Improving access

Overview of the plenary session presented by Ian Rowlands, Mark Ware and Laura Cox at the 34th UKSG Conference, Harrogate, April 2011

This plenary session at UKSG presented the new portfolio of research projects focused on gaps in access, the dynamics of improving access to research papers and transitions to electronic-only publication. This work is funded by the Research Information Network (RIN), JISC, Publishing Research Consortium (PRC), Wellcome Trust and Research Libraries UK (RLUK). Ian Rowlands’ presentation focused on access gaps and barriers for scholarly content, and was based on a survey of 20,000 users of journal articles and conference papers in universities and colleges; medical schools and health providers; industry and commerce; and research institutes. Mark Ware considered how such gaps in access might best be addressed, based on a study which compared five possible routes: open access journals (gold OA); open access repositories (green OA); delayed access; extensions to licensing; and transactional solutions (such as pay-per-view). Laura Cox presented a study which looked specifically at the obstacles to exclusively online journal provision from the perspectives of libraries, academia and journal publishing, and gave recommendations for how they might be overcome. The full reports on all three studies will be available from the RIN website, but the Editors of Serials have asked the presenters to provide brief summaries of their work for those who were unable to attend the conference.

Access to scholarly content: gaps and barriers to access

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Introduction

The aim of this part of the ‘transitions in scholarly communications’ portfolio of research1 is to quantify gaps and barriers to scholarly information access for different communities within the UK and to develop an assessment of their significance.

The term ‘gaps’ refers here to a mismatch between an information requirement and reality. Gaps refer to information that is needed for a specific purpose but which is not available from sources that the researcher would normally use to meet such needs. An example might be a surgeon within the NHS who is unable to access up-to-date material on a particular surgical procedure since his/her library does not subscribe to the relevant journal in which it is described. Such gaps only exist when a researcher or knowledge worker knows they need something and cannot get ready access to it. If they do not have access to information they do not need, then the gap is immaterial. The term ‘barrier’ refers in this study to those situations in which the required information resource exists in a target collection, but it is not easily or conveniently accessible.

There are probably around 25,000 peer-reviewed journal titles currently in production. No single library can possibly afford to acquire and process
all of these titles, nor would it make any sense. One of the key characteristics of journal publication is that similar materials are brought together under one `cover'. The narrow scope and specialized nature of the journal means that for most researchers, a relatively small set of core titles can deliver a high proportion of what they need most. But not all, and some articles of interest will turn up in the most unexpected places. This means that gaps in provision are almost inevitable in the current environment. This study attempts to quantify the extent of those gaps.

The main data collection for this study is an online survey of 20,000 UK researchers and knowledge workers in industry and the professions. E-mail invitations were sent out to a carefully structured sample of corresponding journal authors harvested from Elsevier’s Scopus database, plus a sample of trade magazine subscribers and people who had previously bought individual articles from ScienceDirect on a pay-per-view basis.

The survey is really then a stratified sample of the whole of the UK research space, including academics and knowledge workers. For the sake of comparison, we report our findings by broad sector. These are universities and colleges; medical schools and health providers; industry and commerce; and research institutes (including government laboratories).

Scholarly information needs in context

Journal articles and, to a lesser extent, conference papers are the lifeblood of research across the higher education, corporate, health and government sectors, but they are only part of meeting a much wider set of information needs. Figure 1 compares the perceived importance and ease of access to a range of scholarly information resources by researchers in UK universities and colleges. Compared with other types of scholarly and related content, journal articles and conference papers seem to be relatively easy to access in this sector.

We asked researchers and knowledge workers to describe their current level of access (in print or online) to journal articles and conference papers, using a five-point scale where 1=very poor and 5=excellent. An analysis by broad sector is shown in Figure 2. This reports the average response to that question, with 95 per cent confidence intervals around the mean. The answers reveal that researchers in universities and colleges currently enjoy significantly better levels of access to journal articles (and greater variation, suggesting large
differences in the quality of provision) than their colleagues in any of the three other sectors, each of which falls short of a `good’ rating in terms of their aggregate response. Confirming the findings from the earlier figures, satisfaction with current levels of access to conference papers lags very significantly behind for all four groups.

