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Creative Solutions for Higher Education Research Issues In Asia and Beyond

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ABSTRACT

The current system of journal metrics adopted by most Western countries appears to marginalize many Asian and Latin American authors. Impact factors (both at the author and journal levels) rely heavily on citation indices which, understandably, favor Western authors. Of course, impact factors are used heavily in research funding decisions. Creative solutions are explored in this paper for Asian countries experiencing these problems.

Keywords - Education, journal metrics, impact factor, citation indices, descriptive design, Philippines

INTRODUCTION

The journal impact factor, abbreviated IF, is universally accepted as an indicator of the quality of articles published in that journal. Meneghini, Pacher and Calo (2008), in a study that attempted to test the hypothesis that the country affiliation of authors affect the journal IF, found that country affiliation of authors from non-developed Latin American countries does affect the IF of a journal adversely. This phenomenon is repeated in Asian countries so that articles by Asian authors in prestigious journals have significantly fewer citations as well.

Unfortunately, scientists from less developed countries vigorously try to publish their papers in prestigious international journals because publication in such journals spell their career advancement and access to research grants. In the Philippines, for instance, research funding agencies and many University committees responsible for promotion or selection of candidates to academic positions frequently consider the impact factor of the journals where the articles of the candidate are published as basis for decisions. The IF is a journal metric produced by the Journal Citation Report (JCR), Thompson-Reuters (Scientometric, 2006).

The impact factor (IF) of a journal is the average number of citation that the various articles of this journal received among all journals that are found in, say, the Thompson-Reuters data base (Web of Science) over a given period of time. While the IF is accepted as a reasonable measurement of journal quality, it can only be used for comparison if potential biases are considered. For instance, journals in traditional hard sciences and Mathematics may receive low IF but may actually be excellent journals. In other words, comparison of IF's may be made only for journals belonging to the same category or discipline.

Some universities use the journal IF as an indicator of an individual's quality in research. This practice is misleading because, as Seglen (1997) pointed out, the first half of the most cited articles in a journal is about 10 times more often cited than the second half. The average IF of the journal is significantly influenced by the citations made on the first half whereas the author himself may have an article on the second half.

Perhaps the better use of journal impact factors (IF) is as a surrogate or substitute to Reputational Surveys when ranking universities (Times Higher Education Ranking, 2010). Oppenheim (2003) demonstrated that the use of citation analysis agrees significantly with peer opinions. Many studies also demonstrated a good fit between the opinion of peers in the quality of the articles in a journal and its IF (Moed, 2005).

The top seven (7) journals with highest IF are all Western journals e.g. J. American Chemistry Society, J. Bio Chemistry, Proc. National Academic Science, USA and others. Foreign authors, particularly Latin American and Asians, have very low citation indices in these journals but when their names are attached to Western scientists, their IF's almost doubled. There are techniques for increasing an individual's IF (such as collaboratively working with Western authors, Medicine Editors (2006)) which have nothing to do with the individual's quality in research.

The problem that Philippine academics now face is two-fold: First, how to publish in highly-cited indexed journals (ISI or Scopus) where the rejection rates may be prohibitively high and second, if an academic successfully publishes in an indexed journal, how to ensure that his paper will be highly cited. As the pool of scientists

and academics rapidly grows, these problems will become even more pronounced in the next ten or fifteen years.

Evolution of the Journal Impact Factor (IF) as Journal Quality Indicator

It is interesting to analyze how the journal impact factor (IF) scores became a universally-accepted gauge for quality research. In the beginning, research quality depended only on two (2) things: (a) the importance and potential impact of the study, and (b) the precision or effectiveness of the methodology used to investigate the research phenomenon. Thus, Watson's and Crick's (19__) double-helix model of DNA was considered of very high potential impact in the study of genetics and was, therefore, considered a research of high quality. The second criterion, on methodology, is something that can be made quite objective whereas the first citation is inherently subjective.

Scientists and academic researchers, as late as the 1960's, were obsessed with finding "higher impact" areas of research. The goal was not to publish but to win prestigious awards of recognition e.g. Nobel Prize. The flurry of activities in the area of unsolved problems and mysteries in scientific discipline was tremendous: accounts of several attempts to prove Fermat's Last Theorem; purported formulas for generating prime numbers; the human genome project; discovery of black holes in astrophysics and others.

