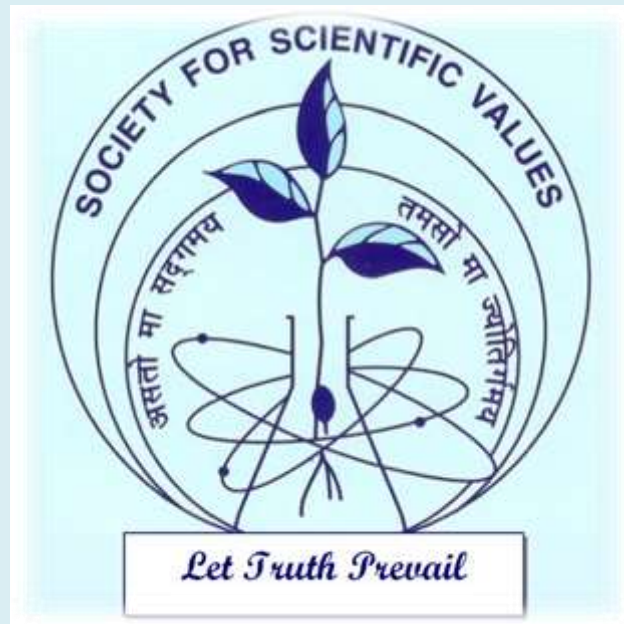


Society for Scientific Values

Ethics in Scientific Research Development and Management



News and Views

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Editor

Dr. Sanjeev Kumar Shrivastava

**Regd. Office: DST Centre for Visceral Mechanisms V. P. Chest Institute
University of Delhi, Delhi**

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President

Prof. K. L. Chopra
Ex-Director, IIT, Kharagpur
M-70, Kirti Nagar
New Delhi 110 015

choprakl@gmail.com, choprakl@yahoo.com

Phone: +91-11-25154114

Vice Presidents

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Indian Agricultural Institute, Pusa, New Delhi

maniindra99@yahoo.com

Phone: +91-11-25842294, 25071303

Dean, School of Biotechnology, GGS

Indraprastha University,
Sector 16C, Dwarka, New Delhi - 110078,
INDIA

nandula.raghuram@gmail.com

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Dr. R. K. Kotnala
Scientist, NPL, New Delhi.

rkkotnala@nplindia.org

Phone: +91-11-45608599, +91-11-45608266

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hkishan@nplindia.org

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Editor, Publications (News & Views)

Dr. Sanjeev Kumar Shrivastava
(February 2017)

CeNSE, IISc Bengaluru

sansrivastava28@gmail.com

Mob: 08277566371

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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 area
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From the Desk of the Editor

The editor on behalf of SSV team congratulates the President, SSV, who has received the Jeevan Gaurav Puraskar for the most inspiring teacher from none other than His Holiness the Dalai Lama at the 2nd National Teachers' Congress. The current issue brings details of activities started by the Society of Scientific Values. The Society's appeal to the commission, the higher education regulator, follows concerns that more than half the 3,300 academic papers from India published in predatory journals over six months in 2015-16 had come from faculty and scholars in government or private institutions. It has reproduced the various articles published by the different publishers such as “Keeping Science Honest”, “the craft of corrupt science” and many more. This issue has also reported “how has been the NIRF ranking done”, what kind of parameters is taken into considerations?

The Editor of News &Views of the Society for Scientific Values, author request all the members of SSV and other readers to send the news and views consistent with the mission and vision of SSV for publication in the future issues of N&V. The views expressed by author are not necessarily those of his employer.

Dr. Sanjeev Kumar Shrivastava
Centre for Nano Science and Engineering (CeNSE),
Indian Institute of Science, Bengaluru
sansrivastava28@gmail.com,
sanjeevs@iisc.ac.in
Ph: 080-23603281, 08277566371

National Teachers' Congress

Acceptance speech on **Conferment of Jeevan Gaurav Puraskar (Life Time Achievement Award) for being an Inspiring Teacher) on Prof Kasturi Lal Chopra by His Holiness Dalai Lama on Jan10 2018, at MIT World Peace University, Pune, India**

His Holiness Dalai Lama, Honorable Chief Minister of Maharashtra, Shri Davendra Fadnavis, Dr. Vishwanath Karad, Dr Anil Kakodkar, Distinguished Guests, Respected Teacher Delegates

Deeply touched, I am grateful for the honour done to me. This Award tops the several life-time achievement awards conferred on me by different professional bodies. Here, I stand on the shoulders of my numerous students and young faculty colleagues. As a Professor of IIT Delhi and two terms Director, IIT Kharagpur, I nurtured them professionally like a friend and family member. Together we cleaned our labs, worked as a group, discussed our work regularly and passionately, played games, enjoyed parties with songs and jokes at my residence. And, we shared national and international recognition for our R&D work and translatable technologies for several Indian industries. My students have created 12 industries in India and abroad with an earning of over one billion dollars so far. Our postdoctoral students were in great demand from academia and industry in India and abroad. Created from scratch and scrap with our own hands, our Thin Film Laboratory attracted the curious numerous prominent scientists, and Heads of countries to visit us. After visiting our labs, the Nobel Laureate Abdus Salam requested me to set up a facility with similar work ethos at his International Centre for Theoretical Physics, Trieste, Italy.

We are a scientific civilization. Our health and wealth are increasingly dependent on the power of knowledge. The key to this power is higher education, not the one we have but one with translational and transformational outcomes. Since independence, the country has been gifted dozens of eminently written policy and regulatory documents related to higher education, science, technology and innovation. It has been followed by a plethora of fuzzy programmes and their tardy implementation. And not to be left behind, our implementing and regulatory agencies of the government are happy issuing series of instructions and orders for implementing curricula and examination based education packages in sealed silos. How else do we understand our MHRD ordering all prestigious 40 plus Central Universities to have 70% common courses to enable non-existing inter-Institutional movement of students? Do our 3000 technical colleges enslaved by the tunnel vision of our State Technical Universities have any choice to reform the outdated teaching-learning process? Do the MHRD controlled UGC and AICTE care about such an unacceptable situation in this globalised knowledge era? Why can we not offer a true choice-based credit system where a student has a choice of subjects, teachers and even institutions for a specific and specialized topic if considered essential and justified, subject, of course, to prerequisites and the availability conditions?

Let me quote a management guru, Peter Drucker who said decades ago that “universities in western countries which teach are either dead or dying”. Today, in this era of Technomic Globalisation, students come to pursue higher studies to learn, learn to learn interdisciplinary areas of their interest, learn to do, learn to create and innovate, learn to work together, and live together. Lifelong learning for both the teacher and the taught is now a given thing in good institutions

Knowledge Professionals are an interface between Science & Technology and between Nature & Society. They are expected to contribute to the health and wealth of society in a sustainable environment through creation, dissemination and translation of knowledge to develop technologies, products and services consistent with an accepted ethical code of conduct. With the growing epidemic of plagiarism, cheating and other malpractices in academia, culturing, nurturing and sensitizing of ethical values among students and teachers must form an essential component of teaching-learning process. We need well trained teachers committed to life-long learning as also competent academics to manage our academic institutions.

Global ranking of academic institutions has emerged as a Big Business for some global companies. Instead of reforming various facets of our educational systems, we are getting rattled by our relatively poor global ranking. The word “accountability” does not seem to exist in the dictionary of our academia and its related governing and regulatory bodies. What we need is a universally acceptable, responsible, smart, responsive, hassle – free, and on-time accreditation system for all academic institutions to take care of the need for ranking.

It is time to seriously ponder about our weak management and governing structures dominated by the governments concerned. Imagine our ministers chairing selection committee meetings to select Heads of some 100 academic and R&D institutions of national importance every year. Despite the efforts of the Society for Scientific Values (of which I am the President), the HRD ministry takes 3 or more years to remove corrupt and plagiarist Vice Chancellors of central universities.

We recognize the need to be a part of internationalised higher education. However, despite having a very large no of good institutions and competent and illustrious academics, we do not attract many global students and teachers. This is largely the result of uncalled-for restraints and constraints imposed by our government bureaucracy.

To all the worthy teachers present here today, let me say that teaching is a profession that creates all other professions. Good and inspiring teachers guide an ordinary student to achieve extraordinary goals. Let us, the teachers, work together to ignite the spirit of NALANDA again.

