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Opinion

Lessons on Impact Factor from the 'DBT and DST Open Access Policy'

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The DBT and DST jointly declared "DBT and DST Open Access Policy" in December 2014. We need to take serious cognizance of the important statements on the attention given to Impact Factor of journals while assessing published works.

While the focus of the DBT and DST Open Access Policy document is on creating repositories to ensure that knowledge created through the use of public funds is available to public, it makes a very interesting judgment call on the use of journal impact factors (IF). The document states "The DBT and DST affirm the principle that the intrinsic merit of the work, and not the title of the journal in which an author's work is published, should be considered in making future funding decisions. The DBT and DST do not recommend the use of journal impact factors either as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions". This statement can influence the future of our research as much as the setting up of open repositories can. I shall discuss this statement in some detail.

The call to free Indian science from bureaucracy (Joseph and Robinson, 2014) shifts the responsibility of corrective actions, for improving the quality of our research, away from scientists. This overlooks the fact that various corrective actions are required from within the scientific community, without involving the bureaucracy. The statement highlighted in the above paragraph is one such remedial step that can be taken from within the scientific community and which would influence the young researchers in our expanding university (or higher education) system. Our young scientists do wish to receive peer approval, and strive to do well as per the benchmarks they are presented. The step we discuss is to change our assessment benchmarks. The two problem benchmarks are number of publications, and the IF of journals in which these publications appear.

The problem with present emphasis on number of publications as a means of assessment for career growth is that it is easier to publish from a lesser-known Indian byline if the submitted paper is generally in agreement with current thinking than if its conclusion is drastically different from current thinking. I would sum this up as 'me-too' papers are easier to publish from lesser-known Indian bylines, than path-breaking papers. By using the number of publications as a criterion, we push our younger researchers towards choosing problems that use an established group's paper as a template and thus towards supportive rather than path-breaking research. We must give importance to the hurdles faced in getting path-breaking papers published, and should mentor our young researchers on convincing skeptic referees! One step can be to set up a National preprint repository that would ensure priority while allowing the researcher time to convince referees and editors of a journal of appropriate visibility (Chaddah, 2012). Another step can be to develop Indian journals where we would publish such papers. In view of the emphasis on publishing in high impact-factor journals, this may no longer appear to be a likely solution. Number of publications must not be a criterion, and

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must not be publicized as a measure of success. We must rather publicize tangible path-breaking contributions, new keywords that have been generated, and how research in that field has been affected.

The use of IF as a 'weight factor' for the list of publications of a researcher is a current trend, and is now being contested by many (Chaddah, 2014; Lakhotia, 2014, 2015). As the Editor-in-Chief of INSA, Lakhotia (2014) has lamented the vicious circle that low IF journals get trapped into. Chaddah (2014) has, on the other hand, brought out a negative consequence that the desire to publish in high IF journals has on the ability of a young researcher to claim path-breaking research. He argues that 'by putting a premium on publications in such journals we are asking our young researchers to be more compliant to the thinking of the reviewers and editors of that journal. This causes our scientists to refer to specific papers and support specific ideas, to dilute their conclusions and make them more in line with those suggested by the referees, etc. It lowers the level of our research output by dilution at the publication stage.' The failure of ISRO to claim priority for discovery of water on the moon by its moon impact probe, and becoming only supportive to the same claim by NASA's moon mineralogy mapper, can be attributed to their desire to have a publication in a high IF journal (Chaddah 2015; Kochhar 2010; Lakhotia 2011). They did not put up a preprint on any archive, nor did they announce it in a newsletter. ISRO had apparently submitted its finding to at least two high-profile peer-reviewed foreign journals and received rejections. There was no attempt to publish these path breaking results in an Indian journal. Were the pressures of our flawed evaluation system responsible?

We must recognize that there was no peer-reviewed acceptance when the ISRO announcement was actually made at a press conference on September 25, 2009. There was, however, the 'security' of confirming results from NASA's probe having been announced a few hours earlier, of being a 'me-too'. An opportunity to be the first was lost to the security of being an also-ran. We must convey to our researchers the use of academically acceptable dissemination routes that do not emphasize high-impact journals at the cost of losing priority. Publishing in a 'lesser journal' is another oft-practiced route, and most Indian journals fall in this category. Here a review is done, but the acceptance criterion is less stringent since the journal does not make tall claims about its own importance. This route was followed by Bednorz and Muller when they first reported their Nobel prize-winning discovery of superconductivity in the copper oxides (Bednorz and Muller, 1986). Publication in a low IF journal has another advantage for path-breaking reports; it gives a lead time in which priority is established but competitors have not noticed the report! As was noted in their Nobel Lecture, "Realizing that our first paper had appeared in the open literature, we rushed to get the results of our susceptibility data written up for publication." Detailed measurements were pursued during this lead time (Muller *et al*., 1987).

I also wish to emphasize that the IF calculation is biased against path-breaking papers since it revolves around quick citations. Path-breaking papers, especially from emerging bylines, are received with initial disbelief and start receiving citations only after post-publication reviews; they do not contribute to raising the IF of the journal. The need to stop worrying about IF of journals must be accepted if Indian research has to have path-breaking research claims. I am emphasizing the word claims because we appear to lack the courage to sometimes be wrong! A path-breaking paper must initially be a claim and, even if published in a high IF journal, remains a claim until it is supported by post-publication reviews.

Another issue with pressure to publish in high IF journals has been raised very recently. Marcus and Oransky (2015) have noted that "Journals with higher impact factors retract papers more often than those with lower impact factors." They attribute this to the fact that we view publication in "high-profile journals as the pinnacle of success".

Our youngsters, who are showing the immense ability to challenge and take on the world in e-commerce and related avenues, are hampered by archaic rules that various institutions have formulated

for assessing our research scholars, and for assessing the career growth of young faculty. Our rules must recognize that the best research is not defined as the research published in the 'best' journals, but the best research is that which influences and modifies knowledge by creating new keywords.

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