

Supporting Research Needs in the 21st Century: Some Thoughts on Information Service Evolution

Alasdair Paterson

Main Library, University of Exeter, Exeter, Devon, UK

1. The landscape of research

1.1 The notion of progress through knowledge is imbedded into the academic culture worldwide. We believe that what we do makes a difference. This applies both to the transmission of knowledge involved in teaching and learning and to the research activities of universities. This paper looks at issues of information support for university research, through the eyes of a British librarian who still remembers the old research paradigms of a more leisurely age but must cope with new pressures and models both global and national in origin.

1.2 Even at the outset of my career in the 1970s, when it was still possible to get excited about microfilm, when card catalogue halls dominated the architectural layout and computing was an esoteric pursuit in a corner of Engineering, it was reported that we were in the middle of an information explosion. The word “exponential” has sprung to our lips often since then. Those who make a living writing about the information age sometimes contradict each other’s estimates of the exponential growths we find ourselves coping with, but the trends are clear enough. The Internet, carrier of so much information, doubles in size roughly every year. Desktop PC processing power doubles every 18 months or so. And the mean statistic for the growth in published scientific research is that it doubles approximately every 10 years.

1.3 These trends of course spell big trouble – and big opportunities – for the information profession, as we struggle to fulfil our basic function of providing the right information as quickly as possible for as little cost as can be managed. We live in a blizzard of information. Scholarly writing grows remorselessly, encouraged by local national variables but also global connectivity and appetite for knowledge. Change management, for universities and for their libraries, has become a permanent requirement.

1.4 In Britain the pressure on academics to carry out research and publish the results has been, over the last 15 years, considerable and escalating. On the one hand, reduction in central government funding has led to a greater institutional self-reliance through independent sourcing of research contracts and research grants. On the other hand, government concerns about measurable productivity and quality assurance, about value for money in the use of central public funds allocated on the basis of institutional research activity, have led to a cyclic assessment of the quality of research of every department active in research in every higher education establishment in the country.

1.5 This assessment, known as the Research Assessment Exercise or RAE, began in 1992 and now takes place every five years. It has profoundly changed the face of British universities. The rules have varied from cycle to cycle, but broadly speaking institutions may submit research outputs in up to 69 subject areas (units of assessment). Outputs can be (and usually are) publications such as monographs and

articles, though products or even artistic performances are permitted; all are assessed through peer review by panels of experts in the subject. Each submission is given a quality rating, judged against standards of national and international excellence. Quality of research determines share of that proportion of central public funding attributed to research activity.

1.6 The new universities, formerly the polytechnics with an emphasis on effective teaching and employability of students, have found it possible to encourage focussed research and win a share of these research monies. Older universities, which have thought of themselves as research-intensive and have asserted that their teaching is rendered more effective by the input of leading researchers, have had to rationalise their research and even their even teaching spheres according to internal strength and external competition, and to ask more and more of their academic and academic support staff. An institution such as mine, which derives approximately 70% of income from teaching activities, knows that such income on a per capita basis is declining, as government-imposed “efficiency gains” become a perennial event; an increase in research-derived funding, essentially the other 30% of income, can make a difference.

1.7 So, everything drives academics to publish and with as little delay as possible. Their searches for outlets for publication, their competition to publish with the most prestigious journals and publishing houses, are intense. The need to have access to the research of others, the need for journals to publish in, the need for these journals to be well-refereed, printed to reliable timescales and widely-distributed, drives them into the arms of commercial publishers, signing away copyright in their work and bolstering the present disastrous paradigm of scholarly publishing. The timescales involved also tend to tempt writers into recourse to “salami publishing”, dividing research up into the smallest publishable units rather than lavishing years on a more complex publication.

1.8 Ability to expand postgraduate student numbers has also led to a growth in postgraduate researchers, with the risk (given the financial rewards for accepting such students, especially overseas students) of academic departments accepting dissertation topics in areas for which the institutional library may have insufficient resources.

1.9 As a result, British academic libraries are becoming more and more aware of individual insufficiencies, and to problems in the national infrastructure which impede a more collaborative approach. It is to the overcoming of these problems that the British academic library community has given much thought, and taken much useful action, in recent years.

2. British academic libraries and research: past and present

2.1 Academic libraries in Britain have long been aware of the virtues of cooperation and collaboration. A national inter-library loans structure centred on the British Library; purchasing, lending and training agreements at national, regional and local level; joint networks and joint software provision - all eased the problem of only being able to put on an individual library's shelves a shrinking proportion of what was published. It was, however, perceived to be enough of a losing battle to threaten the quality of teaching and research.