The road to Nobel Prize and Fields Medal was too narrow for over a million scientists and researchers to fit. What better alternative than to build more roads to accommodate all those brilliant ideas: publish their work in highly selective research journals. Thus, was born the tenet of "publish or perish" in the academe. The "creative solution" (publish in journals) to the perceived problem (low chance of being recognized in the field) opened a plethora of other problems.

Soon the avenues for publishing research outputs once again became congested. More journals of high quality are needed to accommodate the exponentially growing number of research outputs of scientists and academic researchers. Research journals of various kinds including the undesirable kind, sprouted like mushrooms so that a system for filtering the "good" from the "bad" journals had to be devised. The traditional approach of jury evaluation for each journal was impractical considering the huge number of journals to be evaluated. What was clearly needed was a method that did not require the presence of a jury en banc to decide on the quality of a research journal.

What better way is there than to let the consumers decide? A research journal that publishes research articles patronized by a large number of users indicates the relative importance of that journal in the world of research, i.e. journals with high

citation index are important journals in research. As this became a practice over the years, the journal citation index (now called impact factor (IF)) took a different connotation: it now connotes "quality".

The universal acceptance of the journal IF as an indicator of quality of the journal comes at a price. Are the articles published in high IF journals of sufficient importance and of high potential impact? The answer is "maybe": the articles are, without question, popular among the users. Are the research studies done correctly using appropriate and effective methodologies? Again, the answer is "maybe" because the IF score does not tell us anything about the precision and accuracy of the methodologies used in the research articles. The high journal IF tells the user that the articles published in that journal are popular and widely-read but so are paper back best-sellers of Robert Ludlum.

In Europe, there is an emerging school of thought that vehemently opposes the use of journal IF as an indicator of research quality (European Association of Journal Editors, 2007). The use of journal IF, according to this group, promotes mediocrity rather than quality in research. In Asia, and in particular, the Philippines, the concern over under-cited Asian researcher and quality of research outputs have taken precedence over the controversy on the use of the IF.

National and Continental Journal Citation Indexing

Having demonstrated the bias against authors from less developed countries in Asian (and Latin American) countries of the current practice of using journal impact factors (IF) of Western-published journals (from the data base in the Web of Science), one creative solution is to generate a national data base of accredited local journals whose quality is initially evaluated by a pool of experts with a track record of publication in refereed journals. This solution was actually tried by the Philippine Commission on Higher Education (CHED) through its Journal Accreditation Service (JAS) initiated in 2009.

Since its inception in 2009, the CHED-JAS service has accredited close to 50 research journals at Category B and another 30 research journals at Category A. the plan is to support the Category A journals for International indexing and assisting the Category B journals to reach Category A in three years (2015). After 2012, the JAS will cease to exist and all journals accredited at that time will be made available as electronic journals. CHED has designated a Web administrator who will monitor the citations/download made from each journal thereby producing a Philippine Journal impact factor (PIF) for each journal in the data base.

The subsequent step, and the logical one, is to cross national borders across the other neighboring Asian countries. What appears to be most feasible within the next

two or three years is to form a consortium with Southeast Asia Countries (Philippines, Malaysia, Indonesia, Brunei, Vietnam, Thailand) for mutual recognition of national journal impact factors. This, of course, implies that the other countries will need to establish a journal accreditation service (JAS) similar to what the Philippines' CHED did. Putting the journals on-line hastens the process provided that these countries agree to have a common Web administrator for monitoring such things as number of downloads, article citations and the like.

The accreditation services can be undertaken by the Government (like CHED in the Philippines) or by a Non-Government Organization or learned societies. The latter is a preferred option to ensure unbiased evaluation processes that are not tied to the Government's bureaucratic rules. The situation is not unlike the attempt to establish a Quality Assurance system for higher education degrees in the Asia-Pacific region with the end-in-view of mutual recognition of degrees (APEC, 2001) but differs in the sense that for mutual recognition of peer-reviewed journals, the accreditation is undertaken by independent, non-government bodies and international associations e.g. the SEA-AIR for Southeast Asian countries.

Expansion to the rest of Asia can happen within the decade if the Southeast Asian experience prove to be successful and effective. An Asian Journal Citation Report data bank can parallel if not surpass the current Thompson-Reuters JCR data base because more than half of the worlds' population live in Asia and the South Pacific (China alone accounts for 20% of the world's population) and a little less than half of the world's scientific researchers reside in the region.

