ARE EARLY CAREER RESEARCHERS THE HARBINGERS OF CHANGE?

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CIBER Research. http://ciber-research.eu/harbingers.html

BACKGROUND

- 3 years ago, Publishing Research Consortia commissioned an unusual and ambitious research project on scholarly communications

- Publishers deserve pat on back and fitting first results given here!

- Over 100 ECRs from 7 countries in-depth interviewed yearly for 3 years, to establish what their scholarly attitudes and practices *were* and whether are *actually* changing

- Only way of satisfactorily answering the oft-asked question: are new wave of researchers going to change things? Or, will they simply end up toeing the line?

EARLY CAREER RESEARCHERS: A COMMUNITY OF STRATEGIC INTEREST

- In addition to being new wave of researchers ECRs alleged **millennial beliefs** of openness, sharing and transparency and their busy social media practices raises interesting scenarios

- Not just new wave, but **big wave**. ECRs typically constitute largest body of researchers in higher education sector

- ECRs widely recognized as being creative and energetic researchers and constitute **a vast pool of global talent** that can play a central role in knowledge economies.

- They merit serious research

SO, WHO ARE THEY?

- Variously defined by universities & funders, who tend to define them by years **since completing PhD**, typically 10yrs.

- Does not define the community of interest sufficiently because its **untenured junior researchers** (the real new wave) we are targeting and good proportion of ECRs work on projects, as well as undertaking a PhD

- **Working def**: *Researchers generally not older than 35, who either have received their doctorate and are currently in a research position or have been in research positions but are currently doing a doctorate. In neither case are they researchers in established or tenured positions*.

HOW THEN DID WE COLLECT THE DATA?

- In-depth, semi-structured and repeated interviews because best way of studying change is '**following**' researchers, **maintaining** a conversation and so obtaining **trust**

- Scholarly change also challenges ubiquitous survey because Qs not easily answered without intervention/explanation (e.g. Qs about altmetrics)

- 60+ questions, 60-120 min interviews conducted remotely or face-to-face.

- Convenience sample of 116 (dropped to 103), science (3/4) & social science ECRs from China, France, Malaysia, Poland, Spain, UK and US.

- Supplemented and triangulated by interviewee CVs, plus desk research

ASKED ABOUT SCHOLARLY COMMUNICATION IN CONTEXT AND IN RESPECT TO CHANGE

Background demographic and job info as well as scholarly communication
- Characteristics of employment & projects (7 questions)
- Employment, evaluation, reputation and career progression (6)
- Mentoring/training (2)
- Career aims and motivations (4)
- Dissemination, citing, discovery, reading, incl. smartphones (4)
- Social media and online communities (7)

- Authorship, publishing (incl. mega journals) and open science (14)
- Peer review (5)
- Sharing and collaborating (5)
- Metrics and altmetrics (2)
- Unethical behaviour & reproducibility
- Research impact (3)
- Transformations (4)

Always with special interest on new and novel.

SUMMARISING AND CHARACTERISING CHANGE

Warning, **still a work in progress**!

Separated out **attitudes** and **practices**.

- **Opinions and practices not always match**. ECRs might be positive about OA publishing, but do not practice it because of traditional work practices & reputational worries. Changes in attitude might **signal changes in practice** down the line.

- Changes can mean: more **positivity** or **negativity** in attitude/sentiment or **more** or **less** practice/use. As well as remaining the **same** or just up and down (**variable)**.

SUMMARY OF CHANGES FOUND

Over 3 years, every scholarly aspect and every ECR has seen some change in scholarly attitude or practice, but in aggregate 60% of responses show **little change**.

Attitudes and practices mostly went **hand in hand**. ECRs whose attitudes had not changed over the years tended not to have changed practices and those showing more positive attitudes towards something also practiced it more.

A greater trend evident towards a **positivity** in *attitudes* and same true for *practices*.