Current levels of access by subject
Within this general picture, current levels of journal article and conference paper access vary substantially according to the subject interests of respondents.

Figure 3 shows that relative to other disciplines, the least satisfied with their current levels of journal provision are researchers and knowledge workers in materials science and technology or environmental sciences. Gaps in provision in these two areas fall statistically significantly (at the five per cent level) below the average for the whole survey which generally lies somewhere between ‘variable’ and ‘good’.

In the case of conference papers (Figure 4), researchers in chemistry and chemical engineering are significantly less satisfied (at the one per cent level) with current provision than researchers in other subjects. There is clearly a more general issue here: all of the means are considerably smaller than for journal article access and they all fall around the interface between ‘variable’ and ‘poor’.

Current levels of access by researchers and knowledge workers in industry and commerce
Zooming in on knowledge workers in industry and commerce, a very neglected and poorly understood group in research terms, the sectors with the least satisfactory current levels of journal article provision (Figure 5) are the

- motor industry
- utilities companies
- metals and fabrication
- construction
- rubber and plastics.

These fall significantly (at the five per cent level) below the other sectors in terms of expressed satisfaction. Once again, the general picture is that provision is far from optimal, hovering in all cases somewhere between ‘poor’ and ‘variable’.

When we turn to conference papers in Figure 6, utilities companies (electricity, gas and water supply) emerge as being unusually poorly served by comparison with the other sectors. Any differences between sectors here are less clear cut than Figure 6 might trick the eye to believe, since the standard deviations on this question were very wide. This means that averages alone should not be taken too seriously: the real message here is that even within sectors, access to conference papers is highly variable and uneven.
We also posed the question, ‘How does your current level of access compare with five years ago?’ to get a sense of the speed and direction of travel.

The message in Figure 7 is clear: general perceptions are that access to journal articles is easier now than in 2005. A large majority (71.8 per cent) of university and college researchers feel that access is ‘a little’ or ‘a lot’ better now than before.
The equivalent proportions in the other sectors (61.5, 57.6 and 58.8 respectively) are smaller but still majority opinions.

Of the subject communities, researchers in the neurosciences are the most satisfied with progress over the past five years (mean=4.26; CI$_{95}$=4.02-4.49), physicists the least (mean=3.68; CI$_{95}$=3.38-3.98).

There are no significant differences by industrial sector.

The perceived improvements for access to conference papers are very much less widely shared than for journal articles as highlighted in Figure 7.
Some preliminary findings of the study follow. These will be tested through a series of focus group discussions with researchers and industry experts in the second phase of the study.

- Journal articles are critical to discovery and innovation in the public and private sectors and are rated as ‘extremely important’ by 72.6 per cent of the researchers and knowledge workers in the survey;
Compared with other types of scholarly resource, journal articles are relatively easy to access, especially in our universities and colleges, but this generalization disguises the fact that access to articles is patchy in some parts of that sector and most certainly across the rest of economy. Overall, 11.5 per cent of all researchers describe their current level of access to journal articles as ‘poor’ or ‘very poor’. For university researchers the proportion falls to only 5.4 per cent but the proportion rises to 19.8 per cent in the case of knowledge workers in small and medium-sized enterprises and 22.9 per cent in manufacturing;

The UK industrial sectors reporting the poorest levels of journal access are vital to the UK’s continuing prosperity: the motor industry, utilities companies, metals and fabrication, construction, and rubber and plastics;

New discovery tools, especially gateway services like Google Scholar, PubMed and the Web of Science, have made the research literature more visible to more people more conveniently than ever before, but discovery and access are not the same thing. Researchers vented much frustration over the limited range of journal titles available to them at their institution in the free text comments in our survey: many are especially resentful when they find something that looks useful but encounter a pay wall. A key issue here is the tension between the ‘article economy’ (what readers want) and the ‘journal economy’ that is the dominant model of information supply;

Despite the existence of pockets of relatively poor provision, most researchers (71.5 per cent in the case of universities and colleges, 57.6 per cent in the case of industry and commerce) believe that access to journal articles has improved over the past five years, largely the result of innovations on the part of publishers (journal bundling or the ‘big deal’), consortial purchasing by librarians, and the growth in open access;

