HARBINGERS STUDY: YEAR 2

Interim report

CIBER Research, 10 May 2017

Contents

1.0 Introduction

The second year of the project is really the first year when we can say anything reasonably solid about change and trends. The first year basically provided a benchmark of behaviours and attitudes against which change could be measured. We shall therefore concentrate on changes in this interim report. However, in addition, we have obtained greater understanding on issues previously reported as a consequence of the extended time we had to discuss them and the fact that ECRs opened out more because of their familiarity with us and evidence of this is provided in the report. The value of returning to ECRs meant we could also ask ECRs new questions suggested by the PRC and we show some examples of this, too

We are still interviewing (around a quarter still to do) and sometime off writing-up the data and evaluations, so what we say should not be regarded as definitive or complete. Deeper evaluation of the UK and US data has been conducted, but this too is not complete.

We began with 116 ECRs and 'over recruited' on our target of 100 in order to allow for ECRs dropping out and it is good to report that, as of the 9th May, we have had only 1 ECR dropping out. We might anticipate losing a few more.

2.0 Summary

Table 1 attempts to summarise the extent and significance of the changes identified. It can be seen that in most countries there are signs or pockets of minor change. The data in the Table does need to be treated with a little caution because we are not exactly comparing like with like because this time around we have not needed to go back to questions about career history and to a lesser extent practices, so we have had more time to concentrate, not only on the new questions, but on some of the other significant questions particularly towards the end of the list which we could not probe too much last year because of time and fatigue constraints. Also, what the Table does not show is that there are some general trends continuing and some which seem to have stalled and this information and can be obtained from the following country reports and a brief summary follows.

Essentially, ECRs are much more experienced and informed and have become more selective in their behaviour. Collaboration is being appreciated and Open Access journals more so. ECRs are becoming much more interested in obtaining digital visibility. Social media and online communities, especially ResearchGate are better known and used more. Smartphone use is rising. Open science and its facets are beginning to be talked about and, occasionally, practiced. Ethical behaviour is also becoming a matter of concern. There is still no interest in altmetrics. Probing more about libraries this year show that ECRS are aware of their role in discovery. The mature scholarly environments of the UK/USA mean that ECRs there work and think a little differently. The main thing that has not changed is that many ECRs feel stressed and pressured, and perhaps, more so than in 2016.

Table 1: General levels of change in scholarly communications attitudes and practice: a country analysis

	China	France	Malaysia	Poland	Spain	UK	US
Widespread and **significant** changes from last year							
Pockets of **significant** changes from last year	√						
Widespread, **minor** changes from last year							
Pockets of **minor** changes from last year		√	√	√	√	√	√
Appears to be **very little** changes from last year							

3.0 China

State of play

All 13 ECRs have been interviewed.

Movements

Two began visiting scholarships in North America and a third has left for industry.

Changes/trends

- **Collaboration.** All ECRs now believe that collaboration is important and most have started cross-institutional collaboration. Five ECRs are now involved in international collaboration, whereas last year 3 ECRs were so involved. Three felt that international collaboration helps them meet and work with experts. Another two said international collaboration enhances their group's influence/prestige.

- **Career development.** Diversity can be seen here, with career aims changing. There is more desire to change jobs. In fact, 1 ECR has quit their postdoctoral position and found a research job in a company. However, on the other hand, some ECRs have even more faith in their university researcher career.

- **ECRS are becoming more pragmatic**. Gaining a tenure track is becoming ever more important. (9 ECRs put it first as their objective, 2 as their second). Promotion and

academic titles are becoming all important. The majority (7) of ECRs felt more pressure from the evaluation system, which made them feel unstable. A few ECRs said they are well on their way and are confident of being promoted within 3 years.

- **Academic communication behaviour and social media use.** Reading and sharing academic papers on Wechat is on the increase. This year 11 said they read papers on Wechat and all said they share academic information on it.

- **Growing importance of Chinese publications**. Two said they used to read English papers only. But now, they turn to Chinese review/positioning papers because it helps them to understand the background information for a discipline. The reasons for the change are as yet unclear.

- **Smartphones.** Three ECRs said they now read more scholarly publications on their smartphones.

