Indian wisdom and aging research

Recently (19 July 2005) the 25th International Conference of the International Union for the Scientific Study of Population (IUSSP) took place in the city of Tours in central France. According to an internet news item, the four-day conference involving about 2000 delegates from different fields was to discuss the demographic shock that the world is going to face in the years to come. Catherine Rollet, President of the organizing committee of the conference, referred to this demographic shock as 'grandfather boom' (although I would have preferred the word 'grandparents' boom') in the world population which will introduce a delicate balance between the working and the non-working. In the month of July 2005, the world population crossed the 6.5 billion mark. Although the rate of increase of population has decreased from 2% in the sixties to 1.2% today, the nine billion mark is expected to reach around 2050.

Out of this 9 billion people in 2050, a large chunk would be from developing countries. A significant percentage (according to my rough estimate – 10%) of this 9 billion people would be in the age bracket of 60 and above. More than 150 million of this global aging population will be from India. This global aging is likely to bring up peculiar challenges including the national budgets for aged, health care problems, retirement policies, utilization of the elderly and social management of the aged.

Advanced countries sensed this imminent 'grandparents' boom' almost 50 years ago and launched measures to alleviate the pressures that this demographic change could bring in. The reasons for the expected demographic shift were looked into. It was obvious that reduction in the infant mortality coupled with improved nutrition and health care, resulting from the fruits of medical and biological research, are the reasons. It would be unwise and even uncivilized to make any effort to reverse these achievements. On the other hand emphasis was turned to see why we become 'old' and what is the molecular mechanism(s) of this undesirable but fascinating process. Would it be possible to modulate/control this process? The science of getting 'old' was born with a bang. Separate institutes and centers were created both from philanthropic and governmental initiatives to understand the science of aging and age-associated debilities as well as to formulate innovative and humane management of elderly. Above all, to examine how to prolong the 'health span' of aging populations and convert them into a national asset. Today aging is one of the thrust areas of research in almost all the developed nations and many others are following suit.

Independent India is less than 60 years old. At the time of independence, the average life expectancy in India was around 40 years. Clearly old age was not a problem to worry about. On the other hand, the average life expectancy of an Indian today is reported to be around 61 years and this figure is fast improving. Never before have so many people lived for so many years – thanks to the amazing progress made in medical and biological research. As such, today India has nearly 100 million people over sixty and this number is expected to go up to 117 million in 2010 and further up in the years to come (Registrar General of India and National Commission on population, 1996; http:/populationcommission.nic.in). As already mentioned above, it is projected that there will be more than 150 million people above 60 years of age by 2050. This changed demographic profile is likely to exert immense pressure on the Government and the people themselves in many ways that are being experienced by the nation today as a result of mere increase in the population, not to talk about the bulging portion of the aged population.

Yet India does not seem to show any urgent concern about the fast-changing demography. A learned friend of mine attributed this to ancient 'Indian wisdom'. The Indian subcontinent represents one of the oldest civilizations on our planet. Indian ethos considers birth and death as an inevitable cycle of living beings in their march to avoid that cycle and attain a state devoid of any birth and death, the *moksha*. However, this premise is unacceptable for more than one reason. Even ancient India had developed medical systems to rejuvenate the health of individuals. Modern India has at least tried hard to control the rapid growth of its population through scientific methods. Modern India is supporting even subjects like fashion technology in order to be in line with developed nations. Therefore there is no reason to suspect that India will not do anything to achieve 'quality aging' for its aging population so that this wise section of the population could be converted into an asset – a wisdom resource. There is need for launching initiatives to promote research in basic aspects of aging process as well as applied research to innovate scientific methodology to manage elderly people. So far Indian Council of Medical Research is the only organization that has taken at least a minor initiative to promote aging research. A much bigger initiative from different quarters is needed if India has to escape the demographic shock mentioned above.

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Spirit of *bushido*

Japan, a small country with a population less than that of Bihar, is the most powerful economic nation in the world. What has gone wrong with India? Is the 'kill' missing? The cultural heritage of Japan depicts elevation through bravery, honour and loyalty; duty and courage go hand in hand with skills and willpower. Rising from the ashes of defeat, the industrial edifice of Japan signifies the spirit of *bushido* – meaning, the way of the warrior. When viewed in terms of achievements by Indian manpower in science and technology, a disappointing picture exists[1]. Our visionaries of science and technology apparently were carried away by pre-independence patriotic fervor. The peers, after prolonged thought-provoking sessions, came up with

