

Building in the 'e': creating the virtual bookshelf

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Abstract

The development of hybrid collections of physical and electronic resources presents a challenge for library users who wish to browse physical and e-resource collections. At Macquarie University Library the ability to browse electronically has become particularly important with the implementation of our Automated Retrieval Collection, which will store 80% of our print collections. In seeking for a way to improve the browsing capabilities for our physical collections that would also extend to our electronic resources we created a 'virtual bookshelf', which integrates both our physical and electronic collections in a call number display.

Background

Traditionally libraries had their resources arranged in call number order with classification numbers assigned to print resources. The rationale was that having like resources shelved together and showing the hierarchical relationships within a discipline would mean that clients could browse the shelves to locate 'like' (similar, broader or narrower) resources. This practice of call/class number arrangement continued in the main when audio-visual (AV) resources were added to library collections, thus allowing for AV items to be shelved next to the print resource in an interfiled collection, or with similar subject resources in a separate AV collection.

However, this ability to browse across the Library's resources is now threatened by the uptake of electronic resources in libraries, which is leading to the reduction of physical titles. Whilst there is an argument that little browsing of print journal titles occurred, and so their replacement by electronic journals will not severely disadvantage our clients, it is unclear that this is also applicable to the switch to electronic books.

So why, if browsing has worked for hundreds of years, have libraries not been prepared to work at ways to encourage it to happen in the electronic environment?

Macquarie's Collection Approach

Macquarie University Library, like the majority of Australian University libraries, has now become a 'hybrid' library, with a mixture of electronic and print books, journals, videos and other resources. For Macquarie, this process started in the late 1990s when the first electronic subscription was purchased as an alternative to a print subscription. More than 75% of the Library budget is now spent on electronic resources, providing access to more than 303,000 electronic journals, electronic books and streamed videos. Electronic book content ranges from individually purchased titles to major electronic book packages, such as Early English Books Online (EEBO) <http://eebo.chadwyck.com>, to publisher frontfiles and backfiles. An early emphasis on moving reference monographs to online has reshaped the way in which the use of reference sources is provided and promoted in information literacy training and subject portals, such as LibGuides <http://springshare.com/libguides/>. Between 2006 and 2010, electronic books represented 28% of the new book titles added to the collection. It is anticipated that this percentage will increase further, following the November 2011 implementation of the 'e-book' preferred policy for academic monographs.

Macquarie University Library has followed various strategies with the cataloguing of its electronic resources. Initially items were listed in the catalogue, while also listed in a separate database, with varying cataloguing standards. However, in 2002, as part of the implementation of the integrated library management system, Voyager, all electronic resources (primarily journals at that stage, but including some books) have been added to the catalogue. From there, the records could be extracted into various search services as appropriate.

Prior to loading records for electronic resources into Voyager, whilst we did not undertake a formal literature search we undertook an environmental scan of practices at local and overseas academic libraries, and this revealed that, at that point, very few, if any, libraries were assigning call numbers to their electronic resources. The general assumption seemed to be that clients wanted to know whether the library had the journal or book, in either print or electronic version, but did not want to browse the electronic resources whilst browsing the physical collections. Therefore, as clients were not browsing electronic resources, there was little need to assign call numbers. Macquarie agreed with this reasoning and for the next eight years all its electronic resources were loaded with a generic 'call number' of "electronic version". Over time, whilst occasionally reconsidering whether this was still the right approach, Macquarie maintained the practice of not assigning call numbers.

Into this environment, and whilst still in the early stages of assessing the challenges of client expectations regarding how electronic resources integrated with the physical library, came the planning for Macquarie University's new library scheduled for opening in 2011. Designed with the incorporation of an Automated Storage and Retrieval System (ASRS), the new library would be able to store 80% of the physical collection, or 800,000 items, in an on-site high-density non-browsable storage with efficient retrieval, while 20% would be located on open browsable shelves. The existence of the ASRS allowed the Library to increase the number of learning spaces available for users from around 1000 study seats in the old Library to up to 3,000 in the new Library (Brodie 2008).

However, while 'out-of-sight', the stored material was not to be 'out-of-mind,' as the intent was not one of custodianship for material in the ASRS but of active integration via the Library catalogue. Material in the ASRS, now named the Automated Retrieval Collection (ARC), would be easily findable and requestable via the catalogue and available to the requestor within a turnaround time of 30 minutes.

