

HARBINGERS-2 ECRS, TEACHING AND THE PANDEMIC

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Early career
researchers:
scholarly
communication
trends, work life
and impact of
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1.0 Introduction

The objective of the first Harbingers project (2016–19) was to study the *researchers of the future*, consequently in our first study we did not raise teaching as an activity during our interviews nor was noted as a response to open questions. As a consequence, in this second phase teaching was not among the topics we planned to explore. However, we became aware very early on while interviewing that things may have changed as a result of the pandemic: ECRs were telling us that not only has teaching become more demanding when online, but also that it was impinging on their research activities. The problem was clearly of concern and needed to be investigated a part of our research. It appears to be our first significant research finding, although the magnitude of the problem varies appreciably by country.

Many ECRs are required to teach as part of their contract with their institution and, significantly for them, some are assessed on their teaching. Thus, the evidence of increased teaching loads —teaching¹ may even take up as much as half of their time—testifies to the possibility that ECRs’ career progression is becoming ever-more fraught with difficulties. Teaching is looming larger in ECRs’ work lives because of a pandemic-triggered acceleration of the transition to remote teaching. A massive and widespread component of academic life that promises to endure long after the current restrictions enforcing it. However, as ECRs are finding, online teaching is much more time consuming, made all the more difficult by the fact that it is proving less satisfying for students. Compared to their seniors ECRs are thought, because of their supposed superior IT skills, better suited to teaching remotely. It follows that it falls upon them to deal with problems their students are experiencing, from difficulties encountered by online learning to mental health issues stemming from being isolated. In fact, students have, probably, been hit the hardest. Hardly surprising, that ECRs are so vociferous: for many of them research time has been squeezed and they find themselves overworked.

¹ The term teaching, as it is used here, covers a variety of activities including supervision, demonstrating, assisting in teaching and lecturing.

2.0 Methodological note

Data was gathered and analysed principally by three means:

- 1) An investigation (census) by national interviewers of the teaching commitments of the ECRs they interviewed by examining their transcripts, CVs and in some cases by follow up questions in an email;
- 2) Identification by national interviewers of relevant quotes from the interview transcripts;
- 3) Qualitative hypothesis testing. Based on our previous researches we have compiled a set of conjectured, motivations, responses, and attitudes that we anticipate finding within the topics of a guided but open interview format. These are then evaluated against the evidence of the interview transcript and interviewer commentary by an independent member of the research team.

3.0 Findings

3.1 The teaching commitments of ECRs

The census of 179 ECRs, interviewed in Round 1 (of 3) of Harbingers-2, identified 100 (55%) as having a teaching commitment (Table 1), demonstrating yet again the multi-faceted nature of the ECR population. The actual number is probably higher than that, as some interviewees might have slipped the net: as noted, since at the outset of the project we were not aware as yet of the possibility that teaching, and especially remote teaching being ushered in by the pandemic, can have an impact on research, we did not raise the topic ourselves. Figures will be updated in Round 2 (September – October 2021).

As Table 1 shows there are large country differences regarding whether ECRs teach or not. Thus, at the one end of the spectrum the vast majority (91%) of Polish ECRs teach whilst at the other end only a small minority (15%) of French ECRs do so. The differences in the main are down to a number of factors: 1) the particular make-up of the cohort in respect to the percentages of doctoral, post-doctoral and assistant professor represented (e.g., doctoral students are less likely to teach); 2) the existence of standard national criteria and institutional contracts; 3) the proportion of research only institutions in the sample. The country-specific circumstances of ECRs are discussed in more detail below.

Table 1: International analysis of ECRs and their teaching commitment

COUNTRY	TEACH	DO NOT TEACH
China	17 (71%)	7 (29%)
France	3 (15%)	17 (85%)
Malaysia	14 (70%)	6 (30%)
Poland	20 (91%)	2 (9%)
Russia	5 (23%)	17 (67%)

Spain	17 (74%)	6 (26%)
UK	8 (31%)	18 (69%)
US	15 (68%)	7 (32%)
Total	99 (55%)	80 (45%)

As already noted, in Poland the norm is for ECRs to teach, with research-only posts at Polish universities being very much the exception. Indeed, 20 (91%) of the Polish interviewees have teaching duties as part of their university contracts. In fact, some of them spend half their time teaching – assistant professors/adjuncts are a case in point, although some, mostly doctoral students, have a lighter teaching load. In fact, in the first year of the four-year doctoral programme PhD students only co-teach with senior colleagues, and although from the second year on they teach independently, in the last year of their studies they have the fewest teaching hours. One of the two interviewees who has reported no teaching commitments already completed his four-year doctoral studies and the other is affiliated with Polish Academy of Science, which offers full-time research positions.

