To What extend are Early Career Researchers the Harbingers of Change?

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The work presented here is a long-term research, which was initiated thanks to a study commissioned by Europe, in which we investigated the practices of young researchers around social networks. This study gave us the opportunity to discover a demography in its own right, designated by the dedicated keyword "early career researchers" in English, which can be used as such for bibliographic research. This demographic category is that of the digital natives who have highly developed digital practices, as well as trajectories and career paths that are at the heart of the attention of various players in the academic world, such as large groups of scientific publishers, funding agencies, but also social networking platforms, for example.

It is a social category in the academic world, which has a particular status and position, always in between: between seniors and the very young, between different communities, in the making in terms of career, but also at the hinge of two worlds. And it is around this community that we launched a research project that was funded by the Sloan Foundation and the Publishing Research Consortium over a long period, between 2016 and 2022, and which includes the current pandemic and looks at several countries around the world: France of course, Great Britain, Spain, the United States, China, Russia, and Malaysia. The study constituted an observatory around which we selected 168 young researchers, with whom we conducted semi-structured interviews throughout this period, every year, and every six months since the pandemic. 23 themes were explored in depth, since the interviews could last up to three hours, by exploiting their CVs and their accounts on academic social networks. These researchers were spread across the fields of life sciences, hard sciences, and social sciences, but not the humanities.

While the results show differences between countries, between researchers and between disciplines, where all the results converge in a particularly significant way is that there is a very significant alignment of researchers' practices and representations around research evaluation issues. This alignment comes from the
fact that there is a cult and a culture of scientific production around the article in high-impact journals, very early in the career of young researchers, from the Master’s level onwards. As Toma Susi pointed out, the career starts very early, and it happens that Master 2 students are involved in research work and are authors of articles. From the Master’s level onwards, students are involved in this logic of submitting articles, thinking in terms of articles, and producing articles in the best journals, the highest ranked ones, what we call A-rank journals with the highest impact factors, to constitute a form of distinction that will enable them to embark on a research career.

There is a real impact factor culture in the way we train young researchers, and this culture is sometimes negotiated between young researchers and senior researchers: am I going to submit this article to this journal with a high impact factor, or have a safer strategy and submit to a journal with a lower impact factor, or the opposite? These strategies, which are found from one young researcher to another, from one country to another, are really structured around the impact factor and the international databases, I am thinking of the Web of Science, Scopus, which are there to root for and justify this strategy.

We can speak of a culture in terms of scientific production, of "Publish or Perish". This focus on articles in high-impact journals, because there is a common terminology, has absolutely similar configurations and normative principles that really mobilize the same practices, actions and the strategies among all the young researchers that we have been able to interview over all these years, strategies that are moreover exacerbated with time. When we give them the floor, young researchers say that "you are what you publish". This title is only a verbatim of a young researcher interviewed. At the heart of this representation, the paper, the famous article, is an infinite quest since the collaborations built, the visits, the scientific stays, the mobilities, the post-docs that one goes to do in different countries, the methods that one learns, the protocols that one develops, have a common destiny: to be published in a journal with a high impact factor. There is also a particularly interesting phenomenon, which is the zombie paper, the zombie article, which is always late, which we always try to finish, and no matter how long it takes, we carry it around with us. It is possible to finish a contract, to go on to another research funding, and despite that, to keep trying to finish it, because this paper will have to justify a line in the CV.

Another point is the drift that this can lead to, namely the "Publish and be wrong", in the sense that by trying to publish quickly and easily, one sometimes targets a bad journal, which is not necessarily a quality journal, or results that are not
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consolidated. In other words, we don't take the time to make sure that the positive results we had the first time are repeated and confirmed, and we publish too quickly results that are ultimately invalid.

Another issue concerns what can be called the mythology in CVs, carried by the injunction that young researchers must absolutely demonstrate a long list of publications in impact factor journals. When they all align themselves with this strategy, and then present themselves to a recruitment committee, what makes the difference? When they all have the same CV, having published in the right journals, with the right people, having done postdocs in the right prestigious places, what makes the difference? That's one aspect that really challenges these strategies.

There are also all these tasks, all these activities, all these things that you do around the work cycle of a researcher that are not mentioned in a CV, that are not taken into account.

It should also be pointed out that when young researchers develop an interdisciplinary, multidisciplinary profile and then publish, they often find it difficult to find journals with a high impact factor that are able to accept research that conveys this interdisciplinarity. The logic of valuing multidisciplinarity on the one hand, and not always finding an adequate, prestigious publication venue with a high impact factor on the other, is sometimes problematic, and it produces epistemic inequalities between researchers. And then there is the famous Matthieu effect, the law of cumulative advantages that says that when you have published once in a prestigious journal with prestigious authors, you have a better chance of publishing in other prestigious journals and of being integrated into prestigious groups. This is a mechanism that young researchers integrate very quickly, without particularly knowing the name or the principle.

