LIBRARY DISCOVERY SYSTEMS AND THEIR USERS:
A CASE STUDY FROM CURTIN UNIVERSITY LIBRARY

David Wells

Introduction[1]

During the last few years a new generation of 'discovery systems' has begun to displace the

Online Public Access Catalogue (OPAC) which since the late 1980s had become the

principal tool through which library users became aware of library content. These discovery

systems, notably Ex Libris' Primo and Serials Solutions' Summon (now both owned by

ProQuest), are distinguished by an attempt to harness the methodologies of the internet search

engine to the specific library requirements of bibliographical control and retrieval.

Discovery system technology has enabled libraries to expand the service they provide

to clients considerably. Multiple data sources are now searchable through a single interface,

and although bibliographic coverage is by no means universal, itt is thus to a large extent no

longer necessary to search separate indexes or catalogues for book and journal titles on the

one hand and journal article titles on the other. Archival or institutional repository records

that were once maintained outside the library's main catalogue can now effectively be

included within it even if the administrative systems that support them are separate. With the

recent development of new generation library management systems like Alma, OCLC

Worldshare and Intota, back-end functions have also been considerably simplified, leading to

more streamlined delivery of electronic material once the library user has identified it through

the discovery system.

However, for all that discovery systems represent a qualitative improvement in

service to clients at the level of access to content, their implementation has nonetheless been

---

[1] An earlier version of some parts of this article is included in Wells & Richardson, 2014, which presented some preliminary findings from the project.

accompanied by a degree of anxiety, both among patrons and library staff. There are several reasons for this (Wells & Richardson, 2014). Not the least of these is the speed with which discovery systems have changed and developed. At present they are still a work in progress, and the temporary technical deficiencies of the systems as they develop may serve in the short term to obscure the way in which the search, discovery and delivery process is intended and designed holistically to work. Compared with the library OPAC, the discovery system entails a major perceptual shift in the way people think about retrieval. With the OPAC, as fundamentally with the card catalogue, library users construct a search that they think will get them what they want, then if it doesn't, they refine it and start again. With the discovery system, on the other hand, users typically conduct a relatively broad search and then subtract from it to focus in on what they want. The first strategy tends to emphasise discovery of a known item, the second the discovery of a body of information. The replacement of the previous multiple and often specialist tools for discovery with a single interface provides a more streamlined search experience, but at the same time it entails a breakdown of pre-existing understandings of how the information universe is constructed – the previous boundaries between different sorts of information are blurred or removed. On the one hand, the de-emphasis of the sophisticated search functionality of some specialised databases in discovery systems (as in federated search systems before them) seems to imply a 'dumbed-down' approach to the discovery process (Rose-Wiles & Hofmann, 2013); at the same time familiar library terms like 'catalogue' and 'collection' are destabilised and given new meanings. A related factor is the continuing impact of what can be called the 'indeterminacy of the code' (Wells, 2007), that is, inconsistencies in the way the rules and standards which inform the way catalogue data is presented to the user are actually applied in practice. It is inevitable that these are but imperfectly understood by the majority of catalogue users (and indeed may not always be fully understood or applied by the creators of catalogue records

either). Given that discovery systems now source metadata from multiple sources with different levels of quality control, and are also themselves subject to ongoing functional modification, the underlying 'code' has become increasingly difficult to understand

Research on the use and impact of discovery systems on user behaviour is not yet extensive. Their initial development was informed by a good deal of work directed at identifying user expectations (Burke, 2010; Connaway and Dickey, 2010; OCLC, 2009; Sadeh, 2007; Sadeh, 2008). These saw the internet search engine as the guiding model, emphasising the single search interface to facilitate rapid retrieval across a large body of data, and relying on relevance ranking and faceting to maximise the effectiveness of each specific search At the same time, this research led to discovery systems inserting themselves further into the web universe by encouraging integration with social media and other resource management systems (e.g. Facebook, Endnote), and by developing personalisation: providing, for example, internal mechanisms for tagging records, links to social media sites and tailoring relevance ranking to specified areas of interest. A number of studies have also been published on the implementation and acceptance of discovery systems in different library communities (Joc and Chang, 2010; Denton and Coysh, 2011; Gross and Sheridan, 2011; Slaven, Ewers and Vollmerhause, 2011; Comeaux, 2012; Jarrett, 2012; Kaufmann et.al., 2012; Mahony and Mahony, 2012). These have tended to focus on the impact of newly introduced systems. More recent investigations are starting to look at the impact and characteristics of the new catalogue interfaces as mature systems (Stohn, 2015; Harrop et al., 2015; Hanrath & Kottman, 2015).

The present paper presents the outcomes of an investigation into the interaction between library clients and discovery systems jointly undertaken at Curtin University between 2013 and 2015 by the University Library and the Department of Information Studies (protocol approval MCCA-18-13).

