The future of scientific journals

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What's the future of scientific journals?

When I began my career as an Editor of scientific journals in the early 1960s, the success of any publication was measured by its print edition. It was believed that the larger its edition, the higher the number of readers. Subscriptions and the physical distribution of the journals was then a major concern. Journals featuring innovative papers by famous authors and that were well distributed, particularly in public libraries, were considered well disseminated and read by many. However, distribution was not always successful and despite featuring famous authors, unsold copies were destroyed.

Today, the public library, with its physical archives, organized according to the print edition and its consequent distribution, faces a number of new scenarios: first of all, the Internet and at the same time, the shortage of space allocated to archives and readers.

In addition, technological changes in the printing industry have made it possible to publish a wide and miscellaneous range of books in small editions. The growing number of different titles is also closely related to changes in functions. Libraries have become search and information centers for texts at www. The Internet has substantially increased access to unprinted texts and has established an infinite network of libraries for the poor reader.

With time, and as new innovations come up, scientific journals have gone through many changes, as well. Generally, printed editions have been losing their relevance to the virtual ones. In such circumstances, the journal format may very probably disappear. Some journals hosted by portals (websites) already publish papers according to the continuous flow of submissions, which abolishes the characteristic periodicity of journals. In addition, this new way of publishing papers in a continuous flow outdoes the discontinuous nature of the journal format.

In the past, researchers were using the libraries to look for collections of journals they were interested in. Once they found them, they flipped through each issue to find papers and authors supporting their research. Today, researchers look up authors and subjects at www, regardless of the journal's name. The context in which an paper was published is only examined if it's relevant for their research. But that context is, increasingly often, a research and content portal rather than a journal.

There is a logic momentum behind virtual publishing that needs to be understood by the editorial staff, the authors, and the readers. According to that logic, the journal format is no longer dominant. Journals have given way to content portals. What counts now is the posted paper referring to the author and the subject, which are strong online browsing references. The reader tends to

look for the author, the paper title, the subject. The journal is relegated to the second or third level.

The impact factor, i.e. the relative frequency of paper citations, has acquired increasing importance. Papers that are mentioned and included into bibliographies attract attention. The impact factor has always existed. Researchers have always valued quoted literature as a source of information for their research, but it's no longer an impressionist reference, it has now become a measure.

However, the impact factor ignores anonymous readers; it only takes into account specialized reading that results in citations. This way, a "society of mutual citations" is formed that assigns relevance and prestige. This, too, has always existed; "I quote you; you quote me" has always been – and still is – common practice.

What's the place of the anonymous reader, simply the reader, who somehow benefits from reading an paper, but doesn't take part in that system? He exists, of course, and is increasingly present and relevant in the Internet. For instance, the portal www.fundamentalpsychopathology.org, which features the *Latin American Journal of Fundamental Psychopathology*, was accessed just over 1,000,000 times in 2015. The small (but growing) impact factor of that journal, as calculated by the citation system (SJR = 0.20), isn't proportional to the queries.

The international expansion of scientific knowledge, based on the impact factor, contradictorily takes place by drastically reducing the number of published paper and by encouraging the publication of those with a significant impact factor. In other words, the impact factor generates impact factor and consecrates both the author and the publishing channel.

Reducing the publishing channels – journals and portals – that don't feature any impact factor would reduce both the number of journals and their funding costs and put an end to that perverse productivity policy based on the size of the editions. "Publish or perish" has increased the indiscriminate demand for journals and sites and it has stimulated the production of "more-of-the-same" papers. Reducing the number of irrelevant publications would decrease channel maintenance costs. This, in turn, would encourage the preference for relevant, original, and well-written papers, and eliminate any interest in "more-of-the-same" papers.

However, by ignoring the number of lay readers, i.e. those who read for pleasure or for their own benefit, the impact factor policy would only reinforce the already exclusive elite based on citations. In other words, the current publication policy mainly backs that restricted club of cited knowledge.

