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Case of two KU scientists illustrates growing problem of research fraud

Fraud and plagiarism are being detected at a greater rate, and some fear problems ahead.

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The Kansas City Star

In the technical world of bioinformatics, the two University of Kansas computer scientists were riding high in 2009.

Mahesh Visvanathan and Gerald Lushington published three articles with an international audience. They were invited to make a poster presentation at a conference in Sweden.

Although a lack of airfare kept them from going, their real problem wasn't a tight travel budget — it was plagiarism.

Portions of all three of their articles had been lifted from other scientists' work. The entire summarizing statement in their presentation had come from someone else's journal article.

In an endeavor such as science that relies on original work and trustworthy information, plagiarism and fraud seem out of place. But misconduct is being detected with increasing frequency. And while it may be that the scientific community is just getting better at sussing out fraudsters, some scientists fear the problem is growing.

Competition among researchers has taken on a harder edge, they say. More scientists are competing for limited grant money, faculty appointments and publication in top journals. This intense rivalry makes it tempting for some to cut corners and fudge results.

The number of scientists caught committing fraud remains small, but each case can cause real harm, from wasting time and resources of other scientists who follow false leads to putting lives in jeopardy with bogus health findings.

Among recent high-profile cases:

• Dipak Das, a heart researcher at the University of Connecticut Health Center who is known for touting the health benefits of red wine, altered some of his data and made up other evidence, a three-year investigation by the university alleges. UConn has declined $890,000 in federal grants that Das was awarded and notified 11 scientific journals that published his work.

Dutch psychologist Diederik Stapel allegedly faked data and made up entire experiments published in dozens of articles, according to investigators from three universities in the Netherlands. Among Stapel's headline-making claims: White people are more likely to discriminate against blacks when their surroundings are messy. Advertisements for beauty-enhancing products like mascara and perfume make women feel inadequate.

In the KU case, the U.S. Office of Research Integrity, a watchdog agency overseeing a large share of federally financed life-sciences research, announced this month that it had reached a settlement with the two scientists. Both admitted culpability, the office said, and KU agreed to monitor the legitimacy of their research contributions over the next two years.

Visvanathan and Lushington run a program on KU's Lawrence campus that helps researchers crunch massive amounts of data in fields such as DNA analysis. According to the university's official statements, Visvanathan ignored plagiarism concerns that were brought to him. Lushington knew about the plagiarism but failed to notify university authorities or try to keep the articles from being published. The university publicly censured both of them last year. At least two of their papers have been retracted.

Visvanathan could not be reached for comment. But Lushington conceded he did not do enough to stop the plagiarism.

"We are greatly regretful that this occurred and have taken steps to prevent it from occurring in the future," he said.

R. Grant Steen, a University of North Carolina clinical researcher turned medical consultant, has analyzed a decade's worth of research articles retracted from medical journals. He found an alarming acceleration in the numbers, with retractions for misconduct increasing faster than those for simple mistakes.

When Steen did his study in 2010, he counted 788 retractions — including 209 for fraud, 107 for plagiarism and 76 for ethical violations — from the past 10 years, a small number considering the millions of papers published. But since then, the number of retractions for that decade has nearly doubled, as more problems are found.

"It used to be you pretty much never had a retraction," Steen said. "In the past two years, there's been a real flurry."

This isn't conclusive evidence fraud is increasing, he said, "but my sense of it, my gut-level feeling is it probably is."

New computer tools have made it easier for universities and journals to uncover misconduct. Software can compare new manuscripts to published works to detect likely plagiarism. The Office of Research Integrity offers Adobe Photoshop applications that can help detect alterations in scientific images.

These tools have enabled an army of amateur sleuths who are scrutinizing digital images in papers published online and blowing the whistle — one recently sent the agency allegations about 55 papers that one laboratory published over the past 10 years.

"I think initially the perpetrators were ahead," said Mark Frankel of the American Association for the Advancement of Science. "The new technologies have now given an upper hand to those who want to catch them."

Science has always been the victim of frauds. The forged remains of Piltdown Man — a human skull combined with an orangutan's jaw and the teeth of a chimp — bamboozled evolutionary biologists for nearly half a century. Some think that Gregor Mendel, the father of genetics, cleaned up his data — his results breeding pea plants were just too perfect to be real.

But what helps keep science honest and accurate has been the practice among researchers of replicating novel studies done by their peers. Studies repeated with similar results gain standing; those that can't be replicated are thrown into doubt.

That may help explain why prestigious journals retract articles more often than more obscure publications — research in the spotlight gets greater scrutiny. But top journals also are more likely to retract papers because of misconduct.

Ferric Fang, a noted infectious-disease researcher at the University of Washington, began looking into this issue after the journal he edits, Infection and Immunity, had to retract six articles last year from a single laboratory that used manipulated digital images.

Fang sees the journal retractions as evidence of the "dark side of the hypercompetitive environment of contemporary science."

"Science has become this funny competition to get one's articles in the highest-impact journals," he said.

Fang considers the precarious economic situation of many university-based scientists: Their lab budgets often rely on research grants. But research money has been getting tight — appropriations to the National Institutes of Health, a primary source of medical research funding, haven't grown significantly in the past 10 years. Scientists are having a harder time winning grants.

"This makes people desperate to sell their research as strongly as possible. I think people are tempted to cut corners to exaggerate the importance of their work," Fang said.

"Everything is reported as a major advance. If that were the case, we should be on Mars and have cured cancer by now."

Frankel thinks universities should be providing researchers with extra financial support when they miss out on a grant. And they should be training graduate students to cope with economic pressures with their scruples intact.

"Your eyes should be wide open," he said. "You'll have good years and bad years and you'll have to know how to deal with it."

Fraud and plagiarism may lead to some scientists unfairly winning grants or faculty appointments. Misconduct sends researchers who try to replicate bogus studies down dead ends.

But the greatest harm comes from fraudulent medical research that leads to the mistreatment of patients or to bad health advice.

The most notorious case may be a study that physician Andrew Wakefield published in 1998 in the British journal The

Lancet. Based on a dozen children with brain disorders, Wakefield and his co-authors linked measles-mumps-rubella vaccine to autism.

An investigative reporter ultimately determined that Wakefield and his colleagues had altered facts about the children in their study. It also came to light that a lawyer planning to sue the vaccine's manufacturer had paid Wakefield.

But before Wakefield was exposed, anxious parents kept their children by the thousands from getting shots, sending measles and mumps cases in the United States and Europe soaring.

Fang sees a societal threat as well if research retractions undermine public confidence in science.

Scientists' input is essential for resolving critical issues such as the world's food supply, energy resources and infectious-disease threats.

"If scientists are seen as just one more special interest, that is dangerous to society," Fang said.

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