

Enhancing Access and Usage: the OUHK's Experience in Resource Discovery Service

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Abstract

The Open University of Hong Kong has revamped its Electronic Library using the Primo discovery service. This paper describes the challenges encountered during the implementation and the solutions adopted to facilitate and maximize users' access to the library collection. It shares the experience on how the web-scale discovery service can or cannot help in boosting the visibility of the collection by reviewing the usage statistics of the Library's subscribed/purchased databases, journals and e-books before and after the implementation of the discovery service. While trying to trace the causes of the limitations of the discovery service, this paper also suggests possible practices or collaborations among libraries, content providers and the discovery tool developers in the delivery of relevant information to their target communities.

Keywords: academic libraries, discovery service, information providers, Primo, Primo Central Index

BACKGROUND

The Open University of Hong Kong (OUHK) implemented a new interface for its Electronic Library in March 2012. Applying Primo as the discovery platform and integrating the Primo Central index, SFX link resolver/knowledgebase, MetaLib federated search and the OUHK local ebook collection, the Library has gained a better understanding about the latest web-scale discovery service and their limitations in the discovery of electronic resources, especially Chinese materials and resources in a format other than journal articles.

Modeled from the Open University of the UK, the OUHK was incepted in 1989 as the Open Learning Institute of Hong Kong and upgraded to a university in 1997. It is the first university offering open and distance education in Hong Kong. In 2012/2013, OUHK offers more than 200 postgraduate, degree, associate degree and sub-degree programmes in various disciplines delivered in distance learning, part-time and full-time face-to-face modes. About 65 percent of the 700 courses use English as the medium of instruction and the other 35 percent are taught

in Chinese language. To support the learning and research needs of more than 1,000 staff and 17,000 students, the OUHK Library acquires resources in Chinese and English and in print or electronic formats with a collection of 200 online databases, 29,000 full-text electronic journals, 30,000 electronic books, and 160,000 print or audio visual items.

The OUHK Library has been exploring ways to provide to the staff and students of the University with easy access over the internet to electronic resources. The OUHK Electronic Library project was launched in November 1998 with a platform for managing and accessing electronic journals, databases, electronic books and selected free internet resources. The project was completed in 2000 and won the Stockholm Challenge Award conferred by the European Commission and the City of Stockholm in the same year. Over the years, the Library has developed and maintained a number of local digital systems, including the integrated library system, electronic resource management system, e-books full-text retrieval system, e-reserves, and the subscriptions to several databases and electronic journals. These systems provide records and contents stored locally or hosted by data providers. Staffing and equipment are required to maintain these discrete systems. Library users also need to get used to different interfaces of the various systems to locate their required materials. In 2011, the OUHK launched MetaLib, attempting to provide a cross-database federated search service for its library users, to improve the user experience. Although the service could provide a single access point for real-time query on multiple databases, many of the library's subscribed databases were not included in the search scope due to technical or compatibility issues. The most obvious problem of the federated search service was that, the more databases included in a search, the longer time a user needs to wait for the search results. Databases with limited number of simultaneous users became unavailable when concurrent users were performing searches on multiple databases. There were also issues with the duplication and ranking of search results. Federated search did not provide a solution as expected. Users still have to go to individual database platforms for access to the Library's subscribed materials.

DISCOVERY AT THE OUHK

In March 2012, the Open University of Hong Kong (OUHK) Library launched a new interface of its Electronic Library website. With Exlibris' Primo as the discovery layer, the Library aims to provide a one-stop service for resource discovery and delivery by integrating its holdings information at ALEPH with the Primo Central Index (PCI) and the SFX knowledgebase and link resolver. The introduction of Primo discovery service has provided an opportunity for the OUHK Library to increase the visibility of its collection and to enhance its usage.

The new interface of the Electronic Library has been designed with an objective to make the collection more accessible to its users. Two search tabs have been designed for the revamped E-Library web site. One is the "Library Holdings" tab which serves the purpose for users to quickly locate a library item by its title, ISSN/ISBN or call number. Under this tab, users are able to look for the Library's print and electronic collection with the bibliographic data of the item. The other is the "Articles" tab which is a service for the discovery of the Library's resources at article level. By using the Primo web discovery layer together with the Primo Central Index (PCI), the OUHK Library can select contents pre-indexed in the PCI knowledgebase. With the integration of link resolver (SFX), the "Articles" Search has provided a one-stop access point for discovering the Library's selected-resources and for delivering full-text content. It has expanded the search of more in-depth contents at the article level which are not quite possible at the traditional library catalogue. The discovery and

delivery of full-text content has become direct, convenient and efficient although there have been challenges and limitations that the Library had to manage when implementing the new service. The key challenges for the discovery service, as pointed out by Marshall Breeding, would involve closing the gaps in the library resources not covered in these discovery systems, expanding the depth of indexing from metadata to full-text, and improving relevancy and other search and retrieval technologies (Breeding, 2012).