Jai Hind!



Call to UGC to crack down on shady journals

Basant Kumar Mohanty and G.S. Mudur **Mar 26, 2018 00:00 IST**

Ref: <https://www.telegraphindia.com/india/call-to-ugc-to-crack-down-on-shady-journals-218484>

New Delhi: An academic watchdog has asked the University Grants Commission to crack down on "predatory journals" amid fresh allegations of plagiarism and the fabrication of fraudulent papers.

The Society for Scientific Values, which seeks to protect ethics in academia, has described as a "racket" the emergence of hundreds of predatory journals that, for a fee from scholars and teachers, publish poor-quality research without peer review.

The Society's appeal to the commission, the higher education regulator, follows concerns that more than half the 3,300 academic papers from India published in predatory journals over six months in 2015-16 had come from faculty and scholars in government or private institutions.

Teachers are required to publish papers for career progression while research students have to publish to get their PhD degrees.

"Predatory journals are pulling down standards. They don't care about the quality of research, they publish whatever they receive as papers - and make money," said Kasturi Lal Chopra, former director of IIT Kharagpur and president of the Society.

The watchdog has said that the list of journals approved by the commission includes a large number of predatory journals.

"Such journals get an ISSN identity (a registration number) without any scrutiny and, on payment of Rs 2,000 to Rs 4,000, publish papers without scrutiny," Chopra said.

"When a plagiarism charge is brought up, they simply retract the paper, but those who wrote the paper continue to cite it in their CVs."

Senior faculty members from two engineering colleges have claimed the predatory journal industry also allows vested interests to make false charges of plagiarism.

J.P. Saini, director of the Delhi-based Netaji Subhas Institute of Technology and V.K. Pathak, vice-chancellor of the A.P.J. Abdul Kalam Technical University, Lucknow, claim they are "victims" of false portrayal as plagiarists.

Teachers at the Netaji Subhas Institute have said, requesting anonymity, that Saini had co-authored a paper in the May-June issue of the *International Journal for Advanced Scientific and Technical Research* that had reproduced portions of a paper published by a four-member Japanese-Pakistani team in 2012.

Saini denied any plagiarism, claiming the allegedly plagiarising paper was a "fabricated" document concocted by "persons with mala fide intentions".

He sent **The Telegraph** a version of his 2014 paper, which is different from the 2012 paper, from the same journal.

The journal is published by R.S. Publication, based in Ujjain, Madhya Pradesh. An email sent by this newspaper to the journal seeking an explanation for the existence of two versions of the paper remains unanswered.

Pathak claims his name was used without his consent in a paper published by Rohit Katiyar, one of his former students, in February 2010 in the *International Journal of Computer Science and Information Security*. The paper allegedly plagiarised text from an earlier publication by a scientist in the UK in 2007.

Katiyar told this newspaper he had added Pathak's name as a co-author in the paper "by mistake".

"We had removed this student from the PhD programme as his work was not up to the standard. Yet, he went ahead and published this paper without my consent," Pathak said.

"I've been pleading with the UGC (University Grants Commission) and the All India Council of Technical Education (AICTE, the technical education regulator) to do something about predatory journals."

Nandula Raghuram, dean of the school of biotechnology at the Guru Gobind Singh Indraprastha University here, blamed the regulators and university authorities for the menace of plagiarism and predatory journals.

Last September, the University Grants Commission had put out a draft regulation to check plagiarism but it is yet to be finalised.

Raghuram, who also edits the journal *Physiology and Molecular Biology of Plants*, said a few hundred predatory journals operated in India and some of them were on the list of journals approved by the commission.

"The UGC is facilitating plagiarism by delaying its regulation to check it. It should also review its own approved list of journals, (where) there are many predatory journals," he said.

AICTE chairman Anil Sahasrabudhe said the council had issued a notice asking teachers in its approved colleges to publish in journals listed in the well-known database of the citation indexing service, Web of Science.

An email sent to commission chairman D.P. Singh on Wednesday had evoked no response by Thursday evening despite assurances from his staff. In its appeal, the Society has said that many of the predatory journals included in the commission's list are advertising themselves as "UGC-approved journals"

An independent study of a sample of 1,009 journals approved by the UGC has labelled 88 percent as "low quality" on the basis of several measures. More than 50 percent of these journals provided false information such as incorrect registration numbers or false claims about impacts, according to the study published on Sunday in the journal *Current Science*.

"This study reflects the sad state of affairs," said Subhash Lakhotia, distinguished professor at the Banaras Hindu University, Varanasi, and a coauthor of the study that calls on the UGC to revise its list of approved journals.

The HRD'S NIRF Ranking of Colleges is Laughable & Ridiculous

The Quint

<https://www.thequint.com/news/education/opinion-education-india-college-ranking-system-a-critique-teaching-learning>

In *Homo Deus: A Brief History of Tomorrow*, Yuval Noah Harari suggests that data may become the new religion of human consciousness. The author states that it might eradicate the unpredictability of human existence, while simultaneously enslaving us to an imagination where everything is fixated on digits.

This pull towards quantification is already leading us to the fatal addiction of finding 'credibility' in numbers alone – not to mention being fooled by them. The realm of education is increasingly falling victim to this. The National Institutional Ranking Framework (NIRF) is proof.

Lamenting the lack of Indian names in global university rankings, the Human Resource Development (HRD) Ministry launched the NIRF in 2015. The framework outlined a methodology to rank institutions across the country and promised annual rankings for colleges and universities. The third edition of these rankings was released on 3 April.

Institutional rankings are the apex of blind faith when it comes to statistics. Even if I delay my critique of unenlightened attempts to rank educational spaces, I invite you to laugh at the ranking list presented by the HRD Ministry. Here is the criteria this ranking is based on:

1) Teaching, Learning & Resource

Here we get the first glimpse of double stupidity. In order to arrive at a numerical value about learning at the institutions, the framework gets lazy and refuses to devise any organic tool to measure how well the teachers are teaching or how well the students are learning.

It naively uses available crude statics of student strength, student-faculty ratio, number of faculties with PhDs, and the total budget of the institution to make sweeping statements. Of course, all of the above may influence the quality of teaching at the institution, but it is despicable to hold them as reliable indicators of deciding which institution deserves to be called superior.

To understand how deceiving this can be, you must know that 7 of the top 10 universities in this matrix are either medical institutions or agricultural universities. The hollowness of the measurement is hidden in the aggregate rankings, where these institutions are not even in the top 50.

2) Research and Professional Practice

The next parameter is a globally contested one – Research and Professional Practice. The inclusion of the number of publications and citations are baby steps towards the infamous problem of western universities — the demise of teaching. Experts are beginning to remind the world that the primary purpose of a university is to help students learn; research is only secondary. But when excessive impetus begins to be placed on papers and journals, the process of classroom learning is largely neglected.

Anyway, the rankings of even this matrix should also tickle you a bit.

Take for instance the College rankings, Research and Professional Practice Score (out of 100) of Presidency College Chennai scored 99.27, while that of Miranda House and St. Stephen stands at 29.78 and 16.36, respectively.

If you aren't already smiling already, then consider the fact that RPP score of JNU (42.60) is actually lower than that of BHU (50.76), Anna University (60.76), University of Hyderabad (45.34), Jadavpur University (57.07) and even Manipal Academy of Higher Education (44.15).

Does this imply that JNU scholars produce research that is inferior to Manipal Academy? The author leaves it to your wise judgment.

3) A Criteria Called Perception

If you are wondering how this mathematics works, then don't be surprised how there's actually a criterion called 'perception'.

It is said to be based on online surveys to understand what perception employers, academia and public have of an institution.

No, you are wrong if you think this is a perpetuation of the elite club that accepts only the brightest of the bright. The scores on this matrix are amusing and are seemingly prepared by a man of Dravidian origins.

- Miranda House - 68.02
- St Stephen's - 60.75
- Bishop Heber College - 70.94
- Hindu College - 47.90
- Loyola College - 100
- Lady Shri Ram College for Women - 66.99
- Madra Christian College - 75.57
- PSG College of Arts and Science - 82.40
- St Joseph's College - 67.41
- Stella Maris College for Women - 57.76

(In the order of non-consecutive but descending ranks. Score out of 100)

If you were to believe the rankings, you have mostly spent your life living in a bubble. If you tried to score admission in one of the North Campus biggies by struggling for a 99 percent, you have been miserably fooled. The gold is in the South.