Whilst having an ASRS would reduce the amount of floor space needed for the Library's print collection, it would also reduce the immediate physical access to the majority of our physical collection. This impact on the physical browsability of the collection required consultation with our academic departments in order to gain their feedback, and during 2009-2010 an intensive Academic Consultation exercise was carried out with all our Faculties. (Kattau and Spencer 2011)

The consultation activity was aided by the earlier development of a foundation set of Collection Storage Principles that would guide decision-making concerning which items would go into the ARC and which would be located on the open shelves. (Macquarie University Library 2008) Prior to consulting with departments, an extensive profiling of the relevant subject resources for each discipline, including both print and online, was carried out to give each department a clear idea of the scope of the subject collections and the proposed location of items in those subject areas. The guiding philosophy was that the open, physically browsable, collection should reflect Macquarie's current teaching and research, and to this end, principles of usage and recency of acquisition (five years was the agreed figure) were applied to produce proposed locations for each monograph item. Print journal holdings, excluding the latest two years and AV formats, were to be located in the ASRS along with all monographs not falling into the open collections criteria.

Generally, the Faculties agreed with the application of the Collection Storage Principles at the disciplinary level (i.e. the open shelves or ARC location of items in their subject areas); however, there was some concern about the loss of browsing and findability in relation to items located in the ARC (Kattau and Spencer 2011).

Other libraries with an ASRS had also been concerned with the lack of browsing, but as the majority of those libraries have stored lesser-used or duplicate materials in their ASRS collections, such as runs of print journals, they had found that the loss of browsing was not as large an issue as first thought (Robins 2008). However, because Macquarie's ARC was to contain 80% of the print collection, we were interested in determining what actions could be taken to alleviate any issues.

At this time, Macquarie was approached by a Masters of Information Studies student, who wished to investigate the "the pros and cons of the use of automated storage and retrieval systems in Australian university libraries" and to "provide an indication on whether today's students place as much importance on browsing open stack collections as is currently believed" (Robins 2008). As part of this study, Robins carried out a survey of Macquarie staff and students to ascertain, among other issues, "What is your preferred method of identifying items to borrow?". It was thought that this research would give a good understanding of any issues to be addressed.

The survey results showed that browsing was an important factor for those who used the collection frequently as the extent of browsing the collection increased with the number of times a client borrowed. Whilst browsing was only used in 12.7% of the cases for the first item borrowed, it had increased to 33.3% of the cases for the fourth item (Robins 2008). However, the survey showed that browsing the catalogue was important for some discipline areas, in particular the Humanities and Social Sciences (Robins 2008). As a result, it was recognised that for some of our clients, browsing was a significant way for them to locate their library resources.

The survey also offered the chance for the respondents to make comments and two relevant comments were received that we considered quite crucial.

"The catalogue gives the item I am after, then I browse surrounding books /items. A search of the catalogue does not always produce all relevant material. Sometimes it produces a list of thousands of items which is not efficient. If online is the only way to browse, a facility to see, online, what is on the shelf nearby, i.e. VIEW BY CALL NUMBER, would be most valuable"

"Being able to browse the library shelves is a critically important part of my research as an academic. I often find vitally useful resources by tracking down one book through the catalogue and then looking at the surrounding shelves to find related topics. I am very concerned that an automated retrieval system will prevent me from finding such important research materials. If there is to be an automated retrieval system, could there at least be a photographic representation of the surrounding books on the shelf so that the shelves could be "virtually" scanned by eye? (Robins 2008)

As a result of Robins' research and the feedback received through the Academic Consultation process (Kattau and Spencer 2011), Macquarie started evaluating how the catalogue provided browsing access to all the Library's resources, including items on loan, electronic resources, and items in multiple physical locations, in an integrated way. The idea was to discover if there was anything that could be done to improve the 'browsing' experience?

Integrating the Electronic and Physical Collections

In 2009, the Google Books images functionality was implemented into Macquarie's catalogue, and Tables of Contents (TOC) were increasingly included as part of the catalogue record, rather than just providing a link to a TOC Service. Both of these improvements helped to give clients an enhanced understanding of what the book was about, and although these changes were well received by clients, this was just the start.

However, we believed there was a major issue in trying to promote electronic resources as an integrated part of the collection. Therefore, a review of Macquarie's cataloguing standards was undertaken, to see if any changes in the cataloguing process for electronic resources to promote their browsability could be made. It was realised that as call numbers were not being assigned to electronic resources, clients who used the catalogue to browse by call number would miss the electronic resources.

