Society for Scientific Values

Ethics in Scientific Research Development and Management News And Views





Editorial Board

Editor Dr. Santa Chawla Scientist, NPL santa@nplindia.org

Office bearers of the Society (January, 2012 – December, 2014)

President	Vice-Presidents	Secretary		
Prof. K. L. Chopra	Prof. P.B.Sharma	Dr. R.K. Kotnala		
(Ex-Director,IIT,Kharagpur)	Vice Chancellor	Chief Scientist, NPL		
M-70, Kirti Nagar	Delhi Tech. Univ.	Dr.K.S.Krishnan Marg		
New Delhi-110015	New Delhi-110042	New Delhi-110012		
Ph: (011) 25154114	Ph: (011)27871018	Ph: (011) 45608599		
E-mail:choprakl@gmail.com pbsharma48@yahoo.co.in rkkotnala@nplindia.org				
Prof.P.S.Dutta				
Ex- Project Director (NRL, IARI, New Delhi)				
87, Kadambari Apt., Sec-9, Plot-19, Rohini,				
New Delhi - 110085				
dattapsdsd@rediffmail.com				
	Ph: (011) 27569348	3 (R)		

Jt Secretary:

Dr.Anand Akhila (Ex Senior Principal Scientist,CIMAP) Nishatganj, Lucknow - 226006 Ph: 9415517642,7376762212 E-mail: <u>akhiladr@hotmail.com</u> Ph: 011 25081022

Treasurer

Dr. Indra Mani Senior Scientist Divn. of Agricultural Engineering, IARI, New Delhi - 110 012 E-mail: <u>maniindra99@yahoo.com</u> Ph: 011 25846617

Created using

easy**PDF Printer**

Main objectives of the 'Society for Scientific Values'

- 1. To promote objectivity, integrity and ethical values in pursuit of scientific research, education and management, and
- 2. To discourage the unethical acts in these areas

Website : scientificvalues.org

Contents

Editorial		1
Honours and Awards to SSV Members SSV activity highlights		2
Letters to SSV	3	
Some cases of misconduct	5	
News pertinent to SSV's cause Global National	 11	5
Views		17
Paintal Memorial Lecture Dynamics of Scientific Minds A.P.J. Abdul Kalam		18
SSV Silver Jubilee Lecture Scientific Values: Authorship and Publications S.K.Sopory		26
Ethical Business and Trusteeship – Gandhi's Advise to Industries Shobhana Radhakrishna		41
The Need for Education for Responsible Conduct of Research in India Shubhrima Ghosh, Anuja Mishra, Simeen Kaleem, Kenneth R. Foster		44
Journals of Plagiarism Kenneth R. Foster and Kasturi L .Chopra		54





Editorial

Society for Scientific Values (SSV) completed its silver jubilee. Twenty five years of campaign to uphold scientific honesty and ethics in our country. The motto of SSV is 'Let Truth Prevail' - the essence of "Sayameva jayate"! The endeavor to search the truth and banish the untruth form scientific world is the guiding principle of SSV. In terms of scientific truth, there can never be any compromise. Since "There can be no compromise on basic principles, there can be no compromise on moral issues, there can be no compromise on matters of knowledge, of truth, of rational conviction", the crusade goes on. It is extremely important to make researchers aware that only honesty pays in the long run. Short term success and fame, achieved through immoral means, always comes to a shameful end since truth may be suppressed for a while but cannot be vanquished. Recent reports of scientific frauds in published literature bring into focus the increasing menace. A very important consequence of such exposes is loss of credibility of the researcher in particular and the organization and the country in general. If India has to emerge as a scientific power, the honesty with which we Indians pursue and report science has to be established. A recent report by IEEE indicate that among other countries, India also have a share in publishing plagiarized research papers and most such papers are published by smaller colleges/universities. This points to few shortcomings in the system like lack of facilities to conduct good research, pressure to produce output for personal or institutes carrier growth and/or lack of moral values. Such disgraceful act by handful of individuals brings shame to the country and might develop amongst wider scientific community, negative bias that in turn affects the honest researchers. In this regard, SSV has a major role to play in spreading moral values and professional ethics in the scientific community, the young researchers in particular.

The annual Paintal memorial lecture and silver jubilee lecture of SSV was delivered by distinguished scientists like Dr. A.P.J. Abdulkalam, honourable former president of India and Prof. R.K. Sopory, vice chancellor of Jawaharlal Nehru University, respectively. This issue of News and views includes those illuminating lectures and much more information.

Santa Chawla

News

Honours and Awards to SSV Members

- Prof. Indramani has been awarded the Bharat Ratna Dr.C. Subramanium Award for outstanding teachers of 2012, by Indian Council of Agricultural Research (ICAR)
- Prof. Indira Nath has been appointed the Co-Chair of the IAP-IAC Committee on Research Integrity. She has co authored a report on "Responsible conduct in the global research enterprise - A policy report" published by InterAcademy Council / IAP – the global network of science academies, in 2012.
- Prof. K. L. Chopra has been honoured by IIT-Bhubaneswar with "Distinguished Academic Award" in its first Convocation. He has delivered Convocation Address of NIT, Patna, the C V Raman Lecture of the Indian Physics Teachers' Association at JNU, Delhi.
- Prof. P. B. Sharma has been conferred the honorary degree of the Birmingham University, UK.

SSV activity highlights in the current period

The 7th Paintal memorial lecture of SSV was delivered on 15th March, 2013 by Hon'ble Dr. A.P.J.Abdul Kalam, Former President of India at Jawaharlal University, New Delhi

Since the inception, Paintal memorial lecture has been organized annually by SSV and delivered by the following eminent scientists:

Prof. M. G. K. Menon, former President INSA
Dr. R. A. Mashelkar, Former DG, CSIR
Prof. Deepak Pental, VC, Delhi University
Prof. V. K. Gaur, Indian Institute of Astrophysics, Bangalore
Dr. T. Ramasami, Secretary, DST
Dr. V.M.Katoch, DG, ICMR

The SSV-Silver Jubilee lecture has been delivered by Prof. R. K. Sopory, Vice Chancellor, JNU on 15th May, 2013 at JNU, New Delhi.



Letters to SSV

Dear Professor Chopra

greetings! I was listening to your talk yesterday, on Ethics in Research, and found it interesting to learn about the concerns and all challenges. I think that the basic question now is how to proceed? How to facilitate processes towards high ethical standards?

My name is Christian Thaulow, I am professor at The Norwegian University of Science and Technology in Trondheim. Just now I am visiting professor at IITMadras.

The main reason to come to India was to learn and study about the relationship between science and spirituality, and I was so happy to "find" Professor Devdas Menon at IITMadras, through auspicious coincidences! He has just now introduced a pioneering course on Self Awareness which I am taking part in and learn from. The course objectives are to enable students to understand and explore self-awareness, based on traditional Indian wisdom and modern approaches, and thereby learn to find inspiration, take responsibility for one's inner life, live with integrity and contribute creatively towards the well-being of all. In my thinking this kind of competence is what is lacking in today's society, and is what we desperately need in order to improve the ethical standard. I have also become aware of and been introduced to another initiative by Professors Gaur (IITDelhi), Sangal (IITHyderabad) and Bagaria (Kanpur). They have introduced a course and text book for a foundation course in "Human values and professional ethics. Presenting a universal approach to value education – through self-exploration". This course has recently been introduced at numerous technical universities in India.

From the book: "To live mainly on the basis of physical facilities is also called as living in animal consciousness. If we observe a cow, it is continuously occupied in getting some physical input from the environment. If we see ourselves today, we are also more or less doing the same. But for humans, physical facilities are necessary but not complete. Humans need a gualitative improvement in consciousness, a transformation from animal consciousness to human consciousness". I feel that the main driving force for many of the non-ethical behaviors that you listed is due to the competitive egoistic race, the animal behavior, that starts earlier and earlier in our school systems. But according to the Human Values book: "...competition results when there is a lack of affection. When there is affection, I help the other to grow. When I miss this feeling, I try to beat the other, act as opponent....When I study myself and am able to see myself as co-existence of "I" and Body, then I find that at the level of "I", you and me are the same We want excellence, not competition. We have tended to assume that by competing, our abilities grow. The fact is that we humans can grow only in relationships...The basic crisis today is that of Trust and Respect. Once we have these, affection naturally follows". I find that India, with her long spiritual traditions, is in the forefront of facilitating processes and developing courses that can change our value-system, and thereby lead to high ethical standards in a natural way.

I would also like to introduce my Norwegian master student, Zack Livesay, who is presently doing his master research at IITMadras, on the above issues. You might be interested in involving him in the activities at the society for scientific values.

Warm regards Christian Thaulow



Dear Professor Chopra,

I am referring to the mail that was sent by my Professor Christian Thaulow the 22nd of march to you. I am Zack Livesay, the master student that was mentioned in his email and I just wanted to contact you directly to follow up on Thaulow initiative. Unfortunately I did not get to attend your lecture when you were here in Chennai but I have looked through your slides and found them very interesting.

I am an Mech. Engineering student at the Norwegian Institute of Science and Technology (NTNU) but am currently attending a course here at IIT Madras on "Self-awareness" that was mentioned in Thaulow's mail. I have been under Thaulow's supervision since August this year, and I have been trying to learn as much about human value's in hope to gain some insight in how to inspire individuals to be motivated to learn more about ethics. Growing up in Norway, there has been little to no focus on ethics in our education and the symptoms of the absence of reflective integrity are beginning to shine through. The little "good-old farmer" ethics that resides in the older generations is slowly deteriorating with the erection of the nouveau riche oil empire that has been quickly evolving over the past 40 years. And the signs for the necessity for an ethical initiative in the educational system are becoming increasingly obvious. However, we are struggling to figure out how to move forward, and what curriculum would be suitable to an audience that is skeptical to an external source that is indirectly suggesting how to live one's life. The Scandinavian culture has been so badly burned by "Religion" and to counteract this movement the general public has resided in a materialistic world view. Unfortunately, this materialistic/mechanistic world view is really stagnating the process of ethical development within the communities and severing the possibilities to explore ethical subjects in a scientific manner. People are just not interested and extremely defensive when it comes to discussing subjects that have to do with the personal domain of human behavior and faith.

Through a few contacts we have stumbled upon during our visit here a door opened up and allowed me to attend a seminar in Geru Bhutan (10-20th of April, 2013) arranged by the authors of the book "Human values and Professional Ethics" that Thaulow also mentioned. I intend to write my thesis on my experience of both the Self-awareness course here at IIT Madras and the Human Values seminar in Bhutan and through my analysis of these two courses hope to get a better understanding for what the next step would be to pursue similar endeavors in Norway.

If you have any thoughts or advice for me as a go through this process of trying to understand India's approach to addressing these ethical problems I would be grateful for any of your comments. And if you know of other seminars that are going on before the end of May that can prove fruitful for my understanding, I would be sincerely thankful for any ideas of support.

Thank you, Zack Livesay



Some cases of misconduct

GGS Indraprastha University continues to be in turmoil for the last several months. The University has no operational grievance redressal mechanism at present. Instead of talking to the aggrieved and sorting out the problems, the VC has decided to charge sheet the President and Secretary of the Teachers' Association with the objective of dismissing them. The President, Dr Raghuram, is an honest teacher and he and the Secretary are reported to have the support of most of the faculty on issues related to the academic matters of the University. Whatever protest they have led is a legitimate expression of the frustrated faculty which has no voice in any affair of the University. SSV has expressed its grave concern on the deteriorating academic atmosphere in the University which includes unethical practice and plagiarism, as verified by SSV, by the two Deans of Education and Law (Suman Gupta and Saroj Sharma) who allegedly have indulged in plagiarism. An inquiry committee has been set up by the VC but no report was made available. Instead of acknowledging the problem and taking credible action, the VC has stated in a newspaper that plagiarism is not a crime and therefore warrants no action. Indeed, the VC has rewarded the two Deans with yet another term of appointment. SSV takes a very serious view of such an action and President, SSV has written a letter to the VC, GGSIPU on April 21, 2013 for setting up a committee to examine the affairs of the University before any punitive action is taken against anybody.