Similarly for the ranking of Universities, while the technology-tilted institutes have fairly consistent Perception Scores (PS), the outliers of liberal art universities seem to have been shown a mirror.

While the top-ranked Indian Institute of Science has PS of 100, JNU has an abysmal score of 46.28, much lower than those ranked below it. Banaras Hindu University has higher PS score than Delhi University – 43.62 compared to 33.15. And the leader among them is the underdog Anna University, with 63.22.

4) Graduation Outcome Score

The Graduation Outcome matrix is meant to indicate how well-placed the alumni of the ranked institutions are.

But this too displays odd trends. The Graduation Outcome Score (GOS) of Calcutta University (86.81), ranked #21, is higher than Delhi University (85.14), which is ranked #14. In fact, the GOS of BHU, 95.42, is the closest to JNU's 99.12, with Jadavpur at a close third with 91.39. And according to the college ranking table, you are likely to find better opportunities if you graduate from Ramakrishna Mission Vidyamandira, Howrah (GO score of 86.08) than the Lady Shri Ram College for Women (GOS 81.94), or even SRCC (GOS 83.48).

Well, there are some other important learnings from the data submitted for framework. Take for instance the ridiculously low number of women in all the high-ranked institutions.

IIS Bengaluru has only 32 women faculty members with PhD, out of the total strength of 430. IIT Madras and Bombay have only 78 and 87 women with the qualification, out of nearly 600 teachers.

The purpose of pointing out these flaws in the ranking framework isn't to better it, but to abolish it. Rankings of educational spaces are bound to display such impractical results. Yet, they threaten to create a self-serving ecosystem of believers.

Rankings and graphical pie charts are the language of illiterate bureaucrats who understand almost nothing about the process of learning.

It is becoming the favourite trick of our leaders who are 'performance-oriented,' and want nothing less than numerical estimates for manufacturing glossy posters and slogans.

In this cliché exercise of dumbed down imagination, educational spaces are turned into homogeneous monoliths that can be ranked like any other product of the modern economy. The love for rankings will probably only multiply in a consumerist society. Our lust for hollow validation through the rigged and meaningless ranking lists of the West is already starting to rob us of our creative thinking. We are choosing to be less confident of our greatest strengths.

Perhaps the most saddening observation of all is to find the name of Visva Bharti in the list of ‘competitors.’ Instead of advancing an alternative vision of the world and arguing for recognition of diversity that cannot be counted, it, like most others, is lining up with a begging bowl.

Our institutions lost the race the day they decided to run it.

*(Akshat Tyagi is the author of ‘Naked Emperor of Education’. He tweets at [@AshAkshat](#). The views expressed above are the author’s own. **The Quint** neither endorses nor is responsible for the same.)*

Keeping science honest

<http://science.sciencemag.org/content/359/6383/1443>

We are the whistle-blowers. Our ethical obligations as scientists made it impossible for us to accept a publication of fabricated results, even though it could have cost us our scientific careers. The process was slow and arduous, but worked nevertheless. Would we do it again? Yes. It was something we

What to do to retain our trust in science.

The Research Article, published in *Science* in June 2016, made headlines around the world: Fish prefer microplastics to live prey. But we witnessed the experiments and knew that this

paper was fraudulent. We reported the scientific misconduct and thereby set in motion an 18-month investigation that has had numerous repercussions for many. The paper was eventually retracted, and a final investigation concluded that the results were fabricated. The guilty scientists lost their research grants, and the university's decisions regarding potential reprimands are forthcoming. The case severely influenced our personal and professional lives. The time and energy that we devoted to it can never be replaced. We naively thought that the "science police" would

ride in, secure evidence, and make a swift declaration Of misconduct. Despite a catalog

of overwhelming evidence, the outcome was never certain, especially given the initial "not guilty" verdict by the preliminary investigation. That report almost caused us to lose trust in science and change careers altogether. We were attacked by the accused, who said that jealousy motivated our sole intention to discredit their work. We were told that our behavior was distasteful and unethical.

Yet, despite this, we have been encouraged by a process that ultimately worked. What lessons can we pass on to others who may find themselves in a similarly unfortunate situation? Gather a team of dedicated collaborators, because you're going to need help and support. Be prepared for a prolonged battle. Collect evidence, but don't contact the accused with questions if you are certain that they fabricated data, because they may then hide their tracks. Identify the appropriate authority where miscon-

duct should be reported; this could be at your own or the accused's institution. If no obvious channels exist, your own institution should be able to provide guidance. Be professional, stick to factual concerns, and ask trusted colleagues to critically assess the evidence and how you have presented your case. Put everything in writing, from correspondence with the university to contacts with any organization or government body that may be of assistance by, for example, providing documents.

What can be done by research institutions to help whistle-blowers? Universities could be associated with a central organization that

handles reports of misconduct. This organization would convene an independent investigative committee, because universities might be more interested in protecting their reputation than protecting good science. This would reduce the potential for a conflict of interest and ensure that credible claims of misconduct are handled professionally. Once an investigation is initiated, it must be performed by independent, critical people with the appropriate expertise.

A person with training in investigative journalism, police work, and/or law would also benefit the investigative team.

The central organization, as well as the whistle-blower's home institution, should offer

her/him support and protection from personal attacks during the process. For example, a whistle-blower's identity could be kept anonymous. Whistle-blowers who were mistaken in their report should not be punished if they are deemed as acting in good faith. However, when they are correct in their claims, their institutions, as well as the institutions of the guilty scientists, should consider mechanisms to compensate the whistle-blowers for their service to the scientific community. This could include supporting contract extension and/or reducing teaching and administrative duties to make up for lost time.

Ideally, whistle-blowing should not be necessary. The scientific community must enforce a culture of honesty. Sometimes that takes courage.

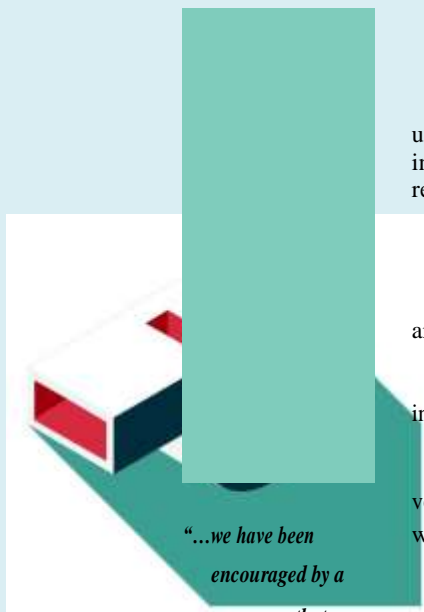
—Josefin Sundin and Fredrik Jutfelt



Josefin Sundin is a postdoctoral fellow at the University of Science and Technology in Trondheim, Norway. josefin@teamsundin.se



Fredrik Jutfelt is an associate professor at the University of Science and Technology in Trondheim, Norway. fredrik.jutfelt@ntnu.no



"...we have been encouraged by a process that ultimately worked."

10.1126/science.aat3473

Is Indian science ready to tackle conflict of interest in a rational way?

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CURRENT SCIENCE, VOL. 114, NO. 7, 10 APRIL 2018

Almost everything about India predates India, as the country has been around for several millennia; nevertheless, it got independence from the British colonizers in 1947! Science in India is several millennia old as well with Aryabhata (the scientist) and Ayurveda (medicinal science) predating by many centuries, the modern science that engulfed the world in the second millennium. Any critical analysis of science in India should ask the following question: If India had invented zero and Indian mathematicians had discovered calculus before Newton, why didn't India progress the way the Europe did after Newton's contributions in science? One can go on blaming the Mughals and British for all the ills we face. For a commoner in me, no one can fool you for long without your permission. Why did Ayurveda not progress beyond what was done by the founding fathers millennia ago? Did we have any fundamentals in our society that were wrong and prohibiting our growth? This is too complex a question to be addressed in a two-page editorial. However, I do find one major problem in India and naturally in Indian science that could have partly or largely contributed to this. It is about time we address it head-on. The problem is 'not recognizing a conflict of interest and doing enough to ensure that it does not affect the decision-making process'.