Content Gaps

By providing a single search box, users easily assume that they are searching the complete library collection. While it is possible that a mega index can include millions or billions of citations in a single search, it does not equally mean that all the subscribed materials of a library collection are being covered. The metadata collected by the discovery services are supplied by publishers or their content providers. OUHK shared the view with Hooper that “while Primo Central does indeed offer access to a vast pool of resources far greater than any traditional search tool, it must be noted that there are some publishers and database conglomerates that do not contribute their records to Primo Central Index” (Hooper, 2012).

One of the issues was a gap between the OUHK Library’s subscribed resources and the contents in Primo Central Index. Some of the Library’s major subscriptions, mainly the abstracting or indexing databases or the full-text materials in aggregators, are not found in the Primo Central Index. The problem was particularly serious for access to the Chinese materials. *China Academic Journals Fulltext Database* (CNKI) and *Taiwan Electronic Periodicals Service* (Airiti) are two major databases providing more than ninety percent of the Library’s Chinese electronic journals. As of December 2012, The *China Academic Journals Fulltext Database* (CNKI) provides more than 7,000 Chinese academic journals to more than 1,200 overseas libraries and over 2,000 libraries in mainland China. The *Taiwan Electronic Periodicals Service* (Airiti) provides more than 1,300 academic journals published in Taiwan to more than 200 libraries worldwide. Unfortunately, records of these Chinese contents are not supplied to the Primo Central Index or other discovery services such as ProQuest’s Summon or the EBSCO Discovery Service (EDS).

Alternative Resources

ExLibris has been contacting the publishers and content providers for their metadata. The negotiation may take several years with little success. As an interim solution, ExLibris suggested the “alternative” resources available in Primo Central. ExLibris also provided an application programming interface (API) that can interface with the EBSCO platform for retrieving and displaying the EBSCO contents at the Primo layer to the Library’s authenticated users. When implementing the Primo service, the Library adopted the suggestions but was not certain about how well the subscribed resources had been covered by the new search service. The Library carried out a testing with a small set of sample records from a few subscribed databases in English and Chinese.¹

¹ From each of the databases, 20 records have been randomly selected for searching using the Primo discovery interface. Only records of articles published one year or earlier were selected for the testing as there may be a time gap for the current year’s files to be loaded into the PCI knowledgebase. Records that contain punctuations and special characters in article title were excluded in order to avoid potential search errors.

Table 1: Sample test on number of databases' articles found in PCI.

	Databases	No. of articles searched	No. of articles found	Hit rates
1	China Academic Journals Fulltext Database	20(Chinese)	13	65%
2	Ebsco Academic Search Premier	20(English)	20	100%
3	IEEE Xplore Digital Library	20(English)	16	80%
4	Proquest ABI/Inform Complete	20(English)	16	80%
5	SpringerLink	20(English)	15	75%
6	Taiwan Electronic Periodicals Service	20(Chinese)	0	0%

Among the selected English databases, about 75% or more of their sample records were retrieved from Primo/Primo Central Index. The hit rate dropped to 65% for contents in the *China Academic Journals Fulltext Database*. No records were retrieved for contents in the *Taiwan Electronic Periodicals Service* at that time when the platform was tested for implementation. As of 6 June 2013, contents of Taiwan academic journals and books have been added to the Primo Central Index from another vendor for enriching the Chinese contents in the index.

The above were only findings from a local testing at the OUHK Library with a very small set of sample. The testing results could only confirm that not all the Library's subscribed contents were discovered or displayed through the OUHK's discovery interface. The new service has, on one hand, improved the overall search experience but on the other, may lead to the exclusion of certain Library collections without being aware by the users.

Full-text Linking

The possibility of searching at article level via the "Article" tab has also raised the expectation for a direct link to the full-text item. The Primo discovery layer is able to integrate with the SFX link resolver and provide a link next to the citation records for full-text access. Such links will be effective if the content platform is OpenURL compliant at article level. Some databases or journals platforms currently subscribed by the OUHK Library can support linking at journal title or issue level only. There are occasions that a user will be brought to the table of contents page of a journal issue after they click on a link from the article citation of the discovery service, which will cause confusion to inexperienced users.