Meanwhile that the national and continental journal data bases are being established, Asian scientists and researchers can adapt a more practical and pragmatic approach through global networking. Global networking or collaborative research with Western scientist is a tried and tested method for providing higher impact factor scores (Meneghini et al. (2008)) for individual foreign scientists. An Asian scientist often floats an idea for research and actively seeks for Western scientists who are interested to participate in a collaborative project.

We note in passing that there are some undesirable practices that enterprising authors engage in to enhance their IF scores. In Medicine Editors (2008), for instance, the authors cited the practice of self-citation to be the most frequently used strategy. Authors of published papers cite their own papers published in a different journal. Some resort to "friendship citation" where authors request peers to cite their papers in other journals in a blatant display of self-interest. Still other authors require their graduate students to download or cite their papers published in different journals in a bid to increase their IF scores.

For as long as the journal's IF score is used as universal gauge for quality research (either at the individual or journal levels), such practices will proliferate and will morph into something far less acceptable in the foreseeable future. The consequences and implications on the overall quality of higher education outputs on a global scale are too far-reaching and dim.

Still on the Issue of Journal Quality

The IF score of a journal tells us something about the quality of the journal but not the quality of the journal itself because it largely accounts for the popularity of the articles published in that journal. It is theoretically possible for a low quality journal to have high IF simply because the articles in that journal are more often cited i.e. easier to read and understand; articles may be authored by popular and charismatic writers. In the same vein, high quality journals may actually have low IF scores because the articles are not often cited i.e. inaccessible to readers, too technical.

To evolve a journal metric that measures "quality" more faithfully, one needs to go back to basics: When does one say that a research article published in a journal is of high quality? The two basic characteristics of a quality research, namely, *importance of the study and precision/accuracy of the methodology*, should form the bases for the development of such a measure. In other words, how may these two characteristics be inferred from readily observable phenomena related to the journal itself?

The experience of the Philippine Commission on Higher Education with Journal Accreditation Service may shed some light on the matter. First, the *Editorial Policies* of a journal determines the type, kind and nature of research articles that may be submitted for possible publication. For instance, *Nature* , acknowledged as one of the world's most prestigious scientific journals, admits only breakthrough studies or new scientific discoveries. For this reason, every article published in this journal satisfy the "importance" factor of a quality research. Second, the *Composition of the Editorial Board* and the *Refereeing Process* employed by the journal determine the precision and accuracy of the results obtained from a legitimate scientific methodology used in each article. The Editorial Board members have to be acknowledged experts in their field of studies competent to judge the importance of a research study submitted for publication; the refereeing system must be free of biases through a double-blind system and the referees themselves have to be seasoned researchers who are competent to evaluate the appropriateness of the methodologies employed in these studies.

The Philippine Commission on Higher Education using essentially these parameters developed a scoring system , on scale of 0 to 100, such that a journal that receives a score of 85 above is considered *High Quality Journal*. Once a critical mass of such high quality journals is reached, then the usual impact factor (IF) can be used

to rank the journals according to their popularity i.e. the most popular journal in the cluster of high quality journals. This time the IF scores of the journals become more meaningful because they not only indicate their widespread popularity and patronage, the score also indicate the rank order of a journal in a pool of established high quality journals.

Ideally, the journals of research are chronicles of research studies in specific disciplines. As such, colleges and universities need not publish their own journals of research as is now required by accrediting agencies in the Philippines , for instance. This practice (and requirement) is not only superfluous but also expensive. Statisticians publish in Journals of Statistics; physicists publish in Journals of Physics; linguistics professors publish in a Journal of Linguistic Studies and so on. What the accrediting bodies should observe is where the faculty members publish (in a journal of their discipline?) and the quality of these journals as evaluated by CHED-JAS.

CONCLUSION

The concern for the inordinate under-citation of Asian authors in prestigious research journals has led to creative approaches to resolve the situation. National and Asian Journal citation data banking system with corresponding Asian Journal Citation Reports are suggested as possible strategies that Asian scientists and researchers can embark. The data bank of accredited high quality research journals in Asia can then be used as basis for providing a journal impact factor (IF) for a given journal listed in the accredited journals. Only when "quality" is first established for a given journal will a journal impact factor score gain a meaningful interpretation. The proliferation of undesirable strategies to increase researcher's impact factor (IF) as a consequence of over-reliance on journal impact factor (IF) is shown to the detrimental to the overall quality of research outputs in the region.

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