Very few in the world are born geniuses, like a Gauss or Ramanujan. (Incidentally, an editorial on genius was published recently: Sanjay, A. P. and Pandya, S. K., *Curr. Sci.*, 2018, **114**, 709. In summary, it argues that geniuses born in India, in the recent times, are unmasked only after they left the country.) They are considered to be gifted as we cannot find a rational explanation for their genius! Most others have to go through two decades of training in schools, colleges and universities to learn and be an expert in a narrow field. I have been at the Indian Institute of Science (IISc), Bengaluru for a little more than two decades now and this experience has helped me in realizing that India and Indian science have not dealt with conflict of interest in a critical and dispassionate way.

Often the strengths and weaknesses are the same. We are proud about the eastern values and the strong tradition

of family structure and criticize the West for moral degeneration. From the time we are born, we are taught to respect and listen to elders and not argue with them. Blood is thicker than water. Not surprisingly our decisions about blood relatives tend to be clouded by emotion rather than reason. In our society, children are expected to follow the footsteps of their fathers while choosing their careers, even when they have no interest or inherent ability to do this. Our system is built in a way that helps a father's position going to a son without due considerations. This gets extended to faculty-student relations in a seamless way. It is about time we let the next generation choose a career/path of their own interests and support them, and not push them into positions they do not deserve or aspire.

The Tata group of companies has declared a code of conduct for all their employees and one can read it in the Appendix B of the book *The Greatest Company in the World: The Story of Tata* by Peter Casey. I quote a sentence from the section on what is conflict of interest. 'Award of benefits such as increase in salary or other remuneration, posting, promotion or recruitment of a relative of an employee of a Tata Company, where such an individual is in a position to influence decisions with regard to such benefits.' It appears that many, if not all, Indian institutions/universities have no such code of conduct. I interpret this class for a faculty member in an academic institution by changing 'a relative' to 'a relative or a student/postdoctoral associate'.

Before I go on, let me record a few facts. IISc was the result of a discussion between J. N. Tata and Swami Vivekananda and it started with the generous contributions from Tata and the Mysore King, Krishnaraja Wodeyar IV. William Ramsay was asked to help in setting up IISc. He headed a committee that did the ground work. Bengaluru was chosen to house the Institute and Morris Travers, a student of Ramsay, was appointed as its first Director. That it remains an institute of international eminence 11 decades later indicates that Travers did lay the foundation strong! Did Ramsay have a conflict of interest in recommending his own student as the Director? He did not recommend Travers in his own institution.

I do not see anything wrong in recommending your student for a job (s)he deserves, and that is what we are supposed to do. I am not sure if Ramsay continued at IISc holding some regular or honorary position and drew a salary/honorarium after his student became the Director, or built himself a laboratory or home to live and work forever in the campus. If that had happened, one can clearly see a conflict of interest.

As of today, one can see scientists sitting in committees selecting their own students/junior colleagues from among a list of scientists for an award, a fellowship, a position or a project. This is not the same as recommending your student/younger colleague for any of these. Strangely, if the students/colleagues have shown some independence, they are unlikely to be selected. The tragedy of Indian science today is that we have a significant number of such committee members who expect the beneficiary to show some gratitude. Hence, it would not be uncommon to listen to them proudly declaring that they selected their students for this award. If a candidate has to be thankful to a committee member, something has seriously gone wrong! Rather than realizing the conflict of interest in their action, they appear to think that they have earned a position to recommend an award for their students! Even when the authors are asked to suggest some experts to review a manuscript, they are informed not to suggest a colleague or a collaborator. There is a proverb in Tamil 'காக்கைக்கும் தன்குஞ்சுபொன் குஞ்சு', which translates to 'even for a crow, its chick shines like gold'. Naturally, the ones who are beneficiaries of such a selection process, expect the next generation to behave the same way. In a few generations, our system would have ended up choosing the most subservient people for the top positions. One cannot expect innovation or path-breaking science from such a sample. While many have written about favoritism and nepotism affecting science, I consider the conflict of interest as more damaging.

The conflict of interest is not only ignored when a senior person chooses some younger one for personal reasons; it also extends to the selection for positions at the higher level. Here one needs to worry about quid pro quo. If someone is chosen as a Chairman of a Board or Council and if as Chairman, this person approves some personal benefits for the person who nominates him, there is a clear conflict of interest. It appears more like a confluence of interest and this should not happen. Moreover, persons holding some position, from which they could, say, approve a grant to some institution, should not join the same institution in some capacity after their retirement.

IISc had a Council in the past that could tell C. V. Raman to resign as Director. Those who are keen on learning more about this incident could read B. V. Sub-brayappa's book titled *In Pursuit of Excellence: A History of The Indian Institute of Science*. Let me quote one sentence at the end of the chapter discussing this episode in Raman's illustrious career: 'After this traumatic experience in Calcutta, it would have probably been better for Raman and the Institute, had he joined it not as its Director but as Professor of Physics'. Clearly, the institution was considered more important than any individual. In the long run, this helps any institution.

Raman Research Institute (RRI) founded by Raman looked for a Director after he passed away in 1970 at the age of 82! The selection committee called his son V. Radhakrishnan from California and appointed him as the Director. Radhakrishnan appeared to have been a multi-faceted personality, who decided not to have any formal degrees, and had built flying machines and boats. It was interesting to learn that he participated in building a microwave amplifier at Caltech (Jayaraman, A., *C. V. Raman, A Memoir*, Reprinted by Indian Academy of Sciences, 2017). Some more questions to ask now: Would anyone else who did all these things as well as Radhakrishnan or perhaps even better than him, have been appointed as the Director of RRI? Why did Raman not groom a successor during his time? Why did not anyone from within RRI or anywhere else in the world get picked to succeed Raman? To his credit Radhakrishnan has served RRI well during his tenure. However, we would never know if anyone else could have done better than him! Have actions like these throughout our history led India to perform below its potential?

I have often compared cricket and science (Arunan, E., *Curr. Sci.*, 2010, **98**, 993). Recently, the Chairman of the Board of Control for Cricket in India was asked to resign as he chaired a committee that selected a team sponsored by a company under his control. He refused to see the conflict of interest and finally the Supreme Court had to ask him to step down. I only hope the science leaders in India would ensure that they act before the courts tell them to do so. They owe it to the Nation!

E. Arunan

Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bengaluru 560 012, India
e-mail: arunan@iisc.ac.in

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The craft of corrupt science

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<http://www.downtoearth.org.in/blog/the-craft-of-corrupt-science-60041>

There is one chemical that is igniting much fuss these days—New Zealand legislators want it banned; South African leaders are asking why it is still being used; and, closer home in Sri Lanka, it is being discussed in parliament. Last year, Europe witnessed a bitter, high volume contestation on whether it should renew its licence for use. It first dithered; then gave a limited renewal; and, finally in November 2017, it agreed to a five-year extension. But the debate is raging.

It is argued that the chemical is toxic to humans; it is indicated for being “probably carcinogenic”. People exposed to the chemical have shown to have higher incidence of non-Hodgkin lymphoma and kidney ailments. It is also said to be responsible for the disappearance of bees and butterflies across the world.

But the chemical in question is a wonder substance like the other marvels of industrial discoveries. In fact, it would be fair to say that farmers who use it on their fields are addicted to it. It is used as a herbicide—instead of manually removing weeds, farmers spray this chemical before sowing to clear the fields; on standing crops; and then before the harvest. Now, with genetic modification of crops, the scope of using this chemical has also expanded. Crops are designed to be resistant to only this chemical so that farmers can now spray without any worry.

This “wonder substance” is the US agro-chemical giant Monsanto’s glyphosate, also known as Roundup.

The question is if there is evidence of its toxicity, then why are governments not banning it? Why the continued fuss? Why can’t we decide what is good or bad. Is it only about corporate power, or is it also about the inadequacy of science? Is it about the lack of evidence of toxicity, or is it about the complicity of science and scientists? In the book, *Whitewash: the Story of a Weed Killer, Cancer and the Corruption of Science*, US-based journalist, Carey Gillam, describes how science has spun and spun on this chemical.