Because of the sustained efforts of SSV, the VC of AMU, the Director of NSIT, Delhi, the Director of CIMAP, a CSIR Lab in Lucknow, to name a few, have been removed on account of plagiarism by these individuals.

News pertinent to SSV's cause

Global

A policy Report by IAC/IAP, universal guide to curb misconduct

Inter Academy Council (IAC) and InterAcademy Panel (IAP, <u>iap@twas.org</u>; <u>www.interacademies.net</u>,) has published "**Responsible Conduct in the Global Research Enterprise: A Policy Report**" on September, 2012. The IPA-IAC committee on Research Integrity comprises amongst others Prof. Indira Nath as Co-Chair. Prof. Indira Nath is an active member of SSV. Global network of science academies has summarized a set of guidelines for conducting responsible research conduct. The report says that "Global standards of behaviou<u>r</u> reflecting the universal

values of science are not only possible but necessary," The different views on research misconduct and dealing with such incidences, establishing mechanisms for research ethics, several broad policy recommendations for researchers, research institutions, peer-reviewers, and public and private funding agencies, for global implementation are discussed in the report. It also includes recommendations that conflicts of interest and harmful consequences of research work must be disclosed by researchers and research funding agencies should ensure that research institutions have an effective mechanism to deal with allegations of scientific misconduct.

New Plagiarism Newsletter (CTRL-V)

A newsletter called CTRL-V has been launched by iThenticate. The newsletter publishes most critical stories of plagiarism, discussions and repercussions with insightful analysis.

Retraction

Retraction Watch is a blog that tracks retractions from scientific journals arising from misconduct. One such example could be found in http://retractionwatch.wordpress.com/2012/10/10/correction-for-md-andersons-bharat-aggarwal-arches-eyebrows-for-the-right-reasons/#more-10207 Science Fraud is a blog that highlights misconduct in Life sciences Research.

Misconduct Widespread in Retracted Science Papers, Study Finds (by Carl

Zimmer, October 1, 2012, Nature)

Scientists Review Own Papers

"In the latest effort to boost publication records, researchers are writing positive peer reviews for their work under other scientists' names" (by Jef Akst, October 3, 2012, Nature). A new way of cheating the existing peer review system for publication in journals, have been employed by at least four scientists who suggested fake reviewers with e-mail id (g mail or yahoo email addresses) that is their own. They wrote glowing reviews to their own paper (sometimes in two days) and got their papers published on journals like *Journal of Enzyme Inhibition and Medicinal Chemistry*, in *Experimental Parasitology, Pharmaceutical Biology*, and several others, including two journals under the umbrella of publishing giant Elsevier. Claudiu Supuran, editor in chief of the *Journal of Enzyme Inhibition and Medicinal Chemistry* first suspected the fraud and exposed Hyung-In Moon, now an assistant professor at Dong-A University in Busan, South Korea, who admitted to having falsified the data in the submitted papers. Since August, 2012, 28 of Moon's papers have been



retracted, and Supuran's journal has a new policy that each paper be reviewed by at least two researchers not suggested by the submitting author. (In addition, Moon had seven other papers retracted several years ago for unspecified errors, <u>Retraction</u> <u>Watch</u> reported.)

The dark side of some open access journals <u>Link to article in *Nature*</u>

Recent mushrooming of Open Access journals, many of which have dubious reputation and publish sub standard/ plagiarized work with 'publication charges' are corrupting the open access model of publishing. In an article written in Nature in September, 2012, Jeffrey Beall, a library expert at the University of Colorado, Denver, in the United States, reports such dark side of scientific publishing (Nature 489, 179 (13 September 2012) doi:10.1038/489179a).

India has also seen emergence of such journals, where researchers are sent e-mails with the offer of publishing their research papers within two weeks and with some publication charges. Young researchers in developing countries can be easy prey. Falling into such trap of trash publication by scientists in India and neighbouring countries could be dangerous as quick and easy publication to earn job, promotion or research funding could be tempting.

Some substandard journals "have genuine-sounding editorial boards but closer scrutiny may reveal that they are not experts in the field served by the journal", says Ivan Oransky, co-founder of *Retraction Watch*, a blog that tracks retractions from scientific journals arising from misconduct.

Nigerian Researchers: Nigeria's National Universities Commission (NUC) survey found that 23 per cent of articles in a sample of Nigerian academics' CVs had been published in substandard journals based in Nigeria and abroad. Nigerian researchers are disproportionately the victims of publishing scams and there is lack of awareness in Nigeria of 'bait and switch' scams that lure researchers into submitting an article, only later informing them that there is a publication fee. Researchers often fail to realize the fraud and "In fact, the assumption is entrenched in academic circles in Nigeria that the higher the fee charged [by the journal], the higher the quality."

Pakistani Researchers: The issue in Pakistan has been investigated by Isa Daudpota who has cross-checked the names editorial boards members and contacted them by email for verification. He has brought into light "use of fake journals", some of which are even approved by Pakistan's Higher Education Commission (HEC). These journals can demand high payments for speedy publication of material without proper review and editing, and may include the names of prominent international academics without their knowledge. When alerted, the

academics "were horrified to find their names had been used". Sometimes, Daudpota claims, journals and academics use each other. "It can be a short cut to promotion and privileges. Some editors and authors who have been associated with fake journals have gained through financial rewards, including national honours and promotions," he says. For its part, the HEC has said that it investigates "all complaints received". Daudpota in Pakistan demands that "The HEC should investigate them and then aggressively get these journals removed from the web, and compel Pakistani academics associated as editors or contributors to sever their connections immediately and remove mention of such publications from their résumé. "Benefits — financial and professional — obtained through such publications should be withdrawn. The big fish in particular need to be tried in a court of law."

Chinese Researchers: "China appears to be home to the largest number of substandard and suspect journals. Most Chinese publications are published under the auspices of the state and few outside the country took any notice until English-language versions began to emerge to bolster the appearance of Chinese academics in 'international publications'. China now says it conducts annual inspections of journals and is pushing up quality by investing in editorial standards. But Cao Xingion, an associate professor in the school of law at Zhejiang University in Hangzhou, who has looked into academic misconduct in China, alleges that some substandard journals pay academic inspectors to get a higher rating in the inspections."

What can be done?

If the journals have an International Standard Serial Number (ISSN), they are legal and cannot simply be shut down on the basis of a few suspicions. Most people argue that regulatory bodies such as the University Grants Commission in India, NUC in Nigeria and HEC in Pakistan should issue advice so that universities can then act by discontinuing or improving substandard university-owned journals. President SSV, Prof. Chopra says ministries and funding agencies should keep their own blacklists and insist on scientists publishing only in above-board journals as a condition of funding — which again raises the issue of defining 'above board' and 'substandard'.

Controlling Academic fraud in China

In the article "Journal Publishers in China Vow to Clamp Down on Academic Fraud" (Nature, April 25, 2012) David Cyranoski reported that" the China Association for Science and Technology (CAST) in Beijing has taken the lead among the country's publishers in trying to clamp down on academic misconduct." Approximately 5,300



Chinese journals which account for roughly one-third of the world's science and technology journals and, arguably, publish around 600,000 papers per year are also under lens."In the declaration, journal editors in chief and affiliated society presidents commit to following CAST guidelines issued in 2009. The document defines many types of fraud and lists possible penalties for miscreant authors -- from written warnings to blacklisting or informing home institutions and funding agencies about the misconduct. Reviewers, who abuse their privilege by, for example, plagiarizing an article, can also face blacklisting and public disclosure."

Chun-Hua Yan, associate editor-in-chief of the CAST-administered Journal of Rare Earths, based in Beijing expressed his view that that there is lack of awareness among many editors regarding some subtle types of misconduct for example, favouritism in publishing based on personal relations or offering honorary authorship. President of the Chinese Medical Association Publishing House in Beijing, Suning You, believes that "the declaration will purify the academic environment to create first-class medical journals, thus achieving social and economic benefits".

For curbing misconduct, China's government and academia have taken measures (see *Nature* 481, 134-136; 2012, *Nature* 483, 378-379; 2012, *Nature* 467, 261; 2010), but the weeding process hasn't happened yet. "A stronger incentive -- money -- might force the issue. According to Yan, China's finance ministry is starting a program that will spend 100 million renminbi (US\$16 million) per year to improve journals. By the end of 2012, a committee will rank the country's publications into three tiers on the basis of their international and Chinese impact factors and other measures of international influence, such as the number of overseas subscriptions and the number of foreign editorial-board members. Journals ranked in the first tier will get a bonus of 100,000 renminbi per year, and those in the second, 50,000 renminbi. Third-tier publications will get nothing."

Top Science Scandals of 2012 (Edyta Zielinska, The Scientist, December 17, 2012)

"A widely discussed research study published this year showed that more than sloppy mistakes or accidental omissions, retracted papers are most likely to be withdrawn from publication because of scientific misconduct or knowlingly publishing false data. In fact, more than 65 percent of the 2,000 or so papers studied were retracted because of poor ethical judgment. According to that report, high impact journals have been hardest hit by the increasing rate of retractions over the past decade. In light of these findings, researchers and other observers have proposed several initiatives to help the scientific community with its apparent honesty issues. One suggestion was the creation a Retraction Index. Unlike the Impact Factor, which is based on a journal's citation rate, the Retraction Index would indicate the number of retractions a journal has for every 1,000 papers published. Following suit,

Adam Marcus and Ivan Oransky at *Retraction Watch* blog suggested creating a Transparency Index, which could include a score for how well a journal controls its manuscript review process, including how it conducts peer review, whether supporting data are also reviewed, whether the journal uses plagiarism detecting software, and a number of other measures. Finally, the lab-services start-up Science Exchange and the open access journal *PLOS ONE* have collaborated to suggest the Reproducibility Initiative, which would provide a platform for researchers to submit their studies for replication by other labs for a fee. Studies that are successfully reproduced will win a certificate of reproducibility."

Some glaring examples of scientific fraud in 2012:

"10 years of fabrication"

University of Kentucky biomedical researcher Eric Smart was discovered to have falsified or fabricated 45 figures over the course of 10 years. Smart resigned from his university post in 2011, when the investigation in his misconduct started, and agreed to exclude him from federal grant applications for the next 7 years. He now teaches chemistry at a local school.

Record-setting retractions

Setting the record for the most publications up for retraction by a single author, Japanese anesthesiologist Yoshitaka Fujii fabricated data in a whopping 172 papers. Beginning his career in falsification in 1993 while at the Tokyo Medical and Dental University, he continued it at the University of Tsukuba, and at Toho University in Tokyo, where he was finally dismissed in February 2012. According to investigations, Fujii never actually saw the patients he reported in his clinical studies, failed to get ethical review board approval for his research, and misled co-authors, sometimes including their names without their permission or knowledge. Although the retractions are not expected to have a large impact on the field—many of them had low citation rates—Fujii used the publications to further his career, publishing a total of 249 papers.

False forensics

The results from roughly 34,000 criminal drug cases were put into question earlier this year, when forensic chemist Annie Dookhan at the shuttered Department of Public Health Lab in Massachusetts was discovered to have falsified records on samples she was assigned to process. Instead, she forged signatures and did not perform tests she recorded as complete, according to investigations. Suspicions may have first arisen due to her impressive output—she claimed to have processed



9,000 samples in a year, whereas colleagues only averaged around 3,000. As a result of her actions, a number of defendants may have been wrongly imprisoned, while others who may have been rightly accused were freed. This month, Boston police warned of an expected spike in crimes due to the large number of convicted drug offenders who will be released because of Dookhan's misconduct.