As a result of this investigation, we became interested in whether we could assign classification numbers to electronic resources with minimal staff intervention. With the Serials Solutions MARC Record Service as the main source of MARC records for Macquarie's electronic journals, the Library commenced investigation to assess whether data within the records could be utilised to automate the assigning of a call number to catalogue records. After evaluating the MARC records, the full-level records from this service were found, in the main, to include a 050 field with a Library of Congress (LC) Classification number in the 050 field. This was crucial, as Macquarie University Library uses the LC classification number for its classification scheme.

As Macquarie's local cataloguing practice specifies that the assigned LC number should be used except in exceptional circumstances, this meant that if we had been manually cataloguing electronic resources, the LC number would have been added into the MARC record. Unfortunately, there were some records where the call number assigned to the electronic version varied from that assigned to the print version in the collection, which meant that the print and electronic versions would not be 'filed' together in the call number browse index. There were also a few other inconsistencies, such as incomplete call numbers, but it was decided an incomplete call number was better than no information.

At the end of this assessment, it was decided that, in the majority of cases, the automatically assigned call number would have been the one that would have assigned manually, and any inconsistency between the call numbers would be small in number. Also, it was acknowledged that there were inconsistencies in call numbers for the current print collection. As a result, the decision was made to

implement the automated assigning of call numbers to electronic resources where possible.

Thus, in September 2010, a project commenced to create call numbers for all electronic resource records where possible. To this end, the scripts that apply local customisations to bulk MARC electronic resources records were changed, so that if there was a 050 field, this field would be copied into the holdings record and the call numbers index. Local cataloguing practices were changed so that cataloguing staff now assign call numbers to any electronic resource records being manually catalogued. This change was applicable to resources such as digital theses, individual electronic books, and streaming video records. For the most part, the individual records imported from external bibliographic databases included a 050 field so there was little, if any, increase in staff time in assigning the classification number.

So what has the progress been? Since it would take significant systems time to refresh all the electronic resources records at the same time, it was decided to wait for the electronic journal records to be included in a Serials Solutions 'changes' file before updating the call number. In the year since the project commenced, 38% of electronic journals in the Library have call numbers.

In May 2011, a subscription to the Serials Solutions Books MARC Record Service was commenced, meaning that the majority of electronic book records would be received from one source. Local customisations were applied so that all records with a 050 field would have this assigned to the call number field, thus meaning that all records loaded through this service have call numbers created where possible.

As of October 2011, 16,000 electronic book records with call numbers have been created which represents 15% of the holdings. In early 2012, the plan is to replace the 90,000 EEBO records with a replacement set which includes call numbers. When this refresh is complete, it will greatly increase the percentage of the electronic resources records that have call numbers.

However, the number of Serials Solutions electronic book records with 050 fields is not as high as anticipated, which limits the ability to assign call numbers. Whilst the full-level Serials Solutions records mostly have 050 fields, many of the brief or lesser-quality records do not have this field. Whilst it is understandable why the lesser records do not include the field, there is disappointment that a number of the higher-level records are also missing this field. It is hoped that, in the future, more electronic resource records will be assigned call numbers, as per their print equivalent.

The records without call numbers fall into two main categories. The much larger category includes older batches of electronic book records, sourced from vendors other than Serials Solutions. Staff are working to source new records where possible, either through Serials Solutions or by sourcing new records from our electronic resource vendors. It was discovered when activating sets in Serials Solutions that some new book records do not contain 050 fields where the original ones did. For these it is quite disappointing to find we are losing call numbers, and thus there needs to be careful consideration before replacing the MARC records.

There are also a small number of locally-catalogued records, primarily digital theses, without call numbers. These are being fixed manually when staff need to edit the records.

Whilst progress is good, the main impediment to this project is that there is a great deal of variation in the quality of electronic resource records. The records can vary from an electronic resource record that is basically the original print record, with the addition of an URL, to high-quality electronic resource records that specifically describe the electronic format and whether they include 050 fields.

It is acknowledged that this problem of records lacking call numbers is not an issue just with Serials Solutions MARC records, as this problem is experienced in records obtained from other vendors or bibliographic databases. The goal is to encourage vendors and MARC record suppliers to continue to work on improving the quality and availability of their MARC records, and in particular increase the existence of classification number fields. It is hoped this situation will change over time, as the vendors see the importance of providing high-level MARC records to their customers. If more libraries request that electronic resource records contain call numbers, vendors will be more likely to include these fields as part of their MARC records.

