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**ADAPTING TO THE NEW ERA: NECESSARY STEPS
FOR ADVANCING A ROBUST SCIENCE**

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Abstract

The world has changed tremendously in the past decades. Changes in technology as well as globalization and ferocious business competition phenomena have permeated the workplace and the academic world. These changes and phenomena compel the academic world to adjust itself correspondingly in order to meet the challenges of the new world while maintaining its important role of developing, preserving and spreading human knowledge.

The purpose of this paper is to provoke thinking and to generate discussion about the ways the academic world should play out its role in light of the threats and opportunities of the new world. Specifically, it points out some of the difficulties that the academic world is experiencing currently, and proposes some new mechanisms to foster robust academic endeavours.

Keywords: robust science, scientific knowledge, modern research, practitioners' prism, FOMO (fearing of missing out)

JEL Classification: M12, O15, O30, O39

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Introduction

We live in a somewhat chaotic world, often referred to as VUCA (volatility, uncertainty, complexity and ambiguity) (Bennett and Lemoine, 2014). Changes impinge on any work domain. For example, the competitive pressures of globalization present pursuit of diversity with its potential to increase productivity and competitive advantages (Lockwood, 2005). Additionally, modern technology enables to communicate and exchange information despite geographical distance. There is also more free access to knowledge repositories. Yet, technology per se does not guarantee that knowledge will be shared everywhere by any individual (Cabrera, Collins and Salgado, 2006). In the wake of modern workplace digitalization, Briken, Chillias, Krzywdzinski and Marks (2017) contend that the prevailing perception of "business as usual", despite the significant changes, is doubtful.

Indeed, these and other changes did not pass over the academic enterprise and their imprints have already become visible. Accordingly, in their recent publication, Grand and colleagues (2017) raised real concerns regarding the quality of research in the field of Industrial-Organizational Psychology and its continued vitality (although we believe that these concerns are common to other domains of the social sciences as well).

Grand et al. (2017) note a significant and positive change in the field of modern research: "The number of scientific articles published in 2003 (~1.17 million) nearly doubled by 2013 (~2.2 million, National Science Board, 2016). Coupled with this growth, the use of new technologies for gathering and processing data, the globalization and collaborative nature of modern research, and the increasing need for scientific knowledge to inform public policy and decisions has contributed to an industry that is dynamic, fast paced, and high impact (National Academies of Science, Engineering & Medicine, 2017)" (Grand et al., 2017, pp. 5-6).

Nevertheless, the authors felt compelled to take note of the difficulties involved in managing the field of research in a way that serves the goal of promoting research that is of a high qualitative standard and, at the same time, flourishing: "Many of the mechanisms we have traditionally relied on for monitoring, regulating, and correcting the accumulation of scientific knowledge are beginning to show their limitations in the new scientific reality, and underscore the need to reexamine key systems that protect its interests (Casadevall & Fang, 2012; Nosek, Spies and Motyl, 2012)" (Grand et al., 2017, p.6).

An example of a 'failed mechanism' that we can point out is the extensive use of the Impact Factor Index. The scores that journals achieve based on this index depend on the field of research, so that the more the incorporated articles represent a broad field that involves a number of disciplines (e.g., management, psychology and sociology), the greater the likelihood that the impact factor will increase, because many more authors will be quoting these articles. On the other hand, a journal that publishes articles in a very niche-oriented field of study does not allow for a high score, since fewer researchers are likely to quote them. Consequently, researchers who publish articles in a journal with a low impact factor will find it difficult to receive recognition for their work and to advance, however high the quality of their research.

Another instance of a 'failed mechanism' is apparent in the many current studies that employ a variety of very advanced statistical tools, and that turn the description of these sophisticated methods into the core feature of their papers, rather than portraying them as the means of examining the theoretical underpinnings of their discussions. Moreover, this

very advanced technology enables so many manipulations that through the employment of ‘statistical games’ one can apparently obtain almost any (desired) result – certainly, if the sample is large enough.

In order to suggest alternative solutions that incorporate the most advantageous systems, we believe that it is appropriate to consider the changes that have occurred in the scientific arena and to adapt to them if, in our status as researchers, we want to be diligent and to be significant partners in the development of scientific endeavor.

1. The impact of technology on the accumulation and processing of research knowledge

We live in an environment full of information stimuli that bombard us from diverse sources, from every corner of our planet, with a tremendous outpouring. This abundance of information, however, comes at a heavy price: Even before the age of the Internet, Nobel Prize laureate Herbert Simon warned that a wealth of information causes attention deficit: “In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.” (Simon, 1971, pp. 40-41)

If we take these comments to the field of academic research, we note that everyone wants to write and publish in order to progress and to remain competitive. But as the sum of published articles expands, the increasing number of articles (with some wanting in quality) perforce create less attention to each article in its own right. Indeed, many researchers no longer read an entire article but skim over it. Moreover, especially due to the overload of articles submitted for publication, the articles are published in the long-term with a delay of one to two years from the time of acceptance, so that they lose both their relevance and their value as innovative contributions to the field.