Creative reviewing strategies

Rather than falsify data in order to get published, researchers have taken a new tack this year by writing glowing expert reviews for their own papers. When asked by journal editors to suggest names of experts in their field who were not involved in their research, at least four submitting authors suggested names and emails that then forwarded back to their own inboxes. The trend, first reported by *Retraction Watch*, was caught by one journal editor when author Hyung-In Moon, assistant professor at Dong-A University in Busan, South Korea, offered up names of reviewers with Google and Yahoo rather than university email accounts. "It should be a wake-up call to any journals that don't have rigorous reviewer selection and screening in place," Irene Hames, a member of the Committee on Publication Ethics, told *The Chronicle of Higher Education*.

National

A Foundation Course in Human Values and Professional Ethics.

A course in Self Awareness has been introduced in Indian Institute of Technology Madras, by Professor Devdas Menon. The objectives of the course is to make students understand and explore self awareness with foundation in "traditional Indian wisdom and modern approaches, and thereby learn to find inspiration, take responsibility for one's inner life, live with integrity and contribute creatively towards the well-being of all." Also a course and text book for a foundation course in "Human values and professional ethics" has been introduced by Professors Gaur (IITDelhi), Sangal (IITHyderabad) and Bagaria (IITKanpur). This course has recently been introduced at numerous technical universities in India.

Towards nurturing ethical values, Prof.K.L.Chopra has delivered lectures at IIT Madras, IIT Bhubneshwar, NIT Kurukshetra & Delhi, JNU, Delhi, NERIST Arunachal Pradesh, GGSIPU Delhi, ITM Gurgaon, SSN college Chennai, KIIT University Bhubaneswar.



Scientific misconduct and News paper coverage

Printed from THE TIMES OF INDIA

They catch con jobs in science

The writer has posted comments on this article<u>Jayashree Nandi</u>Jayashree Nandi, TNN | May 14, 2013, 02.27 AM IST

NEW DELHI: A plagiarism charge against an <u>IIT academic</u> is shocking news but for the <u>Society for</u> <u>Scientific Values</u> it is just another shameful statistic. On average, this volunteer 'watchdog' investigates around 200 new complaints of plagiarism and corruption against scientists every month.

In the latest one, a well-known Indian scientist is accused of lifting entire paragraphs from a plant biology paper by a scientist at the <u>University of Heidelberg</u>. Earlier, an international journal had retracted three papers of an acclaimed scientist from the chemical engineering department of IIT Kanpur.

While complaints against faculty at little known universities and other organizations pour in daily, 'prestigious' institutions too have their share of scandals. "We get complaints against scientists from the IITs and central universities," says Professor KL Chopra, former director of IIT Kharagpur and president of the society. Once, he says, a US based journal retracted the paper of an IIT Delhi scientist who used data from <u>Wikipedia</u> and other online documents about the impact of radiation from mobile phones. "Despite several letters to the IIT Delhi director, we have received no response and no action has been taken against the scientist," adds Chopra.

The 25-year-old society has seen the malaise grow. "Plagiarism cases have increased because scientists want to publish as many papers as possible in a short time. Their promotions are linked to the number of papers they publish," says Professor Uttam Pati of the School of Biotechnology at JNU who is an SSV member.

The society, formed in 1987 "to uphold the spirit of science and original research", now has more than 500 members. It can proudly look back on the cheating it has exposed. For example, a prominent scientist, an adviser to the PM, had lifted sentences verbatim from a journal for a paper on infrared photodetectors. Chopra recalls the case of a scientist from Tirupati University who plagiarized 75 research papers.

Still, the society feels powerless in its crusade for values. "We don't have legal powers. Our cases move forward only if the university acknowledges them or the scientist accepts misconduct," says Pati.

Although cases are taken up only after verifying the background of the complainant and much deliberation, progress is slow. "Many times, it has taken us years to investigate a case. People don't respond easily. They want to cover up," says Chopra.

With new journals promising to review scientific papers in two weeks, plagiarism is bound to become more rampant, Chopra and Pati say. But the society is determined to expose every con. "Science has to be honest and we want more young members to take this cause forward," says Pati.



Indian Express

AIIMS downplays plagiarism charges against its director

New Delhi, Wed Jul 13 2011, 09:26 hrs

All India Institute of Medical Sciences (AIIMS) sought to downplay plagiarism charges against its director Dr R C Deka, saying there was an "inadvertent" error in a write-up and a request for correction was forwarded to the journal's editor.

Dr Ramesh Chandra Deka was at the centre of a controversy after a study of AIIMS published last year had reproduced some passages from a 2005 study. The AIIMS Director was the lead author of the write-up.

"Dr Deka has said in his defence there were two paragraphs which were allegedly plagiarised. However, the reference of these paragraphs have been cited in the bibliography but were left inadvertently at the end of the paragraph. Correction to this effect has been requested to the editor in the form of letter to editor," AIIMS spokesperson Dr Y K Gupta said.

In a recent revelation, it was found that two paragraphs of a study published on 'Cochlear Implantation in Waardenburg's Syndrome' in the 2010 Acta Oto-Laryngologica journal was similar to a study published by another author in the same journal published in 2005.

Dr Lela Migirov from the Department of Otolaryngology/ Head and Neck Surgery, Sheba Medical Center, Tel Hashomer (Israel) is the chief author of the 2005 study on Waardenburg's Syndrome, while the 2010 study on the same topic was headed by Dr R C Deka.

"The results of this study indicate that children with WS exhibiting normal inner ear anatomy derive significant benefit from cochlear implantation and the results are comparable to those reported for the general population of implanted children. Although we reported on a relatively small cohort, these data may be used for counselling the parents of children with WS who are considering cochlear implantation," Page 4 of the study on 'Cochlear Implantation in Waardenburg syndrome: The Indian Scenario, published in 2010, said.

NIPER News

National Institute of Pharmaceutical Education and Research (NIPER), established by the act of parliament under the aegis of Ministry of Chemicals and Fertilizers, India have come in the news in the past for several reasons. Some of news clips are appended below:



) GO HERE OR N

Swati Thakur

ational Institute of Pharmaceutica Education and Research (NIPER), Mohali, established by the Act of Parliament under the aegis of Ministry of Chemicals and Fertilizers, Govt. of India is organising 'Joint Counselling' from July 17-19. This 'Joint Counselling' is for admission to Masters Programme M.S. (Pharm.), M.Pharm., M. Tech (Pharm.), for all seven NIPERs, situated at Guwahati, Hajipur, Hyderabad, Kolkata, Rai Bareilly, Ahmedabad and S.A.S. Nagar.

While this is an opportunity to tap on, some students are apprehensive since NIPER, Mohali was in the news for all the wrong reasons a few months back. The then officiating director, KK Bhutani had been allegedly charged for nepotism & corruption. While the case has ever since been in the court, the next hearing is due on July 23.

In the case, PJP Singh



Waraich had reportedly given KK Bhutani a sum of ₹20 lakh for his appointment as the Registrar. A NIPER staff, who does not want to be named said, "Bhutani had extracted ₹20 lakh from Waraich and had interviewed him in May. Waraich had then been appointed despite the fact that Waraich did not meet the requisite qualifications of eligibility for the post of Registrar at NIPER, Mohali."

However, Waraich's appointment is still pending as the court is yet to decide if the allegations are true. The High Court of Punjab & Haryana at Chandigarh is supervising the act of the officiating director which amounts to 'denial of opportunity to genuinely deserving candidates besides leading to nepotism.'

"Such conduct is guite shocking for us since we have been a part of the management for a long time now. The management is expected to be the guiding light for students, but with such conduct what are we really teaching our students here, it's like setting up an abhorrent example before our students," added the staffer.



Whistleblower victimised, cry scientists

Monday , May 28 , 2012 G.S. MUDUR

New Delhi, May 27: Sections of India's scientific community are upset at what they allege is the victimisation of a whistleblower scientist at a premier academic institution who claims he has been punished for exposing administrative improprieties and financial irregularities. The National Institute of Pharmaceutical Education and Research (Niper) near Chandigarh dismissed Nilanjan Roy, associate professor of biotechnology, in April this year, claiming he had tried to embezzle funds, refused to correct students papers and stopped taking an assigned class. Roy claims the institute has concocted false allegations against him after he raised concerns about

Created using

Click here to nurchase a license to re

easyPDF Printer

what he says were questionable appointments, irregularities in the purchase of diesel and spare parts of scientific equipment, and diversion of funds to unauthorised activities or projects. A part of the diverted funds appear to have been spent on an Olympic-sized swimming pool, Roy and two other scientists at Niper have said. Niper director K.K. Bhutani has denied all these allegations.

The controversy has angered sections of scientists who recall that an inquiry panel had indicted Niper's administration three years ago for punishing another whistleblower scientist, Animesh Roy, who had exposed scientific misconduct by the head of his department.

Animesh Roy has since been reinstated by the institute as directed by the inquiry panel. In a letter of appeal sent to the chairman of Niper's board of governors (BoG), Nilanjan Roy has claimed he had exposed instances of financial irregularities and abuse and misuse of authority by the present officiating director, K.K.Bhutani. The very person against whom I complained set up an inquiry against me on concocted charges and then dismissed me from service, while my appeal against the inquiry report is pending before you as the chairman of the BoG,Nilanjan Roy wrote to Vishwa Mohan Katoch.

Katoch, who is also the director-general of the Indian Council of Medical Research, declined to discuss the details of the case.

However, he told **The Telegraph**: I will approach this with the utmost neutrality and speed. Bhutani says Nilanjan Roy cooked up false charges against Niper's administration.

Instead of defending the charges he has been accused of, he is making counter-charges, he said. Bhutani said Nilanjan Roy's dismissal followed an inquiry conducted by an independent scientist invited from the headquarters of the Council of Scientific and Industrial Research, New Delhi. He has received an absolutely fair and independent inquiry, Bhutani told this newspaper. Senior scientists say they are unhappy with Katoch's inaction.

This is a fit case of whistle-blowing, said Kasturi Lal Chopra, a former director of the Indian Institute of Technology, Kharagpur, and president of the Society for Scientific Values, a body tracking misconduct in science.

Katoch is silent his predecessors (as chairperson of Niper's BoG) were unhappy with the management of Niper and got out of themess, Chopra said.

After a lot of effort, Animesh was finally taken back. I hope Nilanjan does not face the same problem.

Niper cut Nilanjan Roy's salary by 50 per cent during the inquiry last year and stopped paying him last month after the dismissal order, a move Bhutani has defended as something he had to do under government rules. Scientists have been circulating emails to generate support for Nilanjan Roy. It is very important to protect such people, else they will just be quashed like bugs, said Nandula Raghuram, associate professor of biotechnology at the Indraprastha University in New Delhi and a former secretary of the Society for Scientific Values.

Nilanjan Roy has support from within Niper too. Another faculty member, Parikshit Bansal, has also complained to Katoch that Niper's administration had misappropriated funds, diverting money earmarked for an intellectual property rights project to pay for software unapproved under the project.

Bhutani told this newspaper the information provided by Bansal was absolutely baseless and misleading.

He said Bansal had complained to higher authorities, including the Central Vigilance Commission, and that Niper had answered all these questions satisfactorily.

Bansal had written to Katoch last July that given the technical nature of the projects, it would be difficult to make out how the money has been misappropriated unless the project's scientific investigators were called in to clarify during audits or inquiry.

Nilanjan Roy, Bansal and a third Niper scientist, Neeraj Kumar, met Katoch early this month, urging him to reverse the dismissal order against Roy and set up an inquiry panel to look into the issues they had raised.

A BoG meeting is scheduled for tomorrow but Nilanjan Roy and Bansal say they do not know whether these issues would come up for discussion.

Documents don't lie, we have documentary evidence to support all that we are claiming, Bansal said.

