The researchers of tomorrow: how are 'Generation Y' doctoral students finding and using information?

Summary provided by the British Library

In June 2012 the British Library and JISC released *Researchers of tomorrow*, a study of the research behaviour of 'Generation Y' doctoral students. Over 17 000 students were surveyed about their research practices and their attitudes to key issues such as open access, social media, access to e-resources, use of technology and the training and support they receive in their institution.

The project focused on Generation Y doctoral students, born between 1982 and 1994, to understand the impact of technological change on the last generation of 'digital immigrants' – those educated with limited access to computers and the internet. The expectation was that these students would have more sophisticated information-seeking and enquiry skills than the so-called 'Google Generation'. As they are today's doctoral students and the academic leaders of the future, it is crucial that we understand their information needs and the ways in which technological change is affecting their research.

The project ran over three years, with students from more than 70 institutions participating; the final report depicts a generation largely at ease in a complex information environment, confidently navigating the wide range of information sources available, and moving between formats, resources and libraries as necessary to find what they need. Technology plays a significant role in their research lives; when asked to think about their last significant information-seeking activity, over 70% had looked for e-journals. Nearly 40% turned to Google or Google Scholar to locate these sources, with nearly 20% going directly to an e-journal interface.

This reliance on e-journals raises two issues with particular significance to the library sector. Firstly, licensing restrictions and other limitations imposed by e-journals were rated as one of the most significant constraints on the research process (after time pressures and lack of money). Secondly, across all disciplines, e-journals are far more likely to be used than primary sources, such as newspapers, manuscripts or datasets. This striking dependence on secondary sources raises questions about the nature of the research that is produced, and the way in which libraries should respond to this in our provision of resources.

Whilst electronic resources are used a great deal, the students' use of technology is decidedly pragmatic – cautious, even. Students are highly selective in their use of specialist applications or Web 2.0 tools, favouring those that complement their way of working but do not transform it. For example, over 75% of students had used reference management tools, and around 60% had used RSS feeds – tools to find or manage information – but far fewer had used more specialist tools. Under 10% had used text and data mining, and around 5% had used geo-spatial analysis and mapping. Whilst most students agreed that social media offered valuable opportunities to collaborate or communicate with other researchers, only 13% had taken part in a discussion in an online forum, and only 9% had written a blog.

This somewhat conservative attitude extends to other means of sharing their work online. Whilst the majority endorse ideas of sharing and openness in principle, very few students share their research beyond their immediate colleagues, whether it be literature references, laboratory or field notes, or data they have collected. Since the start of the project there has been an increase in the proportion of students who had published or intended to publish their emerging research findings in open access journals: rising from 28% in 2009 to 49% in 2011. However, around half of the students had reservations about doing so, their reasons ranging from the perceived costs to the researcher, to a preference for peer-reviewed journals (with an assumption that open access journals are not peer-reviewed) and concerns about the status of open access journals.

Open access and intellectual property are a source of much confusion for doctoral students. When asked about the veracity of a range of statements related to these topics, the majority either answered 'don't know/not stated', or gave an incorrect answer. This indicates a clear training

need, and the British Library and JISC are exploring ways to support institutions and researchers in this.

The issue of training was explored in some depth in the study, and it is notable that students' attitudes to the research skills training they had received were not positive. Training courses were often felt not to be sufficiently advanced, or were too generic for students' needs. Even then, only around a third of students had received training of this nature. Information-seeking courses run by their libraries were better received than other courses, but overall students preferred tailored support from their peers, supervisors and library staff rather than formal training sessions.

More advanced or effective research skills training could certainly play a role in encouraging more innovative research practices, but it is important to note the crucial role of the supervisor in influencing the research process. The report notes supervisors' caution in engaging with the open access agenda, and a perceived lack of interest or competence in the latest web technologies. It is unlikely that a majority of students will fully embrace the potential of technological advances unless there is a significant shift in the research culture of the institution as a whole.

However, whilst technology offers huge potential for research and plays an important role for Generation Y doctoral students, we should focus on raising awareness and understanding of the tools available, so students can make decisions about the most appropriate tools for their research. As a student commented in the report: 'My supervisor and I… both found it slightly amusing that I was expected to be making use of "virtual research environments, social bookmarketing, data and text mining, wikis, blogs and RSS-feed alerts". I don't know what most of those things are, but I'm pretty sure none of them are reading articles, writing down my ideas, and discussing them with my supervisor, so I'm not going to panic about my development just yet!'

Read the full report online: http://www.jisc.ac.uk/publications/reports/2012/researchers-of-tomorrow