Curtin University Library implemented the Primo discovery system (v. 2) in October 2009, in the first instance in development mode and in parallel with the Aleph OPAC which had been in place since 2002. At this stage Primo contained records for library materials managed locally in Aleph and also archival collection and institutional repository records managed separately in Digitool. In November 2010 Primo was upgraded to v. 3, and records covering journal content from Primo Central (the Ex Libris aggregated database of scholarly content) were also included in the implementation. Shortly after this the Aleph OPAC was withdrawn and in 2011 the Library's federated search service, Metalib, was also decommissioned as there was no longer a compelling case for a separate system to cover content indexed at article or chapter level. At this point the Primo discovery system has been known as 'the Curtin Library Catalogue' (hereafter 'the Catalogue'). With the adoption of Alma as the primary library management system in February 2014, some functions previously provided through the SFX link resolver were replaced by Alma services embedded in the Primo interface. Overall Primo represents a simplification of systems from five to one from the point of view of a client searching for library materials (though separate Digitool resource discovery interfaces remain available for fine-tuned searching of institutional repository and archival collection content. Furthermore, Primo also now includes links to the Ex Libris bX recommender service, which provides suggestions for further reading, and to an in-house database A-Z list constructed using data from Alma.

Curtin University has some 40,000 students and staff, on campus and geographically dispersed throughout Australia and overseas, who have a wide variety of purposes when using library systems to access information resources. The University Library has regularly used satisfaction surveys (including Insync and Libqual) to monitor the degree to which services are meeting the requirements of clients and to initiate improvements in response to feedback. Anecdotal and qualitative survey evidence has continued to suggest that some

users find the Primo discovery system difficult or unsatisfactory to use in comparison with previous services. Unfortunately, because of the general nature of the standard quality assurance surveys the available data is often rather unspecific about how exactly clients are using the system, which features they value and where they are encountering real or perceived difficulties.

In order to examine these questions in more depth, the project took evidence from two main sources. First, statistics were collected from Primo log tables S_SEARCH_SUMMARIES and S_CLICK_SUMMARIES for five periods of five weeks corresponding to weeks two to six of each semester from Semester 1 2013 to Semester 1 2015. Analysis of these logs provided a longitudinal picture of use of the different search scope options which were available within the Catalogue, and of the different actions which were available to assist clients in searching for resources and manipulating the results of their searches. Secondly, a survey of Library clients was conducted to gauge user perceptions of the usefulness of different Catalogue functions and to identify areas where the Catalogue was particularly successful or unsuccessful in meeting user expectations. While the log and survey data can only give a partial view of the overall effectiveness of the Catalogue as a discovery system, and are sometimes open to multiple interpretations, they nevertheless provide a heuristically valuable indication of use and user priorities which can inform ongoing development and configuration.

Discovery system technology is, moreover, still developing rapidly. In interpreting the log data in particular, it is important to note that multiple changes to the Primo software and configuration took place during the period covered. Many of these were incremental improvements introduced through software updates and as the result of feedback about customisation and usability, but some entailed major developments in functionality. The main relevant enhancements to the Catalogue are listed below.

July 2013	Implementation of Browse Search options for title, author and subject
Feb 2014	Migration of the Library System from Aleph to Alma. The main impacts on the Catalogue were: a) removal of previous options to search on recently received or recommended items, as this functionality was no longer supported b) implementation of the A-Z journals list within Primo c) improvements to displays of physical and electronic holdings
Sept 2015	Print journals as well as electronic included in A-Z journals list Improvements to Availability displays Improvements to document delivery linking Notes added to clarify availability of materials in the Library Offsite Store
April 2015	Migration of Primo to the Cloud (v. 4.9). This took place just after the latest log sample.

Changes have continued to be made after the period of data collection for the project: notably Primo was moved from a locally hosted to a managed cloud environment in April 2015, shortly after the end of the final period of log sampling, and the Library's document delivery requesting service was migrated from an external system running under VDX software into Alma/Primo in October 2015. To a greater or lesser extent the changes mentioned above were each accompanied by a period of uncertainty as the configuration was fine-tuned and Catalogue users familiarised themselves with the changes. Some care therefore needs to be applied to interpretation of the log and survey data as it may have been influenced by the precise context in which it was collected.

Primo Log Analysis

Statistics were collected from the Primo log tables S_SEARCH_SUMMARIES and S_CLICK_SUMMARIES for the following periods corresponding to weeks 2 to 6 of each semester from Semester 1 2013 through to Semester 1 2015:

Mar-13   11 March –14 April 2013

Aug-13   12 August – 15 September

Mar-14   10 March - 13 April 2014

Aug-14   11 August - 14 September 2014

Mar-15   9 March - 12 April 2015

The S_SEARCH_SUMMARIES log table indicates usage of the different search scope options within the Catalogue. Results have been normalised to treat Aleph and Alma scopes as equivalent. The different search scopes available are listed below, though it should be noted that not all of the scopes were available in all of the data collection periods.

- *All Collections* – all records from the library management system (Aleph/Alma), plus all records from Digitool (Archival Collections and Curtin Research – see below), plus records from Primo Central Index.

- *Books, Journals, AV, etc*. – all records from the library management system (Aleph/Alma).