- **Returning to the traditional.** One ECR said they used to cite social media directly, but now traces the original paper mentioned by the social media and cites the original source.

- **Authorship.** a) Policies on corresponding authorship are tightening-up. Nowadays, many universities only give credit to the first author when it comes to career promotion. So, corresponding authorship is becoming a thing of little value. ECRs feel more stressed because of the greater pressure of becoming the first author; b) ECRs feel freer when it comes to journal selection in the second working year; c) 3 ECRs or their groups have now published in OA journals; d) ECRs are increasingly worried about OA quality, for example, PloS One (4 mentions), but not everyone believes that with 2 ECRs saying the quality of OA journals is improving; e) Journal reputation and quality are becoming more important than impact factor, but OA or not still does not count.

- **Peer review**. ECRs are starting to review papers and this experience makes them more likely to dispute issues with foreign reviewers. But they are more reluctant to argue with domestic reviewers even if they believe they are right and the reviewers are wrong, because they are afraid of offending them and provoking retaliation. Some (4) referred to the big recall of Chinese papers by Springer Nature recently. They seem to know more about peer review system because of this recall and are more concerned about it.

- **Open Science.** There is more awareness of OS with 2 ECRs practicing it, although open peer review still remains suspect.

- **Outreach**: They are not so interested in reaching the public and are focussing their efforts on their core authorship – their peers. An example of a trend that has stalled.

Interim conclusions

ECRs are said to be 'tortured' with anxiety, while last year they were just 'stressed'. This because:

1) The assessment system gives ECRs a certain period of time to meet the requirements, 3 or 4 years usually, and one year/two years has past and they are soon going to be running out of time to obtain tenure.

2) The rules and policies are changing, they feel lost somehow. For instance, the corresponding author policy and the journal ranking list released by MOE and their universities.

3) As they progress in their careers they meet difficulties in their relationships with their colleagues/peers/mentors/PIs/students. More than half of them complained about their work/lab/office relationship.

ECRs are also using social media and online platforms more.

4.0 France

State of play

4/13 ECRs have been interviewed.

Movements.

- 7 ECRs have now an academic position in French universities. They will be tenured in a year, as it is the case in France (they obtain tenure in one year, rather than the 6 or 7 years that is common in some other countries).
- 4 have a new post doc contract (2 in France, 1 in UK, 1 in Switzerland)
- 3 are in the same situation as last year.

Changes/trends

- They all have **published** at least one more paper
- They all think that their **publication strategies** "worked" and they will keep doing the same for this year of tenure.
- They are more interested in **building new collaborations** with their local colleagues, to enhance their position, but at the same time, they want to keep their former collaborations, especially international ones.

- They are better informed on **social media**. Social media are also more widely used and RG is becoming more embedded in their daily practices. Sci-Hub and LibGenesis are now also being mentioned.
- They are **better informed about OA** but are still not publishing OA papers.
- They are clearly **more confident about the future**, they think that now they are in, they are better positioned to contribute to changes, at least in theory.
- There is one more user of **Smartphones** for scholarly purpose, but no radical changes really.
- Their **common objective** is less targeted towards publications and more targeted towards preparing research projects, which will help to build their new positions.

Interim conclusions

ECRs feel more confident about the future, for those who are in position (those interviewed), they are more able to foresee changes occurring. They are more convinced about social media, and particularly RG. They think that they bring a new mind set and that will contribute to change the system.

5.0 Malaysia

State of play

Eight/fourteen participants interviewed so far (7 sciences, 1 non-science).

Movements

Six out of 14 are still in the same university. Two have been officially tenured. Two have left the university: 1) one has left the university for a researcher position in the UK – visiting scholar (2 years); 2) one has left the university for a lecturer post in Dubai (contract – 2 years)

Unchanging

- **Career aims.** No changes here - all participants admitted to still wanting a career as a university researcher.
- **Online community and social media.** Not much changes on this front.

- **OA journals**. No changes here and it is still the case that ECRs will only publish in OA journals if they are WoS-indexed. Even the ECR who is now based in UK is adamant that as *"I would be coming back to UM in two years' time and I am sure the criteria remain the same"*.