In Spain, where everyone working at universities teach (not only ECRs, tenured staff as well), nearly three-quarters of Spanish ECRs teach, second in proportion only to Poland. The only ones that do not teach are those working at other research institutions, for example, laboratories or research institutes. The teaching requirements in Spain differ between doctoral students and postdocs/assistant professors. The former teach 2 hours a week per year or 4 hours a week per semester, more often than not as assistants in practice-focused classes, rather than as independent lecturers. The latter teach up to 8 hours a week per year or 16 hours a week per semester.

The large majority (71%) of Chinese ECRs also have teaching commitments, although in China teaching, as part and parcel of a researcher's duties, is less normative than in Poland or Spain. Still, researchers are often required to teach (and/or mentor), as well as to provide 'social services' (for example, consultations and science popularising activities). Where it comes to early career researchers, in principle all of them, except postdocs, have to teach.

Malaysian ECRs are also expected to contribute and participate in the joint activities at the academic unit with which they are affiliated. Thus, besides research and publishing, the large majority of ECRs teach, too, inclusive of the administrative duties this entails. Of the Malaysian interviewees 14 (70%) reported having a teaching workload in addition to their research work. ECRs' individual teaching workload varies – a few are given 10 hours per week (equivalent to 2 undergraduate courses and research project supervision per semester), while others have only one course per semester, which may be a tutorial or laboratory/studio instruction only.

Over two-thirds (68%) of US ECRs teach, which is higher than the international average, some simply because they need extra work (teaching) to pay their living costs. Their teaching commitment varies by the terms of their employment as doctoral students, postdocs, or tenure/non-tenure track assistant professors. Doctoral students funded by their university fall into two categories: GTAs--Graduate Teaching Associates (or Assistants) or GRAs--Graduate Research Associates (or Assistants). GTAs, as the name implies, have teaching responsibilities whilst GRAs usually do not (they undertake instead a research project). Appointments are typically 'half time', that is 20 hours of work expected, which for a GTA is either one or two classes a semester, depending on the university. Some doctoral students are 'self-funded' or funded by their employer, that is, they do not hold GTA or GRA appointments; as such, they do not typically have any teaching or research responsibilities. Postdocs are subject to the terms of their hiring letter, but typically do not have teaching assignments. They have full time (40 hours/week) appointments and are often funded through a grant to their supervising professor. Assistant Professors are again subject to the term of their hiring letter, with the tenure-track employed among them usually having a teaching and research and service expectation. Teaching will vary from one to 4 classes per semester/term, typically 2 per term in a research-intensive university. There are also clinical or non-tenure track positions (up to 50% of new hires in some US universities.) The expectations of these vary widely from research only to heavy teaching loads.

Compared to the level of ECRs' teaching commitments in Poland, Spain, China, Malaysia and US, those of UK, Russian and French ECRs are much lower. If in the former group of countries between 91% to 68% of the interviewees teach, in the latter group of UK, Russia and France, respectively, only 31%, 23% and 15% do.

Just under a third of UK ECRs teach, but the figures are only approximate because not all ECRs raised the topic of teaching voluntarily. Also, some ECRs, not teaching at the moment, might have done so in the past or will be likely to do so in their next job/appointment, especially as the 12 doctoral students among the ECR cohort were not required to conduct any teaching (grants to the latter are given with the sole purpose of enabling them to conduct research) and of the 7 postdocs only two did serious amounts of teaching. One of the latter was mainly paid to teach ("train") and they probably did 50% plus teaching, as per the requirements of his grant provider. The other took a senior colleague's course who could not fulfil their teaching obligations. There were 4 assistant professors (lecturers) among the cohort and all 4 were expected to teach as part of their new jobs.

Russia has an even lower percentage of teaching ECRs (just less than a quarter). This, however, can largely be explained by the population interviewed: researchers, rather than teachers, were principally sought out for interviewing, and among them there were a large number of ECRs working at research only institutions, centres and laboratories. Unlike research centres affiliated ECRs, university-affiliated ECRs do teach, with their

teaching load detailed in the official individual plan that lists the research, teaching and student mentoring activities they have to undertake.

France has the lowest levels of teaching of all the case study countries, with just one-fifth of ECRs having to teach. Those who teach have specific contracts that include teaching duties (can be up to 192 hours per year). These widely debated and much criticised contracts, reserved for non-permanent positions, are not that common in France.