- *Reserve* – a subset of records from the library management system (Aleph/Alma). comprising records linked to units in Reserve/eReserve.

- *Journals A-Z* – a subset of records from the library management system comprising records for electronic and later also print journals. This scope was not available during the sample periods for 2013.

- *Women's Health Collection* – a subset of records from the library management system for items belonging to the Women's Health Special Collection.

- *Jules Black Sexology Collection* – a subset of records from the library management system for items belonging to the Jules Black Sexology Special Collection.

- *Last 7 days* – a subset of records from the library management system for items received during the previous 7 days. This scope was only available during the 2013 sample periods as the functionality is not supported in Alma.

- *Last 30 days* – a subset of records from the library management system for items received during the previous 30 days. This scope was only available during the 2013 sample periods as the functionality is not supported in Alma.

- *New Journals* – a subset of records from the library management system for recently added journal titles. This scope was only available during the 2013 sample periods as the functionality is not supported in Alma.

- *Recommendations* – a subset of records from the library management system allowing clients to track progress on physical items ordered on their behalf. This scope was only available during the 2013 sample periods as the functionality is not supported in Alma.

- *Archival Collections* – records managed in Digitool for Curtin Special Collections.

- *Curtin Research* – records managed in Digitool for Curtin research outputs and digital theses (espace).

The table below reports the number of entries in the S_SEARCH_SUMMARIES table for the different available scopes in each of the sample periods.

SCOPE	Mar-13	Aug-13	Mar-14	Aug-14	Mar-15
All Collections	979,027	882,035	1,321,859	1,019,257	1,189,792
Books, Journals, AV, etc.	101,212	160,177	71,361	39,670	57,121
Reserve	191,033	154,656	173,982	110,190	135,462
Journals A-Z	0	0	165,854	195,584	151,044
Curtin Research	2,551	1,957	2,806	1,794	2,222
Archival Collections	648	382	742	407	710
Women's Health Collection	170	127	223	141	171
Jules Black Sexology Collection	199	708	101	121	130
Other	3,610	25,831	0	0	0

Table 1. Number of Searches by Search Scope.

The largest number of searches was made in the All Collections scope (Mar-13 = 76.58%, Aug-13 = 71.95%, Mar-14 = 76.10%, Aug-14 = 74.55%, Mar-15 = 77.43%). This is to be expected given that this is the default search option and promoted by Library staff as the most appropriate starting point for a general catalogue search. The next highest numbers of searches are in the Reserve and Books, Journals, AV, etc. scopes, reflecting the importance of targeted searches for items on student reading lists and perhaps also for specific monograph items in the Library's physical or electronic collections. It is notable that the number of searches in the Books, Journals, AV, etc. scope dropped significantly in the March-14 and subsequent samples (i.e. following the migration to Alma). This drop, however, is offset by a significant number of searches in the newly available Journals A-Z scope, suggesting this was recognized as a more effective way of searching for known journal titles. Apart from this discrepancy, searching across the different search scopes remained approximately consistent through all of the sample periods, the four specialist research scopes receiving low but consistent usage. The Other category in this table combines searches on the four recent additions/recommendations search scopes, which were not available after the migration to Alma. The increase between the March-13 and August-13 sample mostly relates to the Last 7 Days search scope, though the reason for the large difference between the figures is unclear.

Table 2 shows the percentage of searches in each search scope which produced no results.

SCOPE	Mar-13	Aug-13	Mar-14	Aug-14	Mar-15
All Collections	5.14	4.74	5.13	5.00	4.58
Books, Journals, AV, etc.	17.63	12.88	19.57	17.33	12.85
Reserve	19.71	21.05	30.68	26.71	19.14
Journals A-Z	n/a	n/a	42.60	42.49	38.40
Curtin Research	30.46	22.33	19.60	24.75	29.43
Archival Collections	36.27	31.15	33.02	27.76	35.77
Women's Health Collection	43.53	41.73	48.43	34.75	43.27
Jules Black Sexology Collection	29.15	10.73	41.58	28.93	36.92
Other	46.29	46.42	n/a	n/a	n/a

Table 2. Percentage of Searches with no Results.

Overall, searches with no results represented about 10% of all searches (Mar-13: 8.50%, Aug-13: 8.78%, Mar-14: 11.90%, Aug-14: 12.51%, Mar-15: 9.55%). The percentage was lower for the larger search scopes – around five per cent for All Collections, while the more specialised search scopes, which by definition contain fewer records, show a higher failure rate. This was particularly high for the Recently Received/Recommendations scopes, where it was impossible to even approximately guess the nature of the content in advance. Variation from year to year does not appear to be significant, apart from the Reserve scope, where the percentage of searches with no hits was notably higher in the March-14 and August-14 samples. This may be attributable to transitional issues with the implementation of Reserve in the Alma environment.

The S_CLICK_SUMMARIES table records the extent to which particular search functions or options for manipulating or interacting with search results are used by Library clients. The figures for selected actions are given in Table 3. Actions relating to specifically systems functionality and to linking have been omitted as not directly relevant to the discovery experience.