Main pairings	No. of pairings	%
Same attitude/same practice	1135	47.9
More positive attitude/ more practice	405	17.1
More positive attitude/same practice	232	9.8
Same attitudes/more practice	170	7.2
Same attitudes/less practice	127	5.4
More negative attitude/ same practice	87	3.7
More negative attitude/ less practice	67	2.8

SUMMARY OF CHANGES: DIVERSITY 1

US & UK ECRs more stable & very similar. Best explanation: a) maturity; b) scholarly conditions/resources generally generous.

Poland close in stability although reasons different – adopted very traditional, centralised and conservative scholarly track.

France changing fast, especially in attitudes. Down to job change (precarious to stable)

Country	Attitude			Practice				
	Positive	Negative	Same	More	Less	Variable	Same	
Poland	16%	13%	72%	19%	5%	6%	71%	10
Malaysia	36%	4%	60%	32%	20%	0%	47%	12
China	37%	13%	50%	35%	5%	16%	44%	13
US	15%	5%	80%	12%	14%	0%	74%	22
GB	18%	1%	80%	16%	10%	0%	74%	16
France	53%	11%	36%	36%	2%	5%	57%	14
Spain	40%	13%	47%	31%	9%	6%	54%	16

SUMMARY OF THE CHANGES: DIVERSITY 2

- **Discipline**: three-quarters of panel scientists and rest social scientists. Not a great difference although positive attitudes of social scientists growing more.

- **Gender**: Women growing a little more positive in their attitudes than men and women social scientists especially so.

- **Age:** older the ECR the more positive in attitude they are becoming (closer to the secure job?). With regard to practice there is a tendency to innovate less with age.