In October 2011, Nilanjan Roy had begun posting a blog titled A biped against corruption and uploading documents that, Bansal said, help establish the claims about irregularities. Bhutani said Nilanjan Roy, Bansal and Kumar were the only three people causing trouble in Niper.

Student's Strike at NIPER, Ahmedabad

Students at NIPER, Ahmedabad went on non violent protest against the lack of basic facilities and academics amenities in September, 2012.

UGC intends to curb plagiarism by using anti-plagiarism software INFLIBNET (information and library network).

Seminar

Lectures were organized jointly by SSV and JNU at Jawaharlal Nehru University, New Delhi on May 15th, 2013. In this Seminar, Prof.K.L.Chopra, President, SSV talked about "25 years of SSV". The 7th Paintal memorial lecture of SSV "Dynamics of Scientific Minds" was delivered by Hon'ble Dr. A.P.J.Abdul Kalam, Former President of India. The SSV-Silver Jubilee lecture "Scientific Values: Authorship & Publications" has been delivered by Prof. R. K. Sopory, Vice Chancellor, JNU.

An Appeal

- SSV is what members will make it. Please participate actively in arranging activities on ethical issues in S&T
- SSV is a voluntary Society. Any financial donation to SSV is entitled for tax deduction under section 80G by the IT department. We appeal to SSV members and fellow supporters for generous donations to strengthen our corpus fund to attain financial autonomy.



Views





Paintal Memorial Lecture, 2011

Dynamics of Scientific Minds

A.P.J. Abdul Kalam

Work with integrity and succeed with integrity

I am very happy to deliver the 7th Dr AS Paintal Memorial Lecture organized by the Society for Scientific Values and the Jawaharlal University. My greetings to all of you. Dr Autar Singh Paintal is indeed a great researcher with passion, particularly in medical science related to heart and lungs diseases. Throughout his life, he was a teacher in healthscience and particularly specialized in the behaviour of several visceral receptors, particularly J receptors and led to treatment of high-altitude pulmonary oedoma. Prof. AS Paintal indeed stood for healthcare with professional standards. Of course, he was the standard setter. In his own view, his greatest contribution to science in India apart from his discoveries has been the formation of the Society of Scientific Values, which he helped to establish, to promote integrity, objectivity and ethical values in the pursuit of science and served as its first President. It is a great honour for me to deliver the 7th Dr AS Paintal Memorial Lecture. The subject I have selected for discussion is, "Dynamics of Scientific minds".

Values and societies

Dear friends, I share your concerns and objectives and have over a lifetime strived to instill the values of being honest to oneself and accountable to others in the practice of science and technology in academic, R&D, and industrial institutions. These are perennial values that have existed over thousands of years and prevail worldwide, in all civilized and cultured nations. We are all aware of the ever increasing significance, importance and role of science and technology in our lives. With rapid advances in interdisciplinary sciences in the last century, we find such institutions are riddled with moral, ethical, social and legal problems particularly so in the new domains of life sciences and genetic engineering. But it is not the purpose of my address to dwell on such cases of breach of ethics, or to give comfort by citing the many more cases of noble and ethical conduct, but to search for a



broader vision of the value of science to society, the developmental aspects of society by the use of scientific values.

Values in scientific research

When my friend, YS Rajan came to know that I will be delivering the 7th Dr AS Paintal Memorial Lecture, he called me yesterday and shared his thoughts with me. Incidentally, YS Rajan is known to Dr AS Paintal very closely. Rajan recalls an instance of a talk by Dr AS Paintal at the Indian Science Congress. Rajan says *it was mostly around values in science research and policy making. Dr Paintal said that Indian scientists failed the country in its population control programme by advising the politicians and administrators that pill which had been used extensively world over was not suitable for India. They promised to make a new invention suitable for India. Dr Paintal said that first of all it is a high risk, low success strategy. Even if they succeed they all knew, it will take minimum of 15 years to use it on a large-scale, after various trials. He said that this was done by the Indian scientists to build their own empire. Net result, the country's economy and people suffered.*

Let me present to you what science in India means.

Science in India, what does it mean to you?

Friends, in the year 2006, when I was the President of India, I had posed an open question to the public at large about Indian science. I had wanted to know their view on a seemingly simple yet profound question, "science in India, what does it mean to you? I obtained a flood of responses, and after careful study, I brought out a small booklet containing a selection of 111 relevant responses. Let me now share with you what the young and experienced Indian scientists and professionals in various fields, and students as well, felt what science means to them. (It is interesting to note here that I had received responses from foreign scientists as well, validating the principle of universality of science!!The responses varied from the concerns, expectations and dreams of real people and not just policy perspectives of those in power. The responses came from the new generation (the well off and the poorer sections)as well as mature perspectives of elder and experienced scientists.

I felt that this survey done in 2006, recording their feelings and perspectives of people in India about the value to science should be brought out to Society for Scientific Values. The outcome of that survey could help this Society to acquire a developmental orientation that could enable Indian society realize the true.

value of science in daily life. The very real feelings of the young about science meant to them were as follows:

1) Science means the real power to overcome poverty especially in rural innovations.

2) Science is not meant for him (a villager, aged 21) or for talented villagers, but for rich people.

3) The way to make the nation progress by providing new knowledge, skills and employment especially in rural areas.

4) Science is for the rich and not for us (from a 28 year old self-employed boy)

5) Science must provide medical services to the poor.

6) The means to abolish superstition.

7) The means to understand technology.

8) To get more knowledge about our surroundings.

9) As a means to improve school syllabus

10) Progress in the development of human beings (this from a 14-year old!)

11) To predict natural disasters like floods and droughts occurring simultaneously in different parts of the country.

12) To focus on low cost technology

13) We need to reconcile modern science with Vedic concepts of space and time

14) To impart knowledge for making money (this from an 18 year old).

15) Be useful to a common person at affordable cost.

16) Be used for the growth and expansion of agriculture

- 17) Science is a struggle and needs to be the driving force for our country
- 18) Science is less pleasing to God and more useful to man (from a 19 year old)
- 19) A bright spark that can light up India on its way to the goal of being a developed nation (from a 14 year old 9th class student)

The older more experienced scientists and professionals expressed their feelings and ideas differently as to what science meant to them. They felt and observed:

1) Science is mankind?s effort towards creating a self-consistent framework for understanding nature as well as the process itself that leads to the understanding

2) Science is universal but scientists have a nationality

3) Science in India had a glorious childhood (in the past), a neglected adolescence (the present) and a glorious adulthood (the future).

4) It is the basic ingredient for technological advancement. Many a time what is considered as fiction becomes reality due to rigorous pursuit of research in science



5) Science can flourish only when there is a free environment

6) Science is the most reliable means for individuals and the collective to acquire self-knowledge. Teaching in India should encourage the students to study their own body, emotions and mind, to see the distinction between clear thought and clear thinking.

7) SĂ deep connection between science and philosophy should be nurtured in India.

8) Science is the future of future generations.

You can see the clear difference between the practical thoughts of the younger generation for their livelihood and the more abstract thoughts of the elders as they take a broader and more historical perspective. Taken together, these views on what science means to people in India may be suitable for this Society to develop a new vision for its own future.

These outcomes of my survey could provide the actual content of tasks and goals when you decide to move ahead in a mission-mode to formulate and implement plans to consolidate and expand the activities of the Society. In this way, I am sure you will be able to fulfill the other stated Objectives of the Society. Some of the important factors to progress in science include reflecting on what we don?t know, performing thought processes and experiments to explore the unknown and following a transparent approach by subjecting oneself to peer and specialist reviews.

While talking to Dr T Ramasami, Secretary DST, about my address today, he brought out the importance of social behaviour on professional ethics. He says,

Decision making on ethics : Human tendencies in modern theories

Modern theories discuss the costs and benefits of unethical practice in professional pursuits. Goal setting attitudes of human kind have come up for analysis in terms of benefits and costs. Modern theories propose that people with specific unmet goals will be more prone to overstate their performance than those without specific goals such as the people doing their best. Theories state also that people with unmet reward goals are likely to slip into unethical practice more than those with just mere goals without connotations of reward. A third hypothesis on unethical practice in profession states that those who fail to reach a reward goal by a small margin are likely to deviate from professional

ethics more than those who fail by a larger margin. These are modern theories of social behavior on professional ethics.

Dr Ramasami concludes that summarizing various theories emanating from the western culture, it is possible to observe that a) competition, b) power struggle against social stratification, c) urge to succeed in social perception and d) lack of social and family cohesiveness may form the main promoting factors for unethical professional practices. Social control mechanisms for ethical standards in profession seem to emphasize the role of family and a nonmaterialistic attitude to life.

Let me now share my experience while working with two premier organizations, the ISRO and DRDO.

My 40 years of experience in DRDO and ISRO

I worked in ISRO for 20 years and another 20 years in DRDO. During my 40 years of service in these two scientific organizations. I had held various positions. I had an opportunity to work with about 1400 scientists, out of which about 1000 were in the age group of 30 to 40. These young scientists were not only busy with the task of state of art systems they were dealing with but also highly motivated and were presenting their development work in national and international conferences and also publish in well known science journals and magazines. Since, I was the leader of the young teams, I was fully involved in the work being undertaken by these young scientists. Whenever a Paper has to be sent for presentation or publication, they invariably suggested for putting my name as co-author. But, when they sought my permission, I had always declined to be the Co-author. However, I had agreed for any acknowledgement in the paper if they so desired, for my guidance on the work. Nearly 50 years of my life, I have maintained that the originator of the Paper shall be the author of the paper. Of course, whenever the Paper by my young friends appears in the journals or magazines, I would be the happiest person and I personally congratulate the authors.

My PhD research student

However, I had an exception to the above philosophy. I guided an M.Tech student Fr George. I was his supervisor for his research on mentally challenged children, cause and solutions. Of course his research was reviewed by many experts and the candidate was awarded PhD. One of the PhD requirements is that the student has to present and publish Papers, for which Fr George requested me to be the co-author as I was fully involved.



agreed to be the co-author and the paper was published in a reputed journal.

Now, I would like to present you phenomena which has happened in our country.

Inculcating values from young age

Certain cultural excellence for which the SSV stands for, in my opinion, gets developed from a very young age. The young enquiring mind is curious to find answers for a variety of questions that it comes across based on its own observations of nature, surroundings and people. So, while facilitating them to continuously learn through good books, good teachers and mentors, it would be beneficial if they are also appropriately introduced to the topics of ethics of their pursuits. It could be in the form of creating opportunities to work in teams, to prepare reports of team work with proper acknowledgement, to introduce them to stories of role model behaviour through brief articles with messages. The Society for Scientific Values may be able to act on this with educational systems at various levels.

Scientific Magnanimity

Friends, an incident which took place during a function conferring Dr. M S Swaminathan Award on Nobel Laureate Prof. Norman E Borlaug, a well known agricultural scientist and a partner in India?s first Green revolution, at Vigyan Bhavan, New Delhi on the 15th of March 2005. Prof. Borlaug, at the age of 91, was in the midst of all the praise showered on him from everybody gathered there. When his turn came, he got up and highlighted India?s advancement in the agricultural science and production and said that the political visionary Shri C. Subramaniam and Dr. M S Swaminathan, pioneer in agricultural science were the prime architects of First Green Revolution in India. Even though Prof Norman Borlaug was himself a partner in the first green revolution, he did not make a point on this. He recalled with pride, Dr. Verghese Kurien who ushered White Revolution in India. Then the surprise came. He turned to scientists sitting in the third row, fifth row and eighth row of the audience. He identified Dr. Raja Ram, a wheat specialist, Dr S K Vasal, a maize specialist, Dr. B. R. Barwale, a seed specialist. He said, all these scientists had contributed for India?s and Asia?s agricultural science. Dr. Borlaug introduced them to the audience by asking them to stand and ensured that the audience cheered and greeted the scientists with great enthusiasm. This action of Dr. Norman Borlaug, I call it as "Scientific Magnanimity". Friends, if we aspire to achieve great things in life we need Scientific Magnanimity to focus the

young achievers. It is my experience that great mind and great heart go together. This Scientific Magnanimity will motivate the scientific community and nurture team spirit.

