

## Measures of progress in science and technology

There is no doubt that India has done well in its space programme and is striving hard to achieve success in its Moon mission. Sometimes it is a puzzle that science in India is advanced and yet seems unreachable to the common man. Common people enjoy the benefits of space programme, for example when people communicate easily on mobile phones, when using internet and when watching international programmes on TV. The scientific community in India is large but the genuine active workers are few and one may wonder how much this small community is benefitted by the space programme. The Department of Space (DOS) is launching a series of remote sensing satellites and the data are being collected. These data should be provided to small active workers. DOS must also motivate young people working in Universities and various academic institutions to utilize such huge amount of data. An account of publications in the *SCI* journals based on Indian remote sensing data will be an eye opener!

Chidambaram<sup>1</sup> in his recent article has argued that the cause for stagnancy in the number of research publications from India seems related to the fact that talented and bright young students have not been opting for careers in science in recent years. He has pointed out that India is involved in other kinds of research and technology developments, e.g. mission-oriented, industry-oriented, country-specific progress

related to Indian patenting activity on agricultural and rural development. Majority of us do not agree when we see deteriorating research environment in the Indian universities and lack of accountability of scientific output by the funding agencies' sponsoring research projects. These agencies never took into account the quality or quantity of research publications in supporting research projects and as a result scientists lose interest in publishing their papers in *SCI* journals, which is the main cause of declining output. The other drawback is also the promotional policy in the Indian universities and IITs; not much weightage is given to the quality of publications and once a person reaches higher positions, there is no incentive for publishing quality work.

Recently, Rajendran<sup>2</sup> has pointed out that the biggest impediment in India and China is the culture of respecting authority and hierarchy which dominates Indian science and society. The scientific community in India follows and respects its seniors so much that old traditions continue and old peoples' opinions dominate. India being a democratic country, everyone has the liberty to speak out. However the views, depending upon the number game, prevail since majority of people align with the views coming from the top and as a result there are always two groups that become an impediment. In contrast, in China, there is no second opinion and majority of

people accept the decision taken at the top. There is no doubt that China is doing better than India which is recently mentioned by King<sup>3</sup> based on their scientific output. Scientists from China are now making efforts to publish their research work in the *SCI* journals and the universities and funding agencies give serious consideration to *SCI* publications when they consider promotion of scientists and faculty members. China is attracting many Indian post-doctoral fellows; I wonder if in our country we have any post-doctoral fellow from China.

India has to bring changes in evaluating progress of their scientists and faculty members in academic institutions while awarding research projects, and while giving awards, rewards and fellowships of Academies and consider the quality of publications if we really want to compete with other countries.

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1. Chidambaram, R., *Curr. Sci.*, 2005, **88**, 856.
  2. Rajendran, C. P., *Nature*, 2004, **429**, 501.
  3. King, D. A., *Nature*, 2004, **430**, 311.
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## On spoken English in educational institutions

Balaram, in his characteristic brilliant English<sup>1</sup>, has lamented the poor state of written English in scientific writing, with special reference to Ph D theses. Like Balaram, I have also worked, for more than 35 years, in an all-India institution and have corrected a large number of Masters and doctoral theses. In addition, and unlike Balaram, I have also interacted with a very large number of undergraduate students who come from all parts of the country and are considered to be the cream of the school-leaving population. The variety of English – written as well as spoken – that I have come across is

truly fascinating, amusing and also, many a times, distressing. While Balaram focused on written English, I would like to present some examples of how students (and some faculty also!) distort the language in spoken English.

Most of our undergraduate students, as is well known, have the ambition of getting a reasonably good degree from IIT and then going over to USA, presumably for higher studies. They, therefore, are very eager to align themselves with the American ways as much as possible and as quickly as possible. This is reflected in many ways in their lifestyle, particularly in the

way they dress, the way they speak English, the way they mould their taste of music and the way they interact with students of the opposite sex. In speaking English, some of them even develop, consciously, a nasal voice with accents, pronunciations and mannerisms similar to those of Americans, thanks to Hollywood movies. Some of them think speaking fast would help a fast alignment with the Americans; consequently, they speak so fast that it becomes very difficult to follow what they are saying, despite my experience of teaching in a couple of American Universities. Use of mannerisms

like 'jeee', 'you know', 'aaha', 'oohoo', 'yeah', etc. and slang, some of which are unprintable, are indeed very common in the vocabulary of a large number of students, particularly those coming from a public school background.