Furthermore, we note with McSpadden (2015) that the current (and increasing) need for people to multitask, as well as the growing, active involvement that people have with mobile internet technology, have jointly contributed to the shortening of our attention span from 12 to 8 seconds. Today it is more difficult for the average person to be attentive or to delve even into just one academic article for a given length of time.

As if these negative phenomena were not enough, it is apparent that people have recently also developed what has been labeled ‘Fear of Missing Out’ (FoMO), defined as a “pervasive apprehension that others might be having rewarding experiences from which one is absent. FoMO is characterized by the desire to stay continually connected with what others are doing.” (Przybylski, Murayama, DeHaan and Gladwell, 2013, pp. 1841). One consequence, for example, could well be that if you are reading a journal article and a message suddenly pops up on your smartphone or computer, you will probably break off reading the article – and the probability arises that you may not even return to your reading. And even if you do, it is not certain that your sequence of thought and understanding will be preserved, because “multi-tasking is cognitively exhausting” (Shirky, 2014, p.1). Indeed, this instance of disruption is but one of the several deleterious effects of technology that

have become the subject of investigation in academic circles in recent years, especially with reference to students' effective learning time (Alt, 2017; Shirky, 2014).

Clearly, these phenomena will have an adverse effect on the field of academic research. There is no doubt that in order for articles to be read appropriately, and for the body of knowledge accumulated by researchers on the basis of past academic literature to be advanced, a change must be made in the manner in which studies are published.

2. Proposal for an alternative mechanism for evaluating articles, adapted to the technological era

First, articles submitted for review and evaluation should be shortened, that is, limited in size. While each academic article these days is accompanied by an abstract, the articles themselves are generally very long, if not too long (consisting of tens of pages). We suggest, therefore, working towards a two-step method of review and evaluation of articles for submission: The two-stage method of judgment of articles for submission

Stage 1

In the first stage, abstracts, akin to an executive summary or abstract, will be sent to be reviewed. They will be limited to a maximum of three pages and will be required to underscore the innovative contribution of the specified research to theory and to the appropriate field of research, in relation to previous studies. Our suggestion is that we should not rely solely on academia to review and evaluate these abstracts; rather we should include in the evaluation process a preliminary panel of academically highly-educated field practitioners (such as members of the economics and management communities, HR experts, and senior executives) who will contribute from their cumulative applied wisdom. Indeed, these are the individuals who might well be expected to reap the rewards of the research in question and who should be encouraged to serve as reviewers in parallel to academics. Before the academic panel reviews the whole article (Stage 2), this preliminary team of practitioners will decide how interesting, relevant, and innovative the submitted research paper is from their perspective, and whether the full article will then be moved forward to the second stage of evaluation.

The expected benefits of this first, preliminary stage can be summed up as follows:

- Validation of relevance. The practitioners can testify to the potential contribution of the research paper to the field. The point to be underlined is that studies produced only for the sake of publication and lacking a significant statement, belief or assertion, and/or positive contribution to the field, will not be considered for publication any further. Thus, the number of articles submitted to journals will necessarily be reduced to a reasonable level, as should be, without unnecessary inflation.

- Swifter dissemination of scientific knowledge. Academic knowledge will move more swiftly from the academic ivory tower to the field and, moreover, in a simple, more digestible way (namely, an abstract of up to three pages), in recognition of Grand et al.'s (2017) call for "recognition that science is a public good and thus should be readily available for the benefit of everyone" (p.15). Indeed, today, articles for prestigious conferences (like the AOM) are accepted only according to an abstract. Just as a response

to a focal paper can be written in a few pages, so the central ideas of an article can be similarly expressed: As the saying goes, “Less is more”.

- Bridge between academia and the field. The exposure of academic activity to the world of the practitioners may be expected to produce more, much needed, communication and cooperation between academia and the field in order to jumpstart research forward. Today, many research studies are based on questionnaires filled out by students because of convenience but also, no less, because of the difficulties of harnessing the field to research. Exposing practitioners to the field of research will encourage them to promote collaboration between their organizations and the academic world in such undertakings as surveys and quasi-experimentation. One such example of this kind of collaboration is the Hawthorne plant which, in conjunction with Prof. Elton Mayo of Harvard University, completely changed the management approach towards their workers from a mechanistic to humanistic mode.

