With the possibility of self-publishing, it is even being questioned if there is a need for journals as we know them[8]. Platforms such as F1000 (Faculty to 1000) are attempting to redefine scholarly communication by publishing first and reviewing later, thus contributing to the larger framework of open science[9].

While scholarly research sans journals might appear to be far-fetched, there surely is a churning currently happening in the scholarly journal publishing space. The new types of journals that are evolving are by-products of the churning. It is possible that one of these, or an yet-to-be-born journal format might put to rest the chaos and trepidations that are increasingly engulfing the journal publishing world. Perhaps they may all just co-exist.

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Evaluation of research output

Evaluation of research output is essential for ranking institutions, and for assessing individual researchers. It is also essential to know whether the pattern of our nation's funding is on the right path. Metrics like the number of publications, and impact factor (IF) of journals where the publications appear, are commonly used as benchmarks. We consider these as unsatisfactory.

The use of IF of a journal implies that every paper published in it makes the same impact. Its use for assessing a particular research output has been seriously questioned by experts across the world, and is hardly ever defended in discussions. Unfortunately, it is still being used routinely by various institutes in India as a 'quantitative' measure for assessment of individual researchers. A more justifiable metric is the citations a paper receives; this metric is used by experts across the world along with its derivatives like the *h*-index.

There are, however, questions with respect to the *h*-index. As was noted by the present author[1], '*h*-index is just a count of every paper that cites us, but on a binary 1/0 scale. It does not distinguish between our paper being cited as one number in a group of numbers, and our paper being used as a template with extensive citation over a few sentences each at a few places in the paper. One number in a group of numbers implies a supportive "me-too" paper, and our *h*-index will improve if we do that kind of research'. The present author had tried to distinguish supportive 'me-too' publications from those that were used as templates by others for subsequent research. Clearly, the latter kind of output is what the national funding desires.

Stephan *et al.*[2] have recently tried 'to classify papers as "non-novel", "moderately novel" and "highly novel" ' based on the time-profile of the citations they receive. This is a metric that can be easily made available, and would be better than just presenting the number of citations. We prefer, however, to consider and extend the idea of utilizing the manner in which the citation is done.

As research in the universities is encouraged with increasing involvement of Ph D students, we have to realize that students must meet statutory requirements for submitting their thesis in a finite time-frame. This includes that at least one paper must be accepted for publication in an established journal. Doing research to confirm the conclusions of an earlier paper provides an assured and legitimate route[3]. The publication that results from such 'supportive' or 'confirmatory' research would be cited if the conclusions of the earlier paper were 'highly novel' or, at least, 'moderately novel'. It could be termed as 'non-novel', and would be cited along with other papers confirming the conclusions of the same earlier paper. Such legitimate but 'non-novel' research would thus be cited as one in a bunch of numbers. Such 'supportive' or 'confirmatory' research is essential for Ph D students; it is identified by the way in which it is cited. It does not have the value of 'incremental' or 'path-breaking' research, which results in additions to knowledge. Can we identify these from the way they are cited?

When any incremental research is cited, the paper briefly describes the increment in knowledge resulting from that research. Such research is therefore cited following a sentence, or a longish phrase, that describes the increment in knowledge. When a paper is cited in isolation (and not as one of a bunch of numbers), one can be assured that the research described in that paper is 'incremental'. Path-breaking research cannot be described in a phrase or a sentence; it would require a few sentences and would probably need to be explained and cited at a few different places in any paper that is a follow-up on this path-breaking research. As a corollary, a 'supportive' or 'confirmatory' research paper would be citing the 'earlier paper' frequently and exhaustively.

It is thus proposed that research output can be evaluated by the way it is cited. We have argued that 'supportive' or 'confirmatory' research output would be cited as one in a bunch of numbers; 'incremental research' would be cited following a sentence, or a longish phrase, that describes the increment in knowledge; and 'path-breaking' research would be cited frequently and exhaustively. It is proposed that details on 'all the extended citations that their papers receive' should

be sought for any evaluation process[3], and software may even be developed to make such information available along with the presently available list of citing papers. Support should follow accordingly to ensure that the pattern of our nation's funding supports 'highly novel' or at least, 'moderately novel' research; rather than the current scenario where it is being mainly diverted towards 'supportive' or 'confirmatory' research.