Changes/trends

- **Research projects**. All ECRs complained that national research funding is increasingly limited and they need to work on new proposals that put more emphasis on research "engagement" and "impact". The scientists said that they have to look for funding elsewhere and work closely with the private sector to explore how their research discoveries can be commercialized.

- **Publishing**. The scientists continue to be very productive with producing an average of 7 papers in 2016. While the importance of publishing in WoS-indexed journals is still there, this time around, most mentioned selecting journals that have time-stamp data – *"I can't wait forever to publish my precious research", "The publication took a longer time that the actual research done".* Also, a new source, ESCI, was highlighted by a few ECRs. A non-scientist mentioned they would publish in ESCI-indexed journals, of which they feel is a mark of quality.

- **Greater interest in obtaining online visibility.** A few have started using Kudos. All now have either a web CV or an online presence through ResearcherID, OrchidID and ScopusID.

- **Authorship.** ECRs are more thoughtful and certain about who should be included in the authorship statement; emphasizing that order of authorship should be a joint decision of the co-authors. Deciding who the corresponding author is still an issue (being corresponding author has more weightage in promotion) and they are happy that some journals allow more than one corresponding author. They cannot do much about gift and guest authorship, if the publication is a result of a funded research of which they are not the principal investigator.

- **Institutional repositories**. ECRs have started to archive their pre-prints on their university experts profile and also submit to the library for inclusion in the E-print repository as this is now a requirement for performance assessment.

- **Peer review.** All ECRs have had experience reviewing papers and as a consequence are now becoming more selective of the papers that they are invited to review. All said they will only review for WoS or Scopus-indexed journals. Just one ECR keen on open peer review.

- There is further proof that **international collaboration** with established researchers is thought to secure posts abroad.

- **Metrics.** ECRs are still very much conscious of their scientific metric indicators; they keep track of their citations and h-index. Citations, h-index count for promotion and important in securing grant funding. There are surprisingly few complaints about this state of affairs. Perhaps, they have come to terms that metric scores are important for both their reputation and career progression? However, they are more interested in the article-level metrics on WoS and Scopus, even Google Scholar. Three ECRs have now attended workshops on how to make them visible on the web, and how to monitor who is reading and talking about their research.

- **Unethical behaviours and related.** ECRs have a lot to say about this this time around. Fake review has been frequently cited as unethical behaviour and this is new! They talked about the consequences of unethical behaviours in publication – especially article retraction and withdrawal. The scientists follow Retraction Watch. They are aware of specific incidents of misconduct among peers and those higher in the academic structure of the university as people have been gossiping about them.

- **Transformations.** Now, all those interviewed felt that in 5 years' time academics will still be typically recruited, promoted and obtain funding solely on the basis of their publication record and citation scores based accumulated reputation. They have seen cases where the contract of their peers who could not meet their KPI were not extended.

6.0 Poland

State of play

All 11 have been interviewed

Movements

There were no changes in job or role. All Polish ECRs are still connected with University of Warmia and Mazury in Olsztyn. No new PhDs or Habilitations. Still 50% of ECRs are PhD students and 50% are postdocs.

ECRs are still publishing, with 80% having published new articles or chapters, 50% of ECRs have new articles published in list A journals (the top list). Still the majority (80-90%) want a career as university researchers

Unchanging

- They are not familiar with **mega journals**

Changes/trends

Sometimes ECRs could not quite explain why changes have occurred. There are no big changes in scholarly communication behaviour (they still use WoS, Scopus, Google Scholar extensively), but there are smaller, perhaps, significant changes:

- There is a little bit more interest relating to **ResearchGate**, in having an active account (with photo) and uploading their work as well as logging-in more often.

- ECRs feel more **pressure to publish** (articles in list A) and to obtain points for publications and others activities.

- They are more conscious about the need to have a **publication strategy**. Last year 7 had one and now all (100%) say they have one. And this strategy is to publish in list A (or journals from WoS, with IF) for almost all respondents (90%).

- More ECRs are unhappy with **peer review**. Thus, in the first year 7 ECRs said that it is fair; however, in the second year only 4 ECRs thought it "fair".

