

Improving physics education in the country needs joint efforts

I agree with most of the points mentioned by Srinivasan¹ in his guest editorial. With such a long teaching experience Srinivasan has highlighted many important issues before the stakeholders regarding physics education in the country. I would like to share some of my views.

In their eagerness to update the physics curriculum periodically, academic bodies in universities have made changes in the curriculum based on the cut-and-paste model without giving any thought to building a firm foundation in basic physics. Changes are being done just for the sake of doing so or to present them before committees like NAAC. The question is: should it be done so frequently to fill certain columns in some format? Before one is able to see the effect of changes through teaching at least for one batch of students, it is again changed and the result is rather a state of confusion amongst many concerned, which leads to serious issues even during examinations. With quick transition from the annual to the semester system with choice-based credit system (CBCS) things are moving very fast so that it is difficult to keep pace in a justified manner.

To improve education in physics, the most basic requirement is an improvement in the quality of teachers. I will like

to add that the existing teachers should get involved with the Science Academies, Homi Bhabha Centre for Science Education (HBCSE) and IISER, which may play an important role in this direction. Better coordination among these may definitely lead towards a positive change.

A teacher once appointed should be evaluated periodically. This should be done both by the students and by a group of peers. Students are the best judge and the process of taking feedback from students should be made compulsory. Though this point has been given consideration in academic performance indicators (developed by UGC), it needs further emphasis.

There should be an audit of the performance of Academic Staff Colleges to see how the courses conducted by them have improved the quality of teaching. I would like to add that the programmes should only be approved in such disciplines in which the concerned academic staff has the capacity to invite experts, and not in all disciplines just to complete the quorum.

A committee of knowledgeable physicists should plan model curricula for all courses starting from the PUC up to M Sc level. If UGC has already proposed a model syllabus, is there a need for

another committee of knowledgeable physicists? Recently, draft for CBCS has been projected with another model syllabus. The system seems to have been introduced in a hurry to apply the changes.

Autonomy has been given to select colleges of repute to frame their own syllabus and conduct their own examinations. But it is disappointing that many such colleges have not used this autonomy effectively. I feel that the reasons for not using autonomy should be pointed out and it should be made clear whether autonomy really exists in the real sense in many cases.

An improvement of laboratory programmes at the B Sc and M Sc levels is an urgent need. Again, I will like to add that Science Academies, HBCSE and IISERs can play a role to integrate the nationwide efforts to bring necessary changes through the existing faculties.

1. Srinivasan, R., *Curr. Sci.*, 2015, **108**, 1771–1772.

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Are national level conferences ‘end of season sales’?

If you are a researcher or a postgraduate student, then you are likely to see invitations hanging on the notice boards to participate in a conference/symposium/workshop throughout the year. This is also seasonal and reaches its peak post-winter. Originally and still we believe that these academic gatherings are organized to exchange research ideas and results on specific themes. Balaram¹ had highlighted the role of conferences and meetings, seminars and symposia, congress and conventions on the development of science. He had also raised concerns about the proliferation of conferences without meaningful discussions.

Now only a few institutions and organizers are conducting these events well and to achieve the true purpose. Most have become ‘customary events’ lacking the flavour of scientific values; ironically, the only purpose is to use the money from the funding agencies before the completion of the financial year. This almost resembles the ‘end of season sale’ of junk commodities at cheaper price. It is not uncommon to see catchy posters about conferences boasting about emerging, recent and modern trends. The topics are ‘immature’ for scientific discussions and the volume does not provoke innovation. It is no longer shocking to see a

slide presented which is ‘resourced from the internet’. Most of the times experts on the topics are absent, especially in discussion forums arranged internally by institutions. Let us all begin a fresh, unbiased conversation on the possible solutions to this problem as our silence will only worsen the imbroglio. A healthy discussion will help save the tax-payers’ money and also to reclaim the legacy of mindful academic gatherings.

Majority of the ‘end of season’ conferences are organized at very short notice and similar themes are launched under different names in the same period. Often, the organizers seek the help of

locally available non-experts, when they are not able to hold eminent scientists or scholars. Most of the topics for such 'end of season' conferences are in the emerging areas of a discipline and the number of experts on such topics in the region may not be sufficient.

The organizers run from 'pillar to post' to collect the required number of abstracts for such events. In the current scenario, the scientific findings which are not good enough to be published in peer-reviewed journals are being submitted to such gatherings. Pathetically, in some institutions a few faculty are assigned to 'patrol' the conference hall to maintain 'a crowd'. The recent developments (downloaded from the websites) on advanced topics may be difficult for undergraduate students to understand. Some students attend conferences to get a certificate of participation. Such certificates do not discriminate the students who actually participated to seek knowl-

edge. The conferences conclude with a 'vote of thanks' to the funding agencies and special dignitaries with no meaningful discussions.

We only have to question the quality here and need not have second thoughts about the importance of these events. The following points may be useful: (i) Select topics which are familiar to the host institution and also motivate the researchers and students. (ii) Create avenues to use the expertise of the keynote/inaugural speaker for constructive reviews on the topics. (iii) Prepare the schedule well in advance. (iv) Get acknowledgement from the experts before finalizing the dates. (v) Build confidence to ensure that the forthcoming event has moral responsibilities. (vi) The hand-outs need to be given at least for the inaugural, keynote and valedictory addresses. (vii) Recommend certain ideas to the relevant policy makers in the end of the conference.

The scientific gatherings should be arranged with sufficient planning and thought. This starts from the selection of topics. Unsuitable topics lead to lesser number abstracts and results in the inclusion of irrelevant/non-innovative abstracts without any scientific value. More focused scientific discussions are the need of the hour. National-level debates on organizing meaningful conferences/symposiums/workshops are also required.

1. Balaram, P., *Curr. Sci.*, 2003, **85**, 1649–1650.

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India's contribution in the journal *Nature*

Nature, an interdisciplinary scientific journal, is one of the world's most reputed journals. It has been ranked the world's most cited scientific journal by the Science Edition of 2014 *Journal Citation Reports*, and is widely regarded as one of the few remaining academic journals that publish original research across a wide range of scientific fields¹. Academic Ranking of World Universities considers papers specifically published in *Nature* as a criterion for its world rankings. In 2009, *Nature* was named as the 'journal of the century' by the Bio-Medical and Life Sciences Division (DBIO) of the Special Libraries Association (SLA), USA². Needless to say, having a paper published in *Nature* is considered prestigious. The present study aims to show India's output in this journal.

In 2012, Mahesh³ had reported that there were 572 papers from India in *Nature* during 1945–2012. We also used *Web of Science (WoS)* and found about 600 records as on 1 October 2015 since 1945, published from India in *Nature*. However, going through some late 1940 issues of *Nature*, we serendipitously found that there were a number of

Table 1. Decadal output of papers

Time period	Searchable papers in the <i>Web of Science</i>	Papers from manual search	No. of collaborating countries	Papers in all NPG* journals, excluding <i>Nature</i>
1948–1954	0	400	7	0
1955–1964	0	726	7	0
1965–1974	32	357	5	23
1975–1984		204	7	106
1985–1994		150	23	303
1995–2004		105	26	502
2005–2014		95	77	1511

*Nature Publishing Group.

Table 2. Institution-wise ranking

Institutions	Papers
Council of Scientific and Industrial Research	190
Tata Institute of Fundamental Research	155
Indian Institute of Science	119
University of Calcutta	80
University of Delhi	71
Indian Agricultural Research Institute	60
Physical Research Laboratory	60
Banaras Hindu University	59
Panjab University	44
University of Madras	39