How to change the rules? How to confront the peers? How to question these rules, even though with these peers, there is the image of two roped climbers who climb a wall and are connected by a certain solidarity. The seniors look after the interests of the juniors and, for example, recommend that they publish in prestigious journals because that's how you get into the system. They see themselves as the guardians of the temple and want to maintain this tradition, this way of working, and they want the young researchers to reproduce it. And in fact, what the results of the Harbinger project show us, especially today, is that the revolution will necessarily take place without the peers, without the seniors, because you have to take risks, you have to seize opportunities, the preprint servers are proof of that. We have to encourage activities, work that is not sufficiently valued for the moment, such as the work that is done
around data. The pandemic has also shown how important it is to deal with data, to value it and to share it. I draw a parallel with an 18th century literary work, Carl Von Carlsberg, a novel about a young university assistant in Germany who couldn't get a permanent position, and after a while confided in one of his peers who said, "You just have to marry one of our daughters, since we have many daughters. So if you want to join the circle, you have to join it by marrying one of our girls." The novel is known for this, and I find the parallel particularly interesting.

Another point I would like to quickly go over is that this injunction to publish a lot of articles in high impact factor journals, since there is a very strong focus on articles, can create confusion and misunderstandings, which social networking platforms have been very good at exploiting since the digital practices of young researchers mean that they are browsing the web, on platforms, and they sometimes lose their bearings between these platforms and the differences between them. It is not uncommon to see young researchers who are very happy to use social networks such as ResearchGate to seek visibility, to seek social capital, and to observe how communities function because they find their peers and colleagues on these platforms, to the point of confusing these social network platforms with open archives. Besides, if we take the SciHub phenomenon, some researchers justify it by saying clearly that they participate in a form of opening of scientific publication, since it is closed and it must be opened, and that SciHub contributes to it. So, this leads to these confusions, which are ultimately real obstacles to legitimate and official models of open access and open science.

How to open up the game? First, on an individual and collective scale, these young researchers we've talked to over the years don't believe in the impact factor. They play with it, as they say, they have to deal with it, but they don't believe in it and they don't share the logic of the impact factor. They question it, and are very aware that neither the impact factor nor the new indicators are the solution to the system. Some of the young researchers interviewed are gamers, who say they know very well how to "game" the system, how the indicators work, and how to play with them. In fact, the arguments they put forward are the arguments of DORA, without mentioning DORA, which they do not necessarily know. So we are in a very troubling alignment when we analyse the interviews, because they are already compliant with what we claim, but without wanting to name it.

I will end with an extremely important point, namely the results of the pandemic period of the study, which showed to what extent the pandemic has very significantly modified the practices, representations and strategies of the young researchers we knew until then or who joined the study. New trajectories are emerging.
The pandemic showed this generation how far science was in an ivory tower from society. They were very mobilized, very attentive, and very interested in observing the way in which information about the virus circulated in the media, the way in which the debate about vaccines occupied our daily lives, and the debate they made was that by dint of chasing publications, chasing impact factors, science had finally forgotten to address society, the citizens. The question of the debate on science in society, of the dissemination of knowledge to society, has become for some the absolute emergency, to the point that they have changed their career path and do not wish to join the academic world, but rather the world of knowledge dissemination and scientific mediation. We are facing a generation that is changing its career objectives, and that says that science should have the possibility, the right to be wrong, and to recreate scientific debate because the system as it works today does not allow for debate. It just allows for publication in high impact journals to prove that one is right. Finally, they want the way science communicates to adapt to today's world, to allow more diversity in the forms of knowledge, in the new skills that can be valued today, and in the new forms of value that allow us to take into account the complexity of science today, which is not the same as it was at the beginning of the 20th century, not the same as it was at the time of Pierre and Marie Curie in any case.

To conclude, I would like to quote a researcher who left the system saying that he no longer recognized himself in this game, that he wanted to "stop playing" because the pandemic has shown on a worldwide, globalized scale that the ultimate goal of science is to advance knowledge, not to advance egos, indicators, figures or business figures.

To go a step further

“Scholarly publication should not be restricted to journals and articles. It is a question of how to bring value to other skill sets and to other areas of expertise which do not necessarily result in the publication of a paper.”

“In the change of paradigm, heading towards research assessment which is more quality-based, what you do is you make it possible for researchers to be active participants in this assessment. You ask researchers what fields of research and which research activities they consider to matter most over a period of time. You get indicators based on the opinions of researchers rather than ones provided by very costly databases owned by hegemonic commercial players.”
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