Leadership Characteristics

Friends, two and a half decades ago, while I was working at ISRO, I had the best of education, which won't come from any university. I will narrate that incident. I was given a task by Prof. Satish Dhawan the then Chairman, ISRO to develop the first satellite launch vehicle SLV-3, to put ROHINI Satellite in orbit. This was one of the largest high technology space programmes undertaken in 1973. The whole space technology community, men and women, were geared up for this task. Thousands of scientists, engineers and technicians worked resulting in the realization of the first SLV-3 launch on 10th August 1979. SLV-3 took off in the early hours and the first stage worked beautifully. But the mission could not achieve its objectives, as the control system in 2nd stage malfunctioned. There was a press conference at Sriharikota, after the event. Prof. Dhawan took me to the press conference. And there he announced that he takes responsibility for not achieving the mission, even though I was the project director and the mission director. When we launched SLV-3 on 18th July 1980, successfully injecting the Rohini Satellite in to the orbit, again there was a press conference and Prof. Dhawan put me in the front to share the success story with the press. This success generated great happiness among all my team members. What we learn from this event is that the leader gives the credit for success to those who worked for it, and leader absorbs and owns the responsibility for the failure. This is indeed a unique characteristics of leadership. The space community in India has the fortune to work with such leaders, which resulted in many accomplishments. This management style is an important message for all teams working in scientific, technological, industrial and even political missions

What we learnt from ISRO, the failure and success management indeed brings out transparency in the organization and it has the required positive impact in presenting correct scientific and technological results.

Conclusion

Scientific values are the origin of righteous way of life, that has impact beauty in the character, harmony in the home, order in the nation, and peace in the world. This is "Righteousness in the heart" a hymn I have



heard in a spiritual centre.

Righteousness in the heart

Where there is righteousness in the heart There is beauty in the character.

When there is beauty in the character, There is harmony in the home.

When there is harmony in the home. There is an order in the nation.

When there is order in the nation, There is peace in the world.

It is a beautiful connectivity between heart, character, nation and the world. In a society we have to build righteousness among all its constituents. For the society as a whole to be righteous we need creation of righteousness in family, righteousness in education, righteousness in service, righteousness in career, righteousness in business & industry, righteousness in civil administration, righteousness in politics, righteousness in government, righteousness in law and order, righteousness in justice. I am sure, such prayers are there in every religion and it will act as a foundation for promoting universal harmony, prosperity and peace.

My best wishes to all the participants of 7th Dr AS Paintal Memorial Lecture.

May God Bless you all.

By, Dr. APJ Abdulkalam www.abdulkalam.com

This is the 7th Dr AS Paintal Memorial Lecture Society for Scientific Values delivered by Honourable Dr. APJ Abdulkalam, Former President, India, on May 15, 2013 at JNU, New Delhi.

Also available at www.abdulkalam.com



SSV Silver Jubilee Lecture

Scientific Values: Authorship and Publications

S.K.Sopory

Vice Chancellor, JNU, New Delhi



Galileo Galilei



Marie Curie



Albert Einstein



. Curosity

- Logical and systematic
 - Opened-minded
 - Intellectually honest
- Hard work and persistence
- . Not jump to any conclusions
- Creative and critical thinking
 - Rational



Mendel



Isaac Newton



John Dalton's





Contemporary Scientific Environment

Explosion in scientific knowledge

New technologies, machines and tools

Research endeavors : larger, more complex, expensive

Multinational research groups: new networks and relationships

Research work monitored and regulated

Demand from science to the needs of the society:

scientific agenda set from outside





History of the Journal Nature doi:10.1038/nature06243

The demise of the lone author

Mott Greene¹

Any issue of *Nature* today has nearly the same number of Articles and Letters as one from 1950, but about four times as many authors. The lone author has all but disappeared. In most fields outside mathematics, fewer and fewer people know enough to work and write alone. If they could, and could spare the time and effort to do so, their funding agencies and home institutions would not permit it.

Scientific papers have always contained two quantities — the increment of new science and the credit for its discovery. From the late 1600s until about 1920, the rule was one author per paper: an individual produced an increment of science and obtained a corresponding increment of credit. This symmetry was breached in the 1920s, diminished in the 1950s, and largely abandoned by the 1980s. Collaboration in multidisciplinary research is now universal as well as essential, and we determine from the list of authors who shares in the credit. Curiously, however, in most journals we are not told which of these did what part of the work, nor may we be certain (have we ceased to care?) who drafted the paper.

Guidelines for authorships ??

- 1. Who is an author
- 2. Authorship credit
- 3. Student authorship
- 4. Authorship order
- 5. Recognizing contributions
- 6. Seniority
- 7. Acknowledgement
- 8. Authorship policy : Lab. or Institutional

Contribution to be an author

- 1. Conception or design
- 2 Data collection and processing
- 3 Analysis and interpretation
- 4 Writing of the paper

"Any one who has played fundamental role in the creation of the product"

Problems :

Ghost authorships

Honorary authorships

All authors have not read or approved the draft

Sending paper without information of the group leader



Science

Quantifying Coauthor Contributions

FIFTY YEARS AGO IN *SCIENCE*, D. MCCONNELL ARGUED THAT "for anything short of a monographic treatment, the indication of more than three authors is not justifiable". He was never cited. Coauthor numbers kept rising, and it has been recently suggested that in some fields "multiple authorship endangers the author credit system". In 2006, more than 100 papers had over 500 coauthors. With research groups growing larger, this trend will continue.

Given the increasing interest in the quantification and standardization of scientific impact with various metrics *like the* h *index and the growing debate* on potential biases and *unethical behavior*, a standardized method to quantify coauthor contributions is needed.

Rarely do all coauthors contribute to a paper equally. However, academic search engines (such as Google Scholar, Scopus, and Web of Science) calculate citations, h *indices, and rankings* without regard to author rank. Quantification of coauthor contributions will motivate coauthors to clarify each person's percent of contribution.

I propose that the k *th ranked coauthor be considered to contribute 1/k as much as the first author. This way, coauthors' contributions can be* standardized to sum to one, regardless of the author number or how authors are ranked. Author rank can be different from author order, provided that this is declared in the paper.

Multiple authors can have the same rank, as long as this is stated and is reflected in the calculations. **Quantifying coauthors' contributions will encourage a healthy dialogue about the meaning of coauthorship and author rank**, *will promote better consideration of author rank in assessing scientific impact*, and will lead to improved ways to measure and report coauthor contributions.

Cagan H. Sekercioglu

Department of Biology, Center for Conservation Biology, Stanford University, Stanford, CA 94305, USA E-mail:(cagan@stanford.edu)

What and where to Publish : Value judgement

The selection of data : follow one's own dogmas

Conflict of interest: support from Pvt bodies

Sharing of research materials : avoidance or for benefits

Error or negligence : unintentional or deliberate

Plagiarism: ignorance or consciously

Science for self glory or for society



The future of publishing

Number of Journals



<u>Space to publish</u> In print journals

After nearly 400 years in the slow-moving world of print, the scientific publishing industry is suddenly being thrust into a fast-paced online world of cloud computing, crowd sourcing and ubiquitous sharing. Longestablished practices are being challenged by new ones – most notably, the open-access, author-pays publishing model.

Nature : special Issue

Nature | News Feature

Investigating journals: The dark side of publishing

The explosion in open-access publishing has fuelled the rise of questionable operators. Declan Butler 27 March 2013

D March 2013

Study of Jeffry Beal : Univ. Of Colarado **Publication and handling charges** : pressure on authors !

Over 300 publishers lissuing 1000's of journals : send papers ; join editorial boards

Open access Journals: many trustworthy like PLOS , BMC's etc; Others doubtful

PLOS One: 135 articles in 2006: 23,464 in 2012 (charge_USS 1350)

Omics group do not show their fee but put up bill after acceptance.

Editorial Process :

Predatory Publishers / Toxic Journals:



University Press. 2010)



When Scientists Sin

Fraud, deception and lies in research reveal how science is (mostly) self-correcting By $\mathsf{Michael}$ Shermer

In his 1974 commencement speech at the California Institute of Technology. Nobel laureate physicist Richard P. Feynman articulated the foundation of scientific integrity: "The first principle is that you must not fool yourself—and you are the easiest person to fool.... After you've not fooled yourself, it's easy not to fool other scientists. You just have to be honest in a conventional way after that. David Goodstein *On Fact and Fraud: Cautionary Tales from the Front Lines of Science* (Princeton

Some scientists do try to fool their colleagues.Nature may be subtle, but she does not intentionally lie. People do. Why some scientists lie"?

Many scientific maxims do not work in practice.

"Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results." Next there must "be significant departure from accepted practices of the scientific community." Then, the misconduct must be "committed intentionally, or knowingly, or in reckless disregard of accepted practices," and finally, as in any court of law, the fraud charge must be proved by a preponderance of evidence



Questionable Research Practices

Table 1 | Percentage of scientists who say that they engaged in the behaviour listed within the previous three years (n = 3,247)

Top ten behaviours	All	Mid-career	Early-career
1. Falsifying or 'cooking' research data	0.3	0.2	0.5
2. Ignoring major aspects of human-subject requirements	0.3	0.3	0.4
Not properly disclosing involvement in firms whose products are based on one's own research	0.3	0.4	0.3
 Relationships with students, research subjects or clients that may be interpreted as questionable 	1.4	1.3	1.4
 Using another's ideas without obtaining permission or giving due credit 	1.4	1.7	1.0
 Unauthorized use of confidential information in connection with one's own research 	1.7	2.4	0.8 ***
7. Failing to present data that contradict one's own previous research	6.0	6.5	5.3
8. Circumventing certain minor aspects of human-subject requirements	7.6	9.0	6.0 **
Overlooking others' use of flawed data or questionable interpretation of data	12.5	12.2	12.8
 Changing the design, methodology or results of a study in response to pressure from a funding source 	15.5	20.6	9.5 ***
Other behaviours			
11. Publishing the same data or results in two or more publications	4.7	5.9	3.4 **
12. Inappropriately assigning authorship credit	10.0	12.3	7.4 ***
13. Withholding details of methodology or results in papers or proposals	10.8	12.4	8.9 **
14. Using inadequate or inappropriate research designs	13.5	14.6	12.2
15. Dropping observations or data points from analyses based on a gut feeling that they were inaccurate	15.3	14.3	16.5
16. Inadequate record keeping related to research projects	27.5	27.7	27.3
Note: significance of χ^2 tests of differences between mid- and early-career scientists are not	ed by **	(P<0.01) and ***	(P<0.001).

Martinson et al. (2005). Nature 435:737-738.





Why types of misconduct are reported?

*According to a 2008 Gallup poll sent to 2,296 researchers receiving NIH grants

A. Gawrylewski (2009) The Scientist 23:67.

Who commits scientific misconduct?



A. Gawrylewski (2009) The Scientist 23:67.



PNAS 2013

Misconduct accounts for the majority of retracted scientific publications

Ferric C. Fanga, b, 1, R. Grant Steenc, 1, and Arturo Casadevalld, 1, 2 Departments of aLaboratory Medicine and bMicrobiology, University of Washington School of Medicine, Seattle, WA 98195; cMediCC! Medical Communications Consultants, Chapel Hill, NC 27517; and dDepartment of Microbiology and Immunology, Albert Einstein College of Medicine, Bronx, NY 10461

A detailed review of all 2,047 biomedical and life-science research articles indexed by PubMed as retracted on May 3, 2012 revealed that only 21.3% of retractions were attributable to error. In contrast, 67.4% of retractions were attributable to misconduct, including fraud or suspected fraud (43.4%), duplicate publication (14.2%), and plagiarism (9.8%). Incomplete, uninformative or misleading retraction announcements have led to a previous underestimation of the role of fraud in the ongoing retraction epidemic. The percentage of scientific articles retracted because of fraud has increased ~ 10-fold since 1975. Retractions exhibit distinctive temporal and geographic patterns that may reveal underlying causes.