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Vulnerability to climate change: differential perception amongst the livestock dependents of coastal and alpine region

Climate change has a negative impact across the globe, as highlighted by the Intergovernmental Panel on Climate Change (IPCC) in several reports. Further, it is well-recognized by the scientific fraternity that the mountain and coastal ecosystems will be severely affected due to climate change. Our coastal and alpine regions are no exception to the negative impact of climate change. Not only the Himalayan glaciers, but flora, fauna and people who depend on the Himalaya will also be adversely affected. A unique fauna of the Himalaya, i.e. the yak (*Poephagus grunniens* L.), happens to be the source of livelihood for thousands of highlanders living at 3000 m amsl and above, where crop farming is virtually non-existent. I had an opportunity to meet the yak herders, who are transhumance pastoralists of Arunachal Pradesh and Sikkim. During our informal discussions, issues related to climate change were raised. I was astonished to learn about their perceived observations on climate change. Pastoralists were satisfied with the present changing climatic scenario, as they felt that they were getting better remuneration from livestock rearing, due to extension of the production period by 1–2 months because of availability of flush green grass as a result of shorter and warmer winters, less snowfall and hard ice. They also mentioned that mid altitude (between 2000 and 3000 m amsl) was too low for yak and too high for cattle. Therefore, they were utilizing the mid altitude pastures for rearing *Dzomo* (female yak–cattle hybrid).

People from the coastal regions are affected by frequent tropical cyclones, floods, and extremely heavy rainfall each year. They are also affected by the continuous decrease in production and productivity of their milch animals due to non-availability of forage grass, as forage lands are inundated by brackish water due to the tropical cyclones.

Thus transhumance pastoralists of the alpine region perceive the changing climatic scenario as a 'boon', whereas their counterparts from the coastal regions perceive it as a 'bane'. This differential perception prompted me to determine the societal vulnerability of a representative sample of 720 livestock-dependent communities from both the regions using the principle of IPCC. [IPCC defines vulnerability (V) as a function of adaptive capacity (AC), exposure (E) and sensitivity (S): $V = \mathrm{AC} - (E + S)$]. The average vulnerability score of the transhumance pastoralists was positive, while it was negative in case of coastal livestock-dependent communities. Negative score indicates that adaptive capacity is suppressed by the combined effect of exposure and sensitivity. This is an alarming situation. However, positive score does not indicate that transhumance pastoralists are not vulnerable; they are comparatively less vulnerable than the coastal livestock-dependent communities. The latter possessed comparatively higher adaptive capacity than transhumant pastoralists, but they were more vulnerable due to greater exposure to extreme climatic events. Also, transhumance pastoralists were comparatively less vulnerable due to their big herd size, high ratio of productive animals in their herd, strong farmer-to-farmer extension, high proportion of income from livestock, and making and selling of milk products instead milk per se. On the other hand, coastal livestock dependents were more vulnerable. Major reasons behind higher vulnerability of coastal livestock dependents were long distance to purchase critical inputs, weak community cohesiveness, number of years having moderate meteorological draught, number of days having extremely heavy rainfall and reduced milk production.

In order to cope up with the changing climatic scenario, livestock-dependents from the coastal region showed greater interest on locally available breeds. For example, people from the Sunderban region are now more interested in rearing the local *Black Bengal* goat and *Garole* sheep in order to minimize the effect of harsh climatic conditions. This trend explained the people's interest was shifting to small ruminants from larger ones to minimize the risk due to animal deaths during extreme climatic events, and get relief from feed and fodder scarcity. For example, Department of Fisheries and Animal Resources Development, Government of Odisha estimated that due to tropical cyclone Phailin during October 2013, the number of livestock deaths included 1835 large animals (cow/buffalo), 4809 small animals (goat/sheep) and about 172,874 poultry. They were also rearing yak–cattle hybrids to utilize the mid-altitude region. However, proliferation of such hybrids may threaten yak species in the future.

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