Other Benefits

A further benefit of having call numbers for our electronic resource records is that details of the electronic resources can be included in any subject profiles or reports provided to our academics. By mapping call numbers to academic disciplines or subject areas, collection profiles can be produced matching departmental interests and tracking relevant collection development trends. During the preparation of collection profiles for the Academic Consultations, data for electronic books in each disciplinary area was included. With limited availability of call numbers in electronic records, liaison librarians worked with title and publisher/package lists plus their subject knowledge of recent electronic acquisitions, to try to convey the increasing hybridity of the subject collections. Even though call number data was very limited, as the Academic Consultation had occurred at a very early stage of the project, the academic community was interested in the data supplied. For many of the academics and liaison librarians, it was the first time they could see how our print and electronic books collections were integrating together in the disciplinary areas.

Adding call numbers to electronic journal records has also helped to address long-standing requests for data regarding which electronic journals are subscribed to in particular subject disciplines. Our academic community had in the past been provided with lists of departmental journals subscriptions, but with the switch to electronic resources and the 'big deals' from publishers and aggregators, the concept of departmental purchase has largely disappeared. In answer to these requests, lists by database, aggregator or very broad subject areas were provided, although it was known that this was not completely satisfactory. Now that call numbers are assigned to electronic journals, this data is incorporated, as relevant, into any future collection assessment processes, building greater transparency into our collection development activities.

Virtual Bookshelf – the Final Piece in the Puzzle

Whilst creating call numbers for electronic resources was a great start, investigation occurred about the best way to promote this new browsing feature to clients. The existing catalogue call number index could now be used by clients to browse all resources by call number; but this function was not very visible in the catalogue, and not very intuitive or visual for our clients.

Different ways to change the existing record displays were examined, but no evidence was discovered to suggest that this would meet client needs. Various options and systems were investigated and then it was discovered, through the listserv for the Voyager library system, that the solution had already been developed for use with the Voyager catalogue. The 'Related Items Bookshelf' was developed by Maccabee Levine from University of Wisconsin (UW), Oshkosh (Levine 2010). Macquarie University Library would like to acknowledge Maccabee Levine for this feature. This was the final piece needed to implement in order for the project to integrate the physical and electronic collections into one "virtual" collection. Without this final piece, the feeling was that although much had been achieved, we were being stopped at the final hurdle.

The Virtual Bookshelf feature (Figure 1) displays, at the bottom of each record, cover images for titles either side of the selected record; in effect a virtual bookshelf. This feature works for any format, any collection, whether the item is on loan or not. The cover images displayed come from Google Books images, although images from covers services, such as Syndetics www.syndetics.com, may also be used. Where a cover image is not available, a default book image is created, thus ensuring that all titles appear in the virtual shelf-list. All that was needed was the existence of a call number to make this work. The main advantage of this feature is that all items, irrespective of whether they were print, electronic, out on loan, shelved in the ARC or any of our small specialist collections, are displayed in the Virtual Bookshelf. Thus this feature allows clients to 'virtually' browse our collections.

Figure 1: Image of Virtual Bookshelf from Macquarie University Library Catalogue



In June 2011, the new feature, branded the Virtual Bookshelf, was implemented in the Library catalogue, and the immediate reaction was positive. As more call numbers are added to the electronic resources, these are increasingly appearing in the Virtual Bookshelf. Whenever the Virtual Bookshelf is demonstrated, informally as part of general tours, or as part of standard classes, favourable comments are received. Client feedback is that they found the Virtual Bookshelf exciting and a useful feature to help with their research. The Virtual Bookshelf has a visibility factor, as we are finding that whenever it is mentioned to clients they indicate they are already aware of the feature and have used it. In particular, some academics, who were most concerned about the loss of browsing of the items located in the ARC, have been won over and are now supporters of the ARC. At a recent committee meeting, one of Macquarie's professors remarked that 'this initiative has gone some of the way to allay concerns regarding the loss of serendipitous discoveries implied by storage of some of the collection in the ARC'. (Library Committee minutes, Oct 2011).

The new Macquarie University Library commenced operations with limited services in February 2011, with full services available from August 2011. The ARC commenced limited operations in March 2011, while the loading of the collection occurred, with full operations commencing in August 2011, when full services commenced in the new Library. In the six months from July to December 2011, 14,416 requests from the ARC were placed. Recently, one of our most traditional academic clients remarked to the University Librarian that his concerns about the ARC have all been allayed, in part because he could still browse through the catalogue. A fuller report on the response by our clients to the ARC can be found in Peasley (2012).

