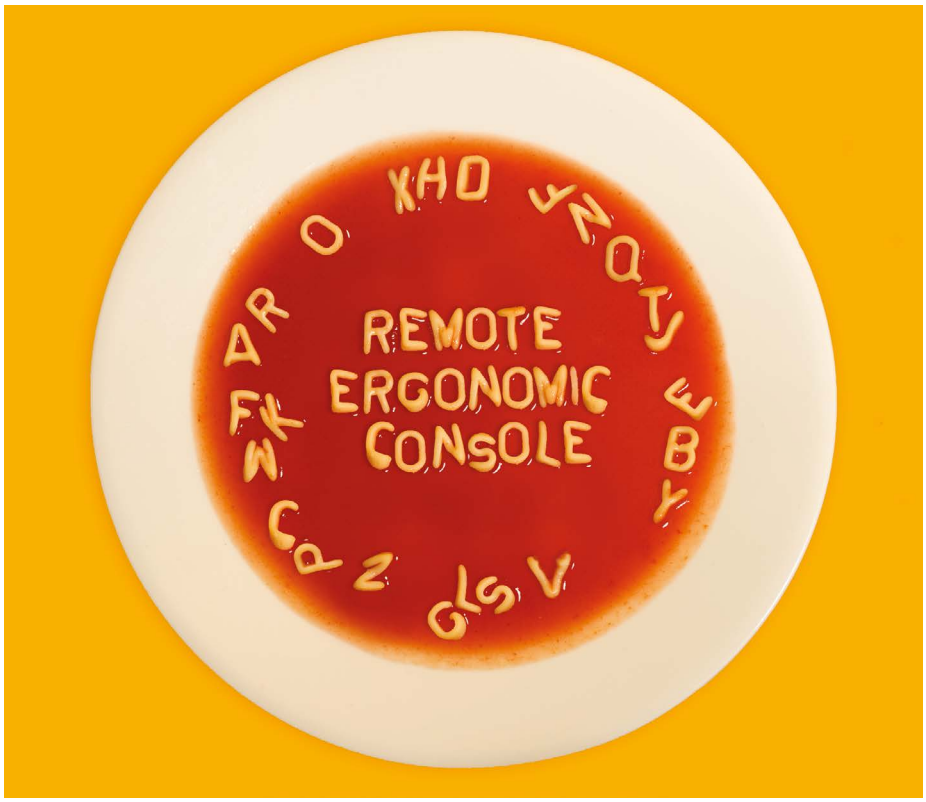

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JARGON SHUTS READERS OUT

Non-scientists feel confused by technical language — even if it's defined. **By Chris Woolston**

Overly technical language in science articles doesn't just muddy the waters for non-experts — it can alienate readers, potentially shutting them out from scientific discussion and knowledge. That's the conclusion of a study published in the *Journal of Language and Social Psychology*[1], and it applies to general-interest articles just as much as to scientific papers.

"When we have a hard time conceptualizing information, we become really scared of it," says lead author Hillary Shulman, a communication researcher at the Ohio State University in Columbus. Scientists can create "unnecessary barriers" with words, she says.

The study involved 650 members of the general public who read paragraphs on three topics: self-driving cars, robotic surgery and 3D bio-printing. The paragraphs were either laden with jargon terms, such as "remote ergonomic console", or written with words that are familiar to most readers, such as "separate control panel". Shulman and her co-authors wrote the texts using jargon gathered from articles and websites aimed at all readers, not from scientific journals or technical manuals.

After reading the passages, the study participants rated their experience in a series of questionnaires. Those who read jargon-filled paragraphs were more likely to say that they had difficulty understanding the language and the information. They were also significantly more likely to say that they weren't good at science, and less likely to say that they would seek out information on the topic in the future.

Some of the participants who read the jargon-heavy text received links to definitions of technical terms, but that didn't reduce their frustrations or enhance their feelings of understanding. "We found that people didn't use the links," Shulman says. Instead of trying to define technical language when communicating with non-experts, she says, scientists would do better to avoid any such terms.

Scientists can learn to cut back on their use of technical language when talking to people who are not researchers, says Ayelet Baram-Tsabari, a science-communication researcher at the Technion Israel Institute of Technology in Haifa. In 2017, she helped to develop the De-Jargonizer, an online tool that assesses and scores the accessibility of text[2].

Baram-Tsabari also co-authored a January study in *PLoS ONE*[3] showing that scientists with media training can write articles that are just as engaging as pieces written by professional journalists. "Avoiding jargon is a fundamental part of that, but it's not the whole story," she says. To really connect with the public, she recommends that scientists tell a story that's relevant to the audience.

Members of the public aren't the only ones who can be turned off by jargon, Shulman says. Students can be, too. "I teach a class with 400 undergrads," she says. "When you're training people, you can introduce jargon with a little more sensitivity. You're trying to invite them into the environment."

Of course, technical words still have an important function in science. Shulman's paper is itself loaded with terms such as 'metacognition' and 'self-schema'. "The irony of that is not lost on me," she says. "When it comes to scientific literature, you can't get anything published unless it's full of jargon. Scientists want to speak to other scientists in the most precise way possible."

Baram-Tsabari says that one of her graduate students has gathered anecdotal evidence that some female researchers feel especially pressured to use heavily technical words and phrases. "They say, 'People don't take me seriously because I'm a woman. If I used accessible language, it would be bad for my career.'" Similarly, Shulman has noticed that early-career researchers tend to lean on technical language to show that they belong in the community. "I see it a lot in graduate students," she says.

Chris Woolston is a freelance writer in Billings, Montana.

1. Shulman, H. C., Dixon, G. N., Bullock, O. M. & Colón Amill, D. *J. Lang. Soc. Psychol.* https://doi.org/10.1177/0261927X20902177 (2020).
2. Rakedzon, T., Segev, E., Chapnik, N., Yosef, R. & Baram-Tsabari, A. *PLoS ONE* **12**, e0181742 (2017).
3. Barel-Ben David, Y., Garty, E. S. & Baram-Tsabari, A. *PLoS ONE* **15**, e0222250 (2020).

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