Information Professionals versus Misinformation in Scholarly Journals

Publishing articles for fake scholarly journals has become a booming business in China, and information professionals must take steps to identify such articles to better serve their customers.

By Xiaotian Chen, MLS, MA

Misinformation and disinformation are prevalent on social media—it has been reported that fake news can outperform real news in terms of shares, likes, and comments on social media (Price 2016). Unfortunately, misinformation and disinformation can also be found in scholarly journals.

There are various kinds of misinformation that librarians can help readers detect in journals that appear to be peer-reviewed. The most astonishing examples are probably articles with totally made-up data.

For example, John McCool, founder and senior scientific editor at Precision Scientific Editing, reported in 2017 that he received an invitation to write an article for Urology & Nephrology Open Access Journal. Although he does not work in the field of medicine, he accepted the invitation and wrote a fictional case report about a man who developed uromycitis poisoning. He based the piece on an episode of the situation comedy “Seinfeld” that aired in 1991 in the United States. He used Dr. Martin van Nostrand, a Seinfeld character, as the author’s name, opened an e-mail account for Dr. van Nostrand, and created a fake author affiliation called Arthur Vandelay Urological Research Institute. His made-up article was accepted for publication, with minor revisions recommended.

Articles of this type can be published in different kinds of journals. Following are several steps librarians can take to help readers identify them:

Consult journal blacklists and whitelists. There are two blacklists, primarily for open access journals. One, Beall’s List of Predatory Journals and Publishers (https://beallslist.weebly.com/), is free; the other, Cabell’s Blacklist, is subscription-based. I recommend that libraries subscribe to Cabell’s Blacklist, which is not expensive. Beall’s List was once shut down and it is now maintained by an anonymous individual.

Whitelists can include free and subscription-based resources. For example, DOAJ (Directory of Open Access Journals) can be considered a whitelist for OA journals, as can PubMed Central. Some journal indexes are not freely accessible, but their sources (journal lists, such as the Web of Science journals list and Scopus journals list) are usually free. The journal in which the Seinfeld-themed article appeared, Urology & Nephrology Open Access Journal, is listed by Cabell’s Blacklist, and its publisher, MedCrave Group, is listed by Beall’s List. The journal is not on whitelists.

Check authors’ e-mails and affiliations. While following the above step is simple, it is not fail-safe—some made-up articles can be successfully published in journals on whitelists. For that reason, I also recommend checking out

Xiaotian Chen is electronic services librarian and an associate professor at Bradley University in Peoria, Illinois. He can be reached at chen@fsmail.bradley.edu.
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It is certainly not a new phenomenon for scholarly journals to publish fraudulent articles. Judson (2004) listed cases of research misconduct throughout Western history in his book, *The Great Betrayal: Fraud in Science*. However, there are some new factors in play in this ongoing issue, one of which is open access (OA) journals. This is not to suggest that traditional journals publish fewer questionable articles than OA journals, but there is no disputing that the OA publishing model (charging authors an article processing charge, or APC, instead of charging readers) places pressure on a journal to accept more articles for publication to generate more revenue.

The other two new factors are related to China: (1) generous monetary rewards for publication and (2) paper mills. Just as China’s economy is growing fast, so, too, is its output of scientific articles. Quan et al. (2017) found that all Chinese universities offer financial rewards for publishing, ranging from USD 30 to USD 165,000 per article, depending on the prestige of the journal. That suggests that scientific publishing in China is more policy driven than research driven. Huang (2017) found that, during the years 2012-2016, China published more scientific research with fabricated peer reviews than all other countries put together.

Possibly due to the monetary reward and/or other reasons, paper mill publishing of articles for scholarly journals has become a booming business in China. As mentioned earlier, most of the 107 articles retracted by *Tumor Biology* were submitted by paper mills in China.

Sponsored Content
Aside from fabricated articles, there are paid supplement “articles” that do not go through the same peer-review process as regular articles in the same journal. These may not be fraudulent, but they may well be substandard.

I once received an inquiry from a library patron who could not locate an article from *Science*, one of the most reputable scientific journals. The title of the article was “Using internal combustion engine waste heat can increase efficiency, lower fuel consumption, and reduce CO₂ emissions,” and its EBSCOhost metadata included the following: “Science. 12/19/2014, Vol. 346 Issue 6216, pp. 27–32. 6p.” The article turned out to be one of 20 “sponsored” articles published in the advertising section of *Science*, which was prefaced by a disclaimer that read as follows: “Materials that appear in this booklet were not reviewed or assessed by the *Science* editorial staff.”

Although these sponsored articles may not necessarily use falsified or fabricated data, the *Science* editorial note raises concerns about their quality. I opened a trouble ticket with EBSCOhost, and EBSCOhost removed records of these paid supplement articles from their database.

Follow retraction information. In addition to the retraction news issued by usual news channels such as publishers’ retraction announcements, *Nature and Science News*, and professional listservs, the Retraction Watch website (https://retractionwatch.com/) and its tweets could be good sources for major retraction updates.

There are other steps you may want to take as well. A zoology professor and an information science professor at the University of Washington developed a course titled *Calling Bullshit: Data Reasoning in a Digital World* (see its syllabus at https://callingbullshit.org/syllabus.html) that addresses questions such as “How can you know if a paper is legit?” Their website offers some tips for identifying fake articles, one of which is to ask if the level of claims made by the article are commensurate with the integrity of the venue (journal).

Sponsors and their e-mail addresses. If authors use private e-mail accounts instead of the e-mail of their institutional affiliations, that might be cause for alarm.

For example, in April 2017, Springer Publishing retracted 107 articles published in *Tumor Biology*, a then-Web-of-Science-indexed journal. These articles used fabricated data, with some of them being created by so-called “paper mills” and most submitted by paper mills with fake peer reviews (Liu and Chen 2018). The paper mills managed to successfully submit the articles because *Tumor Biology* allowed them to send private e-mails from accounts they created with the names of reviewers. *Tumor Biology* also accepted authors’ e-mails from their private accounts.

Paper mills manufacture articles for authors who pay them to do so. Private e-mail accounts make it much easier for paper mills to operate on behalf of authors and send fake reviews as well as fake articles. To see how this works, read *Tumor Biology*’s retraction announcement at https://link.springer.com/article/10.1007/s13277-017-5487-6. The authors’ e-mails are from 126.com, 163.com, and other companies that offer private e-mail services. For example, the three authors of the article listed at the top of the retraction list are affiliated with Central South University in China, but the corresponding e-mail address is ouyangch0@126.com rather than a Central South University e-mail address.

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The presence of these paper mills, as well as other new factors, is likely to fuel the creation of more articles with fabricated, falsified, or plagiarized information. Information professionals should be vigilant about this trend and implement various tactics to identify fake research articles in order to better serve readers. 

REFERENCES


MISINFORMATION AND DISINFORMATION

Information professionals develop opportunities in their organizations by creating demand. They learn to link their products and services with the solution to their customers’ most pressing problems. This kind of added value makes the information professional indispensable.

In the third of her three-part webinar series on communicating value, Melanie Browne, the information resource specialist at Canada’s Workplace Safety and Insurance Board, will explain how to create value statements and value propositions for key services and stakeholders of your organization. You’ll learn to successfully implement an innovation strategy and fit it into your organizational culture. The webinar will incorporate sales and marketing techniques and tools you can take back to your organization and develop further.

Join Melanie for “Measuring Impact and Service Review” on Thursday, May 8, at noon Eastern time. For more information and to learn more about the first two webinars in the series, visit sla.org/learn/webinars/.