3.2 Assessed for teaching

Our first hypothesis pertaining to teaching sought to verify the notion that came up when ECRs talked about the formal ways and means of their performance assessment, according to which *ECRs are formally assessed by their institutions on the basis of their teaching*. Plainly, as the practice was not the intended focus of our queries, it was mentioned only by those interviewees who thought it relevant to some other topic being discussed. Also, it stands to reason that if at all, then only those ECRs who are required to teach were assessed on the basis of their teaching performance, but, as shown above, we have only tentative data as to their numbers among the interviewees of round 1 (we will tread on much surer ground after round 2). Nevertheless, the figures of the hypothesis testing exercise tell an interesting story: slightly under half (46%) of the ECRs interviewed brought up the topic in one context or another and made comments related to the hypothesis, with the vast majority (42%) confirming that ECRs' performance assessment included an evaluation of their teaching activities (Table 2). The implications of the aforementioned COVID-19 imposed restrictions on traditional ways of teaching, and the extensive migration of university-level instruction to online modes that followed, might thus, turn out to be significant for a considerable percentage of our ECRs. However, inevitably fashioned as these implications are by the extent (if any) to which teaching plays a role in ECRs' performance assessments, it is worthwhile taking a closer look at the situation as it varies from country to country.

China clearly stands out with 75% of ECRs testifying to their teaching being taken into account in performance assessments, but a sizeable majority (59-64%) of Polish, US and Malaysian ECRs also report similar practices. Nevertheless, the overriding consideration in these assessments remains one's research track record: thus, for example, while Malaysian ECRs are judged on their teaching, it is research outputs (publication productivity) that serve as the key performance indicator (KPI) that guide the process. By the same token, although in Spain teaching performance and administration are taken into account in ECR's performance assessments, the main criterion is research accomplishments.

In contrast, in three countries (France, UK and Russia) ECRs are not really assessed for their teaching contributions, which is hardly surprising: as we have seen, in these countries ECRs are judged on their research achievements, and, in fact, they are not often, if ever, required to teach. This state of affairs can explain the marked differences between

countries, as exemplified by the UK and US figures: 59% confirmations of the hypothesis in the former compared to 1% in the latter.

Table 2: Formally assessed by their institutions on the basis of their teaching²

Country	China	France	Malaysia	Poland	Russia	Spain	UK	US	ALL
ECRs	24	20	20	22	22	23	24	22	177 ³
Confirmed	18 (75%)	1 (5%)	12 (60%)	15 (68%)	2 (9%)	12 (52%)	1 (4%)	13 (59%)	74 (42%)
Partly confirmed	0%	0%	0%	1 (5%)	0%	1 (4%)	0%	0%	2 (1%)
Not confirmed	0%	0%	5 (25%)	1 (5%)	0%	0%	0%	0%	6 (3%)
Topic response rate	75%	0%	85%	77%	9%	57%	4%	59%	46%

3.3 Impact of the pandemic

3.3.1 Country sub-analysis

The second hypothesis pertaining to teaching reflects a notion that, having been brought up again and again by interviewees, was seen as testifying to a prevalent concern among pandemic-era ECRs. Thus, it was thought important to determine the validity of the hypothesis *ECRs' research has been hindered during the pandemic because online teaching turned out to be so time-consuming*. Table 3 shows that over a quarter (27%) of ECRs said something along the lines of the possibility expressed by the hypothesis, despite the fact that they had not been asked specifically on the role played by teaching in their work life. 36 (20%) of ECRs confirmed the hypothesis, an additional 6 (3%) thought this was the case to some degree and 6 (3%) thought it was not. If we take as our baseline the 99 ECRs who had teaching responsibilities (Table 1), for obviously they were the only ones whose lived experiences enabled them to confirm or negate the hypothesis, then 42 (42%) – nearly half of them – found online teaching a hindrance to research, with their vast majority fully supporting the notion.

The direct quotes from the interviews, which follow, leave little doubt as to the very real problem that ECRs encountered when their need to concentrate on their research clashed with the demands of their teaching commitments. The need to move fully online clearly has added to ECRs' workloads, already struggling to balance teaching, research and

² Ass015. The response rate is calculated once per ECR, it is possible that a topic may have been noted more often during the interview.

³ Two ECRs left in year 1, leaving 177

administrative (service) obligations. Having had to prepare and deliver their classes from home, with all the practical and technical challenges this entails, turned out to be time-consuming and demanding, as did the increased student demand for practical and pastoral care. Still, here again the prevalence of the problem differs between countries, depending at least in part on the country-specific levels of the teaching required. Beyond that it seems that where teaching (and all it throws at them) is just regarded as the norm, ECRs have an easier time taking any problems in their stride.