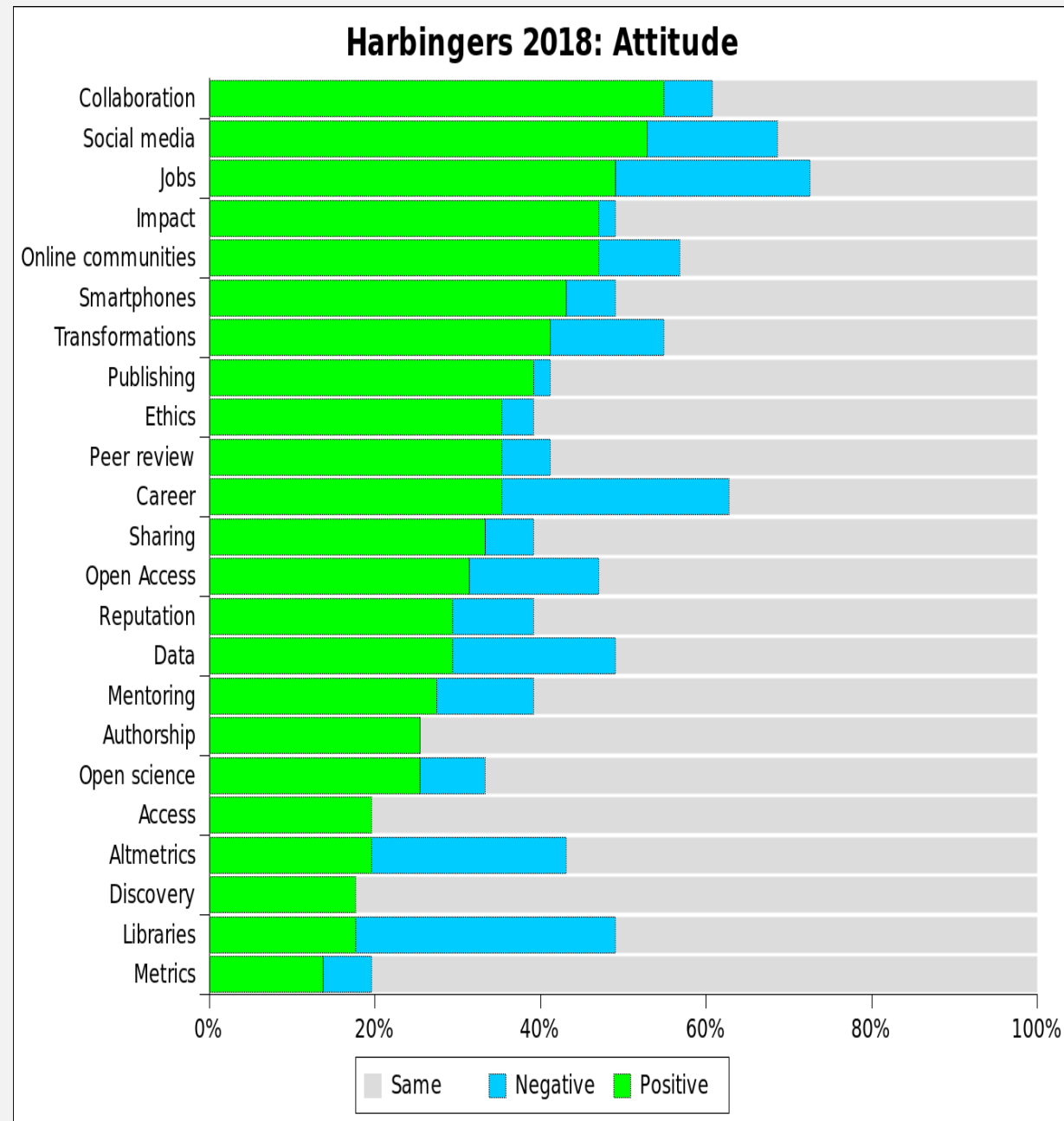| Scholarly issues	Strength of attitude/sentiment			Extent of actual practice/utilisation			
Change description	More positive	More negative	Same	More	Less	Variable	Same
Altmetrics	20%	24%	57%	18%	16%	2%	65%
Collaboration	55%	6%	39%	47%	6%	4%	43%
Data	29%	20%	51%	41%	18%	4%	37%
Research impact	47%	2%	51%	33%	2%	18%	47%
Libraries	18%	31%	51%	12%	12%	4%	73%
Metrics	14%	6%	80%	10%	4%	6%	80%
Online communities	47%	10%	43%	41%	12%	8%	39%
Open Access	31%	16%	53%	33%	8%	6%	53%
Open science	25%	8%	67%	14%	18%	0%	69%
Peer review	35%	6%	59%	39%	6%	14%	41%
Publishing	39%	2%	59%	27%	10%	2%	61%
Reputation building	29%	10%	61%	27%	6%	2%	65%
Sharing	33%	6%	61%	37%	10%	2%	51%

ATTITUDE CHANGES FOR VARIOUS SCHOLARLY TOPICS

Growth in positive attitudes greatest for collaboration and social media

Reads like this: for collaboration 55% of ECRs became more positive, 6% more negative and 39% same

For libraries and metrics positivity grew the least

Growth in negativity greatest for libraries and careers

Harbingers 2018: Attitude

Collaboration
Social media
Jobs
Impact
Online communities
Smartphones
Transformations
Publishing
Ethics
Peer review
Career
Sharing
Open Access
Reputation
Data
Mentoring
Authorship
Open science
Access
Altmetrics
Discovery
Libraries
Metrics