Facet Options

With millions or billions of pre-indexed citations, the number of records retrieved from a discovery service can be overwhelming. The provision of facets for refining search results is a tool competitive with or surpassing Google Scholar. Primo provides options for a user to filter the search results by "Topic", "Collection", "Resource Type", "Language", "Creator", "Creation Date". However, filtering of the search results is comprehensive if these metadata are present in the Primo Central Index. Currently, the metadata supplied by content providers vary. If the publishers or content providers do not include subject keywords in their metadata to the discovery services, filtering by "Topic" or subject categories will not include their records on the refined result list.

USAGE OF THE LIBRARY COLLECTIONS

Although launched with the above limitations, a review of how the discovery service has an impact on the use of the Library collection should help in future enhancement. The Library collected usage figures of its subscriptions and compared their access before and after the Primo service was launched. 50 platforms were identified to have comparable usage data at the publisher or database web sites during the two 12-month periods from March 2011 to February 2012 and from March 2012 to February 2013.²

Way conducted an early usage analysis after the Summon service was launched at the Grand Valley State Universities Libraries in 2009. His study indicated a decrease in the usage of abstracts and indexing (A&I) databases but an increase in the full-text access (Way 2010). At OUHK, there was a slight drop in the overall number of searches at the native database/journal platforms (1%) but an increase of 14% in full-text access for e-journals or databases indexed in Primo Central. 18 of them recorded an increase in the number of full-text access of their contents, some with a significant increase of 40% to 3,550%.

Table 2: Database/Journal contents indexed in Primo Central Index (PCI)

	Database/Journal	Indexed in PCI	COUNTER Reports	% of Change before and after Primo		
				Search	FT Viewed	
1	ACM Digital Library	Yes	✓	-19%	-33%	
2	American Chemical Society - E-Journals	Yes	✓	-46%	143%	*
3	Allen Press	Yes	✓	-	1229%	*
4	American Economic Association - E-Journals	Yes	✓	-	196%	*
5	American Physical Society - E-Journals	Yes	✓	-	1300%	*
6	Ammons Scientific Ltd - E-Journals	Yes	✓	-21%	127%	*
7	Baywood Pub Co - E-Journals	Yes	✓	-	-100%	
8	BMJ Group - E-Journals	Yes	✓	-	3267%	*
9	Bowker - Databases	Yes	-	-49%	-	
10	Brill - E-Journals	Yes	✓	-	3550%	*
11	Cambridge University Press - E-Journals	Yes	✓	-88%	-30%	
12	Elsevier ScienceDirect - E-Journals	Yes	✓	54%	97%	*
13	Emerald Reviews + Journals	Yes	✓	-52%	17%	*
14	Britannica Online	Yes	-	-41%	-41%	
15	InderScience - E-Journals	Yes	✓	-	-7%	
16	INFORMS - E-Journals	Yes	✓	-70%	91%	*
17	IngentaConnect - E-Journals	Yes	✓	-73%	-76%	
18	Thomson - Social Sciences Citation Index	Yes	✓	-25%	-	
19	JSTOR	Yes	✓	-68%	14%	*
20	M.E. Sharpe - E-Journals	Yes	✓	-	-77%	
21	MIT Press - E-Journals	Yes	✓	150%	-32%	
22	OECD iLibrary Publications	Yes	✓	-	164%	*
23	Ovid databases or journals	Yes	✓	176%	30%	*
24	Oxford University Press Journals	Yes	✓	-	228%	*

² Primo was launched in March 2012 at the OUHK Library. Usage figures of the Library's e-journals, databases and ebooks at the vendors' native platforms were collected for the periods from March 2011 to February 2012 and from March 2012 to February 2013. New subscriptions that do not provide usage data for the full periods have been excluded from the comparison. Statistics of Ebooks via EBSCO were compared for an 8-month period from July 2011 to February 2012 and from July 2012 to February 2013 as the Library has most of its English e-books via netLibrary and the titles were migrated to EBSCOhost on 1 July 2011.