Nearly half (45.8 per cent) of the researchers in our survey report that they had faced difficulty accessing the full text of journal articles they needed on ten or more occasions over the previous 12 months. It is not possible to quantify the knock-on effects of this ‘failure at the library terminal’: a spectrum of outcomes is possible, from mild frustration to more serious outcomes such as repeating an experiment unnecessarily or losing out on a grant. This is a worrying ‘known unknown’;

The reasons for failure at the library terminal are varied but a common theme running though much of the data we collected is that users do not have access to a wide enough range of journal titles to satisfy all their needs immediately;

They are also confused by a plethora of library, publisher and third-party information systems: greater simplicity is required, and more open systems, if researchers are to fully reap the rewards of considerable (but insufficiently joined up) investment in infrastructure;

Pay-per-view (PPV) business models constitute a major disincentive to access research information: there is a widespread reluctance to pay for individual articles at the prices currently being asked by publishers and document suppliers and a minority of researchers (26.3 per cent) tell us that they have strong objections in principle to this mode of access;

Nevertheless there are indications of a reasonably substantial market for PPV and signs that this could grow further if the right business model is found: 12.6 per cent of respondents say they might consider buying individual journal articles in the future, and this proportion rises to 43.8 per cent in the case of conference papers;

For many researchers, conference papers are less important than journal articles (23.6 per cent rate them as ‘extremely important’ for their work) but they are much more difficult to access than journal articles: 34.4 per cent of researchers and knowledge workers describe their current level of access to conference papers (in print or online) as ‘poor’ or ‘very poor’. There is a clear need for specialized discovery tools and for more systematic publication and archiving of conference materials;

Open access has become an important feature of the scholarly information landscape, but only a small proportion of journal articles is currently available in this way (a 2010 study estimates that that 20.6 per cent of the international, ISI-indexed, literature published in 2008 is now openly accessible). It looks like a mixed economy of business models will co-exist for the foreseeable future;
The study aimed to provide evidence on how access to research papers might be improved, and considered the costs, benefits, opportunities and risks involved.

Our approach was to define (in consultation with a wide range of stakeholders) a number of challenging but still plausible (given our present situation and the assumed driving factors) five-year scenarios that increased access to scholarly articles. We then compared these scenarios to a common 2015 baseline.

The five scenarios were: green open access (increased author deposit driven by mandates); delayed access (more publishers choose to adopt this model); gold open access (increased uptake driven by improved funding arrangements and more OA journals); licence extension (full national licences for UK academic institutions and/or the NHS); and transactional (expansion of access via an “iTunes”-type model).

Having defined the scenarios we estimated the changes in costs compared to the baseline. Gold OA had the highest transition costs. It was, though, the only scenario with the potential to reduce annual net costs: if the article processing charge is low enough, savings from lower subscription payments will outweigh the increased gold author-side payments. We therefore presented results for the gold scenario with a higher and a lower article processing charge (APC).

We then compared the cost-effectiveness of the scenarios by looking at the unit cost of providing additional (standardized) access (Figure 1).

We also looked at economic benefits to the wider UK economy arising from increased access, using an economic growth model to calculate an overall benefit-cost ratio (BCR) for each scenario (Figure 2). It was important to consider not just the costs and benefits but also the relative risks for each scenario. In framing the conclusions that follow, we took account of risks in three categories: potential impact on the overall funding or viability of the scholarly publishing system, risks to the transition process, and risks to achieving the calculated BCRs.

**Policy implications**

The delayed access route is very cost-effective but we though it less plausible than some of the others, and there is limited scope for policy-makers to affect its uptake. We saw it as unlikely to provide a significant change in access.

The transactional route offers a way to target known access gaps, for instances SMEs. It does not, however, seem capable of providing substantial

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**Reference**

1. This part of the project report is not yet available but will be on the RIN website in due course: http://www.rin.ac.uk/

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overall increases in access, and again there are few policy levers available.

The three remaining scenarios are amenable to policy intervention to varying degrees, but of these the licensing extension scenario seems to us the least attractive. The combination of significant up-front and ongoing cash costs and the difficulties of transition (including the allocation of costs among universities) make the option relatively unattractive, particularly in the current difficult fiscal environment.