- More ECRs regard their **treatment** as being unfair. Thus, in the first year 6 ECRs said "fair", but only 3 thought so in the second year. This could be down to being more comfortable (and honest) with the interviewer one year on.

- Smartphone use, however, is definitely on the increase with now only 4 ECRs not using them for scholarly purposes, compares to 7 last year. Also, there is a clear shift in the proportion of ECRs believing the library will have a central role in five years' time. In the first year 8 ECRs said this would be the case, but in the second year we are down to 3 thinking this.

Interim conclusions

The clear trends are a bigger desire to publish in list A sources amongst all ECRs and a greater use of RG, but not as a replacement more as a kind of parallel activity. Formal communication behaviours are much more important for their perception of their own career than informal channels like RG.

7.0 Spain

State of play

16 ECRs interviewed and only one left to do.

Movements.

Six changes. Two ECRs took-up postdocs in the UK, one at the University of Glasgow and the other at the University of Cranfield. One ECR who was working in Mexico (UNAM) is now at the University in León. One ECR is now working as an embedded librarian working in a research group. Two more ECRs are postdocs. Finally, one ECR was promoted to another position (but still no permanent)

All but one of the ECRs had published more papers.

Unchanging

- They are still focused on **publishing** and publishing in JCR journals. Mainly Q1 ones.
- They cite and read mainly papers in **high impact journals**.
- They **search** for papers on WoS, Scopus, PubMed and Google
- They still feel more comfortable with **double blind** review
- They do not use much mobile phones for academic purposes
- They are not interested in depositing papers in **repositories**
- They are still not interested in journals with **innovative features**
- They would still like to have more time for **dissemination activities**
- They still see problems in the **assessment system**, but do not know how to change it
- They show no interest in **altmetrics or traditional libraries**.

Changes/trends

- They are all more familiar with **scientific communication issues in general**.
- They are more informed about **OA journals** and more conscious about the advantages of them for their CV
- There is more trust in **OA journals**
- Discovery and access were asked about separately in year 2 and it is clear that they are perfectly conscious of the fact that they get access to papers through **library subscriptions.**
- Some ECRs now mention **Sci-Hub and Library Genesis** as very useful sources to get papers
- ECRs are more aware of the advantages of having an **online reputation**. They are more interested in RG and in Twitter. One ECR opened a Twitter account in English.

- A few ECRs are familiar with **mega-journals**. They know about PloS One and Scientific Report and they are happy with them
- They are becoming **canny**, so when their papers are rejected they send them to another journal with lower IF (or look for one where they know the editor or the referees)

Interim conclusions

There is a quite significant movement towards openness and social media. Changes came from older, more experienced ECR, from biomedical sciences.

8.0 UK

State of play

17 interviewed with 7 approved as final

Movements

One has left the country having received his doctorate and one is on fieldwork. Perhaps, 3 have moved into tenure track positions and, perhaps, 2 had changed universities. Of those interviewed, 1 has gone into government, 1 has returned to government in China, 2 have moved to new universities in the UK and the remainder are in more or less the same sort of jobs in UK universities and institutes. Movement out of the academy has meant that hopes to continue to do research has become very difficult if not impossible - an experience of a larger number of ECRs in the US.

Unchanging

In many ways, their attitudes and practices have not changed. For instance:

- The attitudes associated with **digital natives,** such as transparency, openness and sharing are (if anything) even more seen as guiding principles. One can assume from the 2013 CIBER study that the guiding principle of "trust" was the equivalent for older researchers. Quality was mentioned by ECRs but usually only after prompting
- **Traditional reputational focus.** Those on the academic ladder are still focussed on publishing in high impact factor journals though on the whole their rate of article publishing has decreased rather than increased. They cite and read papers in high impact journals more than anything else. They start discovery on the whole with Google Scholar but since we have altered the questions to distinguish between searching and finding it has become clear that searches often take them to full text paid for by their libraries.

