

beginning of the project. There is, however, one thing they steadfastly will not do and that is cite the social media. That is going too far.

Summing up, it does seem that social media have come of age. Reputational concerns and time pressures associated with paper publishing do stand in the way of greater use. However, there is no real evidence to believe that, in time, social media will take over the role of the more traditional means of communication, such as paper publishing, and so transform it.

## Metrics

*Increasing measurement, especially by citations, is a key characteristic of the scholarly communications system and is used widely in appraisals and for reputational purposes. ECRs are uncomfortable with the dominance of metrics but are not highly critical of them.*

Metrics are seemingly a rock-solid aspect of scholarly communications, and by metrics, ECRs really mean citation-based ones, which provide the principal means of evaluating the formal system, its papers, and users. We have here another case of ECRs not necessarily liking a scholarly aspect, more a case of having to put up with it. Maybe that is why, in conversations with ECRs, they appeared bored when asked about them, seldom coming to the defence of citations by pointing to their attractions. Although, plainly, they are well aware of their importance to their appraisals, careers, and reputation. As one ECR said: 'Citations are everything and everything is related to citation'. Ironically, even in the face of potential competition from altmetrics, citations are becoming even more entrenched, and this is because universities view citations as a measure of research excellence and the means to improve their world rankings.

There is, however, a growing interest in altmetrics among ECRs, but despite what purveyors of altmetrics may say, they do not regard them so much as measures of research impact but more social impact – a gauge of popularity, reach, interest, and curiosity. *Impact is all about citations and/or utility for society, altmetrics on the other hand just tell us about curiosity.* What ECRs, however, are waking up to is the fact that altmetrics could lead to more citations: 'Citations are the important research measure, but obtaining good altmetrics might mean that you will get citations in the future'.

Recent interest is, no doubt, fuelled by the fact that a few universities (in China especially) are providing ECRs credit for their altmetric scores and that national policies in Spain and France, for instance, are being formulated to take into account social impact scores of ECRs. Finally, there is some discomfort (no more than that) that ECRs are part of an increasingly metric-driven world in which metrics are not actually measuring quality or impact and narrowing academic choices.

## Impact

*After collaboration, research impact is the activity that shows the greatest growth in ECR interest, but impact is still fundamentally all about citations.*

For ECRs, every scholarly activity has a goal, which is to increase their competitive edge in order to obtain that prized secure position. This is why there is so much interest in making an impact, and it is, in fact, the fastest growing scholarly aspect in terms of increased positive interest and practice for ECRs. This is, no doubt, fuelled by national policies, such as the UK's Research Evaluation Framework and blandishments from publishers and social scholarly networks platforms claiming they can offer evidence of 'impact'. ECRs view impact as largely influencing one's peers, and as mentioned, success in this is largely determined by citations. Less so, it is also seen to be successfully reaching out to policymakers and the general public, 'I am more conscious of the importance of the dissemination of our research to a general public in order to wake up the interest of the generations about science. So, with the new technologies is very easy to make this so'. Spanish ECRs are particularly passionate about making an impact by reaching out: 'To build bridges with society is a must'. Most would concur with this but do not feel qualified to engage in outreach activities, and because of the demands of paper publishing, they simply did not have the time to engage. ECRs are awaiting government initiatives to enable them to undertake these activities and obtain the requisite reward or reputational advantage.

## Ethical practices

*There is recognition that ethics is a widespread problem, with the reason being that the reputational system is so demanding with respect to paper publishing and predatory journals, which open the door to wider unethical behaviour.*

Because there is no consensus here as to what is considered unethical and because of its sensitivity, it is a difficult scholarly aspect to question ECRs about, but there is a recognition that there is a problem. It is widely felt by ECRs that more misconduct has occurred in recent years, and this has been combated by the introduction of more and better ethical procedures/training and calls to integrate ethics standard in all aspects of the research and publishing cycle. ECRs are more knowledgeable because of the likes of Committee on Publication Ethics (COPE), Retraction Watch, and the Scholarly Kitchen blog, but there is a concern that the existing policing systems are being overwhelmed by the sheer volume of unethical behaviour.

The blame for rising levels of unethical behaviour is levelled variously at predatory publishers, open (unpoliced) science, journal editors attempting to raise the impact factor of their journals, reviewers with vested interests, and the pressures placed on researchers to publish.

There is, however, a marked difference in opinion between the English-language countries and the others, with ECRs from UK and USA exhibiting very little interest or concern about ethical behaviour. This could be explained by two factors: (1) coming from mature scholarly communication countries, ECRs believe – possibly complacently so – that their house is in order, and (b) they believe their own publishing behaviour is ethical and are not particularly interested in generalizations about what others are doing.