The two open access routes therefore offer the greatest potential to policy-makers in promoting access; both have positive, and potentially high, benefit-cost ratios.

The green scenario appears capable of providing increases in access comparable to or greater than other scenarios and, given that the infrastructure for green has largely already been built, increasing access by this route is especially cost-effective. These gains, however, come with increased risks to the scholarly publishing system in the form of potential subscription cancellations, and thus the risk that the scenario may not be self-sustaining.

The gold route therefore appears preferable in the long run, taking account of its underlying

Figure 1. Comparison of the net cost to the UK per additional standardized unit of access

Figure 2. Benefit-cost ratios

1 Increase applicable to HEI/NHS users only
sustainability, the economic advantages of the business model (improved transparency and lower barriers to market entry), and the potential (at lower APCs) to achieve both higher benefit-cost ratios and potentially lower net costs.

There are, however, greater potential transition costs in the transition to gold compared with green, and the size of the benefits depends on the future pricing of APCs which it is hard for policymakers to know.

Given this, a prudent stance for policy-makers seeking to promote access might be:

- to encourage the use of existing green infrastructure (whose costs are largely sunk); but to be cautious about the potential risk of shorter embargoes to subscriptions
- in parallel, to work to facilitate a transition to gold open access for publishing, focusing on the most promising disciplines first, provided that firstly, weighted average APCs remain at or below £1,995 (but with no cap on individual APCs); secondly, the proportion of articles funded through APCs moves broadly in line with global rates; and thirdly, that mechanisms are in place to ensure that hybrid models do not result in increased costs.

Reference


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Barriers to an exclusively electronic journal environment in UK Higher Education: a summary

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Study objectives

This study is based on the premise that we should be maximizing the digital benefits of online journals and eliminating print cost burdens in UK Higher Education (HE). Most journals are already available online. The ALPSP Scholarly Publishing Practice Survey² found that 91% of journals were online in 2008, and offer anywhere/any time delivery, search and citation linking and, in many cases, supplementary items such as datasets. The costs to be eliminated are not just associated with storage space, but also with print-based library functions like checking in and stack maintenance.

This project examines the barriers to moving to an exclusively online journal environment in UK universities and how those barriers may be overcome.

Methodology

Twelve broad barriers were identified, and agreed upon by the project steering committee. The investigation followed four paths: a literature search; analysis of SCONUL usage statistics; analysis of publisher data on print versus online subscriptions; and an extensive programme of interviews with librarians, academics, journal publishers and other organizations.
The findings

Each of the 12 barriers to an online-only journals environment was scored from one to ten by the librarians interviewed, ten being the most serious barrier. The findings of this study are presented below in reverse order of severity, as scored by the librarians interviewed.

12: Embedded print culture in libraries

Score: 3.1

There has been a massive transition to online journals, which has required the redeployment and retraining of library staff to develop the new skills required to manage online access. Essentially this process is now complete and there is very little evidence of print culture remaining in libraries. However, there are a couple of practical issues to address. Firstly, there remains some reluctance to ‘sell’ e-only as a concept to academics. The Dutch consortium UKB undertook a successful programme of articulating the cost savings and service benefits of online journals to faculty, something that could be recreated in the UK. Secondly, two of the publishers interviewed reported that a significant number of libraries do not activate online access for the journals that they subscribe to – even for online-only subscriptions.

11: Publishers’ reluctance to engage with open access

Score: 4.1

Some of the publishers we interviewed did not even mention open access (OA). Those that did, including those that consider themselves to be open access friendly, did not think it was relevant to this project. Although academics and librarians welcome OA, none of the academics interviewed considered it a barrier. Librarians had more varied views: four RLUK libraries considered it quite a serious barrier, but the majority of librarians shared the publishers’ view that, however welcome OA may be, it is a different issue and not directly related to their policies in moving to an online-only journal environment.

10: Continuing demand for print

Score: 4.1

The continuing demand for print originates from a variety of causes, some of which are more substantive than others. Some authors prefer print, and view it as the primary version of record. Some humanities and social science journal editors and their readers see the journal in the context of a crafted issue, as a dialogue based around a theme or a topic. They view online journals as a collection of articles which loses the academic coherence represented by the issue. This could potentially be overcome online by adding table of content links to the end of each article.