25	Royal Society of Chemistry - E-Journals	Yes	✓	-23%	-13%	
26	SAGE - E-Journals	Yes	✓	-76%	-34%	
27	Springer - E-Journals	Yes	✓	-	-5%	
28	SwetsWise - E-Journals	Yes	✓	-	40%	*
29	Taylor & Francis - E-Journals	Yes	✓	50%	125%	*
30	University of Toronto Press - E-Journals	Yes	✓	-	700%	*
31	Wiley Journals	Yes	✓	-77%	9%	*
32	World Scientific - E-Journals	Yes	✓	-	-84%	
Average:				-1%	14%	

*Database or journal platforms with an increase of more than 40% in full-text access

There were 12 e-journal or database providers supplying no contents to Primo Central. Eight of them do not have alternative resources in Primo Central and recorded a drop in the full-text access with an overall decrease of 19%.

Table 3: Databases/Journals with no contents or alternative resources in Primo Central Index (PCI)

	Database/Journal	Indexed in PCI	COUNTER Reports	% Change before and after Primo		
				Search	FT Viewed	
1	Airiti – Taiwan Electronic Periodicals Service	No	-	-33%	-10%	
2	Chadwyck-Healey - ABELL (Annual bibliography of English language and literature)	No	-	-82%	-	
3	Euromonitor - Passport GMID	No	-	-43%	-	
4	Europa Publications	No	-	65%	-23%	
5	BookData Online	No	-	-24%	-	
6	Thomson Reuters (Westlaw Databases)	No	-	1679%	-1%	
7	Health and Safety (Barbour Index)	No	-	-34%	-47%	
8	Yearbook of International Organizations	No	✓	-88%	-87%	
Average:				30%	-19%	

Four aggregators do not supply contents to Primo Central Index. Their citations were partially covered by the “alternative” resources in the index. The statistics have shown an increase of 41% and 9% in the number of searches and in full-text access respectively.

Table 4: Databases/Journals with no contents in Primo Central Index (PCI) but alternative resources are available

	Database/Journal	Have alternative resources in PCI	COUNTER Report	% of Change before and after Primo		
				Search	FT Viewed	
1	China Academic Journals/Dissertations	Yes	-	-11%	11%	
2	EBSCOhost databases	Yes	✓	66%	17%	
3	ProQuest databases	Yes	✓	42%	-11%	
4	Wanfang Data - Chinese journals/dissertations	Yes	-	645%	136%	
Average:				41%	9%	

There was an overall decrease in the search and access figures of the ebook collections. The OUHK Library has added 3,000 full-text records of its locally hosted OUHK e-book collection to the Primo Central Index. But their usage, as well as the other 4 e-book collections at the vendor’s platform, was not boosted up.

Table 5: Ebooks usage figures at the OUHK Library

	Ebook Publisher/Vendor	COUNTER Report	% of Change before and after Primo	
			Search	FT Viewed
1	Apabi ebooks	-	-58%	-61%
2	CRCnetBASES	✓	153%	4%
3	EBSCOhost ebooks	✓	-20%	-28%
4	GALE Virtual Reference Library	✓	-56%	-64%
5	ebrary ebooks	✓	-	-4%
6	OUHK ebooks	-	-	-39%
Average:			-22%	-35%

The above usage figures were collected at the vendors' platforms with the number of searches and full-text access figures. There is no indication on the publisher's reports about the sources of linking to these full-text materials. Full-text access may originate from the Library's catalogue, the discovery service, from the same journal or database platform or from a search engine on the web. There are many routes to discover contents. It is difficult to ascertain that the discovery service is the sole or contributing factor for the increase in full-text access. However, usage figures at quite a few of the OUHK's subscribed platforms have shown an increase in the access to their full-text contents although there was a decline in the search statistics at the content platforms. Full text access has declined for those OUHK's subscribed resources with neither contents nor alternative resources in the Primo Central Index.

COMPETITION, COLLABORATION OR CODE OF PRACTICE

Discovery of contents is not just an advancement of technology or the development of an innovative search engine. While the tool developers have designed new features for searching or linking to the full-text materials, they are often not the content owners or providers. ExLibris has to negotiate with the publishers for adding their metadata to the Primo Central index. While discovery service providers are looking for partners to enrich their product, publishers, especially the A&I database providers, may not perceive in the same way. There is a tension among the different parties.

EBSCO is a database publisher, an aggregator as well as the developer of the EBSCO Discovery Service (EDS), a product similar to Primo and Primo Central. ProQuest is the developer of the Summon service and assumes similar roles as EBSCO. Users will not find ProQuest contents in EDS or EBSCO contents in Summon. Primo Central does not have either. Some individual publishers may not want to contribute their data to any of these discovery services. The Open Discovery Initiative (ODI) working group of the National Information Standards Organization (NISO) conducted a survey to libraries, content providers and discovery service providers in late 2012. The survey report revealed that among the 74 respondents as content providers, 93% reported that they contributed all or some of their data to discovery services. 7% did not supply any at all. The barriers to participation include intellectual property concerns, perceived risk to the value added data in their A&I databases. Some providers see the evolution of discovery services as an alternative to traditional A&I databases. Some publishers even indicated their skepticism in the value of these discovery tools (NISO 2013).

