

## DEBATE

## The Death of the Scientific Journal?

Hanna NORSTED, PhD, Scientific writer

Acta Dermato-Venereologica, S:t Johannesgatan 22, SE-753 12 Uppsala, Sweden. E-mail: hanna.norsted@medicaljournals.se

Facebook, Twitter and Instagram have quickly become part of our everyday life and more and more scientists are using social media as means to communicate science and promote their research. It has proven to be a useful tool to spark interest in science, which perhaps is why an increasing number of researchers choose to publish their data on social media platforms instead of good old-fashioned journals. In fact, many argue that traditional peer review will eventually become obsolete and that publishing directly online is the way forward.

Vincent Racaniello, renowned virologist at Columbia University, has for a long time been a forerunner of integrating social media in science and one who is keen to see a makeover of the traditional peer review process. He is the creator of the popular podcast This week in virology (TWiV) where he and other scientists discuss topics related to virology. The podcast is a great example of how to make science interesting even to those who usually find it boring. Vincent Racaniello is convinced that scientists must embrace social media to enhance research and he regularly posts research data on his blog and discuss the experiments with his readers. However, the risk of someone stealing his ideas is not something he worries about. *“My philosophy is: if you have an idea first, and cannot finish it before someone else does, then it’s not yours to finish. In the end it is not whether an individual finishes a project first; it is whether the question is answered so the results can help advance science. I think researchers need to get used to not owning a project, but only lending to solving the problems involved”*, he says when I interview him. He states that he would love to see the end of peer reviewed journals as they, in his opinion, have corrupted science because they only publish what is considered ‘hot’ to gain revenue. Another concern is that many reviewers submit highly critical reviews as a way of delaying publication by their competitors. *“In the ideal world, papers would be published online without peer review, and whether they are correct or not would be determined by future experimentation. In reality most research findings are never validated and remain unnoticed in the literature. The most important ones would be followed up by others and validated – or not. However, I don’t think the results will simply be published on personal blogs; I do believe sites dedicated to archiving data must be established, such as arxiv.org.”*

Research validation is a common argument by those who are pro-peer review. They claim the general public without knowledge of science or statistics cannot interpret complicated research data. But then again, can reviewers?

In 2013, John Bohannon of Science fabricated a spoof article to illustrate the shortcomings of the review process of many open access journals. Briefly, he described the



Fig. 1. Is the traditional scientific journal forever buried or will it rise like a phoenix from the ashes?

anticancer properties of a chemical with fabricated African authors and affiliations randomly generated from online databases. Molecular biologists at Harvard University agreed to be virtual reviewers to ensure that the article was flawed yet credible. They quickly commented on Bohannon’s native English, so Bohannon translated the paper into French with Google Translate and then back into English. With a few corrections to make the article grammatically correct but with the idiom of a non-native speaker, Bohannon submitted the paper (with minor variations so not to arouse suspicions) to 304 open access journals. Perhaps the most well known open access journal, PLOS ONE, meticulously scrutinised the manuscript before sending it out for review. Two weeks later the article was rejected based on its poor scientific quality. However, more than half of the journals accepted the paper, an alarming number to say the least.

So what can we learn from this? Well, basically that peer review only works if the peers really review. Bohannon and Racaniello both highlight the flaws with peer review, but where Racaniello wants to abandon it altogether, Bohannon thinks journals must honour their obligation to peer review. Personally, I lean more towards Bohannon’s argument, but I do admire Vincent Racaniello’s vision to make science more accessible to the public. Science should be out there for everyone and no competition between scientists should stand in the way of scientific progress.

And for those of you who toy with the idea to start blogging about your research, here’s what Vincent Racaniello, with 6,000 followers on Twitter, advises you to do: *“The public loves to interact with scientists – the key is to have something to say. I intersperse educational information with criticism and commentary on what is visible to the public... Take what you know, and what you are passionate about, and bring it to the public in a clear and compelling way, and you will be heard.”*