Take the case of the European Union (EU), which is seen to be a global leader in environmental management. Why did it renew the licence? This, when in 2015, the World Health Organization’s International Agency for Research on Cancer had concluded that there was enough evidence on animals to list the chemical as a “probable carcinogen”. In 2016, when the 15-year licence to use glyphosate expired, the EU parliament had to decide what to do. Medical practitioners, particularly cancer doctors, and the civil society were dead against the renewal. The parliament said, perhaps, there should be restraint on its use and cited concerns of cancer and endocrine disruption. In fact, urine tests of some 48 parliamentarians in May 2016 showed that the samples contained much higher levels of glyphosate than expected—some 17 times higher than the acceptable limit.

Germany’s Federal Institute of Risk Assessment and the European Food Safety Authority reviewed the urine tests and concluded that the herbicide is “rapidly eliminated and shows no signs of bioaccumulation”. So, no reason to worry, it said. But as Carey Gillam explains, this conclusion relied heavily on the evidence from the US Environmental Protection Agency (USEPA), which had rejected the 2001 study on glyphosate exposure and tumours in Swiss albino mice. The data used by these agencies, which they themselves admitted, had come from the Glyphosate Task Force—a consortium of chemical companies, including Monsanto, who had come together to ensure that the registration would be renewed in Europe.

The scientific challenge has been the “proof” on the exposure on mice. As way back as in 1983, when several groups of mice were administered diets that included glyphosate, USEPA had concluded that the study showed higher incidence of renal tubular adenomas, a rare kidney tumour. But then all was done to destroy the credibility of this study. Another study was produced to show that there was a small kidney tumour even in the control group of mice. In other words, glyphosate was not the cause. It was natural.

This study and others were used to show “conclusively” that there was no problem with the chemical. US EPA was pushed aside. Carey Gillam explains how in all cases and, again and again, science was manipulated; scientists were bought; and, voices within the institution shut down. In all the cases, Monsanto was behind the production of this “science”.

Now, on March 21, 2018, the EU approved the merger of the two chemical giants, Germany’s Bayer and USA’s Monsanto. The interests of Germany in voting for glyphosate in the EU can now be even better understood.

But the controversy is not going away easily; nor should it. As I have said before, science can be defeated, but only temporarily. The truth will prevail. The problem is that this will happen only after many have suffered and died because science is in the hands of the powerful and it is easily corrupted.

A letter from the President, SSV to the President INSA

To: Prof Ajay Sood, President, INSA

Aug 10.2017

Dear Prof Sood:

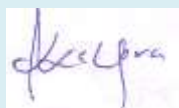
INSA Council has recommended Prof Satish Ogale for Fellowship this year. It is quite possible that the Council members may not be aware that Prof Ogale was given compulsory retirement by the Pune University on serious charges of immorality./moral turpitude and pleaded ignorance about the case.

While I appreciate any effort to rehabilitate a scientist who has gone morally wrong , the question of honouring such a scientist does not reflect well on any respectable national organization .As a Fellow of INSA and the President of Society for Scientific Values, I have a question : Does INSA expect moral and ethical values , besides professional achievements ,from its Fellows ? As a member of the Sectional Committee of INSA, I recall that the Council rejected the recommendations of the sectional committee in cases of very distinguished scientists due to charges of plagiarism. If INSA has become softer towards past unethical practices of a nominee, then let it be known by a resolution and thereby allow reconsideration of the cases of very distinguished scientists who have been denied the Fellowships. (See the Note below)

I appeal to you and the INSA Council to withhold this particular case of Fellowship and ponder over the serious question I have raised. Please be reminded of the Report of our Inter Academy Panel on Ethics opening with the Article 51-A(h) of the Constitution of India .If INSA is sincere about its own report, it should ensure that the Fellowship nominee has not been charged with any serious unethical practice.

I look forward to hearing from you. I have taken the liberty of copying my mail to your Vice Presidents.

Sincerely



(K L Chopra, FNA)

NOTE : The President INSA responded to this letter and defended the decision of INSA Council to confer Fellowship on Prof Ogale. However, on the persistence of SSV, he decided to set up a committee to examine the case and report to the INSA council for a final decision. The INSA Council finally decided to withdraw the INSA Fellowship for Prof S. Ogale

INSA Fellowship Denied to Distinguished Nominees on Ethical Grounds

INSA Fellowships have been denied to some distinguished nominees as and when any serious unethical practice by the nominee has been brought to light in the Sectional Committee or the Council meetings. As far as I know, INSA Council has never issued any guidelines as to what unethical practice should deny Fellowship to a nominee. It is a good time to do so since membership of SC and the Council keeps changing and most new members may not be even familiar with what is ethically acceptable or not.

During my membership of the Sectional Committee and the Council, several very deserving and distinguished nominees were denied Fellowships because of undesirable/unethical practice on their part. Let me cite a few REAL examples (without naming anybody) from my own experience.

A Nominee : The SC cleared A but at the end one member raised a question that he has heard that the book authored by A has been pulped on the orders of a court on account of some plagiarized pages. I was asked to comment. Since the publisher (which also published my book) had talked with me about this sad case, I spoke the truth, however painful it was. A was rejected. Unfortunately, someone from the SC/ Council informed A as to what transpired in the meeting. A rushed to the then President of INSA to plead his case. The President was furious and told A that he is not supposed to know anything about deliberations in the SC and he has no business to run to the President to plead his case. Infact, the President seems to have instructed the office to make sure that A is not considered again for the Fellowship.

B-Nominee: Under my Convenorship, B was selected by the SC. I made a case for B in the Council meeting. I was asked politely by the President to leave. It appears that a member of the council pointed out in my absence that the book authored by B had several plagiarized pages. The Council rejected the recommendation of my committee. Regrettably, somebody informed B about the rejection by the same evening. B rushed to meet the President of INSA next day to plead that he had copied only a few pages from other sources (without acknowledgement). The furious President told him to get out since he is not supposed to know what transpired in the SC/Council.

C-Nominee: C was considered seriously by the SC until one member commented that C has published some papers recently in so-called "Predatory Journals" (which I call Journals of Plagiarism). The committee dropped the name..

D Nominee: D was about to be recommended for Fellowship. However, one member mentioned that he is not happy with the fact D has written to some members/experts seeking their support for Fellowship. D was dropped since solicitation is not allowed.

Why will Indian science be anything but mediocre? Where is any opportunity or incentive to excel?

by

S. A. Abbasi and Tasneem Abbasi

Center for Pollution Control and Environmental Engineering
Pondicherry University, Puducherry 605014, India

It is reproduced from the due-to-be-released book "Perspectives in Pollution Control and Sustainable Development".

From among the multitudes who brave the mediocratic education system in India, a sizable number of researchers do emerge who are capable of emulating the best in the world. But there is no mechanism in existence to encourage demonstrated potential or to reward those who achieve better-than-average output. Three features of the Indian academic system, described below, stand out.

1.0 ABSENCE OF THE MECHANISM AND THE WILL TO ENCOURAGE EXCELLENCE

Numerous factors – political and social—have contributed to building up a system which keeps harping on the promotion of excellence but almost flinches while trying to actually encourage excellence. Excellence is sought and encouragement is promised - but in practice career advancement almost always goes by the number of years spent by a faculty member in a university or a scientist in research institutions. Surely 'minimum levels of attainment' are always prescribed but the bar is held so low that only a few who earn the wrath of the establishment by their plain speak, are left out. All the rest sail through. Let alone provide cash incentive or quicker promotions to those who excel, the system actually discourages such initiatives by its bureaucratic apathy. In the end it becomes a case of 'more you try, more hassles you invite'.



Government agencies such as the UGC (above) an MCI (below) are expected to ensure high standards in the Indian education system but due to a variety of reasons and up nurturing mediocrity.



There is no provision to get a higher raise by producing more in quality or quantity. The latest norms (UGC 2010) also prescribe only the minimum; they have no provision for a better raise to those who obtain, say, double the minimum or treble the minimum. So a university faculty receives the same annual salary raise whether she or he publishes 10 papers in high impact-factor journals, or one, or none in the preceding year. The system is not only unable to provide personal benefits to achievers of excellence; it also does not even facilitate such persons with better research grants. There is a rule that those who forego vacations can get 1 day's earned leave in lieu of every 3 day's extra work done. We know of universities where Saturdays of the vacation period are not counted for EL calculation even as research-minded faculty works on those days, too. As a result a clerk in the same university (who takes all Saturdays, Sundays, holidays, and more off) gets 30 day's EL in an year but the faculty which works a full year, almost 365 days, gets lesser EL! Representations have been sent to the concerned authorities, who have royally ignored them, as is their wont. So much for encouraging committed hard work!

