

Patterns of Adoption of Digital Research Tools in the Social Sciences

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Introduction

As part of the ESRC-funded e-Infrastructures for the Social Sciences project¹, we have conducted a survey of UK social science researchers on their use of digital research tools. Our aim was to provide robust data on the adoption and usage of such tools and e-Research methods, as well as on the awareness of specific ESRC research investments in the target population. The survey provides a baseline for subsequent tracking of future changes in adoption and for understanding some of the factors influencing these changes.

This study builds on an earlier survey undertaken for the ESRC e-Infrastructure for the Social Sciences project, conducted by the Oxford Internet Institute (Meyer and Dutton 2009, Dutton and Meyer 2009). The scope of our current survey differs in a number of respects. Crucially, we have included a number of questions on the awareness of different ESRC investments such as research centres and programmes, data services and social surveys. We have also tried to align categories used with those used by ESRC and HESA in the case of demographics and disciplinary affiliations, and the National Centre for Research Methods in the case of distinctions between different social science research methods. This allows us to compare our findings with data, for example, HESA data on research staff and PhD students in the social sciences in the UK and with ESRC data on funded research projects and services. Use of these categories also has the potential to facilitate the uptake of our findings by stakeholders.

Research Method

Previous studies have relied mostly on ad-hoc sampling methods and have suffered from a bias towards early adopters and members of the e-Research community. This has limited the extent to which they could be taken to apply to the wider population of UK social science researchers. We have placed emphasis on the development of a robust sampling frame that would allow us to gather data from researchers at UK HEIs regardless of their involvement with the UK e-Science programme or other related investments. Constructing such a sampling frame also provides us with an opportunity to conduct follow-on research that will develop a longitudinal picture of the uptake and usage of digital tools over time in order to inform investment decisions by funding organisations such as ESRC or JISC.

We have harvested data from ESRC's Research Archive to identified researchers who have been principle investigators on an ESRC grant awarded in the year 2007 or later. Based on this list of contacts, we used web searches and a manual quality assurance process to produce a list of 2610 email addresses, to which we emailed personalised invitations. As the sample produced on the basis of ESRC grants is likely to be biased towards more established researchers, we also used snowball sampling to try and reach more junior researchers as well as an approach via the university contacts of the ESRC's 1+3 scheme to reach PhD students. Altogether, we collected 1288 responses to the online questionnaire, which contained questions relating to the following areas: background and demographics, current work, research designs and methods used; use of data; use of digital tools and services; scholarly communications; innovation and expectations about future developments as well as support and issues researchers face.

¹ <http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/minisites/e-inf-project/index.html>

Research Findings

In this abstract we focus on exploring the collaborative practices evident in our survey sample and the degree of adoption of new forms of scholarly communications in the social sciences. This analysis will allow us to compare the findings from our current survey with those from other studies (2009, Mayer and Dutton 2009) and the recent study on the Adoption and Use of Web 2.0 in Scholarly Communications (Procter *et al.* 2010). In the full paper, we will present a more complete analysis of the data.

Patterns of Collaboration

Our survey shows that there are significant differences between the collaboration patterns of staff and students. Members of staff in the social sciences work collaboratively mostly with researchers within their own department (79%, n=492) but also with researchers in other institutions (71%, n=442), researchers in other countries (61%, n=382) and within other departments in their own institution (51%, n=317). There is also evidence of significant collaboration with partners outside academia such as the public sector (36%, n=225), the voluntary sector (23%, n=146) and the private sector (15%, n=91). Only 4% of respondents declared that they do not collaborate with any of these groups.

Most research staff work on funded research projects (79%, n=493) but unfunded research is also quite common (48%, n=301). Most researchers work on projects with more than one investigator (60%, n=374), are involved in more than one project simultaneously (59%, n=370) and these projects are often inter-/multi-disciplinary (47%, n=292) and involve multiple institutions.

Amongst students, the level of collaboration was significantly lower. 56% (n=308) of students declared they collaborate with researchers in their own department. The second largest group were students not collaborating at all with any of the given groups (29%, n=161). Furthermore, most students (53%, n=286) reported that they work on projects with a single investigator and the level of inter-/multi-disciplinary projects and multi-site projects was also significantly lower than for staff members. Not surprisingly, given the formal requirement of PhDs for students to demonstrate a novel contribution to knowledge, these results confirm that there is a tendency among the latter to conduct their research in a mostly solitary fashion. However, this does raise the question whether young researchers in the social sciences are being adequately prepared for the more collaborative world of post-doctoral research.

Scholarly Communications

The level of collaboration is reflected to some extent in the degree to which researchers in our sample write papers together. 22% (n=133) of staff have co-authors on all or nearly all of their papers, 29% (n=178) have co-authors on most of their papers and 21% say about half of their papers are co-authored. 16% (n=98) write mostly as single authors and 13% (n=83) write all or nearly all of their papers as single authors. Again, we can see a relatively high level of collaboration among our sample as only a minority do *not* write in collaboration with others. In contrast, the figures for PhD students suggest that they tend towards either end of the spectrum, either writing all or nearly all of their papers on their own (35%, n=160) or all or nearly all in collaboration (28%, n=127). We can only speculate about the reasons for this but might suspect that where collaborative writing takes place it will be primarily with students' supervisors.

By far the most frequently used tool supporting researchers' communication and collaboration is, perhaps unsurprisingly, email, which 97% (n=1,003) use regularly. Mailing lists are also used relatively frequently, with 54% (n=546) using them regularly in their work and only 14% (n=145) never using them. Other tools are used significantly less although most are used at least occasionally by a third of respondents. The tools used least frequently are video conferencing facilities, which are unused or even unknown by 85% (n=848), project management tools (92%, n=919), virtual research environments (89%, n=888), collaborative writing tools (76%, n=759) and filesharing tools (73%, n=714). Given the wide range of tools available, it does perhaps not surprise that we see only relatively modest levels of adoption for most. Further analysis will be required to investigate by whom these tools are used (e.g. breaking down the data by seniority, discipline) and whether there are common patterns (such as particular tools often being used in

conjunction). In the case of the overall use of these communication and collaboration tools we did not find significant differences between staff and students although, in detail, patterns of adoption do seem to vary. For example, we see a significantly higher level of adoption of social networking sites amongst postgraduate students, while some tools such as project websites, telephone conferences and video conferencing are used more frequently by staff.

Conclusions

Our survey of researchers in the social sciences has begun to uncover interesting patterns of research practices with respect to the level and types of collaboration and the adoption of new forms of scholarly communication. We found that there are significant differences between researchers at the post-doctoral level and postgraduate researchers. While these are not entirely surprising, they suggest that young researchers in the social sciences may not be well prepared for the kinds of collaborative research they will likely be undertaking as their careers progress.

This survey has the capability through being repeatable to track the adoption of digital research tools and methods by social science researchers. This will help to establish the impact of the e-Social Science research programme in the wider context of the development of social science research methods and practices.

In this abstract, we have only been able to provide a brief snapshot of the findings this survey has produced, focusing mainly on the differences in research practice between staff and PhD students. The full paper will provide a more detailed analysis, including a wider range of variables and a more fine-grained breakdown of independent variables (e.g. looking at differences between members of staff by seniority, discipline) and their influence on patterns of adoption of digital tools. Similarly, a comparison with the results of previous studies is only possible in a full-length paper.

References

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