As pointed out in a white paper by Sommerville et al, the traditional complementary roles of libraries, content and service providers and their relationships have been disturbed by the

internet, “necessitating reinvention of centuries-old partnerships”. The growing range of pathways for the discovery of scholarly content has intensified “the need for cross-sector best practices and increased collaboration”. Libraries, publishers and service providers need to find new ways of working together (Sommerville et al, 2012). The National Federation of Advanced Information Services (NIFAIS) released a draft “Code of Practice: Discovery Services” in January 2012. The code is not a prescriptive standard but meant to be a set of guidelines for practices. It has identified some major “rights” and “obligations” for content owner, platform, discovery service and subscriber (NIFAIS, 2012). The NISO Open Discovery Initiative (ODI) working group, recognizing a need for “cross-sector teamwork” to support the discovery of scholarly works, is developing a standard set of practices for the contents to be represented in discovery services and for the interactions between the content providers and the discovery service developers (NISO 2013). Based on the experience and understanding of the Primo and Primo Central service, the OUHK Library recommended the following practices for the enhancement of the discovery service:

Authentication

There is a need for the discovery service vendors to communicate with the publishers on how access can be authenticated to safeguard the intellectual property rights of the content providers. Discovery service vendors should also provide details to the libraries for distinguishing between those resources that require a subscription for activation and those contents that could be included freely in the discovery service. Libraries should comply with these requirements when selecting and activating the resources at the discovery service. If there a mechanism in place to allow activation of a resource to be authenticated and accessed by subscribers only, this will reassure content providers to supply their contents or metadata to the discovery service.

Data Elements

OUHK agrees with Kornblau et al that a library’s subscribed resources should be equally searchable. Libraries should receive sufficient information on the contents or coverage included in the index of a discovery service. (Kornblau et al, 2012) ExLibris provided “alternative” or other open access resources indexed in Primo Central. Do these “alternative” resources include the current issues only but not their back files? How are they different from the contents of databases supplied by the publishers? If the richness or depth of data varies among the resources being indexed, libraries should know about the differences for collection development decisions.

Relevancy Ranking

The relevancy ranking of search results has been determined by the discovery service vendors but not the users. Primo has been enhanced to allow a user to define his area of interest so that search results can be weighted according to a user’s profile. The Library is happy to see this enhancement as this should improve the relevancy ranking of search results.

Full-text Indexing

It is expected that further development of the discovery technologies will soon support full-text indexing of online resources especially for e-book access. Discovery of ebooks should be enhanced, as reflected in the OUHK’s usage statistics. The Library is looking forward to full-text indexing for a better discovery and management of online contents.

Full-text Linking

A direct link to the full-text article should facilitate the delivery of full-text materials to the

users through discovery service. Publishers are urged to enhance their content platforms to support OpenURL requests at article or chapter level. They should also supply accurate and up-to-date metadata at article/chapter level to the OpenURL link resolvers for accurate linking.

Usage Statistics

While the ODI survey reports indicated no clear consensus among content providers on the discovery service usage statistics (NISO 2013), the libraries will be interested to have reports on these “Click-throughs on the provider’s contents”. These statistics should provide support in the renewal process especially for the A&I databases who might have declines in searches at the database platforms but their citations have actually been retrieved through the discovery service. The usage statistics from the content providers and the discovery service should complement each other to provide a full picture of the usage of the subscribed materials. With more sophisticated usage reports, analysis of the availability and accessibility of the resources via the discovery service should help in the acquisition and collection development decisions.

LOOKING FORWARD

The discovery service has provided a new tool for searching scholarly works at a deeper level of contents. Marshall Breeding predicted that “by 2016 we can expect discovery products to reach a state of full maturity and near universal deployment among academic libraries” (Breeding, 2011). The new tool brings benefits not only to the users or the libraries but the publishers or content owners as well. With communication and trust, and a more standard set of practices, the discovery service can help to enhance not only the access of a library’s collection but also the visibility of the contents of the publishers. It is anticipated that content providers and discovery tool vendors will collaborate to compete for the provision of their excellent resources and services to the libraries and their users.

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