As per CAS an assistant professor must spend at least 11 years and must achieve a certain minimum research output in that time to be given associate professorship. But if someone achieves double, triple, or quadruple of the stipulated minimum in less than 11 years, there is no provision for that person to move up faster. Apart from enduring the disinterest of the establishment, such persons have to also contend with the hostility of their envious colleagues.

2.0 BUREAUCRATIC HURDLES

No part of the world is free from red tape but India has a lot more of it than most others. A scientist has to spend enormous time chasing files and untangling procedural confusions. The system only looks at direct costs, it is totally unconcerned about the indirect costs of procedural complexities and delays. A proposal for buying printer-ribbons may be held up for months, ostensibly to save a few rupees. In the process man-days and productive output worth tens of thousands of rupees may be lost. There are also bureaucratic hurdles arising from departmental hierarchies.

3.0 PERILS ASSOCIATED WITH COLLABORATIVE R & D

In developed countries there is enormous thrust towards inter-departmental and inter-institutional collaboration. For two key reasons: one is that it enables breakthrough R & D and the second is that resource use is optimized. In India, too, there is never a lack of noise on fostering collaborative R & D. But, as it is with the fostering of excellence, the system, on ground, does everything to actually discourage it. For example in the performance based assessment system (PBAS) introduced by the University Grants Commission to affect promotions through CAS, a certain number of points are assigned for publishing a paper or operating a project.



The Banaras Hindu University (left and the Aligarh Muslim University are among the top 5 universities in India. Yet they never make it to the world's top 500 list.

If more than one person is associated with a paper or a project, the accruable points get reduced by the corresponding fraction. This manner of weighing performance is making intra-departmental and inter-departmental collaboration even less attractive than it has been; the faculty is now preferring to attempt an 'easier' paper in a journal of impact factor (IF) 1 than take the much tougher route of publishing in a 4 IF journal alongside three other authors because the points earned in either case are the same! Indeed the new assessment system gives significant weightage to papers in non-indexed journals but so little extra to papers in good impact-factor journals that it will generate further disincentive to pursue high-quality research publishable in high IF journals. In turn the motivation to do collaborative research (which needs greater effort and entails a lot of hassles) will be even lesser as it would also mean sharing of weightage. As it is, our bureaucratic ways barely leave a faculty time to interact with his/her own students and to handle the projects for which he/she alone is responsible. When more than one department is associated with a project, the bureaucratic problems multiply further. This leads to the attitude of taking the 'path of least resistance' viz, keep into your shell and do the barest minimum needed for CAS.

In fact PABS has put a strange stipulation according to which the 'first author' of any paper or book gets 60% of the total points and the remaining authors share the balance 40%. Due to this stipulation faculty members are now putting their names first instead of the concerned student's (as is the tradition) because there is, in reality, no codified norm or method to fix 'first author'. This kind of stipulation further discourages inter-faculty collaboration because the authors next to the 'first' author get very little of the weightage. It is also disheartening to the students who, to start with, are not frightfully motivated.

4.0 NOISES, MORE NOISES

Ever so often noises are made by policy-makers on providing a 'faster track' to those who put in exceptional effort. But the idea is quickly abandoned out of fear of displeasing the fence-sitting majority. When introducing new pay-scales for the faculty, post-Sixth Pay Commission, the UGC had proposed levels of 'Senior Professor' and 'Professor of Eminence' to keep the senior faculty motivated towards academics (rather than everyone coveting administrative positions). But the teacher's unions opposed the move and got the avenues closed. Once a person becomes a professor he/she has no promotional avenue and little to gain, career-wise, by straining oneself in doing great research. Which is why most begin seeking administrative positions. The authorities have condescended to put a 'stage 6' in the CAS in which a professor, if promoted, will have higher salary but no change of designation. Moreover, this stage 6 is restricted to "10% of the eligible professors in a university". Here also, it is a certain number and not absolute merit, which is the criteria. Even this scheme is yet to be implemented even as promotions at lower stages are going on briskly. Given this backdrop, those who still pursue excellence in Indian universities and research institutions end up invoking a mixture of hostility and embarrassment. The treatment they receive becomes a demotivating example for others.

5.0 AND THE LAME EXCUSES

Whenever we have asked the people at the helm as to why they always talk of promoting excellence but do nothing to actually encourage it, the stock retorts are (with our counter in italics):

- Excellence comes due to passion and commitment, not money and promotions
Yes. But where the same extent of passion and commitment is given better rewards, people go there. Which is why most of the top brains go abroad or to the industry. Moreover we do give all kinds of incentives (increments for MPhil/PhD, easy CAS, etc) to all and sundry for attaining mediocrity but do not feel the need to similarly encourage a few who demonstrate potential for excellence. For doing MPhil, which is a fairly common qualification, there is a provision of 2 increments but for doing DSc, which is very difficult, hence rare, there is none!
- We should go ahead instead of waiting for the system to change first ... let us set an example
The few pockets of excellence that do exist in Indian science are created by people who have gone ahead regardless of the system. But instead of getting inspired by them and encouraging them, our system treats them so shabbily that others feel no motivation to emulate them.



Amartya Sen: India's last and only the produce another?

second Noble Lauriate in Science/Economics. When will we

So it is not that the Indian system does not acknowledge the necessity of monetary incentives and other forms of support. **In fact it is rather generous in rewarding mediocrity. But it absolutely falls short of rewarding excellence.**

6.0 DOES EXCELLENCE STAND A CHANCE?

As long as the situation remains as it now is, India will generate an ever bigger ocean of mediocrity by establishing scores of new central universities, IITs, NITs, IIMs, IISRs etc. Indeed the resulting glut will bring the standards down even further. Already the IITs have relaxed norms for admitting PhD students, others will follow suit. It will lead to even more sub-standard PhDs, even more sub-standard faculty and even poorer quality of graduating students. Those few who climb up the abyss will continue to be threatened from above as well as below. Where does excellence stand a chance? Surely, every year, a certain number of brilliant minds will continue to emerge, but they will continue to be lost to foreign universities or industry. Indian science will continue to remain mediocre because our university system is geared to foster only mediocrity.



Over the years a large number of IITs, NITs, IISRs, IIMs, and other types of institutions have been set up in India but India but Indian ranking in the world of science and academic excellence hasn't improved. Above: four of the new IITs

Credits for visuals

We gratefully acknowledge the following sources for the visuals of this chapter.

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2. <http://www.today.in/Medical-Council-of-India-challenges-HC-order-on-additional-medical-seats>
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A critical analysis of the 'UGC-approved list of journals'

Bhushan Patwardhan^{1*}, Shubhada Nagarkar², Shridhar R. Gadre³, Subhash C. Lakhota⁴, Vishwa Mohan Katoch⁵ and David Moher⁶

¹Interdisciplinary School of Health Sciences,

²Department of Library and Information Science, and

³Interdisciplinary School of Scientific Computing,

Savitribai Phule Pune University, Ganeshkhind, Pune 411 007, India

⁴Department of Zoology, Banaras Hindu University,

Varanasi 221 005, India

⁵Rajasthan University of Health Sciences, Jaipur 302 033, India

⁶Centre for Journalology, Clinical Epidemiology Program,

Ottawa Hospital Research Institute, Ottawa, ON, K1H 8L6, Canada

Scholarly journals play an important role in maintaining the quality and integrity of research by what they publish. Unethical practices in publishing are leading to an increased number of predatory, dubious and low-quality journals worldwide. It has been reported that the percentage of research articles published in predatory journals is high in India. The University Grants Commission (UGC), New Delhi has published an 'approved list of journals', which has been criticized due to inclusion of many substandard journals. We have developed a protocol with objective criteria for identifying journals that do not follow good publication practices. We studied 1336 journals randomly selected from 5699 in the university source component of the 'UGC-approved list'. We analysed 1009 journals after excluding 327 indexed in Scopus/Web of Science. About 34.5% of the 1009 journals were dis-qualified under the basic criteria because of incorrect or non-availability of essential information such as address, website details and names of editors; another 52.3% of them provided false information such as incorrect ISSN, false claims about impact factor, claimed indexing in dubious indexing databases or had poor credentials of editors. Our results suggest that over 88% of the non-indexed journals in the university source component of the UGC-approved list, included on the basis of suggestions from different universities, could be of low quality. In view of these results, the current UGC-approved list of journals needs serious re-consideration. New regulations to curtail unethical practices in scientific publishing along with organization of awareness programmes about publication ethics at Indian universities and research institutes are urgently needed.

