Safeguarding research integrity in China
By Jane Qiu

China has an impressive record in the total number of scientific publications in the past decade. In 2012, it churned out 193,733 Science Index Citation papers—4.7 times the 2002 level and second only to the United States. Unfortunately, the standards of science integrity has not kept up with the pace of this development, and many cases of research misconduct have been reported. This prompts many to fear that the country is now facing a critical problem in the field of scientific ethics.

In a forum chaired by National Science Review’s executive associate editor Mu-ming Poo, five panellists from diverse backgrounds discuss how serious the problem is, what the root causes are, and how to safeguard research integrity in China.

RESEARCH MISCONDUCT IS PARTICULARLY ACUTE IN CHINA

Poo: Science integrity is an issue of particular concern both in China and in the international community. How serious is the problem of research misconduct in China? Is it really a situation much more serious here than elsewhere in the world?

Wang: At the Chinese Association of Science and Technology (CAST), I’ve been in charge of a project in the past 10 years to survey science and technology researchers in mainland China every five years. This could give us some ideas about how serious research misconduct is. According to the third national survey, conducted in 2013—in which we got 33,000 respondents out of 36,000 researchers who had been polled across the country—nearly half of the scientists think that research misconduct is a recurrent problem. The percentage who regard ‘ghost authorship’ (in which a scientist coauthors a paper on research he or she did not participate), plagiarism, falsification and fabrication, and multiple submissions as common is 50.1, 43.7, 42.3, and 36.7%, respectively.

Qiu: I think the problem is particularly acute and on a much larger scale in China. There is a serious lack of oversight on many levels. Some PhD students say that ‘I can give my supervisor any results he wants’. In many hospitals, you can find advertisements offering the service of writing papers for rich but busy doctors. And there is a massive market for buying and selling authorships of academic papers.

Yang: We have also come across incidents in which grant applicants purchased proposals on the internet. Apparently, some
companies which offer editing and language polishing services to one group of researchers have turned around and sold the grant proposals to others. By using plagiarism-detection softwares, we found that, out of 100 000 or so grant proposals received by the National Natural Science Foundation of China (NSFC) in 2013, more than 400 had over 50% similarity to applications submitted to the agency in the past, and more than 40 proposals showed over 80% similarity.

The current evaluation system is a key contributing factor of research misconduct.

—Chunfa Wang

Lu: Research misconduct is a common phenomenon in the international scientific community. I’m an editor of several international peer-review journals and my impression is that many cases of research misconduct do come from China—probably more so than any other countries. But this might be related to the specific development phase the country is in right now. And the situation may improve as China instigates necessary regulations and oversight mechanisms, as it’s trying to do now. A culture of excellence and integrity in science is much needed and will take time to build in China.

Wang: The situation is indeed improving. Our 2013 survey shows that 55.5% of the researchers have definite knowledge of at least one type of research misconduct being committed by people around them—a 10% drop compared to the previous study in 2008. This might be due to efforts by various government and funding agencies.

THE PROBLEM OF ‘GHOST OR GUEST AUTHORSHIPS’

Poo: The CAST survey confirms my impression that ghost or guest authorships are quite common in China. This is not one of the three types of most serious offenses—that is, fabrication, falsification, and plagiarism—but clearly represents a form of misconduct. How does NSFC deal with this issue?

Yang: Most universities and institutes have regulations about what constitute authorships. I don’t think that it’s appropriate for NSFC to tell them how they should govern their researchers in details like this. However, we require that all papers derived from NSFC-funded projects enter a public library within the agency, so we could investigate allegations easily.

Ye: From the publishing perspective, many journals require authors to clearly specify their contribution. Springer has a generic guideline on authorship. This guideline is a necessary step towards preventing ghost authorships and resolving disputes.

Lu: I was involved in revising the authorship policy at our university. It can be quite contentious and different research fields seem to have different traditions and follow different conventions. In biology, for instance, it’s not uncommon for a principal investigator to be a corresponding author for all papers coming out of his or her lab—which is at odds with other disciplines such as engineering. It gets even more complicated when there are many collaborators in a project.