0% 20% 40% 60% 80% 100%
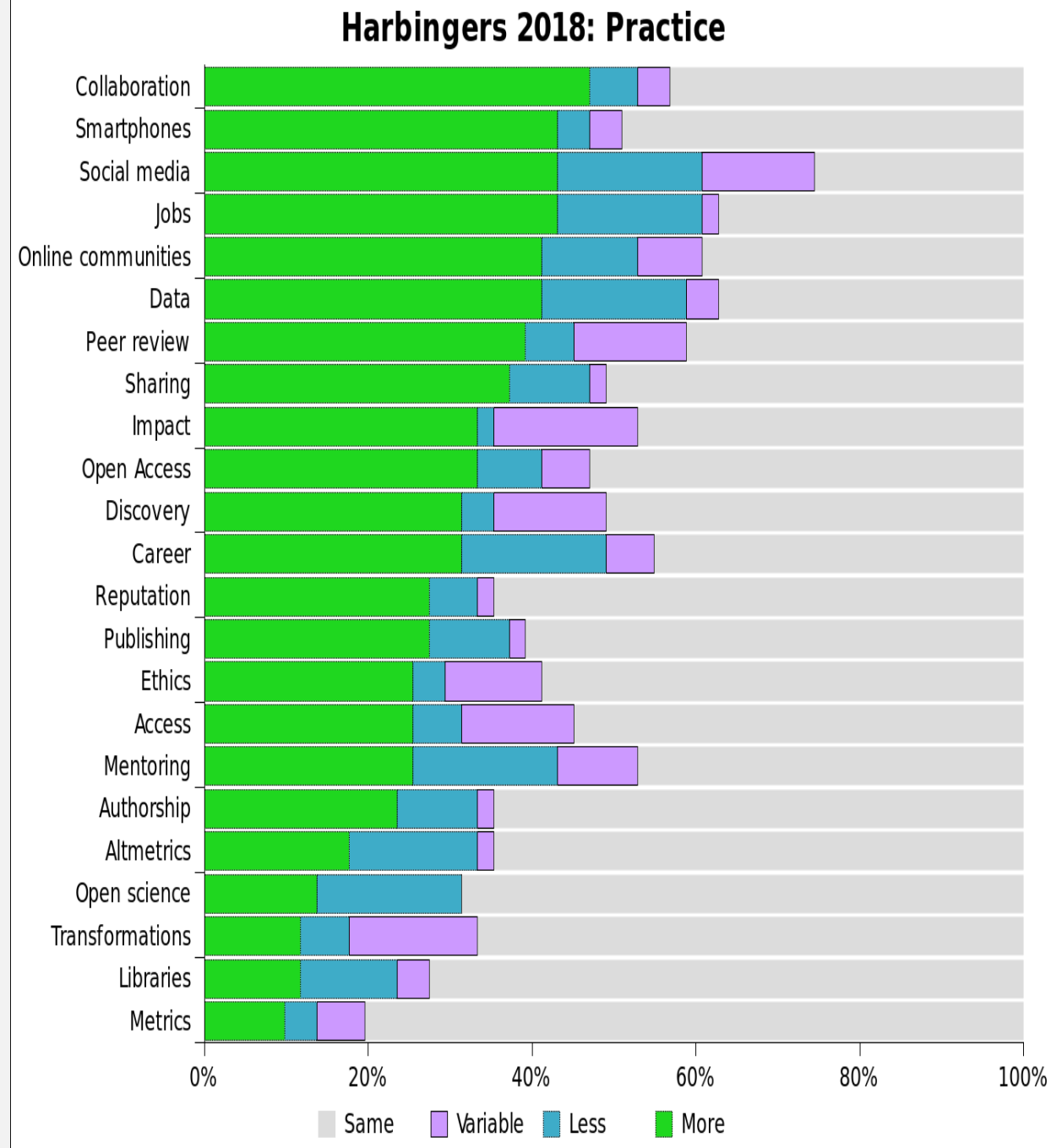
Same Negative Positive

PRACTICE CHANGES FOR VARIOUS SCHOLARLY TOPICS

Reads like this: for collaboration 47% ECRs practice increased, for 4% it varied and 43% the same

Growth in practice was greatest for collaboration and smartphones

Practice declined less so but most for open science, data, social media

Research impact and transformations are the most flipped (variable) – sign of uncertainty?

