

EARLY CAREER RESEARCHERS: THE HARBINGERS OF CHANGE?

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Hypotheses tests

Harbingers hypotheses testing

The study tested 26 hypotheses, which arose variously from statements found in the literature, talks at conferences and raised at our two focus groups. They were used to drive the questioning and ensure focus. Table 1 lists them in their subject categories and provides comparative data for all 7 countries.

Just 2 (8%) hypotheses were *confirmed* by ECRs in all 7 countries. These were:

- *The environment in which they work is precarious*
- *ECRs prefer double blind peer review because it provides fairer appraisal.*

Obtaining the support of all countries, given the differences in size, language and geographical location is a very high bar, indeed, so we can be pretty sure that these statements represent universal truths about ECRs. Lowering the bar just a notch by including *partially confirmed* scores as well this gives us another 3 (12%) hypotheses and, interestingly, they refer to ECRs position, status and assessment in the current scholarly environment:

- *New behaviours are not really taking hold, while academics are typically recruited, promoted and obtain funding on the basis of their publication record and citation scores.*
- *They toe the line (in a scholarly communication context*
- *They are 'slaves' to a metric-based/journal focussed system, which they have to adhere to in order to climb the academic ladder*

So, we can say that 5 (20%) out of 24 hypotheses obtained widespread or close to widespread support. We can take these to be read when it comes to portraying ECRs in the scholarly environment.

On the other hand, symmetrically, 2 (8%) hypotheses were *rejected* by everyone and both of these refer to practices that might be considered to be advantageous to ECRs:

- *They publish in OA journals because they are easier to get into*
- *ECRs are interested more in social media and usage metrics because citations take so long to count.*

By allowing, additionally, one partially supported score to be included in the total we obtain a further 2 (8%) rejections:

- *ECRs are not very productive (publications).*
- *Social scientists are more favourable towards the scholarly use of social media.*

Extending the rejection net to include hypotheses with just one *confirmed* score results in the inclusion of:

- *ECRs are willing to 'bend' (game) the system to progress and get published.*

Altogether, then, 5 out of 26 (20%) hypotheses obtained fairly widespread rejection. The low productivity of ECRs is probably the most unexpected rejection here.

So, generally speaking, we could argue that our perceptions of ECRs are a bit wide off the mark.

What of the similarities/differences between countries? We need to be a bit careful as the compositions of national ECR samples are a little different. However, the following provides a scale of overall affinity for countries (i.e. sum of all pairings, how far from the crowd), with low numbers representing closeness:

ML	0.85	far out
CN	0.70	distant
UK	0.65	detached
US	0.65	detached
FR	0.60	average
SP	0.60	closer
PO	0.55	close

The UK and USA are very similar to each other; China is very different from the UK/USA, with the main clusters being:

- a) $US-UK = 0.3$
- b) $PO-SP = 0.3 + PO-FR = 0.4$

c) CN-SP = 0.5 / CN-FR = 0.5 / CN-PO = 0.6

Table 1: hypotheses testing: comparative country data

1. Background	CH	FR	ML	PO	SP	UK	US
Hypotheses to test:							
Do many jobs for short periods of time	Confirmed	Confirmed	Not confirmed	Confirmed	Confirmed	Not confirmed	Partly confirmed
They do many things on a project (multi-taskers)	Confirmed	Confirmed	Not confirmed	Confirmed	Confirmed	Not confirmed	Not confirmed
The environment in which they work is precarious	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed
There is a big drop-out rate among ECRs	Confirmed	Confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
2. Career							
Hypotheses to test:							
Getting a good (tenured) job is the major motivation, but not changing the world/science.	Not confirmed	Confirmed	Confirmed	Confirmed	Partly confirmed	Not confirmed	Partly confirmed
ECRs not very happy with their lot as research 'apprentices' or 'slaves'.	Confirmed	Confirmed	Not confirmed	Confirmed	Confirmed	Partly confirmed	Not confirmed
ECRs have little personal freedom and security.	Partly confirmed	Partly confirmed	Partly confirmed	Not confirmed	Confirmed	Partly confirmed	Partly confirmed

3. General (scholarly) communication behaviour							
Hypotheses to test:							
ECRs adopt the practices of their mentors and heads of groups to which they belong.	Not confirmed	Partly confirmed	Not confirmed	Confirmed	Partly confirmed	Partly confirmed	Confirmed
New behaviours are not really taking hold, while academics are typically recruited, promoted and obtain funding on the basis of their publication record and citation scores.	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Partly confirmed	Partly confirmed
4. Influence of social media and online communities							
Hypotheses to test:							
ECRs would like to use social media more, but traditional norms that dominate scholarly behaviour prevent them from doing so.	Partly confirmed	Not confirmed	Confirmed	Partly confirmed	Confirmed	Not confirmed	Partly confirmed
ECRs do not see social media as being scholarly 'noise', but useful for research purposes.	Confirmed	Not confirmed	Confirmed	Not confirmed	Confirmed	Partly confirmed	Not confirmed

Social scientists are more favourable towards the scholarly use of social media.	Not confirmed	N/A	Not confirmed	Not confirmed	Partly confirmed	Not confirmed	Not confirmed
ECRs are detached from institutions and more closely networked/connected with their peers.	Partly confirmed	Confirmed	Partly confirmed	Partly confirmed	Partly confirmed	Not confirmed	Not confirmed
5. Authorship, publishing and open access							
Hypotheses to test:							
ECRs toe-the line (do what they are told).	Partly confirmed	Confirmed	Partly confirmed	Confirmed	Confirmed	Partly confirmed	Confirmed
ECRs are not very productive (publications).	Not confirmed	Not confirmed	Partly confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
They publish in OA journals because they are easier to get into	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
6. Peer review							
Hypotheses to test:							
ECRs feel alienated/locked out by the existing peer review system, which they think of as a gentleman's club.	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Partly confirmed	Partly confirmed	Partly confirmed
ECRs prefer double blind peer review because it provides fairer appraisal.	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed

ECRs are worried by too much transparency in peer review because it will make it difficult for them to criticise the submissions of their seniors.	Partly confirmed	Confirmed	Not confirmed	Not confirmed	Not confirmed	Confirmed	Confirmed
7. Reputation							
Hypotheses to test:							
They are 'slaves' to a metric-based/journal focussed system, which they have to adhere to in order to climb the academic ladder.	Confirmed	Confirmed	Partly confirmed	Confirmed	Confirmed	Partly confirmed	Confirmed
8. Sharing and collaborating							
Hypotheses to test:							
ECRs share and collaborate extensively even at the risk of losing their competitive edge.	Partly confirmed	Confirmed	Not confirmed	Not confirmed	Not confirmed	Partly confirmed	Partly confirmed
ECRs use social networking sites to build their own networks, which are separate from the networks already established by research groups they work in, or the connections of their mentors.	Not confirmed	Not confirmed	Confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
9. Metrics							

Hypotheses to test:							
ECRs are interested more in social media and usage metrics because citations take so long to count.	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
10. Unethical behaviours							
Hypotheses to test:							
ECRs are willing to 'bend' (game) the system to progress and get published.	Confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
11. Impact and transformations							
Hypotheses to test:							
ECRs see connecting to a wider audience as an important impact of their work	Not confirmed	Partly confirmed	Confirmed	Partly confirmed	Partly confirmed	Partly confirmed	Partly confirmed
The system is unchanging and unbending, but there is little evidence of the desire for change among ECRs	Confirmed	Partly confirmed	Partly confirmed	Partly confirmed	Confirmed	Not confirmed	Not confirmed