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GUEST EDITORIAL

How to survive and excel as an academician in India

It is sad to find a bright mind go to waste. It is especially sad when such a person was/is an eager, motivated individual. Such a situation affects the whole society, and preventing it has been the goal of every educationist. There are several issues. On one hand, we need first-grade institutions, while on the other, we need teachers and mentors who can help in the development of independent thinking abilities. While building a frontline institution is time-consuming and dependent on many extraneous factors, a student can be helped by providing her/him with a 'How to do well in academia' type of book that could show her/him the path and urge her/him to develop certain skills that could prove useful later. This was the purpose of the articles that I wrote and which is now published as a book entitled *Vignettes for Success in Academia* by the Indian National Science Academy (INSA), New Delhi, and sponsored by DST and SERB. In this Guest Editorial, I briefly review the main motivation and content of the articles contained in the book.

It is widely acknowledged that the education system in India requires substantial improvement, especially in promoting critical thinking that is essential for independent, creative work. This is particularly true in higher education. Not only are the students discouraged to develop an independent and critical mind, they also get no exposure to research. In most developed countries, for example, in the US, students from the first to fifth grade learn mostly by carrying out repeated field trips and projects. They even learn to prepare project reports, certainly by the fifth grade. Although these young students are encouraged to read, they are not asked to memorize and reproduce. Book-oriented examinations that we give so much importance to in India are absent. Even in competitive examinations in India, like IIT-JEE, memorization plays a big role. It is the combination of memorizing ability and analytical skills that leads to success in such examinations. On the other hand, the students who are gifted with intelligence and thinking ability but poor memorization skill (as indeed is the oft observed combination), are left out. Additionally, while students need to be encouraged to question an idea and be argumentative within the bounds of politeness, our school and college teachers want obedience and adherence to textbooks.

The difficulty that the students face in India comes mainly from the inexperience and lack of exposure of both the students and the teachers. In particular, the students are almost completely ignorant about the modality and practicality of research, and the demand of the academic system. Even at a rudimentary level, some creativity and original thinking are essential for a good doctoral research experience and subsequent progress. In addition, our system, as widely recognized, is not student-friendly. This differs from subject to subject, but essentially the same lack of support for the students exists in different forms in all the disciplines. In Western universities when a student enters a Ph.D. programme, he/she has already acquired the basic skills (communication: oral and written), and has a fairly good idea of what is expected and what is needed.

In spite of this huge deficiency in pursuing a life in academia and research, we still find a large number of students in India opt for a lifelong academic career. Unfortunately, passion and dedication alone are insufficient. A student needs a lot of training and helpful instructions. Thus, we find that only a handful of this initial group, although many are bright with a good mind, succeed in the profession, and later manage to get a job and pursue productive research in the long term. Even a student who gets a good job (such as a faculty position in IITs or IISERs), often falters in research. Eventually, many disappear from the research scenario and fail to make any significant contribution. They turn out to be not the best teachers and guides. This could be frustrating for them as well as a large number of students. Thus, we do not have a single Indian institution within the top 100 in any ranking. This situation cannot be improved/rectified by just increasing funding.

In order to help students navigate this difficult situation, INSA has brought out the book being discussed here. The objective of this book is to make the students aware of the need for creative, independent thinking, and to prepare and motivate them towards reading and writing. Communication, in particular, is an area where Indian students have substantial limitations. Historically and culturally, writing has not been a strong point in India. Hearing from a teacher (Guru), memorizing and reciting has been in practice for ages so that Indians grew

more as vocal communicators; we did not like to write down. One was considered a good student if he/she could memorize and recite thousands of slokas (Sanskrit verses).

Rabindranath Tagore, who was also a great educationist, pointed out that we rob the child of his/her earth to teach him/her geography; of language, to teach him/her grammar; his/her hunger is for the epic; (but) he/she is supplied with chronicles of facts and dates.

When a young student starts on a research career, he/she has little knowledge or understanding of the difficulties that lie ahead, and little appreciation of the mistakes that need to be avoided. This problem is particularly acute in India where neither the school nor the undergraduate nor Master's programme prepares students for the challenges of academic life. This is sad because even with the limited resources that the society and Government invest in educating the young generation, we find a large number of bright students trying to enter the profession. Albert Einstein has mentioned that education is not the learning of facts, but the training of the mind to think.

How can students navigate the challenges in academia? Some advisory, informative, motivating suggestions and sometimes criticism follow based on real issues the present author has observed in his long career as an academician. The following aspects have been identified for consideration:

(i) The development of written and verbal communication skills is important for growing as an academician. We Indians love to talk; however, often, we do not articulate in clearly expressing complex ideas. Another point of concern is the lack of writing skill, especially in English, which fortunately or unfortunately is required more than ever in academia, and there seems to be no way out at present.

(ii) Communication skills are often neglected in Indian schools, but are needed to grow and this is best done by sharing thoughts on a regular basis. Effective, regular and meaningful communication is an integral part of any successful research career. It helps when one develops professional contacts, interacts with people in conferences, maintains humility and corresponds with professors/peers. Fruitful communication at a personal level is an important skill that can go a long way in securing a scientific career. The book strongly advises students to develop communication skills.

(iii) The importance of choosing a good thesis advisor and mentor is critical in the life-long growth of an academician. It is one of the most important decisions in a doctoral student's life. Students do not know or understand how important this decision is going to be until much later in their academic careers. A student needs certain preparedness on this and it shows certain strength of character and farsightedness. However, this is sometimes hard. In many departments in India (even abroad), a guide or supervisor is assigned to a student and he/she is not

allowed to change the guide later. While a frequent change of guide should not be encouraged, there should be an exit pathway for the students. One cannot predict the future, but can try to make the next 4–6 years that he/she is going to spend in a research group, fruitful and enjoyable.

(iv) Proper company is extremely important. One must remember that working on a thesis has a time limit, which is short. Therefore, one must try to be with other motivated hard working students and not with the lazy ones who often adopt an '11–5 in the lab' lifestyle. Many research students transform into good academics when they pair up with honest, hardworking students.

(v) While too much reading must be avoided, focused extensive reading is an absolute necessity. One should not get away with a bare minimum reading. This could be fatal in the long run. So, the book suggests 'read, read and read'.

(vi) It is always advisable to be loyal and respectful to everybody around. If a student is loyal, gracious and grateful, he/she will get good recommendation letters from the professors. This has been discussed at length in the book.

(vii) A student is always advised to be honest and trustworthy. Hardworking people are generally honest. Honesty, hard work and excellence seem to go hand-in-hand.

(viii) Developing writing skills must be the goal for all Ph.D. students. Writing is a sure way to discipline oneself and will surely help an academician lifelong. In a certain sense, it is like meditation. Writing helps in clearing up the mind and concepts. There are good and easily available books on writing like the one by W. Strunk and E. B. White (*The Elements of Style*, Macmillan, USA, 1959). Also, students must write extensively as a practice. A good writer is respected by all while a poor writer is detested, especially by his/her faculty adviser and colleagues.

(ix) In India, families play an important role in training and providing the initial guidance. This is reflected in a large number of scientists from educated and often well-known families. However, these are the lucky few. Nevertheless, given proper guidance and exposure, probably most Indian students can perform well, as they often do while studying abroad, although initial conditions continue to have a long-time influence.

A student's journey involves self-learning accompanied by self-appraisal, from failure to success. The nuances of being a dedicated scientist are covered in this book along with well-narrated examples of many great minds.

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