

ten years ago that our foremost need is to inculcate passion for excellence in whatever we do, especially in science, technology and education. Excellence is not just high marks in examination which the students aspire to get but its pursuance in later life as one embarks on a career is what matters. Anyone can scale excellence, if he/she can learn a few 'skills'. In the last few years, my colleagues and I have designed and conducted introductory 1–2 day programmes which are just about enough to make one realize the significance of excellence and development of skills. We have four basic modules: attitudinal-cum-leadership skill, communication skill, interpersonal skill and confidence building (self-improvement). Decision-making capability develops out of the above skills. Communication is the *core* skill and it includes all the four skills of effective speaking, reading, listening and writing. Learning and practising the core skill lay the foundation for all other skills and for achieving excellence. Scientists must know how to articulate effectively and convincingly. Similarly, teachers although they may know how to lecture in a class, must learn how to effectively communicate and excel in their profession. Training should begin at the postgraduate level for pure science and graduate level for engineering students.

On request, we have conducted 2–3 days better-and-faster-reading skill programmes when at the end of the course, one is able to read with at least twice the speed without of course any adverse

effect on comprehension (e.g. 250 to 500 words per minute (wpm)). It is a revelation to many that their reading speeds are much below the average of 250 wpm. What a tremendous benefit it is to gain twice the amount of knowledge within the same time-frame! Swami Vivekananda could read more than 1000 wpm and his speaking abilities were outstanding. Speaking skills, popularly known as the art of public speaking, are often considered synonymous with communication skills. The business sector lays much emphasis on this while recruiting their staff. There are profound benefits from effective writing and listening. Lee Iacocca, former President of Ford and later Chairman of Chrysler Corporation says, 'The only way you can motivate people is to communicate with them'. About listening he says, 'I only wish I could find an institution that teaches people how to *listen*. Too many people fail to realize that real communication goes in both directions'. (*Iacocca – An Autobiography*, Bantam Books, New York, 1984; I recommend every scientist and teacher to read this book).

We have successfully conducted programmes on achieving excellence for many CSIR and defence laboratories, colleges and universities, and industry and marketing sectors. Our experience has been that the Heads of almost all CSIR laboratories are convinced about our vision and mission to develop 'skills' for achieving 'excellence', but very politely they say 'no', when it comes to scientists and 'yes' for administrative

and supporting staff. We accordingly conducted such programmes with enthusiasm, but the word used to quickly spread to the research scientists and then they would request us to conduct such programmes for them. The trend is fast-changing and Director of one CSIR laboratory recently invited us to conduct a 2-day course on achieving excellence through development of skills exclusively for about 70 scientists. The feedback we got was excellent. Our programmes are participative and hence we keep the batch size to 20–25. The same trend is now visible in colleges and universities for improving the quality of teachers and quality of teaching.

The bold preliminary findings of NISTAD scientists have strengthened our commitment to spread the message of 'excellence' among scientists, engineers and teachers, especially youngsters. The spirit of excellence is not a competition with others but one's own self over a period of time. Excellence is not just an ideal, nor is it a destination. Excellence is a (life-long) journey that will make one increasingly innovative and creative, and a better performer. The urge has to be there, like an Olympic champion who wants to do better each time, even break his/her own performance record.

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## Suggestions for improving the academic status of Indian research journals

A lot has been said in the past about the desire to improve the academic standard of scientific research journals published in the country. Poor impact factor of the journals (*Curr. Sci.*, 2002, **82**, 788) is said to be a dissuading factor for the competitive workers to get their work published in Indian journals. Another reason for getting their work published in prestigious foreign journals is the opportunity for the authors to learn more about

the subject from the comments of the reviewers. Yet another reason for their indifference towards Indian journals, is the fact that the comments of most of the referees are not to the point, less helpful to the authors, and do not reflect the referee's depth of knowledge (*Curr. Sci.*, 2001, **80**, 808). One of the topmost chemists of the country, in a personal communication to the author, expressed his disgust and disappointment over the incom-

petent and unhelpful comments on one of his review articles that he communicated to an Indian journal for publication.

It is true that unless competitive workers publish their work in Indian journals and the academic response of the reviewers is upgraded, the standard of the journals cannot be improved and thus the overall quality of research in the country cannot be competitive. One may suggest to the universities, institutions, national labora-

tories, etc. and UGC, CSIR and other funding agencies, not to make an appointment for a teaching or research position or entertain a research proposal for the award of funds unless the candidate has published at least two out of say five research papers in Indian journals. One can then expect the level of Indian research to be lifted to a threshold for being competitive within about ten years. This scheme is likely to cut down the

skewed, repetitive and aimless research too. However, a greater effort is also needed to restrict and standardize the process of admission to Ph D research to improve the overall scenario of Indian research.

The Government also has a role to encourage contributions from competitive workers to Indian journals, in providing funds to certain selected journals specifically for making awards to the

best paper published in a year in a particular discipline. These two suggestions if implemented as such or in a modified form, are likely to change the scenario of the quality of research in the country in due course of time.

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## The bioinformatics industry

I am informally associated with a private 'bioinformatics' institute and I read with interest the recent editorial 'Bioinformatics: Blowing up a balloon' (*Curr. Sci.*, 2002, **82**, 1189–1190). Most of the points are well-taken. However there is another, perhaps more positive side to this affair. First, not all students who attend these institutes do so because it will get them an immediate job. Many, if not most, are grateful if only an honest attempt is made to expose them to the topic and to demystify some of the associated jargon. And, if you doubt that they are willing to pay large amounts just for this, we must remember that there is

an 'entertainment' as well as 'prestige' aspect associated with it, and people are willing to pay for this. Secondly, American commercial history, particularly, is replete with examples of 'industries' and large companies being invented almost overnight and being run in a sustained and hugely profitable manner, based apparently on nothing at all. Pepsi and Coca Cola are examples that spring immediately to the mind, but even Bill Gates and his Microsoft apparently created themselves out of thin air. Marketing is all, and maybe bioinformatics will turn out to be another such industry. And finally, even if you consider job prospects, the students

who come out of the already established teaching shops, no matter how bad, will probably find placements in the numerous colleges that are starting to offer M Sc, B Tech, M Tech, and other degrees in bioinformatics. In the short run therefore, these establishments and their students will do well. And to quote Keynes, in the long run we are all dead anyway.

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## Collection of data on microbial resources of India

India is endowed with a rich microbial diversity, which unfortunately, has not been adequately enumerated and catalogued. Many laboratories in India over the years have been working on Indian microflora, and have described new genera and species or have explored their biotechnological potentials. Data on Indian microbial resources have remained mostly with the investigators and in papers published by them. It is not known how many of them have been conserved *ex situ*. As a result, we do not have systematic information about the microbial diversity of our country.

A programme has been initiated to collect, collate and digitize data available on Indian microbial resources. The programme is supported by the Department of

Biotechnology, Government of India under the aegis of the National Bioresources Development Board. Twenty-two investigators from universities and research institutes spread over the whole country are involved in this endeavour. They will approach researchers in universities/colleges/institutes for collection of data on the microorganisms they have in their laboratories, and their published works. Data on microorganisms (bacteria, fungi, algae and viruses) will be collected in a uniform format (can be downloaded from <http://imtech.res.in/mtcc/mdiv/>).

This is a challenging but an essential task for safeguarding our national interest. We solicit active cooperation of the readers in this highly important national endeavour. It may be noted that only the

data will be collected and not the strains. You may contact any of us with your suggestions and enquiries.

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