	Mar-13	Aug-13	Mar-14	Aug-14	Mar-15
Add a review	8	12	6	7	0
Add page to e-shelf	248	331	209	278	273
Add tags	6	16	4	8	0
Add to eshelf	12,685	31,220	17,123	14,738	15,877
Advanced search	48,062	35,014	61,524	36,647	44,469
Basic search	513,792	432,738	646,054	514,315	566,632
Browse search - title	n/a	112	270	70	101
Browse search - author	n/a	101	279	71	90
Browse search - subject	n/a	325	169	74	104
Browse – other functions	n/a	6,708	1,504	742	946
bX hot articles (= Show Popular Articles	10,048	7,493	11,989	8,426	6,072
Create alert	15	0	11	10	5
Details print	139	96	329	175	366
Did you mean	98,537	98,973	111,075	96,966	104,508
Display details tab (= Full Record)	128,538	131,006	192,667	124,798	158,826
Display tags and reviews	7,044	7,488	6,971	5,223	115
eshelf page	23,865	53,286	29,806	24,939	27,545
eshelf print	280	85	95	38	80
Full display	16,597	6,081	1,670	1,511	1,380
Next Page	221,303	173,943	251,838	439,489	223,751
Previous page	3,383	2,349	3,424	2,855	3,317
Recommendations (= Further Reading)	2,986	3,843	1,445	620	1,321
Refine (= Facets)	209,205	242,951	260,080	161,239	220,698
Save search	60	69	52	53	35
Send an email	875	990	1,075	1,473	1,256
Sign-in	96,833	91,731	179,000	128,370	187,689
Start session	212,074	609,206	399,990	351,973	621,430
Tags page	1	5	98	86	0
Total	**1,606,584**	**1,936,172**	**2,178,757**	**1,915,194**	**2,186,886**

Table 3. Number of Log Entries for Selected Catalogue Actions.

Overall the number of actions appears to be increasing as a greater proportion of Library

discovery is brought within the Catalogue. Over 90% of log entries relate to seven actions.

Table 4 combines all five survey periods.

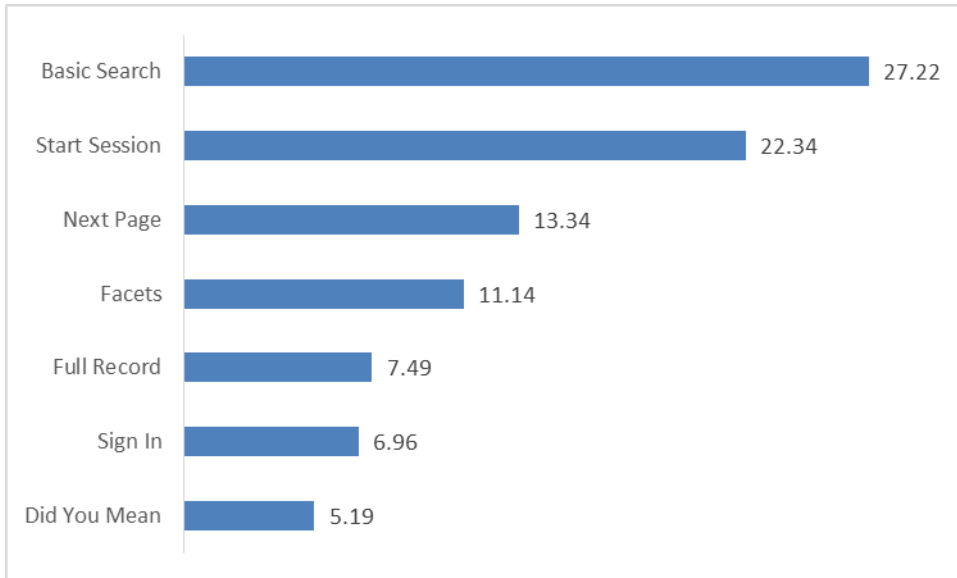| Action	Percentage
Basic Search	27.22
Start Session	22.34
Next Page	13.34
Facets	11.14
Full Record	7.49
Sign In	6.96
Did You Mean	5.19

Table 4. Percentage Occurrence of Top Seven Actions.

The predominance of the seven actions noted above suggests that the vast majority of user search and result management requirements are being met without recourse to the sophisticated mechanisms available through the Catalogue software. Basic Search, for example, receives much higher use than Advanced Search (around 2%), though the link this functionality is prominently located near the Search button, and some users are clearly finding it. Actions relating to social media related functionality in particular – Add a Review, Add Tags, Display Tags and Reviews, Tags Page – showed very little usage, justifying their removal from the Catalogue in early 2015 prior to moving Primo to the cloud, where this functionality is not fully supported. The ability to save searches and set up alerts is also very little used, as is browse functionality – perhaps because this is relatively unprominent in the Catalogue screen layout.