The Virtual Bookshelf has not allayed all concerns arising from the re-location of the majority of the collection into the ARC, but many of the issues have been alleviated. However, an ongoing communication strategy is needed to make sure clients are aware of the items in the ARC. Over time it will be important to assess if the appearance of electronic resources into the Virtual Bookshelf will increase the awareness of the existence of these resources and how they are an integral part of the collection.

The Library's experience with client feedback on browsing in the context of our new Library planning (Robins 2008) has shown the value our clients place in the idea of subject browsing, and their belief that browsing is still in many cases the best way to meet their needs. Despite the range of other access points and tools that can point a user to related material, such as subject headings or Web 2.0 style 'tagging', many users still see the browse function as providing an effective way to identify relevant material.

Plans for the Future

In April 2011, the Library implemented the Primo Discovery System, which allows clients to search the catalogue, open access repository and electronic reserve system, together with pre-harvested third-party metadata from many of our full-text databases and abstracting and indexing databases. While Primo was run as a separate project, the decision to implement a search and discovery tool such as

Primo was seen as a key part of the strategy to integrate the physical and electronic collections.

Under the local name of MultiSearch, Primo has been extremely well received by clients, and it has been found that it is being used both to find specific books and journals and to identify subject resources required for assignments or research. As Primo will never harvest the metadata from all our full-text databases and abstracting services, it will only be a partial solution to the research needs of clients; however, it is hoped it will meet the initial information needs of the majority of our clients, particularly undergraduates, as well as increase exposure to the Library's resources.

Macquarie's Primo implementation is currently an 'out of the box' implementation, while further usage and configuration needs can be assessed. In the search interface, faceted call number searching has been provided, with call numbers converted to faceted subject headings, instead of being presented in the original call number form. At this stage, the Virtual Bookshelf cannot be implemented in Primo, but evaluation will occur over time whether this feature is required and how it can be implemented.

What are the other plans for the future? Unfortunately there is no easy solution to the issue of acquiring call numbers for all our electronic resources, as wonderful as it would be to have them. Our local situation will not allow us to create call numbers for all our electronic resources manually. Lobbying of the MARC record vendors will occur to make them aware of the importance of including call numbers in their MARC records, but until this occurs we will never have call numbers in 100% of our electronic resources records.

There are also plans to regularly evaluate our collection locations to see if the right mix of items, within the ARC and on the open shelves, has been achieved. ARC requesting statistics will be reviewed to see what titles have been requested from the ARC regularly, and an assessment will be made to see whether any should be transferred to the open collection. Open collection usage will also be reviewed to see if there is additional material that could be transferred to the ARC. For example as new editions of titles are purchased, the previous edition will be transferred to the ARC. It would be useful to hear the experiences of other ASRS libraries if they expand the types of material that are stored in their ASRS.

With 80% of our physical collection in the ARC, and an increasing number of electronic books being added to the collection, it is crucial that our main discovery tools, the catalogue and Primo, are meeting the discovery needs of clients, in particular enhancing the discoverability of the electronic and ARC collections.

Conclusion

So what has been achieved? The implementation of the Automated Retrieval Collection and the increase in the number of resources the Macquarie University Library provides in electronic format have led to the development of new strategies for improving discovery and access to library resources. This has coincided with increasing demands by our clients for immediate access to relevant resources and also with increasing challenges for the Library in explaining the growing hybrid

nature of the library collections. Strategies have focused on improving the discovery and exposure of library resources, exposing items now stored in the ARC, as well as electronic resources, to give a full picture of the collection. These include working on presenting the physical and online collections, via the Virtual Bookshelf, which displays, in a highly visual, attractive way all the holdings, in one sequence, irrespective of whether the item is print, electronic, on loan, on the open shelves, or within our Automated Retrieval Collection. The implementation of Primo has allowed clients to search local resources whilst also searching pre-harvested third-party metadata from many of our full-text databases and abstracting and indexing databases, thus presenting a 'virtual' collection.

Whilst the automated storage system was a major driver, many of the issues that have been addressed will be applicable to other libraries. All libraries are looking at how to promote the existence of their print and electronic collections and enhance discoverability. There is confidence that the choice to work on 'integrating' the print and electronic collections into a 'virtually browsable' collection is the best way for Macquarie University Library. To this end we are continuing to pursue strategies for increasing the integration of the electronic and print collections.

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