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## Why Men Got Picked Over Women in a Blind Review of Science Grants

A recent study of a science grant application process at the Bill and Melinda Gates Foundation found male applicants received higher scores than women, even in a blind review. At the foundation's request, a team from the U.S. National Bureau of Economic Research analyzed this imbalance and reported that factors like scientific discipline and position, publication record, and grant history were not factors - the main difference was in the language used in proposal titles and descriptions. According to their working paper, men were found to use more words described as "broad," while women chose more words labelled "narrow." The broader word choices were preferred, especially by male reviewers. But, as in most research relating to complex issues of sex, bias and language, the story is more nuanced.


A new study finds men use broad language in grant proposals that leads them to win more science funding. (Images credit: National Institute of Environmental Health Sciences, National Bureau of Economic Research)

## The Use of Common and Broad Words by Gender in Grant Proposals

The researchers examined 6,794 two-page proposals submitted by U.S.-based researchers between 2008 and 2017 to the Gates Foundation's Grand Challenges Explorations program, which gives out grants of between $\$ 100,000$ and $\$ 1$ million in the field of global health. Kuheli Dutt, who works in academic affairs and diversity at Columbia University, pointed out to Nature that the trend of men using broader terms might align with other research that finds men more likely to overstate their performance. As we recently covered in the world of dance, men are also sometimes more likely to self-advocate in professional situations. These trends can be tied to cultural gender norms - beliefs about how men and women should behave.

Within the exploration of the language differences between men and women, researchers used specific interpretations of broad and narrow language. Broad words were those used commonly across many topic areas, while narrow words were used frequently only within specific content areas, such as HIV or malaria. This frequency-of-use system led to some results that might be surprising. For example, "bacteria" was counted as 4 broad, while "community" was marked narrow.

Within this analysis, men employed more broad, or more common, words and received more grants. But these language choices did not lead them to have greater success after the awards were given. When women secured grants, they generally outperformed men in terms of post-funding publication and future funding.

Julian Kolev, assistant professor of strategy and entrepreneurship at Southern Methodist University's Cox School of Business and lead author, said he and his team "would be hesitant to recommend that women adopt this language... The narrower and more technical language is probably the right way to think about and evaluate science."

As more tools that automatically analyze text become available, linguistic and cultural research is on the rise. Recent studies have turned up somewhat divergent results - an earlier paper in 2019 found grant abstracts that are longer, contain fewer common words and "are written with more verbal certainty" received more National Science Foundation funding.

## Potential Bias in the Review Process

Kolev thinks organizations should spend more time looking into potential reviewer biases. He suggests reviewers could be trained to be more aware of and less influenced by communication style differences. Also, he said, "We consistently show that female reviewers' scores do not favor proposals from male applicants in the way that male reviewers' scores do, so increasing the number of female reviewers is one potential way to mitigate the effects we find."

The Gates Foundation uses a "champion-based" review process for these awards, in which applications are more likely to be chosen if they're given a single high review. According to Science Magazine, the reviewers are from "a variety of disciplines and perspectives" and have "less-specialized expertise" when compared to an organization such as the National Institutes of Health (NIH). Professor of Economics at the University of Kansas Donna Ginther, who studies disparities in NIH grant funding, said Gates reviewers might, therefore, be "susceptible to grantsmanship like claims, like 'I'm going to cure cancer' as opposed to 'I'm going to understand how this molecule interacts with a cell."

Ginther hopes this type of linguistic analyses will be used to study other facets of diversity in science (racial disparities are present in NIH funding). And, given that subcultures, socioeconomic experience, age, gender identity (as opposed to biological sex) and many other factors can affect our language choices, there is plenty of
territory left to explore. This case certainly raises some interesting questions about foundation grant review processes.

In a written statement, the Gates Foundation said it is "committed to ensuring gender equality" and "carefully reviewing the results of this study-as well as our own internal data-as part of our ongoing commitment to learning and evolving as an organization."

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