Harbingers 2018: Practice

NET CHANGE IN ATTITUDES V PRACTICES

Gives a slight different take on the data

Provides size of the majority view (positive minus negative for attitudes; more minus less for practice)
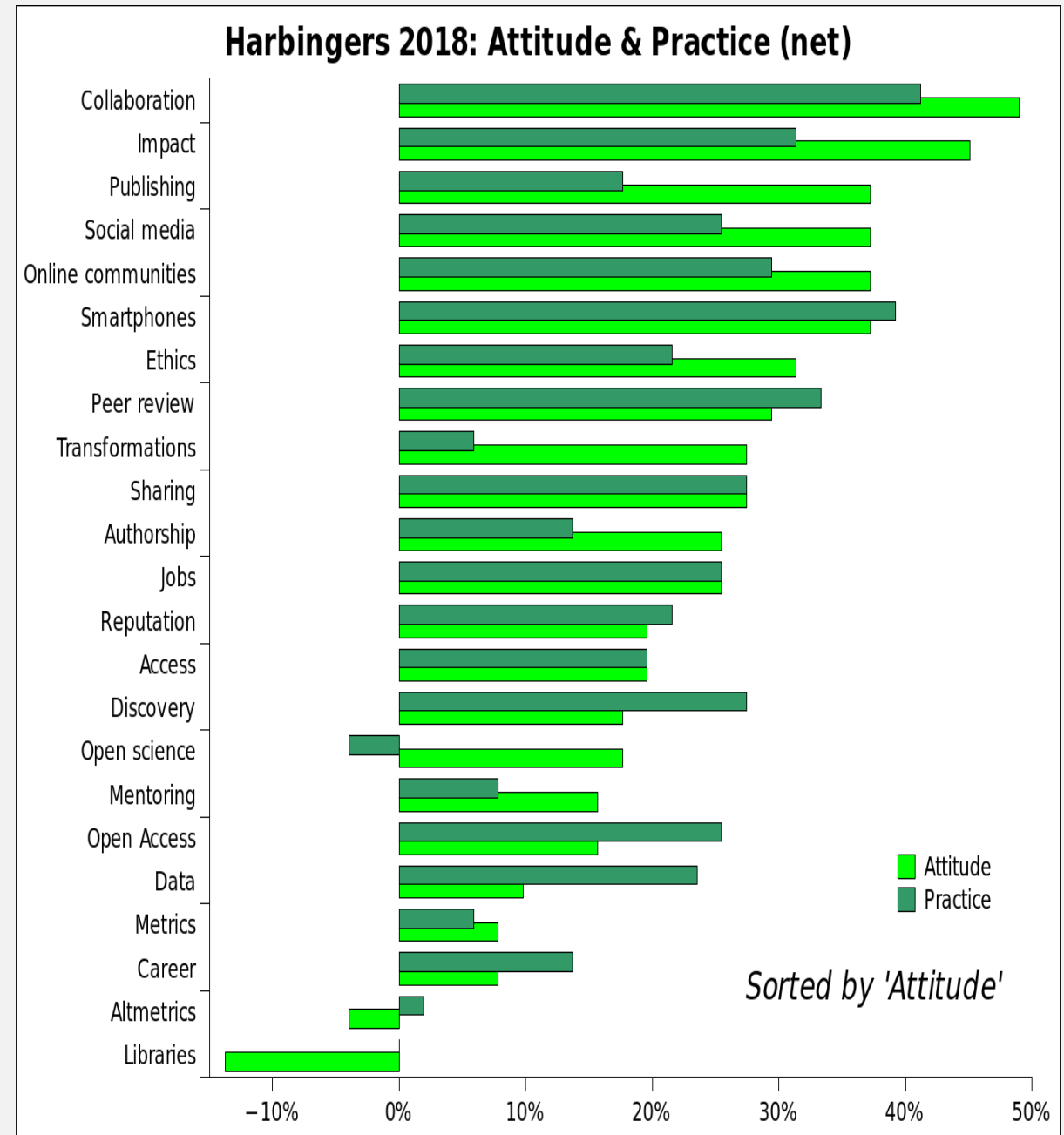
Plus territory equals more positivity and practice

Minus territory equals negativity and less practice

Collaboration still comes out top

Smartphone practice notably up

Libraries attitudes increasingly negative and practices positive and negative cancel them out

Harbingers 2018: Attitude & Practice (net)