Keywords: Predatory and dubious journals, publication ethics, university source component, unethical practices.

THE ever-increasing research activity across the world has been paralleled by the increasing number of journals where the researchers can publish and share their findings

with peers and others. This has also fuelled unprecedented commercial interests in publication of research journals, so that major publishers across the globe indulge in aggressive publication efforts and policies. The competitive market of research publications has witnessed undesirable and unhealthy publication practices. The widespread 'publish or perish' policies have given rise to a breed of 'predatory journals', whose main objective is to make money by publishing 'anything' in the name of a research paper for a 'fee' commonly known as article/author processing charge (APC)¹. Such unethical practices and the unscrupulous business of publishing have rapidly grown during the last decade. It is common to receive unsolicited, dubious e-mails inviting articles, promoting special issues, editorial board memberships and speaker invitations from predatory journals, publishers and conference organizers. The pioneering effort known as Beall's list of 'potential, possible, or probable predatory' publishers and journals² was closed down in January 2017, depriving researchers across the world of some cautionary advice.

The global concern of researchers and other stakeholders, such as funding agencies, with the increasing menace of predatory journals has elicited corrective responses. The National Institutes of Health (NIH), USA, encourages prospective authors to think more deeply about where to publish (https://grants.nih.gov/grants_guide/notice-files/NOT-OD-18-011.html). A greater consideration about the basic quality of the journal helps maintain credibility of all those involved in the publication process, including funders. The NIH advisory highlights key attributes to identify low-quality journals, such as lack of transparency, misleading pricing, inadequate information to authors, aggressive tactics to solicit article submissions, inaccurate statements about editorial board membership, and misleading or suspicious peer-review processes.

Publication in predatory/dubious/sub-standard journals has assumed alarming proportion in India. A recent study of 1907 articles from 200 journals revealed that a large number of predatory journals and associated articles originate from India^{3,4}. It has further been reported that private/government colleges contribute to about 51% of predatory publications, followed by private universities, state universities, national institutes, central universities and industries^{5,6}. Alarmed by the increasing menace of these very low-quality journals, which do not follow good publication practices (GPP), a few universities in India have taken proactive steps to frame 'Guidelines for Research Publications' (http://unipune.ac.in/uop_files/Report-Guidelines_20-5-15.pdf). The regulatory agencies in India, such as the University Grants Commission (UGC) and Medical Council of India (MCI)⁷ have also initiated steps to curtail such unacademic practices.

Two primary factors have catalysed the expansion of predatory/dubious and sub-standard publications from

*For correspondence. (e-mail: bhushan@unipune.ac.in)

India. First, the UGC guidelines of 2010 introduced the so-called academic performance indicator (API) for evaluation of teachers, which laid considerable emphasis on the number of research publications ('publish or perish'). Second, the UGC regulations, as modified in 2013, mandated publication of at least two papers prior to submission of a doctoral thesis. As a consequence of these regulations, publication in journals has become a required 'compliance' criterion in the university system. Such regulations have triggered a sudden spurt in the publication of predatory/dubious journals offering 'pay and publish' services for gullible authors in the country⁸. The desperation of researchers to publish on one hand, and the poor monitoring of the research quality on the other, are the major contributory factors responsible for the current lowly publication scenario in India⁹.

The UGC-approved list of journals is required for various academic purposes, including appointment of faculty, evaluation of their performance for career advancement, and submission of doctoral theses. As of now, this list, available at the UGC website (<https://www.ugc.ac.in/journallist/>) includes 32,659 journals classified in the following categories: (a) titles indexed in the Web of Science (WoS), Science Citation Index, Social Science Citation Index, and Arts and Humanities Citation Index; (b) titles indexed in Scopus; (c) titles indexed in Indian Citation Index; (d) journals recommended by the UGC expert committees, and (e) Journals recommended by the universities (hereafter referred to as university source). The 'university source' component of the list as provided by INFLIBNET Centre, Gandhinagar contains 5699 journals. UGC has admitted that it received several complaints about inclusion of low-quality journals soon after the release of its approved list of journals on 2 June 2017. Accordingly, UGC has removed a few journals after evaluation using defined checklist criteria, and the same is publicly available on its website.

In view of the above, we undertook a critical analysis and curation of the 'university source' category of the 'UGC-approved list of journals' to identify potentially predatory, dubious and substandard journals. The study protocol was developed after critically reviewing the UGC checklist criteria available at <https://www.ugc.ac.in/journallist/methodology.pdf>. The study protocol included three parts: (i) basic information about the publisher and/journal; (ii) primary criteria analysis and (iii) secondary criteria analysis (Table 1). Every journal and publisher was carefully scrutinized with the help of a trained study team for verifying the correctness of basic information and various claims made by the journal/publisher. We relied on information available on official websites and other sources in the public domain. If required we attempted to check the correctness of information by contacting editors/publishers through e-mails. Any journal/publisher found to provide false/falsified, misleading or incorrect information relating to criteria in basic and pri-

mary analysis components was not analysed further. In the secondary criteria analysis, we applied positive and negative numerical values that could generate a maximum score of 10 for the highest rating and less than 0 for the lowest (Table 1). The relative values for each attribute were fixed to reveal potential predatory nature, misleading names, history of timely publishing, quality of editorial process, nature of charges, etc. For instance, a +2 value was given for timely publication based on archive data or membership of the Committee on Publication Ethics (COPE). On the other hand, a value of -2 was given for charges for assured acceptance of publication and -1 for misleading names. We optimized the protocol with the help of a control group comprising 10 new journals (less than four years of existence), to ensure that the scoring system did not eliminate any credible new entrant merely because of high weightage criteria such as duration of existence and article processing fees (see [Supplementary Material](#)). According to the protocol, journals receiving a cumulative score less than 6 were considered to be of low quality, and therefore not appropriate for inclusion in the 'list of approved journals' (Table 1).

To minimize personal bias during evaluation and analysis of journals, we used a three-step sequential algorithm protocol (Table 1). For objective analysis, we created a web interface interactive program developed on Windows platform with the help of various tools and technologies.

In the present study, we have randomly selected 1336 journals ([Supplementary Material](#)) from the list of 5699 university source category journals provided by UGC through the INFLIBNET Centre. Of these, 327 journals were found to be indexed in Scopus/WoS and, therefore were excluded from the present study since this analysis was designed only for examining the non-indexed journals. Table 2 presents the broad discipline-wise category of 1009 journals analysed in this study. Of these 1009 journals, 349 were disqualified from further analysis because of non-availability of basic information such as name of editor, academic affiliations, editorial office address and/or official e-mail for correspondence. Another 528 journals were disqualified on the basis of primary criteria because of false claims regarding impact factor, indexing databases and poor academic credentials of editors (Table 3). Out of the remaining, 132 journals analysed for secondary criteria, 21 could not receive the minimal qualifying score of 6. Only 112 journals out of the 1009 non-indexed university source journals secured a score value of 6 or more. Thus, about 88.9% of the non-indexed journals from the 'university source' category of the UGC list did not satisfy the minimal requirements. Table 4 presents a summary results of the analysis with broad reasons and the number of qualified and disqualified journals. Figure 1 shows results of stepwise analysis carried out according to the protocol. A complete list of journals analysed in this study and results

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Table 1. Study protocol outline for identifying predatory, dubious and low-quality journals