Table 3: Research hindered during the pandemic because online teaching was time-consuming

Country	China	France	Malaysia	Poland	Russia	Spain	UK	US	ALL
ECRs	24	20	20	22	22	23	24	22	177
Confirmed	1 (4%)	3 (15%)	8 (40%)	8 (36%)	1 (4.5%)	11 (48%)	1 (4%)	3 (14%)	36 (20%)
Partly confirmed	1 (4%)	0	1 (5%)	4 (18%)	0	0	0	0	6 (3%)
Not confirmed	0	0	0	3 (14%)	0	0	2 (8%)	1 (4%)	6 (3%)
Topic response rate	2 (8%)	3 (15%)	9 (45%)	15 (68%)	1 (5%)	11 (48%)	3 (13%)	4 (18%)	48 (27%)

In Spain, where 74% of ECRs teach (Table 1), all of those who expressed a view on the topic, which came to nearly two-thirds (65%) of the interviewees, fully confirmed the hindrance hypothesis:

“I have worked remotely more and it has slowed down my research, since the preparation of the teaching material due to the new situation has taken me most of the time” (Spain; Physical Sciences; Male)

“It has been necessary to adapt the way of teaching the lessons and interacting with the students, so it has been some extra burden” (Spain; Mathematical Sciences; Male)

Poland is an interesting case: with over 90% of ECRs teaching (Table 1), it is hardly surprising to find that over three-quarters (77%) of them ventured an opinion on the issue, but their opinions showed much more diversity than we have seen among their Spanish counterparts, with just over a third (36%) confirming the hypothesis, 27% partly confirming it and 14% refuting it. So, more of a mixed message here, in need of deeper digging to establish where the differences stem from: individual circumstances and preferences? the stage of an ECR’s career? any other factor? Further investigation into the

matter will be undertaken in the second round of interviews, but meanwhile the following comments shed some more light on the problem as Polish ECRs see it:

...scientists (in our discipline) are tired of remote teaching and related tasks. As a result, scientific work goes slower - there is less time for it. (Poland; Soft Social Sciences; Female)

"The teaching is done on the Teams platform, but it is more difficult. I receive a lot of emails from students, it was easier to answer questions in class to a whole group of students than remotely to each individual student. It is more difficult for me to explain issues remotely than in traditional classes". (Poland; Physical Sciences; Male)

Malaysian ECRs are also largely teachers, with 70% of them reporting teaching commitments (Table 1). Nearly half of the interviewees expressed an opinion on the issue of online teaching, 9 out of 20, with 8 of them confirming and 1 partly confirming the hypothesis according to which online teaching was proving a hindrance to their research activities. Indeed, they were very vocal about the consequences of the need to devote extra time to their teaching:

Most of us are experiencing the same thing in terms of teaching online, feel a little bit overwhelmed, there's a lot of monitoring and coordination to do compared to when you meet your students in the classroom. It's very challenging. (Malaysia; Soft Social Sciences; Female)

To be honest I have breakdowns, I believe those who teach face this, I have to conduct online laboratory. This is impossible. How can you conduct lab online? You cannot teach students how to use a micropipette, it's impossible [online]. So, I had to create my own means, I bought and I use my own money to get the materials to teach from home...spend more time for preparation (Malaysia; Life Sciences; Male)

On top of that with the online thing, you we need to be accessible to the students. So, we have WhatsApp group and that's the worst. So again, students text you at a very odd hours like three a.m. in the morning. So, this kind of stuff so yes, I think I'm overworked. (Malaysia; Hard Social Sciences; Female)

The case of China is particularly thought-provoking and certainly necessitating further exploration. While most (71%) Chinese ECRs have teaching obligations (Table 1), the hindrance to research caused by the time-consuming nature of remote teaching appears to be negligible: only 2 interviewees supported the notion at least to some extent. The national interviewer traces their stoic attitude to the cultural norms of the country: Chinese ECRs do not like to moan, in fact, Chinese people generally just do not complain too much, especially not when the scary circumstances of the pandemic renders the mere fact that somebody is alive sufficient to be grateful and uncomplaining. Another reason appears to be the already widespread use of online (teaching) platforms before the pandemic, inclusive of a national MOOC platform freely available to all university students. With many universities having built online teaching websites and with ECRs well-versed in the use of social media for study purposes, was well prepared for online

teaching when COVID-19 broke out. Still, during the pandemic, and especially during lockdowns, ECRs did have to teach more online, which, as the following quote indicates, is not invariably seen as a good use of time, especially as teaching efforts are thought to be underrated by authorities.