Collaboration
Impact
Publishing
Social media
Online communities
Smartphones
Ethics
Peer review
Transformations
Sharing
Authorship
Jobs
Reputation
Access
Discovery
Open science
Mentoring
Open Access
Data
Metrics
Career
Altmetrics
Libraries

Attitude
Practice

Sorted by 'Attitude'

−10% 0% 10% 20% 30% 40% 50%

SCHOLARLY ATTITUDES AND PRACTICES (SELECTED VOICES GIVE THE FLAVOUR)

On sharing:

- I think transparency and sharing data is important and helpful to advance science. (UK ECR)

On social media:

- Through social media, I can spot research trends and communicate instantly. By using social media, I can hear different sounds. (Chinese ECR)

- Social media provides visibility, but this exposure can also bring reputation as you can get citations, invitations, new connections, etc." (Spanish ECR)

Publishing strategy

- If I were to 'go it alone' and implement such a strategy (give my results and ideas away unrecognized in data bases and only publish a few, longer papers) that would be tricky to get into top flight journals) I would not expect to get promoted and it would be difficult to get funding. (US ECR)

VOICES OF ECRS REFLECTING ON CHANGES IN ATTITUDES & PRACTICES

On OA

- I am warier about OA and still critical about review practices. I have noticed that there are more poor papers and shorter ones. [Postdoc in UK biomedical department]

- I have increased OA use and advocacy during the interview period. Technology is now there, subscriptions are expensive and there is absolutely no excuse for not making scientists work available particularly to other scientists! This is the whole point of writing papers! [UK Physical scientist with own group].

On outreach

- My behaviour has changed during my career because the technologies changed and I am now keen on reaching out to general public. So, with the new technologies is very easy to make this so I try to make this practise as much as he can, but sometimes I do not have enough time. [UK based Post-doctoral materials scientist].

On job changes

- My attitudes changed but rather because I switched from being a student to being PhD to being a postdoc, which are very different jobs with different expectations towards scholarly communication [UK postdoc zoologist]

VOICES OF ECRS REFLECTING ON CHANGES IN ATTITUDE & PRACTICE

On preprint repositories

- Perhaps, I am more open to/aware of preprint servers, but other than that I think my attitude is the same. Still positive towards open access. A gradual increase in the use of preprint servers probably caused my change in attitude. In my field more and more papers are being published on preprint servers, so it has become more important to check there to keep up with the current work. [UK Plant scientist postdoc]

On OA publishing:

- Journals, even some with excellent reputations, seem to be increasingly charging publication fees. This makes publication out of reach for scholars in smaller institutions/subjects and/or developing countries, which is a shame. I worry that in an effort to be open access, we may actual limit the number of voices that are heard. (US ECR)

MORE VOICES

On outreach and impact

- 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. (US ECR)

On ethics

- Overload is everywhere, papers, journals, researchers, unethical behaviour is prospering. (French ECR)

- Misconduct exists, I believe everywhere when people strive hard to publish. I am aware of this, it happens here even among very senior Professors. (Malaysian ECR)

On open data:

- Sharing data is good for verification and reproducibility, but we should wait before we do this until they have been completely exploited to avoid losing our competitive edge. (Spanish ECR)

THINKING OUT LOUD

Change occurring everywhere; in some activities (collaboration) and countries (France) very fast and in others less slowly.

Some scholarly activities/issues are more easily changed (smartphones) others more set in stone (metrics)

Libraries seem to be rowing in a different direction and mixed messages about open science

Change can result from move to job security, which results in a consequent change in mindset.

Competitive & strategic behaviour drives change (will it help get them a job).

Millennium beliefs appear to be showing themselves in respect to interest ECRs show towards collaboration and online communities

A very considered, thoughtful and (surprisingly experienced/knowledgeable community, possibly even more involved in scholarly communications than their seniors. So great test-bed.

THE HARBINGER TEAM

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- Publications on which this talk is based available at http://ciber-research.eu/harbingers.html and http://publishingresearchconsortium.com/index.php/prc-projects

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