It goes without saying that the publication channels should focus on their readers, both experts and laymen. They should, e.g., have very specific missions that are first of all relevant and original. They should be multilingual, i.e. publish papers in several languages and should follow a clear dissemination strategy. They further should encourage the publication of well written texts in

all languages, as currently, e.g., papers written in poor English abound. Texts and publication channels featuring poorly defined missions that are inaccurate and lack originality should be discouraged, since they would only attract irrelevant papers.

On the other hand, the requirement to publish papers in English only is outdated, since it excludes authors and readers who are not proficient in that language. It ignores, e.g., the clear expansion of the readership in Portuguese language at a worldwide level. To assume that English is the only reliable language from a scientific point of view may seem correct to the exclusive "citation club", but ignoring the world's linguistic complexity and the technological advances in translation turns out to be highly limited and narrow-minded. Moreover, it doesn't stimulate the writing and reading in other languages. The Internet, in turn, makes it easy to publish papers in several languages. The present Editorial, e.g., has been co-published in Portuguese, English, French and Spanish by the portal of the *University Association for Research in Fundamental Psychopathology*.

Papers, including scientific ones, are aimed at the broadest and most diverse readership. One shouldn't forget, however, that the quantity of citations is merely a dissemination indicator. Portals containing journals and papers need to emphasize their international nature by hosting texts in several languages. Free access channels should be encouraged, because the paid ones or limited-access ones not only drastically limit the queries, but also focus on profit rather than on disseminating knowledge. The publication channels need to be permanently active on social networks; they need to send Newsletters to address lists and be indexed at as many different international databases as possible, which would index portals as well, rather than only journals. The channels should publish papers written in several languages, which should be evaluated by international reviewers.

In addition, the channels should join sectoral networks such, as the *World Association of Medical Editors (WAME)*, which often provide useful insights for improving the dissemination of science.

The channels should be able to prove that their financial base comes from reliable sources. Medical and health journals and portals financed by pharmaceutic companies, e.g., reveal a type of involvement that's incompatible with disinterested knowledge. However, there are exceptions to the rule. Some laboratories, such as the French Synthelabo, contribute effectively to the advancement of scientific knowledge. In addition, the channels need to find resources that ensure their existence, independently of public funding. That, in turn, needs to be seen as a premium, not as the duty of the State.

State resources cannot be permanently and constantly allocated to maintain projects that benefit only a part of the elite. They should be employed to improve the basic living conditions of the majority of the population. In a society such as the Brazilian one, which features an evident lack of resources aimed at education, health, public safety, transportation, sanitary conditions (such as water and waste) and care for the environment, the resources used for

supporting the dissemination of science and technology should be used carefully and sparingly. Projects by channels that disseminate scientific and technological research aimed at the general population should be looked up, recognized and rewarded. In this sense, the decrease of printed journals and the migration of papers to research portals based on well-designed projects would reduce knowledge dissemination costs.

Channels should take into account, among other projects, publishing papers by starting authors, stimulate the publication of co-authored papers written by scientific initiation researchers, master students, doctoral students, doctors and post-doctors. In other words, not only famous authors should be focused on, but also starting researchers and group production. Channels should also improve and renew their editorial teams.

Finally, the management style of that new configuration shouldn’t be authoritarian at all. Public and private institutions that are part of that new momentum should perform their functions and roles with great sensitivity and delicacy so as to become aware of the weaknesses, the points of resistance, and difficulties that hamper the dissemination of papers among readers, thus stimulating change and development rather than eliminating the weak. However, that configuration requires much creative flexibility, i.e. it shouldn’t become a set of strict rules. Each publication channel should be treated as a unique entity that needs attention, care and encouragement.

After all, internationalization policy of scientific knowledge is an ideal to be pursued in an unequal and combined form; it shouldn’t be imposed boldly by those in charge of its dissemination.