



## EDITORIAL NOTE

# To charge or not to charge, that is the question!

ALEXANDER W.A. KELLNER

Year after year, the issue of charging for publications (and there are several ways to do it) continues to haunt the scientific publishing industry. Researchers, publishers, and funding agencies face this dilemma, and no consensual solution appears to be on the horizon. Open access journals (OAJ) carry out their editorial activity by charging authors with article processing-charges (APC, Solomon & Björk 2012) and there is a tendency for scientists to favor these journals (e.g., Alencar & Barbosa 2021). Studies show that several researchers are receiving support from their institution to pay for publication fees in open access periodicals, which sometimes have a limit imposed by funding agencies (e.g., Jahn & Tullney 2016).

On the other end of the spectrum, many scientists, especially from developing countries, simply cannot afford to have their studies freely available in journals that charge for publication (e.g., Mekonnen et al. 2022). This fact has increased the gap between researchers working in countries with stronger economies to the detriment of those working in less developed economies. For some time now, criticism of publishers who charge too much for providing free access to their journals has been increasing (e.g., Öchsner 2013). There is also a growing discussion about having articles whose research has received government funding, freely accessible to all, which has provoked protests against major scientific publishers (e.g., Spiegel 2012). Nature's recent proposal that authors pay a flat fee of €9,500 to have their article open access has outraged several researchers (e.g., Esteves 2020). To add to this problematic, publication prices can vary widely, without reasonable explanations: from a few hundreds to thousands of US dollars! Yes, occasionally publishers issue waivers, but honestly, who gets them? And how often does this happen? Not to mention the predatory journals, which have increased their activities sending emails around the globe to convince authors to publish their articles with them (Sureda-Negre et al. 2022). I think everyone has received some of these unwanted messages...

On the one hand, we scientists - yes, I happen to be one - work in the field that we choose and that makes us very happy. At least that's the situation for a large part of the scientific community. Our aim is to try to understand the world around us by trying to answer specific questions using scientific reasoning (formulating hypotheses, performing experiments, testing, interpreting, and doing it all over again if new evidence comes to light).

There are a wide variety of areas in science that researchers are involved in: curing a disease (tons of papers from different authors need to be written to achieve that goal), the effects of a

pandemic (touching various aspects, including economics and psychology), characterizing a new species (from dinosaurs to flies), ways to increase productivity without losing food security (crops and livestock), the effect of climate change (everyone is feeling it now), interpreting physical phenomena (particle science or the information being made available by advanced telescopes sent from space), the steps to solve mathematical problems (e.g., Euclidean geometries), the variety of practical issues that occupy the minds of engineers (e.g., to produce better bridges and buildings in areas subject to natural hazards), and much more! To do that, we need to be employed and get grants so that we can pursue our scientific dreams. And, to achieve this, after having to go through a formal education that lasts at least a decade in which we are poorly paid (internship, undergraduate, master's, doctorate, and several postdocs), you must be scientifically productive, which, to sum up, is measured in publications. Yes, not just the amount (although that's still a variable everyone keeps an eye on when evaluating a resume), but where you publish and how many citations your work receives over time (preferably in the first two years after the year of publication). Taking all this into account, it seems odd that a researcher needs to pay to publish the results of studies that, in most cases, he is more than happy to distribute freely. Making it available without costs to other scientists is not the problem, but having to pay to do so is! There are variations in payments: to make your discovery completely free from day one of publication or to make it available after a certain period of time. Or, to have access to "that" paper that just came out and that can help with your study. How many times do we face the ethical dilemma of resisting not to download the publication on sites where, by "chance", this work can be obtained for free?

On the other hand, journals have publication costs! And we need the journals - how else are we going to let our colleagues know about the big and important (at least for us) discovery we have just made? Yes, there is social media, but, honestly, no scientist can use this information without having second thoughts. Consulting papers published by journals with strong editorial policies is the only reliable way for a scientist to use the data of others in his own work. Yes, there are retractions of studies even in reputable journals, which has generated great concern, but the fact is that we need a system that makes us comfortable enough to feel that the information we are obtaining has a minimum chance of being trustworthy. And there are costs for that.

Recently I had my fair share of "*realpolitik*" when it comes to publication fees. In a journal that charges for publication, one of my students sent in the result of his master dissertation, asking for a waiver. The journal did not respond to the request and proceeded with the traditional review process. After acceptance, even with a tentative publication date, we start getting a bill. We tried to explain the situation and, before we knew it, the journal just published the paper, without letting us know in advance! We did not even have the opportunity (or would that be a courtesy?) of receiving a proof for review, which in all my years as a scientist (and I have many!) had never happened before. But that was not all. Without any information or warning, all acknowledgments regarding funding were excluded, including the master's scholarship that my student had received! And the bill with the publication fee continued to be sent for some time... We are talking not about a predatory periodical but a famous journal that started claiming to be an alternative to other journals with high publication fees. How much would it have cost to send us a proof? If they did not like the idea of a waiver for that article, why not inform us from the beginning but confronting us with the fact of publication to try to

get paid? Lastly, does the fact that we could not pay authorize the editors to exclude recognition of a master's scholarship? From any angle, this is definitively not the right way to go.

While my general feeling is that completely free journals are on the verge of extinction (I study dinosaurs, by the way), one would hope that these periodicals would be preferred and appreciated by scientists to submit high quality research results. However, I'm not sure this is happening. Considering the Annals of the Brazilian Academy of Sciences (AABC), the only multidisciplinary periodical of a broad nature edited in Brazil, a selection of articles published in a period of time showed that a large percentage (~20%) did not receive any citation in the two years following the year of publication (Kellner 2021a). Since this is the main bibliometric index for periodicals, despite not having to pay any kind of fee, these articles have not contributed to the Impact Factor of this journal, which, unfortunately, is recurrent (e.g., Kellner 2022). Evidently, not having publication costs is not the only - perhaps not even the most determinant - factor for the decision-making process where researchers submit the best results of their research. But the question remains: the fact that a journal does not charge to publish and is open access would not encourage some authors to submit, let's say, less important papers, especially in the current scientific scenario where a larger volume of publications could be considered advantageous to progress in the career? I'm not aware of any studies on the influence of paid or unpaid journals on the quality of the research they publish, but it would be interesting to examine this issue more deeply (yes, an interesting can of worms - any takers?). Certainly, a more careful analysis by editors and reviewers could eliminate those articles with less potential for impact, which admittedly is something quite problematic, but needs to be addressed.

The current scientific publishing industry has several problems to be faced, from harassment in scientific environments (e.g., Brito et al. 2022) to the underrepresentation of women in the scientific arena (e.g., Oliveira et al. 2021), in addition to several other issues that are not being discussed with the intensity they deserve (e.g., Kowaltowski et al. 2021, Kellner 2021b). But the need for publications to advance one's career is a problem that has not been adequately addressed and can certainly be blamed for the large (and perhaps unnecessary) number of published articles where authors tend to save the best ones for high profile and higher IF journals, even those with very high publication fees. It is important to give some thoughts to these questions.

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