There is some variation across the different survey periods. The proportion of Basic Search appears to be declining slightly (Mar-13 = 31.98%, Aug-13 = 22.35%, Mar-14 = 29.65%, Aug-14 = 26.85%, Mar-15 = 27.22%), and appears to be higher in first semester than second semester – possibly an indication that users are becoming more familiar with the

way Primo works, so conducting fewer searches to find what they are looking for. The proportion of Facet use similarly appears to be declining (Mar-13 = 13.02%, Aug-13 = 12.55%, Mar-14 = 11.94%, Aug-14 = 8.42%, Mar-15 = 10.09%) – possibly indicating that users are becoming more familiar with facets and getting to what they want with fewer clicks. On the other hand, the percentage of Sign In actions in appears to be increasing (Mar-13 = 6.03%, Aug-13 = 4.74%, Mar-14 = 8.22%, Aug-14 = 6.70%, Mar-15 = 8.58%) – possibly indicating that more users are more aware of additional functionality available after signing in.

The Primo logs provide detailed information about the use of facets in the Catalogue. Statistics for the first choice of facets available in the main, Library Collections, tab of the Catalogue are shown in Table 5, in the order in which they appear in the Catalogue display.

FACET GROUP	Mar-13	Aug-13	Mar-14	Aug-14	Mar-15
Top Level Facet	72,514	66,469	108,307	73,704	100,272
Resource Type	52,936	41,587	53,215	30,218	38,195
Library or Collection	3,581	6,835	2,165	1,674	1,882
Author or Creator	6,705	35,315	5,955	4,087	4,586
Topic	18,590	37,056	20,579	10,045	12,047
Creation Date	30,969	28,055	46,278	26,755	48,948

Table 5. Use of Facets.

Although there is some longitudinal variation, there is no clear trend, beyond the overall slight decline in facet use noted above, but the top level facets receive significantly more use than the others, partly perhaps because this facet option (branded as "Show Only") is located at the top of the facet list, but also because of its nature. Three options are available: Peer-Reviewed Articles, Available Online, and Available in the Library. Of these, Peer-Reviewed Articles is the most popular, probably following an emphasis on this type of publication in research training and student assignments. Online Resources also receives considerable use, reflecting a reliance on electronic media for both students and staff.   The second most used facet is Resource Type, followed by Creation Date, then Topic, then Author or Creator, then

Library or Collection. It is notable that this order is not the same as the order in which the facets are displayed on the screen, suggesting that Catalogue users are making deliberate decisions about facet use, not simply following the line of least resistance.

Within the Resource Type facet there is a clear preference for certain values over others. Table 6 shows the overall percentage use of the ten most popular values for initial facet selection, comprising 97% of the whole.

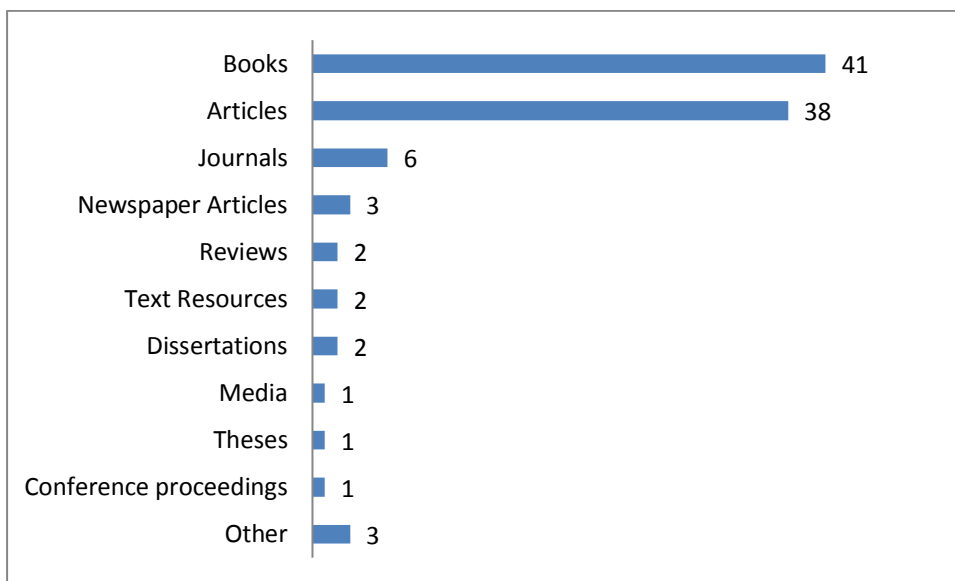| Resource Type	Percentage
Books	41
Articles	38
Journals	6
Newspaper Articles	3
Reviews	2
Text Resources	2
Dissertations	2
Media	1
Theses	1
Conference proceedings	1
Other	3

Table 6. Percentage of Different Values of Resource Type Facet.