Basic information criteria:		
Publisher and journal		
Country and address		
Editor details		
Current status (print/online/ceased)		
Website and publisher details		
Indexing information		
Primary criteria		
Correctness of ISSN numbers (verify in Ulrich and journal home page).		
Correctness of various claims related to impact factor or use of made-up measures such as view factor, universal impact factor, feigning international standing, etc.		
Correctness of claims regarding indexing or use of predatory, dubious indexing agencies.		
Availability and correctness of full postal address, e-mail id of chief editor/s and editors.		
Correctness of affiliations and academic credentials of chief editor/s, section editors/speciality editors/other editor/s (required minimum four publications in standard indexed journals).		
Peer review process and assurance of publication in any manner.		
Journal is removed and not analysed further if found to be giving incorrect/false/incomplete/misleading information, stolen identity, or if journal/publisher is using any unethical means for editorial or marketing purposes.		
Secondary criteria		
Whether in the journal name 'International', 'World', 'Global', etc. is justified? (Check the editorial board, scope, author profiles)	Yes/No	+ 0 for 'Yes'/-1 for 'No'
Member of COPE or any other reputed Association/Academy?	Yes/No	+2 for 'Yes'/0 for 'No'
The journal provides complete instructions to authors/reviewers	Yes/No	+2 for 'Yes'/-1 for 'No'
History of journal existence	Year	0 for <'4 yrs'/+1 for '4-6 yrs'/+2 for >'6 yrs'
The journal has a well-defined peer review, publication and ethics policy	Yes/No	+1 for 'Yes'/-1 for 'No'
The journal levies charges for acceptance of publication	Yes/No	-2 for 'Yes'/+0 for 'No'
The journal has a declared frequency of publication each year	Yes/No	+1 for 'Yes'/-1 for 'No'
The journal is published regularly and in time following its declared frequency	Yes/No	+1 for 'Yes'/-1 for 'No'
Accessibility of the website	Poor/ Satisfactory	-2 for 'Poor'/+1 for 'Satisfactory'
Total score		10

Minimum score 6 out of 10 is necessary for qualified journals.

Journals indexed in Scopus/Web of Science are excluded from analysis.

Table 2. Discipline-wise category of journals

Broad discipline category	Number of journals
Science (including medicine, engineering, agriculture)	565
Multidisciplinary (Science, social science, arts and humanities)	217
Arts and humanities	125
Social science	102
Total	1009

control group analysis are provided as [supplementary material](#).

A significant component of the contemporary research publishing industry seems to be moving from an immoral to illegal domain. During this exercise, we identified several dubious publishers and journals that are involved in various types of unethical practices. We observed that 34.5% of the non-indexed journals were disqualified under the basic criteria because of incorrect or non-availability of essential information such as address, website details and name of editor; another 52.3% pro-

vided false information such as incorrect ISSN, false claims about impact factor, claimed indexing in dubious indexing databases or had poor credentials of editors. Many of these journals appeared to recruit fake editors¹⁰. In this study, we also observed several other fraudulent journals, not indexed in credible databases or part of the UGC list, but falsely claiming to be so, and aggressively promoting themselves through e-mails. We think that the severity of this problem might be much more than perceived. In this context, it may be noted that *Current Science* – a fortnightly research journal of long standing and

Table 3. Journals disqualified in primary criteria analysis

Criterion	Disqualified journals
ISSN not available	13
False claims regarding impact factor or use of dubious measures, assurance of publication	238
False claims regarding indexing in credible databases	165
Postal/e-mail addresses and/or details of Chief Editor are not verifiable	76
Inadequate academic credentials of Editors (less than four publications of the Editor in the given discipline in standard indexed journals)	36
Total	528

Table 4. Overall results

Criterion	No. of journals
Journals in the ‘university source’ category of the UGC-approved list	5699
Journals randomly selected for analysis from the ‘university source’	1336
Journals indexed in Scopus/WoS (not analysed)	327
Journals analysed in the present study	1009
Journals disqualified based on basic information criteria (inadequate Editor details/ceased journals/magazines)	349
Journals disqualified based on primary criteria	528
Journals disqualified based on secondary criteria (did not achieve qualifying score of ‘6’ required according to the protocol)	20
Journals qualified (according to the protocol)	112
Journals that meet the qualifying criteria (112 non-indexed + 327 indexed in Scopus/WoS)	439 (32.8%)

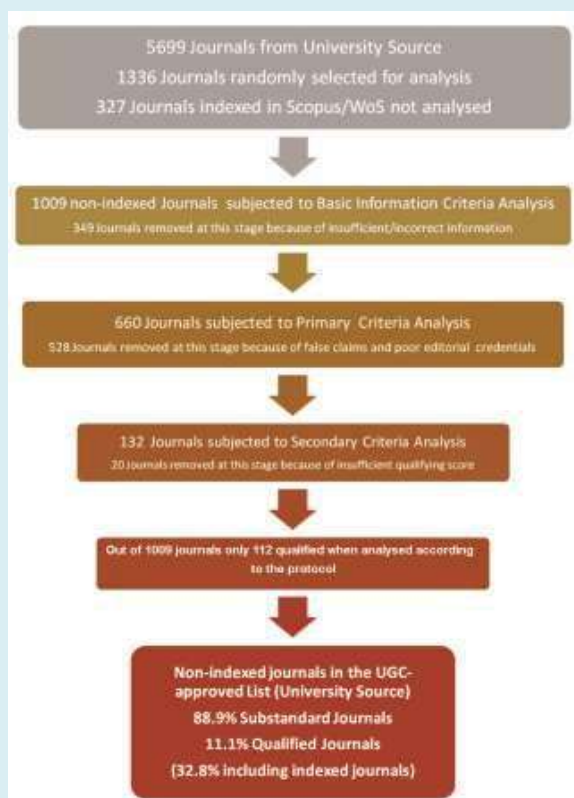


Figure 1. Flowchart showing results of stepwise analysis according to the protocol.

published by the Current Science Association, Bengaluru, India had to issue a predatory journal alert due to identity theft attempt from an URL located in Turkey (<http://www.currentscience.ac.in/php/pdf/alert.pdf>).

UGC’s attempt to prepare a list of credible Indian journals through expert committees for disciplines such as liberal arts, Indian literature and languages that are not covered by Scopus and WoS is commendable. However, even though it is constituted with the best of intentions, the approach and methodology for the entire exercise of approving the list of journals could be more careful and stringent. Our analysis suggests that majority of the uni-versity source journals are of low quality. Following the experience gained from this analysis, we are refining our analysis criteria. We plan to analyse the content of Indian Citation Index, which, we suspect, could be another source of substandard journals in the UGC list. In the present study, which was primarily designed to examine the non-indexed journals, we excluded journals indexed in Scopus/WoS. However, even Scopus/WoS databases seem to include a few predatory/substandard journals¹¹. Therefore, we need to examine them in future studies. There is an urgent need for a coordinated effort with participation of all stakeholders, including researchers, institutions, funders, regulators and academies to stop the mushrooming of illegitimate journals¹².

Increasingly compromised publication ethics and deteriorating academic integrity is a global and growing problem contaminating all domains of research. There are many disadvantages of publishing in predatory journals.

There is growing consensus that such publications need to be challenged, questioned and de-recognized at every level¹³. Only 112, out of 1009 journals (11.1%) from the non-indexed journals in the university source category examined by us qualified in the analysis. Therefore, journals from the university source component, except those already indexed in Scopus/WoS, should be cancelled and withdrawn from the current UGC-approved list of journals.

In view of the publications in predatory or dubious journals reaching alarming levels in India, it is essential that the academia and government agencies in the country work together to develop stringent punitive provisions and decide strategies for damage control. There is an urgent need to issue suitable advisories and create awareness to maintain high levels of publication ethics, especially in the Indian academic institutions. UGC may consider establishing a 'Centre for Publication Ethics' to create wider awareness regarding GPP among faculty and students, so that the rapidly growing predatory publishing business and 'pay and publish trash' culture can be thwarted. It would greatly help if UGC, MCI and policy think-tanks such as NITI Aayog convene consultative meetings involving different funding agencies, national academies and research councils to discuss these issues and suggest possible technological solutions to address the present crisis.

Research is for pleasure of discovery, search for new knowledge and a service to humanity. It should not be reduced to a compulsory mechanical process to be undertaken primarily for the sake of getting a degree, social prestige, employment or other individual benefits. The increasing culture of publish or perish, and undue emphasis on quantity over quality are major concerns⁹. Implementation of international recommendations such as the San Francisco Declaration on Research Assessment and the Leiden Manifesto¹⁴ may be useful to improve the present API approach and academic assessment system.

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- v) Dr S K Sharma, Scientist, NPL.