Yang: I agree. But some cases are more straightforward. For instance, in China, famous scientists are often invited to be an author of a paper in order to boost the chance of its acceptance—often with his tacit consent but sometimes not to his knowledge. Similarly, government officials who pursue a part-time PhD are often offered authorships on projects they did not participate. Such cases clearly constitute academic misconduct.

Wang: Ghost or guest authorships are dangerous practice. In addition to ethical concerns, they are misleading, turning non-experts into experts, especially under the current evaluation system in China. This can affect long-term research directions and grant allocations.

THE ROOT CAUSES OF RESEARCH MISCONDUCT

Poo: Why does China have such rampant research misconduct? What are the root causes?

Yang: There are multiple reasons. For instance, the Chinese society tends to have very high expectation in scientists—eager for scientific breakthroughs and even a Nobel Prize. This has put a lot of pressure on researchers. It’s also related to competition for research fund, which has become a key source of income for most research universities and institutes, constituting up to 40% of their total resources. The amount of grants a scientist can get has become a main criterion for assessing his accomplishment.

Wang: Our 2013 survey reveals that the pursuit of material gains and monetary rewards also underlies rampant research misconduct. For instance, nearly two-thirds of the respondents think that money is an important goal in life; 72% think that how much money one has is an important, if not the only criterion for one’s success; 51.2% think that one’s income should be proportional to his contribution to the society.

Lu: Some of the causes are related to the stage of development. China is still a developing country, with a much shorter history of modern scientific endeavour than the West, and so a lot of things, such as responsible codes of conduct and oversight mechanisms, are yet to be established. Since the economic reform in the late 1970s, the entire value system has fallen apart with serious impact on science and many other areas.

Poo: It’s also related to the research assessment system in China, which are solely based on the number of publications and their impact factor—rather than a genuine evaluation of research quality and its long-term implications. High-profile papers could give researchers instantaneous recognition and honour as well as massive amounts of monetary rewards. This encourages some scientists to take the risk and publish fraudulent papers, hoping that no one would find out.

Wang: This is in line with our 2013 survey, which shows that 52% of the respondents think that the current evaluation system is a key contributing factor of research misconduct, and 72.3% say
that the main motivation to publish papers is to meet various assessment criteria.

Qiu: Another reason is that the authorities have been too lenient towards cases of research misconduct. For instance, Chen Jin, a former researcher at Shanghai Jiao Tong University who falsely claimed to have developed a series of novel computer chips, was fired with no other repercussions; others involved in the scandal have also gone unpunished. Cases like this only encourage more scientists to take the risk of committing frauds. Ultimately, the central government doesn’t really have the political will to tackle research misconduct.

The fight against research misconduct can be effective only when necessary policies and protocols as well as a system of checks and balances are fully in place.
—Wei Yang

Yang: Indeed. NSFC has regulations about disciplinary decisions regarding research conduct—one of which being that an offender would not be able to apply for an NSFC grant within seven years of committing frauds. But we begin to think that the upper limit of seven years might be too lenient to some situations, and might consider revising the regulations at some point to impose harsher punishments.

Poo: I know several incidents at the Chinese Academy of Sciences, in which the principal investigators are not considered as responsible for the misconduct committed by his students and are not punished at all. In my own institute, we fired a principal investigator after an investigation that had clearly found evidence of his involvement in fabricating data in several publications, but have been widely criticized by many people in the Chinese scientific community for being too harsh.

Wang: This is indicative of a culture that is tolerant of research misconduct. Our latest survey shows that nearly half of the respondents are sympathetic or forgiving towards research misconduct. This is particularly the case among scientists younger than 35 years of age: 55.3% of them hold this kind of attitude, compared with 45.8% of older researchers. The sympathetic attitudes are prevalent in nearly two-thirds of students, postdocs, and junior faculties, compared with 23% of senior faculties.

SAFEGUARDING SCIENCE INTEGRITY: NECESSARY INSTITUTIONS AND THE ROLE OF MEDIA AND GRASS-ROOT ORGANIZATIONS

Poo: What are the ways forward to safeguard science integrity in China?