Seventy-nine percent of Resource Type facet selection is aimed at isolating book and journal article content. The Other category, taking up 3% of the whole, contains 22 separate value options. Most of these are predetermined values within Primo Central, the exact meaning of which may not be clear to Catalogue users. (This also explains the distinction between Theses, a value describing Aleph/Alma records, and Dissertations, which refers only to records found in Primo Central.) The Other category includes facets used only within the Reserve scope (unit name/number and lecturer, together with a small number of facets that were only available for limited periods in 2013, including language, order status and school (academic department).

Survey of Library Clients

The online survey was created using Qualtrics software, and was open between March and September 2014, starting after the implementation of Alma in 2014, with minimal promotion. Of the 204 surveys started, 152 were completed. Twenty-seven respondents chose not to proceed after reading the introductory statement on the use of the data. Not all respondents answered every question. The survey included demographic questions about the status and interests of the respondents, questions about the extent to which respondents used the Catalogue and had received training in its use, questions about the perceived usefulness of certain Catalogue features, and an opportunity to make free-text comments on Catalogue design. The complete text of the questions is included as an appendix to this article.

Although the overall number of respondents was not high, they were reasonably representative of the Curtin population. Ninety-seven percent identified as Curtin staff or students. In terms of academic status, 22% of respondents identified as academic staff, 30% as postgraduate students, 39% as undergraduates (including honours students), 9% as professional staff, and 1% as other. The largest number of valid responses reported humanities subjects as their main area of research or study (37%), followed by health sciences (35%), science and engineering (14%), and business (14%).

Most respondents were regular users of the Catalogue with 39% stating that they used it every day, 44% once a week, 9% once a month, and only 8% less than once a month. Use of the Catalogue on mobile devices (phones, tablets, etc.), on the other hand, in line with findings elsewhere (Stohn, 2015), was relatively low, with 44% of respondents stating that they never used the Catalogue on a mobile device, 18% less than once a month, 15% once a month, 14 % once a week, and only 9% every day. Sixty-eight per cent had received some sort of training in Catalogue use provided by the Library (workshops, interactive web-based tutorials, one-to-one discussions with Library staff, online help through the Catalogue itself).

The Catalogue Basic Search allows clients to enter search terms and to select options from two drop-down lists to determine specific parameters for the search. The first decides how the search term is applied against the index; the second determines which index the search is applied to.

Using my query words   **Anywhere in the record**
Using my exact phrase   In the title
Starts with   As author/creator
                                  In subject
                                  In user tags

In each case the default option is marked here in bold. Respondents were asked to rate the usefulness of the non-default options. The results, expressed as a percentage of valid responses, are given in Table 7.

	Very useful	**Useful**	**Average**	**Not very useful**	**Not at all useful**
Using my exact phrase	25	38	18	9	10
Starts with	16	35	24	13	12
In the title	31	50	11	4	3
In the author or creator	31	43	17	4	4
In subject	22	41	20	8	9
In user tags	7	27	34	21	12

Table 7. Perceived Usefulness of Search Delimiting Options (Percentage)

This suggests that all of the available search delimiting options are highly valued by Catalogue users with the exception of the ability to search within user-generated tags.   There is a slight tendency to prefer those options that predetermine which index is searched over options that determine how the search string is interpreted by the search engine.

Once a search has been completed the Catalogue offers several options for limiting, adjusting or manipulating search results. Respondents were asked to rate the usefulness of the key functionalities listed below. The results, expressed as a percentage of valid responses, are given in Table 8.

Show only options – 'top-level' facets, i.e. ability to restrict results to peer-reviewed articles,

> Available online or Available in the library

Refine my results options—standard facets, limiting by Resource type, Library or collection,

> Author or creator, Topic, or Creation date.

Suggested new searches – links to new searches for suggested authors or topics.

Online resource link – links to electronic holdings and full texts.

Check availability link – links to physical holdings and locations.

Reviews and tags link – links to user created reviews and tags.

Further reading link – links to Ex Libris bX recommender service for popular related reading

> for results retrieved from Primo Central.

Facebook 'Like' button – allows results to be shared through Facebook.

	Very useful	Useful	Average	Not very useful	Not at all useful
Show only options	29	47	9	10	4
Refine my results options	32	44	12	8	4
Suggested new searches	10	42	26	14	8
Online resource link	44	34	16	2	4
Check availability link	35	41	13	4	8
Reviews and tags link	11	37	20	19	13
Further reading link	14	34	24	18	11
Facebook "Like" button	6	19	8	15	52

Table 8. Perceived Usefulness of Options for Limiting or Manipulating Research Results (Percentage)

There is thus a high degree of recognition of the usefulness of the discovery systems core

mechanisms – linking to physical and electronic holdings and the refining of search results.

There is slightly less acknowledgement of system generated suggestions for further reading

and searching through the Suggested new searches and Further reading links. Those aspects

of the discovery system which seek to align the Catalogue to social media through reviews and tags and particularly by linking to Facebook, receive significantly less support.

The survey instrument included three qualitative questions designed to identify the main areas where respondents felt that the Primo discovery system either met their requirements and expectations or failed to deliver an acceptable level of service. These questions were: Q11, 'What do you consider are the best features of the Curtin Library Catalogue?', Q12, 'What aspects of the Curtin Library Catalogue to you find most difficult to use?', and Q13, 'What functions would you like to see in the Curtin Library Catalogue that are not there at the moment?'

