

Teaching research ethics better

Image preparation should be included as part of the UGC's course on research ethics

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Years after ignoring the elephant in the room, the UGC has finally made it compulsory for PhD scholars to take up a course on research and publication ethics as part of their pre-registration course work. Effective from the coming academic session, the course carries two credits and entails 30 teaching hours. It covers several aspects of research conduct, publication ethics and misconduct, open access publishing and databases, and research metrics. But on closer scrutiny, it looks like the course will not help much. It will create "awareness about publication ethics and misconduct" but it will not equip students to steer clear of unethical research practices. For instance, 'scientific conduct' deals with a range of issues that research students might face during research. This includes plagiarism, falsification and fabrication, misrepresentation of data, selective reporting, duplicate publication, and segregation of data and publishing as multiple papers. All this is to be magically covered in just five hours.

Substantial copying of text from previously published papers and even paraphrasing without due citation are quite common in papers published from India, particularly from state universities. The introduction of plagiarism-checking software in most universities and compulsory checking for plagiarism prior to paper publication by most journals has largely addressed the problem.

Preparing images

While the course does cover data falsification and fabrication, there is no mention of teaching researchers the basics of preparing images for publication. While certain changes to images are acceptable, hundreds of papers are corrected or retracted every year for image duplication and manipulation. Unlike plagiarism, journals have woken up to inappropriately altered images and manipulation only since the early 2000s.

As Dr. Elisabeth M. Bik and others had noted in a June 2016 paper in the journal *mBio*, the instances of "inappropriately duplicated images" suddenly peaked in 2003 and has been 4-5% since then. Over 8,100 papers

screened from *PLOS One* for a 16-month period from 2013 to 2014 revealed that papers published from India had 1.93-fold higher probability of containing "problematic images", the highest in the world.

Unlike in the case of data falsification and fabrication, duplication and manipulation of images is relatively easy to identify post-publication. That *PubPeer*, a website that allows independent scientists to publish post-publication review of scientific papers, is flooded with reviews of papers with questionable images is proof that the scientific community has become alert to a malice that has so far been largely overlooked.

A big Indian problem

In India, dozens of papers with questionable images have been published by researchers from a few Council of Scientific and Industrial Research labs, and reputed institutions such as IIT-Dhanbad, the Indian Institute of Science, and Bose Institute. It is far worse in the case of state universities. Recently, Dr. Bik identified problematic images and plagiarised text in over 200 papers from Annamalai University in Tamil Nadu. Several papers from Periyar University in Tamil Nadu and Banaras Hindu University too can be found on *PubPeer*.

The magnitude of the problem can be judged by scanning the largest database of retracted papers maintained by the *Retraction Watch* blog. The blog reveals that of the 1,050 papers from India retracted since the 1970s, 330 have been for plagiarism and nearly 200 for image duplication and/or manipulation. There is no ballpark figure for papers corrected for problematic images. Though the U.S. and China have the most number of journal papers retracted, India has a higher rate of retractions, says a paper in *Science*.

If UGC is serious about teaching research and publication ethics, it should make scientific conduct and publication ethics separate courses with sufficient teaching hours or retain it as a single course and devote more time to teach research ethics and include image preparation as part of the course.