There are concerns about the quality of images in certain disciplines and readers have not entirely recognized the improvement in digital display that has occurred in recent years. Furthermore, many publishers found it very difficult to obtain or extend image rights to online journals and even when they have obtained those rights, they are often time limited.

There are a number of regulators and professional bodies which treat print as the sole version of record, and set minimum requirements for print holdings as a condition of validating courses for professional purposes.

Advertising and special sales are an important revenue stream, particularly in medicine and to some extent in engineering. Journals carry both display and classified advertising and make ‘special sales’ of reprints of complete issues of individual articles for marketing purposes. Online advertising generates much less revenue than print, and it is based on a relatively immature model as against the well-established model in print. Reprints of medical journals and articles are frequently distributed to practitioners by pharmaceutical companies as both a marketing tool and to provide medical education in the science behind new products. The alternative of providing online access to this content is not viewed as having the same impact. Print is very much the medium of choice.

To address these issues there are a number of actions to take. Professional and regulatory bodies should be targeted to change their mandates to online holdings. The academic community could be educated about the quality of images, and
image rights holders targeted to provide time-unlimited options for the use of their images.

To tackle the rest, publishers should take advantage of the improvements in digital printing technologies and utilize print on demand to maintain a low cost base and continue to serve those communities requiring print. Publishing is an international activity and there are countries outside the UK which still opt for print due to IT infrastructure problems or cultural reasons.

9: Availability of digital back-files

Score: 4.2

Most publishers provide digital back-files. However, most of them do not reach back to volume one, many starting from the introduction of online publishing, generally in the latter part of the 1990s. There are two issues here, firstly a lack of availability from the publisher, and secondly, a lack of availability of funding in libraries.

RLUK libraries found this more of a concern than other libraries, many of which would not be able to afford the additional purchase of back-sets anyway. The retro-digitization of back-files is important in disciplines where access to older volumes is required, but librarians did not consider this to be a critical barrier as it does not prevent them from migrating current subscriptions to online only.

8: Scholarly culture

Score: 4.7

Scholarly culture is closely related to the continuing demand for print. Faculty interviewed certainly see the benefits that come from online only, particularly the convenience, improved discovery tools and access to a wider range of content.

There has been a steady migration to electronic journals in all disciplines; this is almost complete in STM and slower in the arts and humanities. Most libraries encountered vocal resistance to the migration to online from a few individuals, but work patterns are already evolving. Little needs to be done to address these issues other than at a local level.

7: Journals only available in print

Score: 4.7

As has been noted, 91% of journals are available online, but that leaves a significant segment of journal literature which is still only available in print. Most of these titles, mainly in the humanities, are run on a shoestring by small presses and learned societies, or directly from university departments. These are often run by experts in their field rather than professional publishers, so there is some trepidation about publishing the journal online and the technology that is involved.

There are also many foreign-language titles, important to subjects such as classics and linguistics, which remain unavailable online.

RLUK libraries found this more of a problem than other institutions, largely due to their use of foreign-language and niche titles. However, all of the librarians stated that this issue would diminish over time, particularly as these titles are high on most cancellation lists, and are likely to be bought by, or eventually contract their publishing arrangements to, other publishers.

6: NESLi2 opt-in deals

Score: 4.9

NESLi2 consortial deals are essentially structured discount schemes which operate on an opt-in basis and as such do not achieve publishers’ best prices. Purchasing journal packages ‘en bloc’ enables library groups to negotiate much more competitive pricing, but provides many libraries with titles that they probably do not need. The creation of a UK-wide consortium in which each institution subscribed to the same content met some resistance from libraries, particularly RLUK libraries, due to the competition between universities, one of the ways in which they differentiate themselves being their library holdings. Nevertheless, NESLi2 was not perceived negatively, and JISC Collections is seen as an enabler, particularly in the creation of further regional library consortia after its success with SHEDL in Scotland.
5: Long-term preservation of online journals

Score: 5.3

There was considerable variance in views about long-term preservation, and some concern about the robustness of existing preservation and about digital obsolescence remains. However, most librarians deemed this to have passed. Confidence has increased due to the UK LOCKSS Alliance, Portico and UKRR, which although in print, at least ensures content is available via inter-library loan.