Fig. 1. (A) Number of retracted articles for specific causes by year of retraction. (B) Percentage of published articles retracted for fraud or suspected fraud by year of publication.







Fig. 3. Relation of journal-impact factor to retractions for fraud or suspected fraud, error, and plagiarism, or duplicate publication. Journal-impact factor showed a highly significant correlation with the number of retractions for fraud or suspected fraud (A) (n = 889 articles in 324 journals, $R^2 = 0.08664$, P < 0.0001) and error (B) (n = 437 articles in 218 journals, $R^2 = 0.01420$, P = 0.0243). The mean journal-impact factor of articles retracted because of fraud/suspected fraud or error was significantly different from that of papers retracted because of plagiarism or duplicate publication (D) (error bars ± SEM, P < 0.0001).



SSV News and Views 11(1) June, 2013

Table 3. Most cited retracted articles

First author	Journal	Year published	Year retracted	Times cited*	Reason for retraction
Wakefield	Lancet	1998	2004; 2010	758	Fraud
Reyes	Blood	2001	2009	740	Error
Fukuhara	Science	2005	2007	686	Error
Nakao	Lancet	2003	2009	626	Fraud
Chang	Science	2001	2006	512	Error
Kugler	Nature Medicine	2000	2003	494	Fraud
Rubio	Cancer Research	2005	2010	457	Error
Gowen	Science	1998	2003	395	Fraud
Makarova	Nature	2001	2006	375	Error
Hwang	Science	2004	2006	368	Fraud
Potti	The New England Journal of Medicine	2006	2011	361	Fraud
Brugger	The New England Journal of Medicine	1995	2001	336	Fraud
Van Parijs	Immunity	1999	2009	330	Fraud
Potti	Nature Medicine	2006	2011	328	Fraud
Schön	Science	2000	2002	297	Fraud
Chiu	Nature	2005	2010	281	Error
Cooper	Science	1997	2005	264	Fraud
Le Page	Cell	2000	2005	262	Error
Kawasaki	Nature	2004	2006	243	Fraud
Hwang	Science	2005	2006	234	Error

*As of June 22, 2012.

Bypassing the values in science ??

Overcoming frustrations of consistent failures

Competition : to win the race

Promotions linked to publications

Attempt to prove one's hypothesis : overlooking skepticism

Win big grants : pressure of time lines

Desire for recognition and awards



Conclusions:

1. Curiosity and honesty, as that of a child is most important in Science

The geneticist Barbara McClintock once said of her research, "I was just so interested in what I was doing I could hardly wait to get up in the morning and get at it. One of my friends, a geneticist, said I was a child, because only children can't wait to get up in the morning to get at what they want to do."

2. Integrity at every level is to be ensured

3.Orgainizations like SSV should be proactive and conduct workshops for students and young scientists









This lecture is dedicated to Prof A.S Paintal Founder of SSV

Thanks



Ethical Business and Trusteeship - Gandhi's Advise to Industries

Shobhana Radhakrishna

'It is wrong to think that business is incompatible with ethics. I know that is perfectly possible to carry on one's business profitably, and yet honestly and truthfully'

man

Mahatma Gandhi had addressed the FICCI annual session on April 7, 1931, in the Delhi University Convocation Hall; he exhorted the Indian business leaders thus: "You should regard yourself as trustees and servants of the poor. Your commerce must be for the benefit of the poor. The rich should serve the society after satisfying his needs and not merely enjoy his life."

Mahatma Gandhi had advised GD Birla and Purushottam Takkur in 1927, on to found a non-profit initiative to boost Indian Industries during the freedom struggle. He had said that the value of an industry should be gauged less by the dividends it pays to shareholders than by its effect on the bodies, soul and spirits of the people employed in it. But today, the nature and complexion of political-business partnership is far from this. We need to think seriously of the seven social sins which Gandhi highlighted:

- Politics without principle
- Pleasure without conscience
- Wealth without work
- Knowledge without character
- Commerce without morality
- Science without humanity
- Worship without sacrifice

According to Y. Kesavalu, Gandhi was an economist of the masses. His approach was rooted in human dignity. His economic philosophy is the result of his innumerable experiments which he conducted throughout the course of his life. His pragmatic approach gave new directions to the existing social economic s in the process of protecting human dignity.

Gandhian economics is a school of economic thought based on the socio-economic principles expounded by Mahatma Gandhi. Gandhian economics places importance

to means of achieving the aim of development and this means must be ethical and truthful in all economic spheres. In order to achieve this means, he advocated Trusteeship, decentralization of economic activities and priority to weaker sections. Gandhi's focus on human development is also seen as an effective emphasis on the eradication poverty, social conflict and backwardness in developing nations. Gandhi's socio-economic idea has gained the interest and attention of an increasing number of people across the world.

In the book *My life is my message*, Narayana Desai mentions that the implication of the word 'trustee' became clear to Gandhi in the light of his attempt to understand the meaning of non-possession, *aparigraha*, one of the *Ekadasha Vrata* that he followed. He developed it into the principle of Trusteeship and explained it to the likes of Parsee Rustomji in Phoenix settelemtn in South Africa, the trustees of the Satygraha Ashram in Ahmadabad and to Jamnalal Bajaj in Sewagram Ashram.

Non-possession was one of the principle vrata and an important part of the eleven vows practiced in the Gandhiji's Ashrams. The rules of the Ashram were set by Gandhiji and any rule followed for the life time becomes a *vrata*, an observance. The principle behind the *vrata* is to do unto others what you do to yourself. The *Ekadasha vrata* was the path to the cultivation of individual virtues to develop two constants in life (i) freedom from fear and (ii) joy in sacrifice. By giving a social dimension to the *vratas*, Gandhiji turned what was hitherto considered as personal virtues into social values. Even today thousands of people around the world are practising these observances, which speak of their relevance.

Ekadasha vratas are means to self purification and social transformation. This was not something new Gandhi had said. This has been said by our saints and seers of yore, who through their lives shown us the path of truth, non-violence and purity of means. Gandhi merely put them into practice in newer fields like politics, education, commerce, economics and ethics and said that he had nothing new to teach, these things were as old as mountains.

Desai elaborates that from a very young age Gandhiji considered virtues as social norms. This was based on his understanding of social formations. Human societies are based on mutuality and interdependence. One person does not constitute a society. Conduct of truth requires sociability. Non-possession is based on the belief that God will give us our daily bread. Possession is provision for the future, and is indicative of a lack of faith in His providence. Gandhiji believed that non-possession leads to contentment. Therefore, Gandhi spoke about societal obligations.

According to Gandhi, all property belongs to God and in his concept of trusteeship the trustees have no right to destroy the property deliberately and wantonly. Besides, the trusteeship aims at the rising of the morale of the people by giving them a sense of security in the hands of the trustees. The trustees, in their turn, are beholden to creating an urge among the masses for a higher standard of life.

A person is dependent on the society in some form or the other from life to death. In the second chapter of the Bhagawat Gita. Lord Krishna says that much before a



person is born his parents is already there, the neighbours are already around, and the society and the nation are there too. Therefore, a person must do to his *Swadharma* selflessly without attachment to the fruit of action and without possession.

This Gandhi called as the societal obligation. Each one of us has the obligatory duty of serving the parents, neighbours, society and the nation throughout their life. Accordingly, the Mahatma, advised the rich to serve the society after satisfying their needs and not merely enjoy their life, must have a concern for the poor. He said that they should act as trustees of the poor, use whatever is necessary for them and leave the rest for others in the society. He emphasised that the resources should be for the benefit of the society and should be spent with their permission.

In essence, supreme consideration is to be given to man than to money. In fact, the first basic principle of Gandhi's economic thought is a special emphasis on 'plain living' which helps in cutting down our wants and being self-reliant. Thus a distinction is to be made between the **standard of living** and **standard of life**, where the former only states the material and physical standard of food, clothing and housing. A higher standard of life on the other hand could be attained only if, along with the material advancement, there was a serious attempt to imbibe cultural and spiritual values and qualities of social justice and equality. Everyone should be given the right to earn according to his capacity using just means according to Kesavulu.

Gandhian economics does not draw a distinction between economics and ethics. Economics that hurts the moral well being of an individual or a nation is immoral, and therefore sinful. The term Gandhian Economics was coined by J.C. Kumarappa, economist and a close supporter of Gandhi. It is largely characterized by its affinity to the principles and objectives of nonviolent humanistic socialism, but with a rejection of violent class war and promotion of socio-economic harmony. (*Gandhi Marg Vol. 25, no. 4, Jan-March-2004.*)

Gandhi's thinking on socio-economic issue was greatly influenced by the American writer Henry David Thoreau. Throughout life Gandhi sought to develop ways to fight India's extreme poverty, backwardness and socio-economic challenges as a part of his wide involvement in the Indian independence movement.

In 1978 E.F. Schumacher , perhaps the 20th century's most celebrated humanist - economist (author of 'Small is Beautiful') acknowledged his debt to Gandhiji and called the Mahatma one of the truly great economics and prophesized that one day Gandhiji may be remembered as the greatest economist of all. Technology, like fire, is a good servant, but a poor master. Gandhi like E.F. Schumacher later advocated 'economics as if, people mattered.' **Why don't' we give it a try?**

The author is an eminent Gandhian and is spreading the messages of Mahatma Gandhi since the past three decades. She is the Chief Functionary of the 'Gandhian Forum for Ethical Corporate Governance' of SCOPE. She gives regular lectures on 'Ethics, Values and Organizational Integrity'.

The Need for Education for Responsible Conduct of Research in India

Shubhrima Ghosh*, Anuja Mishra*, Simeen Kaleem*, Kenneth R. Foster**

*Young India Fellowship Program, New Delhi, India

**Department of Bioengineering, University of Pennsylvania, Philadelphia PA 19104 USA

Correspondence: Kenneth R. Foster, kfoster@seas.upenn.edu

Introduction

Irresponsible conduct of research, a longstanding problem in science, is growing in visibility and importance, and there is a strong need for education in these important topics for students and early career resources. We describe a project jointly conducted by three postgraduate students at the Young India Fellowship and a professor at the University of Pennsylvania to examine the problem as it exists in the Indian context, and develop a course to help address it.

Several examples illustrate the changing nature of the issue of responsible conduct of research as it relates to Indian scholars and students.

<u>Faux journals</u> The past few years has seen the introduction of hundreds of new forprofit open access journals, that one author calls "predatory journals" (Beall). These journals, essentially a vanity press, are marketed to scholars in developing countries who need, for professional advancement, to publish papers in ISSN numbered journals. With their low or nonexistent standards of peer review, they have become thieves' markets for plagiarized material. Indian is only one of many countries affected, but because of its very large academic enterprise, Indian scholars are highly visible in such journals both as editors and as authors.

For example, papers with egregious plagiarism can be found in every issue of the International Journal of Scientific and Research Publications (<u>www.ijsrp.org</u>). The latest (May 2013) issue has three papers, all by Indian authors from obscure institutions, that are virtually identical to previous work by different authors. One of the papers was identical to a paper published by an IEEE journal in April 2012. A second was a nearly verbatim copy of another paper, itself highly plagiarized, that



appears in two other open access journals with two different sets of Indian authors. The third is a copy of a 2003 student term paper from an American university. While the Indian "authors" of such plagiarized material are generally from institutions

that are not known for research, and the journals themselves have little or no academic credibility, the existence of so many plagiarized papers by Indian authors that can be easily retrieved by search engines is a significant potential source of damage to the reputation of Indian science.