Examination of the qualitative data collected through the survey indicates that the majority of responses to each of these three questions resolve to a relatively small number of persistent themes. Analysis of Q11 suggests that the integration of multiple systems and particularly the seamless flow between search and delivery which Primo offers are features highly valued by users, thus confirming the validity of the model of the internet search engine as appropriate for library catalogue system design. Themes that were highlighted include: seamless linking and access to online resources, the usefulness of filtering and refining options, the range and scope of catalogue coverage, the ability to search regardless of the user's location and on mobile devices. Other comments reported that the system was easy to use and that screens were clearly laid out.

The responses to Q12 and Q13 can be considered together as collectively identifying aspects of the Primo discovery experience which are seen as barriers to effective use of the Catalogue. As in other qualitative surveys, respondents were readier to identify problems and suggest improvements than to note successful features. Some of the responses inevitably refer to perceived failures in collection development rather than catalogue functionality (e.g. requests for more ebooks, or more journals in specific subject areas). Some refer to obstacles

with third-party information sources (e.g. requests for an easier method to download ebooks). More pertinently, the responses to Q12 and Q13 highlighted areas where either the configuration or functionality of Primo in the current implementation was deficient, or the 'indeterminacy of the code' was presenting significant obstacles to effective use of the system. The majority of responses resolve to concerns with search options and features, problems with linking and downloading, dissatisfaction with the way in which filtering and refining options currently operate, and issues with visual access and screen layout. Specific difficulties identified include: the inability to search specific collections by resource type; inability to retain filters when making a new search; deficiencies in date filtering; broken links and the absence of a mechanism for reporting them; anxiety at the large number of results returned and uncertainty about the concept of relevance ranking in returning results; difficulty with searching for known items and interpreting indications of availability. A small number of responses identified technical problems with response time or indexing. Others indicated a lack of understanding or awareness of existing functionality: the ability to increase the number of results shown on the page, for example. This feedback has been taken into account in planning ongoing changes to the Catalogue and in providing assistance to Catalogue users.

Conclusion

In general, the Curtin evidence supports the premise of discovery system designers that the example of the Google-type single search interface is the appropriate form for library catalogue design (Sadeh, 2007). The vast majority of searches are conducted in the inclusive All Collections scope, and no feedback was received to suggest that this should be changed as the default. Searches in more specialised scopes, particularly for locating specific journal titles and reserve items for particular units, nevertheless also have a clear constituency.

Although there is some variation in the log statistics over time, this does not for the most part fall into any clear pattern, and may be attributable either to contingent factors in the academic timetable (e.g. timing of assignments, and for first semester results, the date of Easter), or to changes in the available functionality over time. Basic Search and Facet use as a proportion of user actions appears to be declining and the proportion of Sign In appears to be increasing, suggesting that users are becoming more familiar with search strategies in the discovery system and therefore using fewer clicks to achieve an outcome satisfactory to their needs.

Actions by Catalogue users are overwhelmingly focussed on what might be called core catalogue functions, corresponding to the four user tasks identified by the Functional Requirements for Bibliographic Records (FRBR) standard: Find, Identify, Select, Obtain. Although social media interaction has been flagged as one area for future development (Breeding, 2005), this has so far in practice received very little support from users. Neither are other ancillary functions, including printing and emailing records, or saving searches, very highly used. Likewise, although qualitative data reveals some concerns with the efficacy of known item searching, which according to Christine Stohn's analysis of Primo Central logs (Stohn, 2015) constitute over 50% of all searches, Browse options for Author and Title, which might provide one option for addressing this deficiency, also receive very little use. Reasons for this may include that the Browse options are not prominent in the Catalogue display and only operate on local data from Aleph/Alma. On the other hand, Facet options, which are much more clearly visible in the display, are consistently well used to refine results, and apparently regardless of the order in which they appear on the screen.

References

Breeding, M. (2015). The future of library resource discovery. *Information Standards Quarterly, 27*(1), 24-30.

Burke, J. (2010). Discovery versus disintermediation: The new reality driven by today's end-User. Paper presented at VALA2010 Conference, Melbourne, February 9-11. http://www.vala.org.au/vala2010/papers2010/VALA2010_57_Burke_Final.pdf

Comeaux, D. (2012). Usability testing of a web-scale discovery system at an academic library. *College & Undergraduate Libraries*, *19*(2), 189-206.

Connaway, L.S., & Dickey, T. (2010). *The Digital Information Seeker: Report of Findings from Selected OCLC, RIN and JISC User Behaviour Projects*, Higher Education Funding Council for England on behalf of JISC.

Denton, W., & Coysh, S.J. (2011). Usability testing of VuFind at an academic library. *Library H Tech, 29*, 301-319.

Gross, J., & Sheridan, L. (2011). Webscale discovery: The user experience. *New Library World*, *11*, 236-247.

