

# Lack of non-English languages in STEM publications hurts diversity

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With today's existing translation tools to overcome language barriers, global collaboration should be no major feat for researchers. Yet throughout the COVID-19 pandemic, articles published in Chinese journals focusing on critical aspects of the disease were often never cited by English journals. As a result, U.S. academics wasted precious time

performing research thereby replicating already published results.

Researchers cannot simply push papers through simple translation tools and turn out legible multilingual science. And, in the absence of human translators trained in technical subject matter readily available, most researchers choose to publish science, technology engineering and math (STEM) research in the dominant English language.

Now a team of graduate students at Northwestern University aims to change that.

In a paper published today (Aug. 31) titled "A Call to Diversify the Lingua Franca of Academic STEM Communities" in the *Journal of Science Policy & Governance*, members of Northwestern's Science Policy Outreach Taskforce (SPOT) call for new government policy measures to create a path to linguistic diversity in STEM publications.

The researchers say the goal is to improve scientific communication around the world and end disparities between English and non-English STEM writing.

Ranya Virk, co-first author and biomedical engineering Ph.D. candidate in the McCormick School of Engineering at Northwestern, said many languages are encompassed in her own department, yet when it comes to publication, there's a lack of linguistic diversity.

"There's this double barrier that currently exists, preventing researchers in different countries from accessing all relevant work that isn't in their native language," Virk said. "First is the absence of high-impact open-access publications, which makes it difficult to get access to this research because of expensive copyrights. The issue we address is the language barrier, which prevents effective communication of scientific information. By only valuing publications in English-language journals,

we are increasing this barrier to accessibility."

Creating a more inclusive publishing landscape, Virk said, also would help international researchers feel that their voices, language and culture were being considered instead of being lost in translation.

When international researchers publish groundbreaking findings in non-English language publications, they are at a huge disadvantage. For example, they are unlikely to be cited or are sometimes considered irrelevant in the world of STEM. When Tu Youyou won the Nobel Prize in 2015 for her discovery of the anti-malaria drug artemisinin, she was cited only once outside of China; a review of the paper published in English, meanwhile, garnered more than 800 citations.

Today, very few publications allow publishing in multiple languages and when they do, researchers must front the costs of translation, which can amount to \$10,000. That's why co-authors Virk, Kaylee Henry, Huei Sears and Lindsay DeMarchi developed the idea for a translation subsidy supported by the U.S. government. With funding from the government allotted to each researcher, scientists could choose one of three non-English languages from a list of the most spoken languages in their field, in addition to English, to publish their academic papers.

The strategy would allow "faster and more inclusive research to be conducted" by removing large obstacles non-English speaking researchers in the U.S. face. But the solution is two-fold: After incorporating policies to address translations, there remains a need to normalize and standardize multi-lingual publication. As part of the publication, members of SPOT worked with editors at the *Journal of Science Policy & Governance* to host translations of their article in other languages including Spanish, French, Arabic, Greek and Hindi—a first for the publication.

Henry, corresponding author and biomedical engineering Ph.D. student in McCormick, said she hopes the paper—both its publication and that it was published on a multi-lingual platform—will start a conversation about language diversity in STEM.

"The STEM community has made a huge effort to increase diversity," Henry said. "Specifically, the community has worked to change the definition of hairstyles that are considered 'professional' to include Black hairstyles, and they've been increasing the number of women in STEM, different cultures and races... but we haven't seen anybody or any organization trying to address language inclusivity. We think that's something critical that's missing."

**More information:** Kaylee Henry et al, Shaping the Future of Science Policy, *Journal of Science Policy & Governance* (2021). [DOI: 10.38126/JSPG180303](https://doi.org/10.38126/JSPG180303)

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