- **Following their mentors**. They are aware of the demands of the Research Excellence Framework (REF) mediated by their universities, but it is also still clear that mentors or Principal Investigators still take much of the responsibility for both depositing in institutional repositories and (less so) outreach

Changes/trends

But there are some changes of note:

- **More informed but not about open science**. There is some evidence that in some cases that the questions they answered and the interaction with CIBER had led to more interest in the bigger picture as it relates to the scholarly communication ecosystem. Knowledge of this bigger picture did not however lead to hardly any more knowledge of "open science" though when the concept was explained there was general agreement in principle. There was, however, an increased interest in what you should do to make data available – see below.
- **More experienced.** One generalisation that can be made is that the majority have gained confidence with more experience, but that for many their attitudes have tended to become more fixed than changing with the extra year. A good example of this can be seen in the comments on the use of social media – see below.
- **Peer review.** The great majority have by now undertaken some peer review as well as answering comments made on their own papers often in collaboration with or delegated by their supervisors/ mentors. This increase in experience of the scholarly publication has led to more information about what has happened to them and at some time more measured statements about the usefulness of peer review in general and how it should be conducted. There was a slight decline in negative attitudes to open peer review (some people had done it for the first time). There were definitely fewer remarks suggesting that open should be equated with leniency and likewise less fear. There was an increased interest in using double blind even when not standard in their disciplines.
- **Open access**. In general, there has been an increase in positive views of open access. For example, there are even fewer concerns about dilution of quality consequent on open access journals gaining traction combined by an even greater lack of reference to predatory open too access journals. Even when it is understood by many, though not all, that deposit in institutional repositories is demanded by REF the concept of green OA is rarely referred to. It is just not seen one ways of achieving open access. Analysis of 2016 CVs made clear that there were more open access publications than had actually mentioned in interviews. In 2017 interviewees were readier to mention such publications. It was clear however that among UK ECRs, whatever their views about OA (overwhelmingly positive), comparable quality was always demanded before submissions to OA journals rather than the fact that they were OA, though

taken into account, was rarely seen as a primary reason for choice. The mismatch between principles and practice continues from the previous survey.

- **Open data.** There were fuller responses in answer to questions about data mainly because they had published more, but also because opportunities had been presented by publishers to use facilities for presenting data along with the article in supplementary form. There did not seem to be any greater use of such offshore alternatives such as figshare.

- **Social media**. There was little evidence of changing uses of social media, but there was some and it can be boiled down to the following conflicting trends. Twitter was emphasised more. It was sometimes (not often) used more or used for the first time because others used it as a means of communication – people aour ECRs wanted to interact with. This was not for example the case with Facebook. On the other hand, many of the ECRs were more conscious of various pressures on them, such as the need to complete a dissertation or to get their next funding as post doctorals: less use of twitter was one area where extra time could be gained. The dominant use of ResearchGate for profiling and for finding out what others were doing continued and there appeared to be no more use of the collaborating features.
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Additional information gleaned.

- The questions directly relating to publishers did not usually elicit any greater distrust of publisher activities in general – even of commercial publishers. Librarians are making a little more impact in relation to their services, but in part this will be due to interviewing that pointed out the role of libraries in providing access to journals. There was also (as explained) more experience of the system.

Interim conclusions

The group has become more experienced, mature and informed and we are learning more about then as a consequence of greater exposure to them. So, our understanding of the issues is that much better. Much remains the same but there appear to be trends forming (some stalling) and a number of minor, possibly, significant changes occurring, but still interviews to conduct so conclusions might change.

9.0 USA

State of play

12 interviewed with 8 of them approved as final.

Movements

Only 1 ECR is now working outside the US and the great majority are in more or less the same job with only three as yet known to be in another academic institution on tenure track, one in a community college and one in industry adding to the two/three others who had already gone into industry in 2016.

Unchanging

- The question about **open science** received answers which showed very limited recognition and real knowledge. This is surprising. This was the same in the UK.

