Research and teaching or research versus teaching?

A number of write-ups on the issues related to the research institutes and laboratories turning into deemed universities[1,2] have been appearing in *Current Science* for quite sometime. These have brought out some interesting aspects of our university education system *vis-à-vis* the research institutes to the fore.

The shifting of focus of research activities from university system to the research institutes has many reasons and whether this has been a positive move for the academic scenario of the country is another debate. However this concept of deemed university actually completes the process of delinking the university and institutes as far as the research activities are concerned.

However, it appears, different scientific research institutes desirous to have the deemed university status, want to take up teaching as well. Is it because of the fact that our university system now does not provide them with the type of students they want? Or have they lost faith in the university system? We shall be reaching a time soon to take stock of the situation that has emerged. The only silver lining in this transformation appears in the fact that the research institutes have a possibility to get more research-oriented scholars right from among the students who have joined their PG programmes, maybe their integrated Ph D programmes[3].

But at the same time there are some arguments that go against this. It has to be kept in mind that, with not so broad-based and may be somewhat skewed PG training, these students may not fit well into the other system like college or high school teaching, if some of them need to opt for those jobs. Even in the university system, if a branch of specialization is not a hot one, the product from the institute may find it difficult to fit into the system as well.

In the areas of humanities and social sciences significant volume of research work is still university-based. One of the reasons for this may be that the number of state-funded research institutes in those fields is still not comparable with that in different branches of science. Moreover, research in humanities is by and large an individual endeavour with less teamwork; contributions to academic journals come from individuals.

Interestingly, the National Assessment and Accreditation Council (NAAC) that evaluates the overall standard and performance of the colleges all over India and awards grades has made continuation of research work and regular publication by the college teachers an important yardstick in the process of evaluation. Teachers feel that the classroom performance of a teacher is not getting adequate importance in the process of evaluation by the NAAC. The science teachers of different disciplines are actually in a difficult situation in this regard as they cannot do research and come out with publications, whatever the quality may be, just by sitting in their colleges. This forced act of emulating the researchers by an otherwise keen and successful teacher is neither good for research nor good for teaching. Incidentally scientists are either pushed to or are showing interest in classroom teaching while the teachers are asked to come out of the classroom and do research work and publish to procure better grades for the respective colleges, and maybe for themselves from the NAAC. This really looks like a contradictory situation. Does it not?

1. Lakhotia, S. C., *Curr. Sci.*, 2005, **89**, 1303–1304.
2. Nadkarni, V. B., *Curr. Sci.*, 2006, **90**, 617.
3. Rajanikanth, A., *Curr. Sci.*, 2006, **90**, 1455.

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Petty patents

For a country that intends to advance technologically, socially and economically or is in the stage of advancement, importance of innovation and bringing those innovations to markets for the benefit of society cannot be overlooked. It is necessary to provide benefits to the innovators for their intellectual capacity and encourage them to further advance these innovations. This aim is achieved by implementation of patents and other intellectual property rights that provide exclusive rights to innovators to commercialize their products. But in order to benefit from the innovation, the innovators are prone to misuse the rights provided to them. The length of patent protection is considered one of the major constraints for bolstering innovation as during these terms other persons are barred to work on the product patented. This practice, thus, at some stage of technological development of a country hampers creativity. So what could be the alternative that fosters creativity and at the same time gives chance to other innovators to work around the patent and make minor amendments in already existing patent? The answer may lie with the system of granting 'petty patent' or sometimes called as 'utility models'. As the patent term is of twenty years, it is likely that a patent holder will abstain all other innovators to work around his patent. This application will be a hindrance for technological advancement and may become economically burdensome to society at large in the longer term. The 'petty patent' or 'utility model' system may help to reduce this economic burden to society where a person is free to 'work around' a patent. Various developed countries had adopted the 'petty patent' system parallel to normal patent system at one or other point of time in achieving their aim of becoming technologically advanced. Certain developing countries also encourage 'petty patent' or 'utility model' system to remove barriers and encourage minor innovations to already existing products. According to the Commission on Intellectual Property Rights, countries like Germany, Japan, some East Asian countries including China, gave more importance to 'petty patents' or 'utility models' than normal patent protection during their developmental stage. Granting of petty patents was limited for minor in-