<u>Image manipulation</u> In recent years, the problem of manipulation of images in scientific papers has come to the forefront. A previously little noticed problem, some investigations of the problem report that in some journals one quarter of published papers have at least one figure prepared in a way that does not comply with the journal's instructions to authors [1]. The U.S. Office of Research Integrity has prosecuted an increasing number of cases for inappropriate manipulation of images, which it considers a form of scientific misconduct [2]. Since images are a form of scientific data, editing such images will very quickly cross the line into falsification of data – a line that may not be apparent to many scientists.

The consequences of such manipulation can affect many people apart from the investigator. Dipak Das, a researcher at the University of Connecticut, has been found guilty by his university of more than 100 instances of misconduct, mostly related to improper manipulation of Western blot images in biological research (*http://retractionwatch.wordpress.com/2013/01/06/catching-up-osu-missed-fraud-dipak-das-lost-tenured-professorship-ivan-on-nprs-science-friday/*). His infractions have affected the careers of numerous students and postdoctoral fellows who were coauthors on his papers. Students are clearly at risk for misconduct of their supervisors.

<u>Retraction of papers by journals</u> The retraction of papers by scientific journals, for a variety of reasons ranging from publishing problems to misconduct, has gained much public visibility due to websites such as retractionwatch.com. Many retractions are triggered by plagiarism or self-plagiarism by authors, an easily identifiable form of misconduct. In part because of the size of its academic enterprise, a significant number of retracted papers are by Indian authors (<u>http://retractionwatch.wordpress.com/category/by-country/india-retractions/</u>).

Retraction of a paper harms the careers of the scientists involved, but also harms the national reputation of the countries in which they work or originate from. Scientific misconduct is an international phenomenon. However, there is evidence that the problem is somewhat worse in Indian universities than in comparable institutions in other countries.

This is shown by studies that examine the rates of retraction of papers that are identified in PubMed or other such database. While the numbers of retracted papers

are small in any event (one estimate puts the incidence as about 0.1% of published papers in any year), the rates of retraction vary in different countries.

For example, in a survey of retracted papers identified in PubMed, Stretton et al. [3] reported a higher incidence of retraction of papers for plagiarism for authors in low and middle income countries (China, Turkey, India, Taiwan) compared to authors working in higher income countries (U.E., U.K, Japan, Germany). Similarly, Ana et al. [4] reported that the incidence of retraction for fraud was twice as high for papers whose first authors were from Indian universities, compared to those from US and other countries. This regrettable situation harms the reputation of Indian science and should not be tolerated.

Misconduct or Honest Error?

There could be several reasons that a naïve but basically honest scientist might cross the line from acceptable editing of images or handling of data into misconduct. First, a naïve student may be led into misconduct by bad mentoring. Dipak Das presumably knew the rules forbidding manipulation of images with Western blots. Perhaps his students were less knowledgeable about the issue and merely thought that they were (legally) editing the images. In any event, their careers were damaged by their perhaps inadvertent participation in misconduct.

Indeed, the line between appropriate and inappropriate behavior in science is not necessarily clear-cut, and the standards are changing. The scientific community and journal editors are themselves discussing how much a scientific image can be edited without crossing the line into misconduct. Practices for dealing with "bad" (outlying) data can vary in different laboratories.

Second, behaviors that may be tolerated by universities and funding agencies (or at least not sufficient to trigger sanctions by the institutions) but nevertheless result in retraction of a paper by a journal, with consequent damage to the career of the scientist.

Third, there may be geographical variations in understanding of rules of fair use or authorship. A recent experience of one of the present authors, an American who edits an online journal of biomedical engineering, illustrates this problem. An author from a developing country other than India submitted an article to his journal with approximately 45% overlap with previously published material by other authors. This quoted material was not set off by quotation marks or other typographical means to indicate that it was not the author's work.

Upon notification of this problem, the author replied "But sir I have mentioned it on the manuscript. When I use any portion of other writers' writing with suitable reference is it considered as a plagiarism?" Even though the source of the quoted material had been included in the endnotes, this is a clear violation of standards of fair use, and an infraction of this magnitude would have led to withdrawal of the



paper had it been published. While the author's explanation may be reasonable, a similar offense, if committed by the editor himself in his U.S. university, would probably have led to his termination.

Certainly, courses in RCR will not prevent all misconduct in science. However, they may help protect an inexperienced investigator from inadvertently getting into trouble. For an early-career scientist, the allegation of misconduct or retraction of a paper, for any reason, would affect his or her chances of gaining tenure or promotion at most top tier research institutes in the world.

Definition of Misconduct

Scientific misconduct has both a narrow and a broader definition. The U.S. Code of Federal Regulations defines misconduct narrowly as consisting of fabrication, falsification and plagiarism (FFP) of research results, while excluding simple error. Federal prosecutions of scientists for misconduct are based on one of these three offenses.

In a broader sense, scientific misconduct encompasses a wide range of actions that most scientists would consider improper. In their well-known book on research ethics, Shamoo and Resnik [5] list infractions ranging from breach of confidentiality to incompetence to sexual harassment in the laboratory.

In the broadest sense, one can consider misconduct to be any action that violates the core values of science: to find out the truth about the world and develop innovative ideas. In this broad sense, carelessness leading to error or avoidable bias in research would be misconduct, even though that might not be a prosecutable offense under U.S. law.

Cultural Factors

A number of culture-specific factors can promote the inadvertent misconduct by Indian investigators. Copy and paste plagiarism is widespread among Indian secondary school and university students, as it is among students elsewhere in the world. However, few Indian institutions use plagiarism detection programs, and such offenses easily go unnoticed. As a result, many Indian students can easily slip into a habit of copy and paste plagiarism, simply for lack of enforcement of well articulated norms of fair use.

More generally, the Indian educational system emphasizes rote learning from text books with little scope for extensive reading. Even during school years, submission of projects and term papers do not stress on originality and students end up copying from their peers, a behavior that the students may realize is improper but which seldom has any negative consequences for the student.

As a result, students can carry into professional life the idea that plagiarism, while a departure from the norms, is one that is generally tolerated and unlikely to result in adverse consequences. That is clearly not the attitude of journal editors and scientific integrity offices of funding agencies.

Another major problem is the lack of proper training in writing skills in English in the education system. With most schools operating in vernacular and regional languages, many students fail to develop high proficiency in English, and such skills are difficult to develop in later stages of a research career. The universal urge of students to take a short-cut and the anxiety to perform can tempt students to fall into copy and paste plagiarism and other unacceptable practices.

Moreover, even premier Indian universities appear to sweep academic misconduct under the rug and not address cases of it directly. Recently, a student brought a case against JNU. The student had been charged by the university with plagiarism and low GPA. The college authorities merely gave him a 'C' grade and struck his name out of the rolls on the grounds of low GPA without any proper action on the plagiarism issue. The student subsequently filed a petition against the university at the Delhi High Court on the grounds that he had been unreasonably expelled from the university, possibly an arguable position had the only problem been low GPA [6]. A proper course on RCR encompassing all the essential issues of misconduct, coupled with training in English and scientific writing, and promotion of strong

disincentives and punishments for scientific misconduct, can help overcome some of the problems related to scientific misconduct in the Indian context. While it seems unlikely that such a course might influence the behavior of scholars who intentionally commit fraud, even achieving a more limited goal, helping young researchers to understand the international rules of RCR that are enforced by journals, would protect them from inadvertently getting into trouble.

International Standards of RCR Education

Countries worldwide have understood the need to educate researchers on the ethical considerations of research. In countries such as the US, funding agencies such as National Institute of Health (NIH) and National Science Foundation (NSF) have clear guidelines for instructions in RCR for anyone who receives grants or training under them. NIH guidelines formulated in 2009, proposes 8 hours of contact programmes with conflict of interest; human and animal subjects; mentor/mentee relationships; collaborative research; peer review; data management, sharing and ownership; research misconduct; responsible authorship and publication, and the scientist as a responsible member of society as the recommended subjects. Researchers are required to undergo such training at least once in their research career and at a minimum frequency of four years.



To meet this obligation, major U.S. institutions have developed comprehensive modules or required courses with RCR training. Some Asian universities such as KAIST in South Korea have mandatory requirements of RCR training. As we discuss below, a few institutions in India have started providing mandatory RCR training for doctoral students although the overall picture is very inconsistent although much more needs to be done.

Status of RCR education in India- Preliminary Study

There appears to be no systematic review of the status of RCR education in India. To assess the current status of RCR training in the Indian higher education system, especially in postgraduate and PhD levels, we conducted an informal survey of 31 institutions across India querying the existence of current RCR courses and delving into the future needs to be addressed. The study was undertaken between September 2012 and January 2013.

Because of resource and time limitations, the study employed a sample of convenience, consisting of individuals in top-tier educational and research institutions with whom the authors have contact. The institutions are listed in Table 1.

Individuals included one institute director, 18 scientists or principal investigators, one advisor to a funding agency, 6 journal editors, and 11 doctoral or postgraduate students. Subjects were interviewed by telephone or through email.

Despite the obviously preliminary and limited nature of the survey, there clearly is some awareness in these institutions about the need for RCR instruction, which the institutions typically offer as a credit course at university level similar to those taught in most western universities. However, even in this small sample of elite institutions, RCR instruction is scattered and inconsistent. Out of the 31 institutions surveyed, four offer RCR as a full time credit course, while nine have RCR as a part of research methodology or ethics and IPR course.

An additional five institutions delivered RCR informally and not as a full time course. Some included discussion of RCR in a larger course that also discussed how to write a scientific paper; in some cases presentations on research ethics are included as part of seminars or workshops being done on other topics. However 13 of the 31 institutions did not teach RCR, either in a full course or as part of a required course for research students. Even in institutions in which RCR was taught, the fraction of research students in these institutions who receive training in this topic remains low.

Pilot Course in RCR – A Work in Progress

A second part of the project is to develop a course in RCR that would be targeted to students preparing for research careers. This project is still underway as this is being written.

The curricular goals:

1. Understand the concept of scientific misconduct in both the narrow and broader meanings of the term, and learn about examples of different forms of misconduct and the consequences of misconduct for scientists.

2. Understand social and scientific mechanisms for identifying and addressing misconduct: software for detection of plagiarism and image manipulation, prosecution, withdrawal of papers, publicity of misconduct by SSV and other organizations.

3. Understand the boundaries between acceptable and unacceptable behavior in manipulation of data or images; fair use of quoted material, authorship issues.

4. Understand the threats to the core values of science (development of new knowledge and innovation in scientific ideas) presented by poor scientific practice that does not meet the strict legal definition of misconduct but nevertheless would be considered poor practice by scientists. Understand cognitive biases that result in unreliable science: confirmation and publication bias and ways that these can be minimized.

5. Have worked through and discussed cases involving responsible conduct of research that are relevant to the Indian setting.

The target audience consists of students and early career investigators (postdoctoral fellows and Ph.D. research students). A tentative outline of the course is in Table 3.

The course originated from a project by three Young India Fellows in New Delhi (<u>www.youngindiafellowship.com</u>), and the course is still a work in progress. The curricular material has been assembled and draft Powerpoint presentations have been created. The course includes a variety of readings, ranging from references to a standard book on research ethics to descriptions of misconduct issues in the media. The course remains a work in progress and is subject to further revision.

Members of SSV are invited to collaborate in the further development of this course, and evaluate its success in meeting the curricular goals and test it in their own classes.



References

- 1. DW Cromey Digital, in Cell Imaging Techniques, pp 1-27 Springer (2013)
- 2. Parrish D, Noonan B Sci Eng Ethics. 15 161 (2009).
- 3. S Stretton et al, Curr Med Res Opin 28 1575 (2012) 4. J Ana et al, PLOS Med 10 e1001315 (2013)
- 5. AE Shamoo and DB. Resnik, Responsible Conduct of Research, Oxford University Press USA, 2nd Edition (2009).
- 6. Sh. Chitrasen Gautam vs Jawaharlal Nehru University & ORS (2011).

