

Online space fails to deliver as equalizer for female scientists

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With lower barriers to entry and no traditional gatekeepers, online platforms offer a promise of broader participation by and equity for female scientists, with the potential to serve as an equalizer for

researchers who encounter bias throughout the publishing process and at every stage of their careers.

But a new Northwestern University study has found that women are less successful than men in disseminating their research online and that scientific impact, [social capital](#) and gendered tie formation in co-authorship networks are associated with the online success of men across research areas and levels of success, but not of women.

Prior research has established wide-ranging gender inequities in [science](#). Disparities at the level of earnings, support and promotion indicate that women's research is not recognized equally to men's. Since an imbalance in visibility might have consequential downstream effects on citations and awards, the study of online success is critical to address the gender gap.

"Barriers to resources, publication and high-profile speaking engagements are historically engrained and hard to break, but the online space could be more equitable," said lead author School of Communication professor Emőke-Ágnes Horvát. "And yet, what we see is there is still a strong gender imbalance. This insight is novel and deserves attention precisely because it is easy to assume that at least online, female scholars do as well as male scholars."

"Gender inequities in the online dissemination of scholars' work" will publish Sept. 20, 2021 in the journal *Proceedings of the National Academy of Sciences (PNAS)*.

Horvát with partners Orsolya Vásárhelyi (University of Warwick), Igor Zakhlebin (Northwestern University) and Staša Milojevic (Indiana University Bloomington) analyzed 537,486 scientists' online success through Altmetric, a commonly used service that tracks online activity around scholarly content. The Altmetric data used contained published

articles with mentions in social media posts on Twitter, Facebook and Reddit.

The authors found that in 2012 only 28.6 percent of scholars in all research areas whose work was mentioned online were women, a low number relative to their output. In all 13 studied broad research areas ranging from medical sciences to physics and social sciences, online science dissemination is male-dominated and [female scientists](#) are less likely to belong to the top 25% of the most successful scholars online. The online presence of women remained lower than expected based on their output five years later as well, though the gap was narrower.

Online success, the authors found, is based on factors including the impact of past work, social capital and the genders represented in co-authorship. But men tend to benefit disproportionately, even in research areas where women are well represented.

"This happens not only in, say chemistry or engineering. It's not something that pertains to research areas with traditionally low female representation," Horvát said. "It is a general phenomenon."

Horvát is now investigating whether the imbalance is likely the result of biased perceptions that women's research is not as important or impactful as men's or if [women](#) may not be self-promoting at the same rate and intensity as their male counterparts. Initial findings suggest that both play a role.

Understanding bias in visibility is imperative for science to appropriately mentor, retain and recognize talented female scholars (and underrepresented minorities), the authors argue.

More information: Gender inequities in the online dissemination of scholars' work, *PNAS* (2021). doi.org/10.1073/pnas.2102945118

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