The primary need is for a national strategy for long-term preservation, which is set out in Charles Beagrie’s report for JISC, Keeping Research Data Safe: a cost model and guidance for UK universities.

4: Technical Issues

Score: 5.9

Most libraries regard technical issues associated with managing online journals as an irritation rather than a barrier to further migration, however, there are issues that could be overcome. Changes in publisher and changes in publisher platform cause confusion. There are publishers which have not implemented Shibboleth or Athens authentication and problems with remote access and login. Most problematic is the variety of definitions of ‘authorized user’, and a wide variance in terminology.

To solve these problems, publishers should implement Shibboleth and Athens, and sign up to Project Transfer. The definition of an authorized user should be standardized to include walk-in use and staff of organizations affiliated with the university, particularly NHS staff. Publishing trade associations and library groups should attempt to implement standard nomenclature, which is frequently a major cause for enquiries within libraries.

3: Continuing access

Score: 6.7

The right to continuing access to those volumes of a journal that a library has subscribed to and paid for is a standard condition of most publishers’ licences. However, small publishers have been much more reluctant to include this right.

Additionally, publishers requiring maintenance fees are viewed as obstructive by demanding fees for content that has already been purchased. The use of physical media as an alternative is also a problem, because it prevents libraries from providing seamless access to content.

This was much more of a concern for the RLUK libraries than post-1992 institutions. The recommendation of this study is that trade bodies and library groups continue to tell publishers why this is important.

2: Value Added Tax (VAT)

Score: 8.1

The standard rate of VAT, currently 20%, is charged on online journals, print versions are 0% rated. The 0% rate is not consistent within the European VAT Directive which provides for a standard and a reduced rate of VAT, and was negotiated as a derogation when the UK joined the EU in the 1970s. The scope of the 0% rate cannot be extended. The European Commission has recently announced that it is re-examining the VAT Directive with the view to equalize taxation on print and online journals. But this is likely to result, if it goes ahead at all, in VAT being charged on print. This may be at the standard rate, or may mean that a reduced rate is applied to both print and online journals. However, this is not likely to happen quickly, and in the meantime there are measures to mitigate VAT. This requires a differential in publisher pricing between print and online journals of approximately 17%.

1: Publisher pricing policy

Score: 8.6

Not all publishers actually offer an online-only pricing option for journals, obviously creating a situation where libraries receive and then discard printed copies that they do not want.

To add to this, the wide variety and experimentation in publisher pricing has created an almost chaotic pricing landscape. It is important to
note that publishers cannot confer on pricing; it would breach competition law in the UK and EU and anti-trust law in the US. Collusion (whatever the intentions) is illegal.

Customers can, however, place pressure on publishers to standardize pricing, as has happened with licensing terms via national standard licences. JISC and RLUK could bring together library groups to create a statement of requirements – including the acceptable types of pricing models.

Most importantly, publishers must create online-only pricing that offsets the VAT altogether, for example:

Journal A
Print subscription: £150
Online subscription: £150 inclusive of VAT

£150 /120% = £125
£125 x 20% = £25 VAT

£125 + £25 = £150

£25 is 17% of £150 (rounded).

Conclusions

This study found barriers to developing an exclusively electronic journals environment in UK HEIs, some much more problematic than others, but not one creates a complete block. To further the aims of migrating to an online journal environment there are some initiatives we can take:

- every journal publisher provides an online only option and provides pricing with a differential of 17% between online and print
- librarians are helped to educate faculty about the benefits and improvements in online access with briefing notes and seminars
- a clear national strategy is developed for long-term preservation
- the professional and regulatory bodies are identified and targeted to educate them about the necessity of changing their mandates to view that the online journal is the version of record
- the development of a joint statement of requirements for UK journal acquisition, that includes: definition of authorized users; the requirement of unimpeded continuing access, acceptable pricing models and other issues that currently form a barrier for libraries in migrating to online only journals.

References


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