- Access to the practitioners’ prism. If we examine articles that were written by people from the field concerning the assessment of organizational functioning, such as Goler, Gale and Grant (2016), we note that some of these practitioners clearly grasped and understood the core difficulties and formulated solutions that were no less constructive than those provided by the academics. The practitioners’ prism is very important – if not critical – for the advancement of science.

- Diminution of subjective influences. The involvement of experts from the field will also reduce the influence of politics in the evaluation stages (due to the effects of BDS, and so on). We might thus also expect a reduced number of cases of “desk rejection” based on the opinion of a single editor. Now, the (chief) editor will need to recognize and accept ‘popular wisdom’ and will only recommend further advance of a submitted article for academic review and evaluation (Stage 2), if the panel of practitioners has previously so determined. Notably, one of the anticipated outcomes for the authors of submitted articles will be that they will receive a response to their submissions by means of a computerized statistical report (with no human intervention), based on a specific number of supporters and opponents of the transfer of their articles to Stage 2 of the acceptance/rejection process by the academic panel.

- Feedback for the judges. Pertinently, the reviewers from the field (real work organizations) will also be able to receive feedback on the quality of their evaluations. The more frequently field practitioners’ assessments promote the acceptance of submitted articles for publication (namely, having recommended the article to the second stage of review and evaluation) – and the articles are, in fact, finally published –the field representatives will be more likely attain ‘compensation’ in the form of prestige, if not by some more material manner such as free subscriptions to the journals in question.

- A learning tool for researchers. In this way, researchers, as authors of journal papers, will also be able to observe their learning curve. Researchers who are rejected time and again due to low innovation or lack of public interest will either be inclined to cease sending articles (and consequently their numbers will decrease), or they will progress to upgrade significantly the quality of their research and its consequent presentation.

Concurrent to the increase in the number and background of the reviewers of submitted journal articles, we predict that in the not too distant future it will be possible to allow artificial intelligence to compare journal papers and to identify the similarities between

them. The greater the similarity of the research model and variables examined to previous published articles, the more likely it is that there is little or no innovation in the submitted study and that its purpose is more likely replicative.

We recommend, however, that due to the importance of replications for the advancement of science, selected journals should have a designated section devoted to replicated research. Because replication studies are not necessarily impressive in terms of their innovative aspect (but rather in terms of the need to consolidate the scientific knowledge gained and to validate it further), many researchers are reluctant to undertake that kind of research; replications are less attractive candidates for publication. Knowing that a dedicated section of a journal will give space to such 'less attractive' presentations – albeit limited to a three-page summary – will surely encourage researchers to conduct replications systematically for the sake of the advancement of their field, specifically, and for the advancement of science, in general. We should note that this recommendation is consistent with the contention of eminent scholars that the ultimate test for validity of findings is their recurrence in numerous replications (James, Mulaik and Brett, 1982).

Stage 2

Articles that reach academic judgment (Stage 2) will be ranked on the basis of the short, constructed feedback mechanism based on the principles outlined by Grand and his colleagues (2017). Accordingly, on an electronic form, reviewers rate the extent to which the submitted article complies with the six principles of solid research detailed in Table 1 in Grand (2017), namely, that the submitted article is (1) Relevant, (2) Rigorous, (3) Replicable, (4) Accumulative and Cumulative, (5) Transparent and open, and (6) Theory-oriented.

Only after this filtering process has ensured that the research meets the appropriate standards of quality will it be appropriate for the academic assessors to continue to comment freely in an open-ended section of the form according to their subjective inclination, including posting examples that illustrate their arguments for or against the acceptance of the article for submission.

Conclusion

The use of the principles outlined above for the assessment of submitted journal articles should encourage researchers to (re)turn to research avenues that are traditionally less popular because of the substantial difficulties of achieving timely publication of their research – even though that research is significant to the advancement of science. Beyond replications, further examples of research paradigms that face such obstacles include: (a) longitudinal studies (that prolong research time and greatly delay the time of publication, but are nevertheless essential for understanding trends); (b) qualitative research (accepted by certain journals only and that advocate for the collection of additional data through, for instance, various specified observation techniques); and (c) theoretical construction that promotes groundbreaking thinking, but that also takes time to develop.

We believe that the criteria for submission and evaluation outlined in this paper will restore the 'dignity' of research in the form of assertive, significant and meaningful research that enriches the field and expands the boundaries of thinking through its revelations. Moreover, we assert that the use of the important principles for robust science (Grand et al., 2017), in

conjunction with our proposals for a new mechanism of submitted-journal review and evaluation, will enable us to realize our collective goal of pure research presented in the most positive way from a place that highly values the source of wisdom.

Authors' note: Both authors have equally contributed to this paper. Their names are listed in an alphabetical order

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