

ANNENBERG SCIENCE MEDIA MONITOR

Discovery

Reporters often cast newsworthy scientific findings as a quest involving scientists who surmount challenges as they engage in a journey that culminates in “discovery” and, with it, reliable knowledge. To determine the prevalence and characteristics of this quest narrative in news, we analyzed the ways in which four widely circulated newspapers reported on the published science scholarship identified by Altmetric as the most covered in each year from 2013 through 2018. We focused on 668 articles in The New York Times, USA Today, The Wall Street Journal, and The Washington Post. During the six-year period of our analysis, 84% of the coverage described the process through which scientists arrived at their findings¹, 33% mentioned next steps or ongoing inquiry, and only 5% noted dead ends or false starts that preceded the discovery. Our analysis shows no variability in the underlying reporting structure from year to year.

Retractions

News stories covering cases of retracted scientific findings often employ the counterfeit quest narrative structure, chronicling the activities of a deceptive researcher who has gulled custodians of knowledge such as journal editors and peer reviewers to advance problematic findings. Here our content analysis focused on stories from 2016-19 involving retractions of work by Oona Lönnstedt and Peter Eklöv on the consumption of plastic by fish, Brian Wansink on human eating behavior, and Piero Anversa on cardiac stem cell therapy. A search of LexisNexis, Factiva, and Google News by the names of these scholars located 234 print and digital news articles. Of those, 92% reported the circumstances that led to a retraction², 38% indicated how the errors or misconduct were identified, 3% outlined steps that the scientific community has taken to prevent future research mismanagement or misconduct, and 3% signaled that retractions are evidence of self-correction in science. More than 9 out of 10 (95%) avoided generalizing from a few retractions to the conclusion that science is broken or in crisis.

Crisis and Self-Correction

For science to be self-correcting, scientists must uncover problems that threaten its integrity, identify and implement remedies, and ensure that the remedies work. Our content analysis of media reporting about problems in science and efforts to address them is based on 99 print and online articles published from April 2012 to April 2018 found in the LexisNexis and Factiva databases in a search for headline terms such as “crisis,” “broken,” “failure,” “fraud,” “peer review,” “problem,” “replication,” “retraction,” “scandal,” or “self-correction” with the word “science.” Of those articles, 52% used a science is broken or in crisis frame³, 35% were written by a scientist, and 41% mentioned solutions to problems or evidence of self-correction. In the last category, shown as Problem Explored on the reverse side of this document, the change across time is noteworthy. Where 43% included this characterization in the 2015-16 period, 83% did so in 2017-18.

¹Krippendorff's alphas, respectively, are: 0.73, 0.72, and 0.73

²Krippendorff's alphas: 0.85, 0.85, 0.74, 1, and 0.74

³Krippendorff's alphas: 1, 0.84, and 0.91

Discovery

"Scientists for the first time have successfully edited genes in human embryos to repair a common and serious disease-causing mutation, producing apparently healthy embryos, according to a study published on Wednesday. The research marks a major milestone and, while a long way from clinical use, it raises the prospect that gene editing may one day protect babies from a variety of hereditary conditions."

*Scientists repair a risky mutation in human embryo
Pam Belluck, The New York Times (August 3, 2017)*

Retractions

"It's every scientist's worst nightmare: six papers retracted in a single day, complete with a press release to help the world's science reporters disseminate and discuss the news. That's exactly what happened in September at the journal network JAMA, and to the Cornell researcher Brian Wansink. Wansink has been the director of Cornell's Food and Brand Lab. For years, he has been known as a 'world-renowned eating behavior expert.' Soon after JAMA issued its retractions, Cornell announced that a faculty committee found Wansink 'committed academic misconduct,' and that he would retire from the university on June 30, 2019."

*A top Cornell food researcher has had 15 studies retracted. That's a lot.
Brian Resnick and Julia Belluz, Vox (October 24, 2018)*

Broken/Crisis

"Academic scientists readily acknowledge that they often get things wrong. But they also hold fast to the idea that these errors get corrected over time as other scientists try to take the work further. Evidence that many more dodgy results are published than are subsequently corrected or withdrawn calls that much-vaunted capacity for self-correction into question. There are errors in a lot more of the scientific papers being published, written about and acted on than anyone would normally suppose, or like to think."

*Trouble at the Lab: Scientists like to think of science as self-correcting. To an alarming degree, it is not.
The Economist (October 18, 2013)*

Problem Explored

"[T]he benefits of open data are likely to far outweigh the current closed practices. And, as recent examples in astrophysics show, large-scale collaborations can produce breakthrough discoveries far beyond what individual scientists, hoarding their data, could produce alone. When the Higgs boson was discovered, the article had thousands of authors, each of whom had worked on a small piece of the whole. And the data, generated at CERN, is open to the public – which has already led to new ideas and discoveries."

*Science's data secrecy problem
Josh Nicholson, Politico (December 7, 2017)*

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