

Stress busting

Balaram¹ has mustered enough support to clearly indicate that the stress of modern life takes its toll. However, ancient India seems to have developed an efficient way of tackling stress through the practice of 'Yoga'. The way this method has spread all over the world indicates that people are benefited by it. How and in what way, is yet to be determined. But I remain a pessimist due to a number of reasons. Anecdotal report suggests that extensive investigations on sadhus and other practitioners fail to define the neuro-physiological correlates of yoga.

Yoga has been shown to better the grades of students, improve the resistance to tuberculosis and reduce the concentration of mediators of inflammation, increase glucose utilization, reduce metabolic rate, etc. The problem with these studies is that the number of subjects is too small. Many a time there may be a statistical significance, but the values fall within the range described for normal population. There is an urgent need to undertake multi-centric studies in India involving large number of subjects in order to understand in what way the

Yoga is helpful in stress busting! Remember that Yoga is the greatest gift India has given to the world at large in recent times.

1. Balaram, P., *Curr. Sci.*, 2012, **103**, 971–972.

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Research publications and templates for incremental research

Research is incremental, with the incremental steps having varying levels of 'originality'. I discuss two mutually related 'types' of research that together form a reasonable fraction of our research output.

Published research papers do sometimes serve as legitimate templates for incremental research. An example of this in materials research is when a research paper reporting measurements on some material has also proposed new ideas to explain the properties observed. These ideas are then tested by various independent researchers through measurements they make, on a variety of other suitable materials, to check whether the same explanations apply. This is also an oft-pursued route for assured publication, irrespective of whether the ideas are supported or not (a negative result is also publishable since it counters a published idea) in the data on new materials. As a route for assured publication, this is often legitimately pursued by students who have spent quite some time working for their PhD and need to meet a statutory requirement for submitting their thesis. It is necessary in such cases to give extensive credit to the original paper used as a template, since one must be extra cautious against the danger that text will be inadvertently copied (and not just in the introduction) from the paper being used as a template. These can be categorized as template-based research publications.

The second related category of research publications are those which serve as templates! These will necessarily be smaller in number, and their preponderance (or lack of it) with a certain affiliation (say, India) reflects the level of originality in that research community. It is also true that researchers who propose new ideas cannot easily start from another published paper as a template. As described above, some others will try to confirm or refute the new ideas. In an ideal ethical environment, there will be some copying of text with appropriate apportioning of credit. This should result in extensive citation (as against a typical running citation for the earlier category), which is a measure of the higher level of originality. Any lack of citation clearly apportioning credit would be unethical and would amount to plagiarism. It follows that those proposing new ideas, and thereby providing templates for further research, run a small risk of becoming victims of plagiarism. As argued above, those doing template-based research run a small risk of becoming perpetrators of plagiarism. The level of originality in our research community may thus be reflected in the ratio of victims, to perpetrators, of plagiarism!

Students must do research to publish in 'refereed journals' (they presently need at least one paper accepted in a refereed journal to be eligible for submitting a PhD thesis), while researchers with tenure can do research without this

pressure. This lack of pressure allows 'originality' at a level of adventure, with no assurance of success and thus no assurance of speedy publications in a refereed journal within a specified time-frame. To get students to share this joy of research while ensuring that they will meet the statutory requirements within a reasonable time-frame, supervisors must simultaneously and consciously be pursuing research on both 'template-based' and 'out-of-the-box' ideas. This does happen in some of our well-established educational institutes.

Young students in newer universities in smaller towns are devoid of continuous peer pressure and of outstanding supervisors; this isolation has a silver lining and is an ideal setting for out-of-the-box ideas. However, these unknown or emerging bylines suffer some refereeing bias and thus also provide an ideal setting for delayed publications in a peer-refereed journal. Is the pressure for template-based research more on these students?

There are frequent statements on the quality of research output from our educational institutes, even as we are better equipped and better funded. I feel that it is dictated more by the 'type' of research we undertake.

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