a dichotomy – establishing R&D institutions for research and universities for higher education. The former supposedly cater to the research and development sector ultimately aiming at technology transfer to the industrial wing. When we do a serious introspection, neither the universities nor the research laboratories have succeeded in producing quality researchers/scientists/technologists. Only quality education[2] with high intellectual inputs can produce excellent youngsters to serve the country in testing situations. Further, universities have an added advantage of freedom to pursue subjects of academic interest and also advanced courses relevant to societal needs. The recent discussions on deemed university status[3] to national laboratories further necessitate a rethinking on our ability to formulate need-based framework for university/R&D areas. No doubt universities are considered to be temples of learning and their main objective is to produce 'qualified' students to be absorbed in mainstream of science and technology. Mere imparting degrees cannot make excellent manpower. It is high time national laboratories too adapt to changing realities and reorient their programs to fit into the much talked about patent regime[4]. There is absolutely no harm if research laboratories are given deemed university status, since every laboratory has its own framework of specialities. Suitable manpower can be moulded within these organizations, after youngsters qualify from universities. Let there be competition for excellence both at universities and at R&D laboratories. Let us remember Japan's story and acquire the spirit of *bushido*.

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2. Raghuram, N., *Curr. Sci.*, 2005, **89**, 21–22.
3. Balaram, P., *Curr. Sci.*, 2005, **88**, 529–530.
4. Shukla, B. D., *Curr. Sci.*, 2005, **88**, 1553–1561.

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Plagiarism: A librarian's view

I read the editorial[1] on plagiarism and agree with the concerns. Increasing number of articles are appearing in scientific journals presenting varying opinions on the topic. Opinions run from outrage at student offenders to pointing fingers at faculty members, who fail to create plagiarism-proof assignments[2]. One also reads about controversial new methods for deterring and detecting plagiarism; most notable, online plagiarism detection systems are: *My Drop box* and *Turnitin.com*. At present, there are no foolproof tools/techniques available to detect plagiarism but efforts are being made in this direction and here librarians may play a vital role.

Although *per se*, scientific research should be repeatable and respectable, there is no mechanism to verify validity of research and experiments. Librarians have to play a major role even to help reviewers take right decisions to detect/to avoid/minimize plagiarism, as librarians are used to such skills to retrieve a piece of information from the ocean of knowledge.

Most of Ph D works remain unpublished due to various reasons. It is difficult to detect plagiarism, when senior researchers make research proposals modifying substantial portion of data/text, which are taken verbatim from these unpublished sources.

Scientific cyber-plagiarism has increased multifold thanks to cut and paste technology. It is common practice, especially when a senior scientist has to deliver his lecture during important meetings/conferences and has no data; but slides of his interest are available on Internet.

As librarians, we know that detection is not the main objective in a campaign against plagiarism. Rather, research organizations should concentrate on educating students and their scientific and technical staff as to what constitutes plagiarism and how to avoid it[2]. There are some information officers/librarians who directly and/or indirectly deal with publication of works. They can offer their services to faculty to help them solve some of their plagiarism problems. Librarians may be assigned the work to check proper references and match with full text in case of suspicious text. They may also be asked to suggest, if one is not very sure, how to acknowledge the sources.

If librarians are given an opportunity to play a new role (by using various tricks/techniques) to detect plagiarism to enable reviewers prevent such unethical practices, it will be a new initiative to minimize plagiarism. The librarian can take the help of search engines to make it easy for instructors to find web sites that are used for plagiarized material. It is true, that they cannot prevent plagiarism but can reduce plagiarism.

The easiest method to avoid being accused of plagiarism is to include everything that one uses in an article/book in the list of references. In this way, one acknowledges that one is using ideas and words of others and giving these people credit for their work. However, citing the works that one uses in one's paper is not enough on its own, all the time. If one quotes words of someone else, be it a paragraph/a few words, one must put quotation marks around what he quotes. This lets the reader know that the author did not write the material in that part of paper. In case of copying graphs and figures, sources must be cited with permission, if need be. If one paraphrases someone else's writing, he or she must give credit to the original author[3].

It is not justified to turn in an article that someone else has written either, even if they have been given permission to do so. This is called *collusion* and it is still plagiarism. Another area that is plagiarism, is using translated material and passing it as one's own work. It is expected that one gives proper credit to the author of the work that one has translated.

The best way to avoid plagiarism is simply to write one's own papers using one's own data and words.

1. Balaram, P., *Curr. Sci.*, 2005, **88**, 1353–1354.
2. Burke Margaret, *Lib. Philos. Prac.*, 2004, **6**, 1–7.
3. Lorenzen Michael. http:/personal.cmich.eduloren 1 mg/plagiarism.html.

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