"Teaching online costs, a lot of time to re-prepare the lectures. The students may feel the same or even worse compared to off-line teaching, but we did a lot of extra works. I think there is probably a sense of being underestimated. In fact, the effect of face-to-face teaching and online teaching is not the same. "(China; Physical Sciences; Male)

While concerns were not held widely among US ECRs with only 4 commenting on the possibility of teaching online hindering research (one of them in fact to refute it), the few opinions that were voiced did sound compelling:

"I'm teaching classes online, which is difficult. I think, in this sense, it's not my fellow faculty members or our administration that's giving me a rough time, but the students that are giving us rough times" (US; Soft Social Sciences; female).

"[The students] felt like I was doing no work because the assignments are all online and automated and I wasn't posting videos of me lecturing" (US; Soft Social Sciences; Female).

"I feel less secure because... of not being able to teach in person. Teaching in person is preferable for me as opposed to teaching online. It is not just disadvantageous for my performance it is also, in my opinion, disadvantageous for my CV" (US; Hard Social Sciences; Male).

Finally, because of low levels of ECRs teaching commitments in France, Russia and UK (Table 1), there were not many complaints regarding the impact on research of the wholesale move online of university teaching. Nevertheless, the following quotes are telling, indicating perhaps that whenever and wherever ECRs have teaching commitments, the impact on their research undertakings is significant:

As a lecturer, I spend more time preparing for online-lectures, and less time left for research related work. (Russia; Mathematical Sciences; Male).

To cope with online teaching, I had to put my PhD on hold. I've lost about 4 months on my research activity. It was both exhausting and distressing (France; Social Sciences; Male).

3.3.2 Gender sub-analysis

The overall sample of ECRs was roughly evenly balanced between men (51%) and women (49%). Given speculation of a pandemic-induced greater workload shouldered by women; in the specific case of teaching because of their long-established greater propensity to take on a higher teaching workload and to dedicate more time and energy to pastoral care of their students, we wanted to see whether more women than men said

something that confirmed or at least partly confirmed the hypothesis that *ECRs' research has been hindered during the pandemic because online teaching turned out to be so time-consuming.*

Out of the 48 ECRs who made a comment that was relevant, 42 confirmed or partially confirmed the hypothesis (Table 4). The breakdown is 24 men and 18 women, so it seems that it is men who complain more about the time-consuming nature of online teaching and its adverse effects on research. However, this needs to be considered alongside the responses to “Ass015: ECRs are formally assessed by their institutions on the basis of their teaching.” There are a greater number of men formally assessed on teaching. About half of those subject to a formal assessment for teaching have also reported it time-consuming. Taking into account the higher number of males teaching there are possibly a few more women than men complaining of increased work. We plan to take a closer look at our findings, to determine the underlying reasons, but it is interesting to note even at this early stage that a higher proportion of all women ECRs compared to men ECRs (85% and 68% respectively) found teaching time consuming.

Table 4: Research hindered during the pandemic because online teaching was time-consuming: gender analysis

	Confirmed	Partly confirmed	Not confirmed	Total
Male	19 (68%)	5 (18%)	4 (14%)	28 (100%)
Female	17 (85%)	1 (5%)	2 (10%)	20 (100%)
Total	36	6	6	48

4. Initial thoughts

During Harbingers-1 teaching was rarely raised by ECRs in open ended interviews, probably down to the fact that we did not directly or indirectly question them about the topic, which was not part of our original research-only remit. Not being fully cognisant at the time of the extent of ECRs' teaching commitments, we did not pause to consider how this might impact on their all-important research activities. In result, when we set out to plan Harbingers-2, we did not put in questions about teaching, either, but the pandemic forced the topic onto the research agenda because remote teaching (from home) was clearly impacting upon the researchers.

Few would have anticipated that one of the major obstacles to research faced by ECRs during the pandemic would turn out to be remote teaching. However, perhaps we should have seen the writing on the wall: not only most (55%) of our ECRs teach as part of their contract, but because of their alleged better digital skills (compared to their seniors) greater demands are made on them to undertake remote teaching. As it turns out, online teaching, according to our interviewees, is much more difficult to organize and demanding to deliver, a state of affairs which, coupled with the onus of dealing with a

variety of problems their students were battling, resulted in ECRs becoming overworked and with their research time squeezed. In view of these developments, there will be a new question included in the second round of interviews to enable us to collect more robust and detailed data on the effect of online teaching on the work life of ECRs, with a special emphasis on the amount of time spent teaching and the effect this might have on research undertakings and productivity.