

Mind the gap: Socioeconomic status may influence understanding of science

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When it comes to science, socioeconomic status may widen confidence gaps among the least and most educated groups in society, according to a new study by researchers at the University of Wisconsin-Madison's Science, Media and the Public research group.

The findings, published in June in the journal *Science Communication*, show that similar levels of attention to [science](#) in newspapers and on blogs can lead to vastly different levels of factual and perceived [knowledge](#) between the two groups.

Notably, frequent science blog readership among [low socioeconomic-status](#) groups actually lowered their scores on factual tests of scientific knowledge while high levels of attention to science in newspapers caused them to feel they were less knowledgeable compared to those who read less or those from higher socioeconomic backgrounds.

"The science section of The New York Times is not written for audiences with little or no prior knowledge of [science and technology](#)," explains study co-author Dominique Brossard, professor and chair in the Department of Life Sciences Communication. "Just putting more science in front of less-educated people may therefore confuse them rather than help them grasp complex science."

The team also found that how [science knowledge](#) is measured matters, too—adding clarity to the science of [science communication](#). Basing policy, public engagement and education efforts on just one measure of

science knowledge may not be reliable.

"It's important. People make science policy based on the existing data," says graduate student and study lead author Leona Su. "If you're not using the right measures, you won't be using the right data for policymaking."

The research team—led by Brossard, life sciences communication Professor Dietram Scheufele, and communication arts department chair and Professor Michael Xenos—is working to understand how media influences public understanding and support of science, particularly in an ever-evolving Internet world.

For the new study, the team started with the Knowledge Gap Hypothesis, born in 1970, which posits that people of higher socioeconomic status learn faster and more effectively from media like newspapers than less educated members of society.

But just how to measure knowledge between groups has never been settled. Sometimes it's based on the scientific facts people get right in true/false questionnaires. Other times, it's measured by asking people how much they think they know about a scientific topic. The two methods are sometimes used interchangeably.

For their study, the researchers compared the two approaches. They tested both the factual and perceived knowledge of people from high and low socioeconomic groups, focusing on nanotechnology—an important, emerging scientific topic mostly free of partisan bias.

They scored a random sample of participants based on their responses to statements about nanotechnology, using a range of answers from definitely true to likely true and definitely false. The researchers also asked participants to rank on a 10-point scale how informed they felt

they were about nanotechnology.

The team then compared each group's scores against their levels of attention to science and technology coverage in newspapers, television and blogs, and their level of participation in discussions about science.

Not only did higher socioeconomic participants feel they knew more about nanotechnology the more science they read in newspapers, their factual knowledge was also higher than frequent newspaper readers in the low socioeconomic group, demonstrating a widened gap between them.

Infrequent readers of science blogs scored similarly on their factual knowledge of [nanotechnology](#), whether they were of high or low [socioeconomic status](#).

For Scheufele, this is a function of Web 2.0 having made science more accessible. "Blogs and other ways of interacting online have allowed citizens to talk science in their own words, repurpose content from newspapers and work through it together. As a result, blogs may be the perfect knowledge leveler for casual science audiences."

But as for the differences between frequent blog readers in the two groups, the researchers can only speculate. The cross-sectional study does not address the underlying causes of the knowledge gaps.

Brossard and Su believe the types of blogs or how they are used may be different between the two groups. People may be getting more caught up in controversy and commentary than in content.

"We know people rely on their values and preexisting attitudes when confronted with science news," says Brossard.

Su says future research at UW-Madison will continue to examine people's willingness to participate in science decision making, how knowledge gaps impact public support for science and how they drive information-seeking behavior.

Provided by University of Wisconsin-Madison

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