Qiu: The central government places a great emphasis on scientific progress, so safeguarding science integrity should be its top priority, which must be institutionalized at all levels. Given that almost all research fund comes from the taxpayers, the National People’s Congress should have the responsibility to take on this issue. There should be specific regulations on codes of research conduct in ministries, funding agencies, universities and institutes, as well as dedicated offices—like the Office of Research Integrity at the US health department—with budget and full-time staff to investigate reported cases. Media and grass-root organizations also have an important role. The key is transparency, so oversight mechanisms could operate at all levels. The most serious cases should be made public and severely punished.
Yang: Indeed. NSFC has a committee of science integrity consisting of experts from outside the agency. It receives about 300–400 allegations a year and the results of investigation were notified mostly through internal reports until a year ago, when we began to publicize some of the most serious offenses. In addition to investigating allegations, we also use plagiarism-detection software to check similarities between grant proposals.

Ye: The scientific publishing sector has set up the Committee on Publishing Ethics (COPE), which provides a step-by-step guidelines on how to uncover and investigate incidents of research and publication misconduct. The committee, of which Springer is a member, convenes every month to discuss complex cases and to give advice on how to deal with them. At Springer, the reader can report cases of research misconduct at any time to the Editor-in-chief and publishing editors, who are required to investigate every single reported incident. At the same time, based on guidelines developed by COPE, Springer has also developed specific ‘Springer’ guidelines for editors, society and publishing partners and authors.

Lu: China might want to take lessons from the West. The Australian Code for Responsible Conduct of Research has detailed regulations on reporting and investigating research misconduct. It requires the institution to have an official database for all reported cases—regardless of the investigation outcome. There are provisions to protect whistleblowers and the identity of the accused during the initial investigation phase. If the researcher fails to demonstrate his or her innocence, the investigation report would be made public. The accused could appeal against the verdict, which could call for an external committee for further investigation if the dispute cannot be resolved within the institution in question.

Wang: Both the Ministry of Science and Technology and CAST also have a dedicated office to receive such allegations, but most cases of research misconduct in China are revealed by the media and on the internet. Most of the allegations on the internet are anonymous and border on personal attacks. In some cases, they quickly evolve into lawsuits on defamation. Under such circumstances, it’s very difficult to know exactly what happened. I think it’d be much easier to resolve such disputes within the scientific community.

Poo: Indeed. The best-known website that discloses research conduct is the New Threads, but scientists seem to have divided opinions about it.

Lu: The sort of actions taken by the public or some devoted individuals in social media, such as the New Threads, in revealing and investigating cases of research misconduct is powerful, and could complement a great deal the systematic efforts by government agencies in strengthening a research culture of excellence and integrity. Having said that, there are many issues for such individual efforts that are not regulated; from time to time, they are subject to abuse and can cause harm and grief for innocent people.

Qiu: The New Threads emerged at a time when there was little awareness of research misconduct and very few public debates. Even today, most research-integrity offices exist in name only, and there is a serious lack of transparency and independent press scrutiny. In a recent survey conducted by the China Medical Tribune, 41% of the respondents say that there is no use to report research misconduct, and 22% say that there is no mechanism in place for such allegations. Overall, the New Threads has had a positive role in monitoring scientific conduct and stimulating the debate. It’s not without problems, and there is much room for improvement. The evidence posted on the website could at least serve a starting point for investigation by dedicated government offices.

The authorities have been too lenient towards cases of research misconduct, which encourages more scientists to take the risk of committing frauds.

—Renzong Qiu

Lu: Indeed. The government has an important role in regulating such grass-roots efforts and making the best out of them. It should draft regulations to set the boundaries and guidance on how such activities should be conducted and the responsibilities of the individuals committed to furthering this course—while providing encouragement and even support for such endeavours. All reporting of frauds and misconduct, for instance, should be based on evidence, and personal attacks and vicious comments should be refrained from any discussion of such cases. At the same time, relevant government agencies should take the responsibility to respond to and investigate any complaints or reports once surfaced in the public domain, in whatever media or manner, and publicize the final findings and disciplinary decisions if applicable. Only in this way, the social media could help to enhance the public confidence in our research community.

Yang: I agree. The internet sites, such as the New Threads, have both positive and negative impact on safeguarding science integrity. The fight against research misconduct must also follow international norms. It can be effective only when necessary policies and protocols as well as a system of checks and balances are fully in place.

Jane Qiu writes for NSR from Beijing.