2.2 The Follett Report of 1993 was therefore commissioned by the Higher Education Funding Councils for England, Scotland, Wales and Northern Ireland to examine and make recommendations on the condition of British academic libraries. It was and remains a hugely influential piece of work. In its chapter “Libraries and the researcher”, the report pointed out a number of salient features of HE information provision which still, to a greater or lesser extent, hold true today. These included: the difficulty of distinguishing between the costs of support for the information needs of researchers and of support for teaching; the distinction between the information resource needs of science/technology and humanities/social sciences; the unevenness of provision for research across the HE sector; the upward trend of resource costs, particularly periodicals; the underexploited nature of nationally distributed research collections; and the potential deliverances of IT.

2.3 The funded programmes which followed Follett, with such names as Non-Formula Funding in the Humanities, eLib and Research Support Libraries Programme (RSLP), went some way towards laying the foundations for, and signposting the way to, the future of information provision for research. Experiments with online journals, the mounting on the Web of important collections of images, cataloguing programmes which sought to penetrate and describe scattered and underused subject and special collections of national importance, models for negotiating the digitisation of content - all these added to the sector’s expertise and contributed to the “full disclosure” of its resources. Of course, when such programmes come to an end, the issue of sustainability surfaces, and some of the projects, for example those which trialled with commercial publishers variations in cost and access relating to online journals, could not continue in that form beyond the period of subsidy but still offered some insights and future possibilities. Emerging from all this, the notion of “hybridity” as a fairly durable label for a fluctuating situation in which the mix of print, online and multimedia forms and reforms has been very serviceable. The British Library, largely an absence in the Follett report pages, is also now reasserting itself as a centre of innovation and cooperative initiative and promises to be the dynamic partner that Higher Education needs over the decade to come.

2.4 Turning to my own institution, if I had to give a position statement for Exeter University Library as a research library of regional, national and international significance, I would point on the positive side to: a maturity of collections in library-based subjects; a realistically tailored collection development policy which extends to special collections and archives: a fully automated catalogue of holdings (long-established) and a full set of Web pages which together enable access to our holdings; a significant annual budgetary uplift for electronic resources; and a hugely improved storage for special collections and archives in line with national standards. On the negative side, I would instance: the patchiness of collection-level and more detailed description of special collections and archives, and in the latter case not always to any recognisable archival standard; the impediments to outside scholars of licence and network restrictions for electronic media; the difficulties of negotiating access to electronic content on behalf of our registered users; and the cost of floor research resources in all media, which weigh particularly heavily on medium to small science schools.

2.5 So far, so typical of smaller older civic universities. Opportunities funded by, for example, the Non-Formula Funding in the Humanities programme and the RSLP have allowed both fuller cataloguing of some of our most important collections and appointment of staff on the IT and special collections sides, while internal funding has allowed us to purchase more electronic information on a recurrent basis. Receiving RSLP access money over four years, on the basis of being one of the 40 academic libraries in Britain most often used by external scholars, has allowed us to plan in a strategic way developments in research services. If our experience on the archival side is typical, a pattern of discovery of richer-than-expected local resources, replicated nationally, will have immeasurably widened and deepened the nation's accessible store of research riches.

3. British academic libraries and research: into the 21st century

3.1 We therefore see a future facilitated by disclosure and description, easier joint access to collections (including electronic), more shared resources in all media, engagement with other sectors and domains such as public libraries, archives and museums, and some amelioration of intellectual property and scholarly communication issues.

3.2 All this will unpack into a varied programme of initiatives, some already underway. Much still has to be done in the national identification and description of collections, or what is now being referred to and thought of as the Distributed National Collection. There is room for more efficient document delivery by all modes, and some concern that a falling-off in print inter-library loans may threaten the viability of the British Library's Document Supply Centre, one of the lynchpins of UK research. There is linkage with joint efforts to build electronic information infrastructure and content through the emergent Distributed National Electronic Resource, with such ideas as the Open Archives Initiative (which looks to connect document archives, pre-print services and digital libraries) and with the spread to Europe of the SPARC movement to create affordable scholarly journals.

3.3 It seems obvious that the national infrastructure to support and direct such developments will need strengthening. Given the "joined-up" mantra of the New Labour Government, there are moves to consider the needs of libraries, museums and archives in a more holistic way through a new national umbrella body, and very significant new regional bodies which will stimulate joined-up thinking, and action, in these domains.