ventions, easy to obtain and were needed to be registered rather than examined. These would again save cost and time of cumbersome procedure of examination of patent application. In addition, petty patents were granted for a very short duration of three years[1], compared to twenty years of normal patent protection. The arguments given in favour of petty patents seem plausible as this system would curtail the practice of 'ever greening' of patents especially in certain fields like pharmaceuticals where patents are granted for minor modification in colour, shape, size of the dosage form. This eventually leads to economic burden on society, as people have to pay for higher prices of medicines for a longer duration even after the patent has expired on the original molecule. India at no particular point of time seems to have adopted 'petty patent' procedure. India is on the threshold of emerging as an economically and technologically developed nation. But implementation of TRIPS agreement with effect from 1 January 2005 may become a detrimental factor due to prohibitive cost of R&D and lack of preparedness to acknowledge TRIPS requirements by Indian researchers. From the above discussion we can say that adoption of 'petty patent' within the Patents Act of India will boost the researchers for progress of science and 'work around' existing patents to bring novel innovations to the market. Further, TRIPS agreement does not prevent member countries from enacting laws that are best suited to the needs of the country, depending on stage of country's growth and development, and in no way grant of 'petty patents' in India would be TRIPS plus requirement but act only as a facilitator to the scientific community across the country. Thus, provision of granting 'petty patents' may act as a boon to Indian researchers.

1. Report submitted to Government of UK by Commission on Intellectual Property Rights, accessed at http://www.iprcommission.org/papers/pdfs/final_report/ciprfullfinal.pdf (accessed on 13–11–2005).

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Order of authorship

Authorship is an important ethical facet of scientific research publication. Unfortunately though, unethical and unjustified authorship practices have increased in recent years mainly due to the inadvertent pressure exerted by academia. The contribution of authors to multiauthored scientific research manuscripts is under scrupulous scrutiny and debate than ever before. Mendki's[1] correspondence about 'authorship criteria for maintaining healthy culture of research publications' has prompted us to write about an aspect of journal publishing, i.e. the order of authorship or authorship position in multiauthored research manuscripts that has bewildered us in the recent past.

In publishing scientific research, the credibility of the authors must be considered[2]. Mendki[1] states that in basic sciences, equal importance is given to the first and the last author, the last-listed author being the research supervisor or the senior scientist. A revolution in this malignant attitude of glorifying the last-listed author for being the senior scientist is needed. The order of authorship in multiauthored manuscripts should be based on the number and weightage of intellectual contributions made by each author[2]. The authorship position should be listed in a descending order of intellectual contribution[2]. Readers should appropriately interpret the order of authorship as a consistent hierarchy indicating the degree of individual contribution[2]. The senior scientist should be considered in a way similar to the other potential authors of a multiauthored manuscript in crediting authorship and regarding authorship position. Authorship should be earned and not gifted. It is often tempting but harder to turndown unjustified authorship to a senior scientist or department chair whom the research scholar or junior colleague would not want to antagonize[3]. No wonder, these days, one can easily find senior scientists having more than 10 research publications in a year even without genuinely contributing to scientific research[4]. As rightly highlighted by Rajendran[5], the major impediment to scientific research output in India is the culture of respecting authority and hierarchy which dominates Indian science and society. The persistent effort to abide by our country's overpowering tradition that seniority triumphs over contribution is a major hindrance to India's scientific research progress. A potential author, including the senior scientist, who does not meet the requirements for authorship, should be rather recognized by acknowledgement and not awarded with authorship. Authorship should be credited on intellectual contribution rather than seniority in the department, as those who contribute more deserve a distinct recognition. In India, 'debureaucratization of science'[6] is the need of the hour if we really intend to compete with other countries.

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4. Akhila, A., *Curr. Sci.*, 2006, **90**, 143.
5. Rajendran, C. P., *Nature*, 2004, **249**, 501.
6. Balaram, P., *Curr. Sci.*, 2004, **86**, 755–756.

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