Hanrath, S. & Kottman, M. (2015). Use and usability of a discovery tool in an academic library. *Journal of Web Librarianship, 9*(1), 1-21.

Harrop, H, Kay, D., Stephens, O., Scmoller, S & Kay, J (2015). 'We love the library, but we live on the web'.: Findings around how academic library users view online resources and services. https://www.iii.com/sites/default/files/UK-Survey-Report-July-2015.pdf

Jarrett, K. (2012). FINDIT@Flinders: User experiences of the Primo discovery search solution. *Australian Academic and Research Libraries*, *43*(4), 278-299.

Joc, K., & Chang, K. (2010). The impact of discovery platforms on the information seeking behavior of EFL undergraduate students. Paper presented at VALA2010 Conference, Melbourne, February 9-11. http://www.vala.org.au/vala2010/papers2010/VALA2010_122_Joc_Final.pdf

Kaufmann, K., & et al. (2012). Discovering the discovery tool: The introduction and impact on research and instruction at Siminole State College of Florida. *College & Undergraduate Libraries*, *19*(2), 278-96.

Mahony, J., & Mahony, S. (2012). Implementation of a discovery layer: the Franklin College experience. *College & Undergraduate Libraries*, *19*(2), 327-343.

OCLC (2009), *Online Catalogs: What Users and Librarians Want*. Dublin, Ohio, OCLC.

Rose-Wiles, L., & Hofmann, M. (2013). Still desperately seeking citations: undergraduate research in the age of web-scale discovery. *Journal of Library Administration, 53*, 147-166.

Sadeh, T. (2007). User-centric solutions for scholarly research in the library. *Library Quarterly*, *17*, 253-268.

Sadeh, T. (2008). User experience in the library: A case study. *New Library World*, *109*, 7-24

Slaven, C., Ewers, B, & Volmerhause, K. (2011). From "I hate it" to "It's my new best friend!" : Making heads or tails of client feedback to improve our new quick find discovery service. Paper presented at ALIA Information Online, February 1-3. http://conferences.alia.org.au/online2011/papers/paper_2011_A3.pdf

Stohn, C. (2015). How do users search and discover? Findings from Ex Libris user research

Wells, D. (2007). What is a library OPAC? *Electronic Library*, *25*(4), 86-94.

Wells, D. & Richardson, C. (2014). How do library clients use discovery systems? Paper presented at LIANZA Conference 2014, 12-15 October, Auckland, New Zealand.

Appendix: Text of Survey Questions

Q1.   [Introductory statement explaining project and asking for permission to use data]

Q2.   Are you a Curtin University student or staff member?
            Yes
            No

Q3.   Which of the following best describes you?
            Academic
            Post-graduate student
            Honours student
            1st year undergraduate
            2nd year undergraduate
            3rd year undergraduate
            University professional staff
            Other – please specify

Q4.   What is your main area of research or study (e.g. Nursing, Accounting, Chemistry, Library Studies)?

Q5.   How often do you use the Curtin Library Catalogue?
            Every day
            Once a week
            Once a month
            Less than once a month
            Never

Q6.   How often do you use the Curtin Library Catalogue on a mobile device (phone, tablet, etc.)?
>   Every day
>   Once a week
>   Once a month
>   Less than once a month
>   Never

Q7.   Have you participated in or used any of the following servces offered by Curtin University Library on how to use the Catalogue?
>   Library workshops
>   Interactive tutorials on the Curtin University Library website
>   One-to-one discussions with Library staff
>   Help link from Library Catalogue
>   Other – please specify
>   None of the above

Q8.   The Curtin Library Catalogue offers two search options represented by different tabs above the search screen. How useful do you find the following options?
>   Library Collections
>   Reserve/e-Reserve

Scale = Very useful, Useful, Average, Not very useful, Not at all useful, Don't know.
Note: When this question was originally devised a third tab was available for Recent Additions/Recommendations. However, at the time the survey was released, this third option no longer existed.

Q9.   How useful do you find the following drop down options to restrict your search?
>   Using my exact phrase
>   Starts with
>   In the title
>   In the author or creator
>   In subject
>   In user tags

Scale = Very useful, Useful, Average, Not very useful, Not at all useful, Don't know.

Q10.   Once you have completed a search, the Curtin Library Catalogue offers a number of options to refine your results or to find further information. How useful do you find the following filters and links?
>   "Show only" options [= top level facet]
>   "Refine my results" options [= facets]
>   Suggested new searches
>   "Online resource" link [= holdings of online resources and links to full texts]
>   "Check availability" link [= holdings of physical items]
>   "Reviews and tags" link
>   "Further reading" link [= Ex Libris bX recommendations service]
>   Facebook "Like" button

Scale = Very useful, Useful, Average, Not very useful, Not at all useful, Don't know.

Q11.   What do you consider are the best features of the Curtin Library Catalogue?

Q12.   What aspects of the Curtin Library Catalogue do you find most difficult to use?

Q13.   What functions would you like to see in the Curtin Library Catalogue that are not there at the moment?