Table 1. Institutions Surveyed

Type of the Institutions Surveyed	Names of the Institutions	Number
Universities with colleges affiliated/not affiliated under them	JNU, Jadavpur University, Calcutta University, Utkal University, West Bengal University of Technology, Pondicherry University, SAU, GGSIU, UBKV, OUAT, NEHU	11
Deemed universities/autonomous institutes	ISI, IISER, IISc, IIT Delhi, IIT Roorkee, IIT Kharagpur, NIT Durgapur, NIT Rourkela, KIIT	9
Funding agencies under the Government of India	DBT	1
Research institutions receiving grants under government funding agencies	NEERI, School of Oceanography NIO, CIMAP, Bose Institute, NII, ILS, IMMT	7
Ministries under the Government of India	Ministry of Earth Sciences	1
Institutions pertaining to documentation and dissemination of science or science policy research under the Government of India	NISCAIR, NISTADS	2

Table 2 Nature of RCR Courses Offered by Some Indian Institutions

Nature of RCR training offered	Names of the institutions	Number of Institutions
For-credit course in RCR	NEERI-AcSIR, CIMAP- AcSIR, School of Oceanography-NIO, IMMT	4
RCR training as a part of research methodology/ethics and IPR courses	GGSIU, West Bengal University of Technology, IIT Delhi, IIT Kharagpur, Pondicherry University, UBKV, Bose Institute, NIT Rourkela, NIT Durgapur	9
RCR training delivered informally	SAU, JNU, Jadavpur University, Calcutta University, Utkal University	5
No RCR training offered	NISCAIR, NISTADS, DBT, Ministry of Earth Sciences, ISI, IISER, IISc, NII, ILS, IIT Roorkee, KIIT, OUAT, NEHU	13



Table 3 Preliminary Outlines of Course in Responsible Conduct of Research

Lecture	Topics
number	
	General References
	Responsible Conduct of research, Shamoo and Resnik, Chapter 5 On being a scientist, Committee on Science, Engineering, and Public Policy Ethics in Science: An introduction to ethical and responsible conduct of research, (PennState, Milton A. Hershey Medical Centre) Writing in English: A Practical Handbook for Scientific and Technical Writers (Leonardo da Vinci programme European Commission)
1	Importance of RCR; Several examples of scientific misconduct; Consequences of finding of impact or withdrawal of a paper to a scientist; Increased attention to the problem around the world; Topic not widely taught in Indian institutions - solution in proper awareness and training among students
2	Definition of scientific misconduct; Narrow legal vs broad concepts of misconduct. Distinction between honest error and misconduct; Types of misconduct- Fabrication, Falsification, Plagiarism Image manipulation as a form of falsification
3	Detecting misconduct – Plagiarism and image analysis programs. Softwares used to detect plagiarism and image manipulation. Surveys of plagiarism in the literature (Déjà vu, studies of retractions in PubMed)
4	Publication and authorship issues; Conflict of interest; Guidelines for choosing authors of publications; Peer review. Predatory journals as a threat to investigators and science
5	Truth and innovation of ideas as core values in science Bias as a threat to validity (Confirmation bias; publication bias) Maintaining the validity of data; Principles of data management.
6	Ethical implications of research Ethical impact analysis of research, human subjects and animal use issues
7	Mentoring; Mentor/student relationship; Rights of students as mentees; Investigation of allegations of misconduct

Journals of Plagiarism

Kenneth R. Foster and Kasturi L.Chopra

A few months ago, one of us (Foster) stared at a paper that had been sent to him by a colleague. Half of it was his –copied verbatim from his 2005 encyclopedia article on health effects of radiofrequency fields into a paper by a different author and published in an obscure online journal. Within weeks, two other articles on a similar topic crossed his path. One had been published in 2012 in a different, and equally obscure, online journal. The second had appeared in in Journal of Computer Assisted Tomography 34(6),799,2010. The authors of all three papers were from Indian institutions not known for research on the effect of radio frequencies on the health of human beings, and the papers consisted mostly of copy-and-paste from other sources without attribution.

Foster emailed the editors of the Indian Journal of Scientific Research publications (IJSRP) to call their attention to these problems. The editor was apologetic and removed some of the offending papers from the online table of contents – but they remain in the "online print volumes" (pdf files with the collected papers for each month). Editors of the Applied Science Research (AASR) never responded to his email of complaint. The editor of the third, the International Medical Journal, immediately launched an investigation and is taking appropriate action.

Meanwhile, all the plagiarized papers remain online and some have been taken up in websites of activists campaigning against what they believe are health risks of mobile phones. Since much of the plagiarized material came from those very websites in the first place, one might say that things have come full circle. Such behavior is beyond reckless.

The IJSRP (<u>http://www.ijsrp.org/</u>) is a two year old online journal with no identified editor and no physical address(but an ISP address in Florida).with its ISSN number listed prominently on the top of every page . The Journal is ostensibly peer reviewed, but its promise of two-week time to publication precludes any significant review of submitted manuscripts.

A search through a few recent issues of IJSRP quickly found more than a dozen papers that either consisted mostly of copy-and-paste or, in several cases, were verbatim copies of previous papers by different authors. In the January,2012 issue, a paper on business ethics (!) by Salehi et al overlaps nearly 100% with previously published material by other authors. Even worse, a series of clinical papers in successive issues by a medical group in Lucknow describe studies that closely follow in patient characteristics, results, and text of previous studies by different authors.



For example, a paper in the May issue by Patel (CSM Medical University, Lucknow) purports to describe a study conducted on diabetic patients in Lucknow. The paper is virtually identical, both in text and in data, to a 2011 paper about a clinical study in Romania by Rusu et al, and published in Applied Medical Informatics When shown a paper that mirrored her previous work, the author responded to Foster "It is impossible to have a cohort of Indian patients and a cohort of Caucasian patients matched in every single aspects".

Searches through recent issues of other new online journals, such as The Archives of Applied Science Research (AASR) (one of a family of 12 online journals with an Indian ISP address) uncovered no cases of wholesale theft as with IJSRP. However a significant fraction of the papers had copy-and-paste issues that would be sufficient for retraction by more established journals.

Research universities around the world typically place great emphasis on publication in top-tier, high impact journals. While peer review is not perfect, a peer reviewed journal has at least some level of quality control. But for authors willing to pay money to cut ethical corners, a new crop of online journals is ready to help, thanks to software packages that make it easy to set up a "journal" with a seemingly impressive title.Some online journals have appeared to smooth the process of publication for such authors. Indeed, the faux journals serve as thieves' markets for stolen property. Jeffrey Beall, a librarian at the University of Colorado , has compiled a list of 118 "predatory open-access publishers" that, for a small fee, will publish papers in ISSN-numbered journals, no questions asked. The list is at http://scholarlyoa.com/publishers/).

Copy-and-paste plagiarism is hardly new and, indeed, is a global phenomenon, that is driven in part by institutional policies that link hiring, promotion and awards to publications. While research universities around the world typically place great emphasis on publication in top-tier, high impact journals, many institutions and funding agencies in India and other countries accept ,for recruitment and promotion, publications in dubious journals with an ISSN/ ISBN number which are rather easy to obtain

What is to be done? Foremost, journals, universities, research institutions, regulatory bodies and funding agencies around the world need to raise standards of accountability. Inexpensive plagiarism detectors are available and should be used editors. routinely bv professors and journal Plagiarism Detector (http://www.plagiarism-detector.com/) is an inexpensive program that searches passages in a text against the Internet. This crude approach will catch the most egregious cases such as those discussed here. Whether the faux journals will use such tools is uncertain, although the possibility of being sued for copyright infringement would likely be an inducement even for these "journals"

Journals need a credible peer review system supported by a reputed editorial board. Journals need to be more outspoken in their retraction of plagiarized material, and not (as seems to be current practice of most journals, including the reputed ones) quietly withdraw plagiarized papers with little justification or notice. Recently,a good example was set by the Indian Journal of Dermatology which permanently banned a group of Tunisian researchers for serial plagiarizers in the journal (http://retractionwatch.wordpress.com/2012/06/20/serial-plagiarizers-banned-from-dermatology-journal-forever/#more-8261

The scientific community should de-legitimize predatory journals. As Beal recommends, "scholars [should] not do any business with these publishers, including submitting articles, serving as editors or on editorial boards, or advertising with them. Also, articles published in these publishers' journals should be given extra scrutiny in the process of evaluation for tenure and promotion."

Publicizing cases of academic plagiarism (which has been done by the Society for Scientific Values in India, and the Chinese Government in China) can increase accountability . Sending letters of complaint to heads of academic and research institutions of offending scholars will certainly attract institutional attention to the problem. The Chinese government has set an excellent example of posting on its official website the names of a large number of plagiarist academics as also the penalty meted to them in the form of stopped promotions and research grants. The Office of Research Integrity, USA has also set some good examples of penalizing scientific misconduct in life sciences.

Both of us have been involved with plagiarism issues for many years. Kenneth R. Foster is Professor of Bioengineering at the University of Pennsylvania, edits an online journal, Biomedical Engineering Online, and occasionally deals with plagiarism in submitted manuscripts. Kasturi Chopra, an Associate Editor of Elsevier's Solar Energy Materials and Solar Cells, is a former Director of the Indian Institute of Technology, Kharagpur and currently is President of the Society for Scientific Values(SSV). The Society acts as an unofficial watchdog for cases of plagiarism and other forms of scientific misconduct and has exposed several cases of plagiarism by Indian scientists.

Kenneth R. Foster <kfoster@seas.upenn.edu> K L.Chopra <choprakl@gmail.com>



Executive Council of SSV (January, 2012 – December, 2014) Prof. K. L. Chopra (Former Director, IIT Kharagpur) President Vice President Prof. P.B.Sharma (VC, DTU) Prof. P.S. Dutta (Ex- Project Director NRL, IARI) Secretary Dr. R. K. Kotnala (Chief Scientist, NPL) Jt. Secretary **Dr. Anand Akhila** Treasurer Dr. Indramani Mishra (Scientist, ICAR) **Executive council Members** Prof.Vikram Kumar (Former, Director, NPL; IIT Delhi) Prof. Sisir Sen (Former Dean IIT Kharagpur) Prof. N.R.Jaganathan (AIIMS, New Delhi) Dr. Harikishan (Emeritus Scientist, NPL) Prof. Uttam Pati (Professor, JNU) Dr. S. N. Singh (Emeritus Scientist, NPL) **Special Invitee** Dr. Santa Chawla (Editor Publications, Sr. Principal Scientist, NPL) Prof. Bimla Buti (Former Prof., PRL) Prof. P. N. Srivastava Dr. P.N. Tiwari (Founder Member SSV, Former Director NRI, IARI) Dr. Ashok Kumar (Chief Scientist, NPL) **Ex Officio Members** Dr. P. M. Bhargava (Previous President, Founder Director, CCMB) Dr. N. Raghuram (Ex-Secretary, IP Univ.)



Membership of the Society for Scientific Values

Scientists who wish to join the efforts of the Society to promote ethics (support right and oppose wrong) in scientific research, development and management and, who meet the following requirements are welcome to become the member of the society.

- 1. He/she should have allowed his name to appear as an author in only those publications in which he/she was actively involved, in data collection, theoretical formulation, design and construction of apparatus, field trips, mathematical derivation and calculations, statistical analysis and interpretation of results, as distinct from administrative support and providing funds or facilities.
- 2. He/she should have never plagiarized or made false claims or indulged in or supported and encouraged any kind of unethical activity in science.
- 3. He/she should agree to withdraw from the Society if he/she ceases to adhere to the requirements 1 and 2 above.

A scientist who wishes to become member should send his brief biodata to the President or Secretary of the Society. A member of the Society may also send biodata of such scientist for the membership. Non-scientists who have promoted ethics in their profession can also become member of the Society.