

Evaluation of publications – Role of impact factor

I would like to express my views on the editorial (*Curr. Sci.*, 2000, **78**, 1177–1178) regarding evaluation of scientists according to the citation number of their publication and impact factor of the journal in which the publication appears.

I still feel that the impact factor of the journal where they publish their work is the best way of evaluating scientists.

Even though the citation of an average paper in high impact factor journals is below the average impact factor of that journal, it could be far above the citation of an article that is above the average of a low impact factor journal. If we use a common yardstick to evaluate these publications, we could see that an average article in a journal with a high impact factor will be far better than that

in a journal with low impact factor, both in quality and elegance in execution.

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Optimal publication lists

The editorial on 'The impact of publication lists' raises issues central to the quality of science and to its dissemination¹. When I was doing my post-doctoral work three decades ago with Robert J. Levine at Yale Medical School, he taught me a lesson when he said, 'Ashok, in Clinical Pharmacology we run the risk of over publication! Hence we have got to be careful. As a general guideline, our published work has to be one-third of what we've actually done'. I liked the idea, more due to my laziness to pick up the pen. But, in India, this has often been a handicap. Several 'senior' Indian scientists, with their horde of assistants and students write a prolific number of papers, with

often minor variations on the theme or the problem. In their deluge, as Balamram hints¹, the original papers are 'forgotten' and 'little clubs of scientists who cite one another but exclude other relevant work, spring up and prosper'.

Some of the outstanding Indian contributions in life sciences and medical research have not received adequate citation and recognition. These pioneers were innovators, who had lesser skills in the politics of research. Table 1 lists some of these contributions, which often were published in Indian journals of supposedly 'low impact value', but made major impacts (sometimes unrecognized) globally. It is the discerning eye of an alert editor that may bring

to light such unsung heroes of Indian science; the Anglo-Saxon dominance in scientific papers has often done injustice to the contributions from the developing world.

The immense contributions of Indian physicians, scientists and 'vaidyas' from Ayurveda and on medicinal plants have been given scant attention in the current 'molecular biology dominant' paradigm of science. There have been rare voices of appreciation; Davis² stated, 'The human condition has been enhanced considerably by those biochemists and pharmacologists who have applied the scientific method to probe ancient myths and legends. For example, the mystical powers of the snake-root plant of India, either ignored or ridiculed by scientists for decades, were dispelled with the isolation and identification of its active alkaloid...'

Another major forgotten resource for the quest of biodynamic substances is the large number of books/manuscripts in Ayurveda, Unani, Siddha, etc. in Sanskrit and local languages, that exist all over India. Recently, the Department of Biotechnology has initiated some efforts to get these translated into English, permitting critical review for their research potential. As John Milton mentioned, 'Books are not absolutely dead things, but do contain a potency of life in them to be as active as that soul whose progeny they are; nay they do presence, as in a vial, the purest efficacy and extinction of that living intellect that bred them'. Books on medicinal plants by Desai³, Pade⁴, Jaikrishna Indrajy⁵,

Table 1. Some major research contributions from India in life sciences

Contribution	Impact	Author
<i>Rauwolfia serpentina</i>	Biology of hypertension Major tranquilizers L-dopa for Parkinson's disease Amine-basis for depression	Siddiqui and Siddiqui ⁶ Sen and Bose ⁷ Chopra <i>et al.</i> ⁸
R-37, triazine diuretics	Triamterene – a diuretic Potassium sparing	Mehta, <i>et al.</i> ⁹
Salt-free diet in peptic ulcer	Proton-pump inhibitors	Kothari <i>et al.</i> ¹⁰
Pituitary tumour regression	Control of prolactin secretion	Vaidya <i>et al.</i> ¹¹
Antistress activity: <i>Ocimum sanctum</i>	Adaptogen activity of plants	Bhargava and Singh ¹²
Anti Parkinsonism activity of <i>Mucuna pruriens</i>	Prophylaxis of Parkinson's disease	Vaidya <i>et al.</i> ¹³
Hepatoprotective activity of <i>Picrorrhiza kurroa</i>	New liver-protective molecules	Pandey and Chaturvedi ¹⁴
Hypocholesterolemic effects of <i>Allium sativum</i>	Plants as anti-athero-sclerotic agent	Bordia <i>et al.</i> ¹⁵

etc. though hardly cited, are major research resources for life sciences. Innumerable remedies are waiting to be pharmacologically investigated and developed; molecular phytopharmacology is emerging globally as a major discipline.

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On the quality of students' seminars: The singer or the song?

While discussing the syllabus for M Sc degree the need most often expressed relates to being scientific or how to teach students to be scientific. Various ideas are explored; the two major ideas being presentation of research papers and courses on scientific writing and/or scientific method (We have given up the latter since, over the years these courses had no discernible impact whatsoever on the students). Here I narrate briefly some intensive discussions about seminars with the students and faculty. Something needs to be said about the purpose of these seminars, which is so obvious that it appears to be the least understood. It relates to the fact that *it is a group activity*. (Whatever has been said here is of equal relevance to research seminars and symposia as well. That a seminar is primarily a group activity which dictates its own ethos and purpose has been, by and large, ignored. Dilute meetings are a direct consequence of a heavy dose of non-serious and trivial science.)

A seminar course with 3–4 seminars per student in a batch of some 15 students was conducted last year and I evaluated the course. Opinions ranged from the course being useless to it being excellent. The seminar course was considered to be useful because some students had mentioned that it helped them to improve their final presentation. One or two students who performed very poorly the first time did better in subse-

quent seminars. Other than the anecdotal, there is no other means by which we could consider the course useful or not. The marks were normative: the students agreed that there was wide variation in the talks, but the marks (wherein students also participated for daily assessment) remained nearly the same for most students.

The students had the following reasons (of decreasing importance) as to why a seminar is necessary: (i) to share knowledge; (ii) to clarify doubts; (iii) to seek clarifications from teachers, postdocs, etc.; (iv) as a better way of learning rather than from classes alone; (v) to learn to be scientific in a practical way.

The postdocs who help in teaching reacted very much in the same manner. Both the students and postdocs agreed to a hierarchy of knowledge: teachers > postdocs > students, etc. All agreed that discussions are good.

Then came the turn for searching questions. Has the course served the overall purpose? The best answer we received was that the students would have done much worse had the course not been there. The postdocs helping with the course were emphatic that it was useful. Then they were asked: 'How many students actually participated in the discussions if these are indeed good?' Apparently less than 10% of the talks had any significant discussion. So we are confronted with a course in which discussions were good and they

learnt a lot and yet not more than 10% of the talks had any discussion at all and not even one presentation was shot down logically or for its presentation. This lack of participation included those who were supervising too.

The focal question soon developed. *If one person talked and twenty listened, what is the role of these twenty people?* The first answer was that they learn. If they were to learn, would they not do so by taking a xerox copy of the paper and reading it? Why listen? In fact neither the faculty nor the students were clear as to why one should listen to research papers. It is not a ritual offered at all meetings? What is the role of the listeners?

It then became clear to the students that personal reading is superior to mass listening if one wants to master details. The students were quite confused as to what they should discuss and why. So were the faculty. The dilemma started as follows. Who selects the paper? The students mostly argued that they need to choose their own. Doubts began to surface as some students argued that there is no point in their selecting a paper: if it is for a presentation which does not have sharing of knowledge as the *primary* purpose, to what end do they select a paper? The common idea was that the occasional doubts expressed by the students were to be clarified by the omniscient faculty/postdoc combine so that clear minds simply walk away into the