3.4 Academic libraries themselves, where geography permits, will need to consider local collaboration to a much greater degree, including joint purchasing of shared materials and access to lending services for other institutions' staff and researchers, while national union catalogues of journals and monographs are all possible (indeed likely) developments being looked at by a new committee chaired by Sir Brian Follett, as is a more coordinated approach to digitisation.

3.5 Preservation of digital objects is also a crucial building block for the future of research. So much primary information is now "born digital" and yet likely to be made inaccessible by technological advance within comparatively short periods – from social science databases to GP records. Projects such as CEDARS have explored

some alternative routes towards preservation, such as bit-streaming; it is crucial that tried and tested techniques be cascaded through the sector. Conversely, of course, and a greatly more difficult decision intellectually, we must try to evolve robust (i.e. future-proof, to the greatest extent) principles for deciding *what* to preserve and what to let go. Beyond that, the more general issues of preservation (including the effectiveness of digitisation as a preservation measure for rare paper-based materials) will deserve further consideration and support.

3.6 Another trend implied in the Follett Report and perhaps about to be magnified by the current set of RAE results is the diminution of local use received by important national collections. Collections of important primary and secondary material can exist when academic focus has moved on and away from the topic area; it is also possible that the latest sets of RAE results will “knock out” or diminish, as active research entities, some academic departments up and down the country which at present enjoy, and are in a sense the custodians of and onward investors in, important collections. Researchers need to have such collections sustained and made accessible when the local priority is low; there is a set of issues about external funding support, overlap/redundancy of collecting and decisions to relocate which needs unravelling.

3.7 Needs of key researchers will continue to vary widely, to some extent by discipline. It has been said that leading edge scientists depend most on informal networks, email and preprints to keep each other informed, there being a well-identified number of centres of excellence and a fast state-of- knowledge development which outstrips the pace of scholarly (especially prestige scholarly) publication. Systematic access to preprints and some consideration of the status and preservation of email and websites are issues here.

3.8 For other researchers the academic journal, in whatever form, will continue to be the main vehicle of current, quality-controlled information. The potential for a national serials union catalogue has been established by the UK National Union Catalogue study, and should be advanced as a national priority. The potential for electronic journals to give researchers more than the print equivalent, e.g. collections of raw data, video clips etc, also needs developing, though in the present model of scholarly communication commercial publishers will make business decisions about the costs of this, raising again the question of how far institutions can go to develop national intellectual capital in a direction which better serves the HE community.

3.9 Meanwhile, other researchers from the humanities and social sciences will require stable access to well-described primary material and secondary material with a somewhat longer shelf-life, including monographs, journals, theses, a/v and “born digital” material – a typical “hybrid library” mix. This is an area still typified by individual research, for which no institution will hold all resources, but for which national holdings are now very much better understood through collaborative library projects, and within which framework connected-up smaller civic universities are more viable both as local research supporters and as future project partners. Of areas ready for development, theses seem a particularly suitable case for electronic treatment, if issues of “exploitation time” for the author and file security against wholesale downloading and plagiarism can be satisfactorily addressed. Interdisciplinary researchers will spend more time outside their main comfort zones, and will need metadata which caters for the less expert as well as the expert searcher.

3.10 Where the responsibility for record selection, maintenance and preservation lies elsewhere, for example in the case of public records, the ways in which present and future academic research may be negated by the different criteria used for sample selection and organisation should be mapped and some protective measures developed. For example, random sampling for retention of hospital records by local record offices impedes holistic studies of the health history of individuals, families and occupations, affecting not only social science research but also the development of future preventive clinical treatments based on apparent genetic predispositions. Cooperations and even collecting dispensations with public record offices look to be necessary.

3.11 We should not overlook, in discussions of print and electronic collections, the staff-dependent nature of library assistance of research. However the balance of specialist posts may change, their funding at all levels (including digitisers, Web experts, cataloguers, technicians for preservation activities, subject specialists, reading room supervisors etc.) will be vital to enable research to take place. The continuing provision of national funding to maintain staffing commitments that open up access to collections of regional and national importance is very important.

3.12 Finally, it should be remembered that we are dealing not only with a type of library user, the researcher, but also with a very large number of individuals, each with individual perspectives and needs. Such a person can gather, in an office, the print and paper materials he/she needs. The potential of the Web to enable virtual research environments, through the construction of individual portals within which lie all the electronic sources gathered (however temporarily) by the researcher to inform the research, looks to be a very fruitful way to go.

Alasdair Paterson
University of Exeter