Changes

- **Paper productivity and pressures.** It seems more common for interviewees in the US than in the UK to have a wider number of projects on the go at any one time with different line-ups of associated researchers and potentially co-authors. This can be difficult for those trying to finish a doctoral dissertation. This year at least three of those who have been interviewed so far have explained their predicament. It is not surprising in these circumstances that the number of publications produced in this last year compared with the year before seem to have gone down. Submissions seem also to have fallen.
- **Open Access.** On the surface, not much change here as the principle behind open access continues to be broadly supported. However, the big objection to actual publication in an OA journal, leaving on one side the fact that there are few journals with significant impact factors, is cost and this is mentioned even more frequently than it was in 2016. In one sense this is surprising. Traditionally US society journals have been partly financed by page charges and now apparently among the powerful medical journals submission charges are coming in. In the US, it has been argued by activists that costs for going OA are NOT a barrier because the community is used to paying money to publish BUT this does not seem to be the case neither in 2016 nor 2017.
- **Blogging**. It is possible that US researchers at least consider blogging more highly and also more so in 2016.

- **Outreach.** In spite of the lack of institutional pressure from REF there does seem to be a greater interest in outreach in the US both greater than in the UK and greater than last year. There is mention of the public as eventually the funders but there is particular mention of the failure of scientists to adequately inform policy makers. That being said there is recognition that the conventional scholarly paper does not fit the bill. They know <u>they</u> need to do more but what? There is still little or no enthusiasm for adding lay summaries to the paper and a continued lack of action in other types of communication such as blogs. Not enough time is the main reason for inaction

- **Social media and online communities.** No change in the use of social media. No new player has emerged as far as they are concerned. There is certainly no increase in the use of ResearchGate and possibly less engagement. One view is that the sharing of papers is not to advance science, but to promote themselves which seems sensible to me. ECRs see this as a profiling exercise. So far none of the interviews in either the US or the UK has mentioned SciHub either as used by them for finding papers or indeed as a site they know.

- **Open data/software.** The questions relating to data and software were answered more fully in 2017 compared with 2016. The situation in the US is much the same as it is in the UK. There was a change in both countries. Data is being much more frequently saved in supplementary matter on the journal site but note that this is data as related to a publication and not data as such as an independent entity. ECRs were not seeking a DOI for data from datacyte. There were more US interviewees creating software than was the case in the UK – a matter of the differences in the sample. These researchers characteristically used GitHub as a repository for his software.

Additional knowledge gleaned

- **Transformations**. Some questions could be concentrated on more in 2017 than was possible in 2016 and there was more information on transformations forthcoming: a) Dissemination central using open access and preprint repositories; b) More sharing and more open access; c) It depends on funders, but it is likely to be incremental rather than revolutionary; d) It is up to us to press more for transparency in the hope of greater collaboration for the advancement of mankind; e) I think we need to change funding streams, the value of scholarly publications vs. more lay person-friendly papers, and the way that researchers share information.

- **Mega journals.** In 2016, there were four mentions of the journal some positive and some negative. The answers to this new, more direct question seems to be demonstrating that on both sides of the Atlantic the mission of the mega journals is approved, PLOS is still well known but the enthusiasm for the journal itself has not grown and may have diminished

- **Peer review organised by publishers.** In 2016, the question was not really understood. Publishers were in the background and shadowy. Editors-in-chief represented the interface between the journal and the publishers in the case of most ECRs. This year

the question was presented more as a choice between commercial and learned society publishers. Publishers remained shadowy, but there was for most US (and UK) researchers interviewed so far, no real distinctions to be made between the sort of publisher. A few saw learned society publishers more appropriate hosts of peer review mechanisms and a few saw them likely to be less independent minded.

- **Reproducibility of scientific research.** This new topic was understood and, for illustration, a few selected comments follow: a) Publications of a traditional sort would not be able to give enough detail for someone else to reproduce and it would be necessary to have a quite different type of communication process; b) I try to publish in a way that is reproducible but the traditional way to find out more is to ask questions at conferences; c) For the grants they get they have to produce data sharing plans but they cannot share the data because of its confidential nature (humans) but they do include the actual protocol in their papers.

Interim conclusions

The group has become more experienced, mature and informed and we are learning more about then as a consequence of greater exposure to them. So, our understanding of the issues is that much better. Much remains the same but there appear to be trends forming (some stalling) and a number of minor, possibly, significant changes occurring, but still interviews to conduct so conclusions might change.