Amongst the postgraduate students, the distortions in spoken English are of a different nature. Most of this population comes from non-IIT institutions which do not have an all-India character. Consequently, strong regional influence can be clearly observed in the way they speak English. For example, pronunciations of 'circuit' as 'sarquit', 'this' as 'thish', 'so' as 'sho', 'Pankaj' as 'Ponkoj', 'father' as 'fother', 'computer' as 'computor', 'teacher' as 'teesar', 'is' as 'iz', 'government' as 'gornment', 'secretary' as 'sectary', 'mess' as 'mesh', 'pradesh' as 'pradess', 'market' as 'markeet', 'academic' as 'eggademic', 'flag' as 'fleg', 'banner' as 'benner', 'statistics' as 'estatistics', 'developed' as 'delapd'

or 'developepyd', 'problem' as 'prublem' or 'prohlem', 'h' as 'haich', 'focusing' as 'foksing', 'digital' as 'distal', 'digitized' as 'distized', 'example' as 'ekzample', 'basic' as 'besic', 'Tungsten' as 'Tungasten', 'state' as 'estate' or 'astate', and 'collective' as 'klective' are rather common among students from different regions of the country. Also, mannerisms like 'like', 'this thing', 'that thing', and 'thing is that' are also quite common.

Besides pronunciation and mannerisms, wrong usages like 'I could not able to', 'I want ask a question that', 'I shall be short' instead of 'I shall be brief', 'I passed away' instead of 'I passed out', and 'very less' in place of 'very little' are not uncommon either.

I would not like to go into the root causes of this phenomenon, but I would strongly urge the academics responsible for formulating School/College curriculum to pay some attention to effective teaching

of written and spoken English, which can perhaps claim to be the only international language in the true sense of the term.

Listening to various distortions in spoken English, in addition to seeing incorrect/improper English in students' write-up, reminds me of the legendary Professor Higgins of 'My Fair Lady' fame saying, in desperation, to Colonel Pickering: 'Isn't this cold blooded murder of the English language?'

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1. Balaram, P., *Curr. Sci.*, 2005, **88**, 205–206.

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## Science communication

The editorial in *Current Science*<sup>1</sup> is indeed thought provoking. However, the issues it raises deserve closer scrutiny and more analysis.

The overall impression that the editorial creates is that the problems of scientific writing in India are *mainly attributable* to lack of proficiency in English. My experience has been different. All too often I face the daunting task of improving a very poorly written scientific paper – even when the author happens to be able to write excellent English.

Scientific writing has to meet four different types of criteria.

(i) Language, grammar and clarity: These require facility with the English language. Fortunately, these can be taken care of by scanning the text, one or two sentences at a time. There is, of course, a problem if bad English obscures or even distorts the author's original intent.

(ii) Format, style and consistency: One has to be careful with respect to the systems of units to be used, conventions to be followed for citing references and so on. There are clearly established and easy to

follow conventions. This is important, but not a *major* problem. It has been my experience that a well trained technical typist is able to take care of these.

(iii) Structure: There are fairly well-established practices regarding how a paper ought to be structured – even the titles of individual sections are fairly standard. One cannot just say 'Begin at the beginning and go on till you come to the end: then stop'. One can either follow instructions (such as those by Oliver) or learn from numerous examples of well written scientific papers. It is quite difficult for a third person to take care of these, in an already prepared write up, because often restructuring involves global changes; one may have to rewrite practically the entire document.

(iv) Content and presentation: Not infrequently, a paper is bad not so much because the author is unable to express himself but because of a much deeper problem. He is not very clear about what he has really accomplished; he lacks the maturity and objectivity to judge the merit and status – even the relevance – of his work in the overall perspective. Things get to be very

difficult if this fuzziness is also shared by the supervisor; it requires a very major effort for a third person to make up for this deficiency and bring clarity to the presentation.

The editorial emphasizes the first of the above four. My point is that English is not the only or the main issue here. No doubt, the ability 'to write clearly and correctly in English' is necessary; but this alone is not sufficient. A person capable of writing fluently in English would still be faced with major problems regarding the other three.

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1. Balaram, P., *Curr. Sci.*, 2005, **88**, 205–206.

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