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Two roads, one destination

A journey of discovery

Joc, Karen; Hopkins, Peta J.; Donaghey, Jessie; Abbott, Wendy

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Two roads, one destination:
a journey of discovery

Karen Joc
Senior Manager, Library Academic Services
Bond University Library
kjoc@bond.edu.au
http://orcid.org/0000-0001-5270-9722

Peta Hopkins
Manager, Digital Library Services
Bond University Library
phopkins@bond.edu.au

Jessie Donaghey
Faculty Librarian
Bond University Library
jdonaghe@bond.edu.au
http://orcid.org/0000-0003-3519-2295

Wendy Abbott,
University Librarian
Bond University Library
wabbott@bond.edu.au

Abstract
The adoption of resource discovery platforms has been a growing trend in libraries. However, few libraries have reported on the transition from one discovery layer to another, and only a few institutions have discussed two discovery layers available in the same institution at the same time. Bond University Library recently implemented Alma as its library management system, and with this change a new discovery platform, Primo, was implemented to supersede the existing Summon platform. This paper will present the results of a usability study undertaken at Bond University Library in the move from one discovery layer to another.

Introduction

Founded in 1989, Bond University is Australia's first private not-for-profit independent university. As at November 2015, there is a current student enrolment of around 4,000 students, with a ratio of 62% domestic students to 38% international, and a similar ratio of undergraduate to postgraduate students. As a small and diverse private institution, the University is highly focussed on creating a transformative student experience. In line with the University's strategic goals, the Library aims to deliver an outstanding customer experience, underpinned by state-of-the-art technologies to facilitate convenient discovery and use of scholarly information.

In 2015, the Library simultaneously implemented the Ex Libris products Alma and Primo to replace Aleph as its library management system, and Summon as its resource discovery layer. While there was no dissatisfaction with the existing implementation of Summon, Aleph had to be replaced, and the decision was made that implementing Primo and Alma as a matched pair would be advantageous, as they are tightly integrated products.

In the rush of implementing new library systems, with numerous project matters competing for attention, it can be difficult to stay committed to optimising user experience. This could cause problems for users during the transition period, and lead to the implementation of systems that do not provide the optimal experience. In order to ensure the optimal experience is provided, it is imperative that clients are recognised as key stakeholders during the implementation project, and consulted at appropriate points during the implementation for, as Goldstein (2012, para. 1) comments, "there's no substitute for research conducted with actual users." At Bond, the Library's Alma/Primo implementation team wanted to make the transition from Summon to the new platform as easy as possible for end users, and therefore planned to conduct a comparative analysis of student experience of using both Primo and Summon.

This would be done through comparison and evaluation of results produced by Summon and Primo for searches typically conducted by undergraduate students, undertaken during a unique window of time, when both tools were available. The overall user experience in both discovery platforms would be evaluated and the results of the study would inform further customisation of the Primo platform.

This paper will discuss the results of both the usability study as well as the outcomes of the implementation project.

Background

The Primo discovery layer from Ex Libris, branded as Library Search, was launched at Bond University Library in May 2015, coinciding with the intake of new students for semester 2. Since the implementation of Serial Solutions' Summon four years earlier, students had become avid users, and were very familiar with the discovery layer and its functionality.

Since its implementation in 2011, there had been minimal customisation of the out-of-the box interface of the version of Summon used in this study. However, it is important to note that prior to launch of Library Search, significant customisation of Primo had been undertaken. This was to ensure that the Primo interface would harmonise with the University's new website, which was both contemporary in its visual appeal and responsive in design and usability. The implementation team had also reviewed various other Primo implementations, looking for ideas for the initial customisation. Both the web team in Information Technology Services and a sub-group of the implementation team were instrumental in the styling of Primo.

This initial Primo customisation had two key influences. The first was the look and feel of Bond University's new website. This drove the colour palette and style buttons, as well as various other elements such as the decision to move the navigation the right hand side of the page. The other was inspiration from Northeastern University's implementation, which has a contemporary aesthetic and demonstrated some vital usability changes, such as layout and use of white space as shown in Figure 1 below.
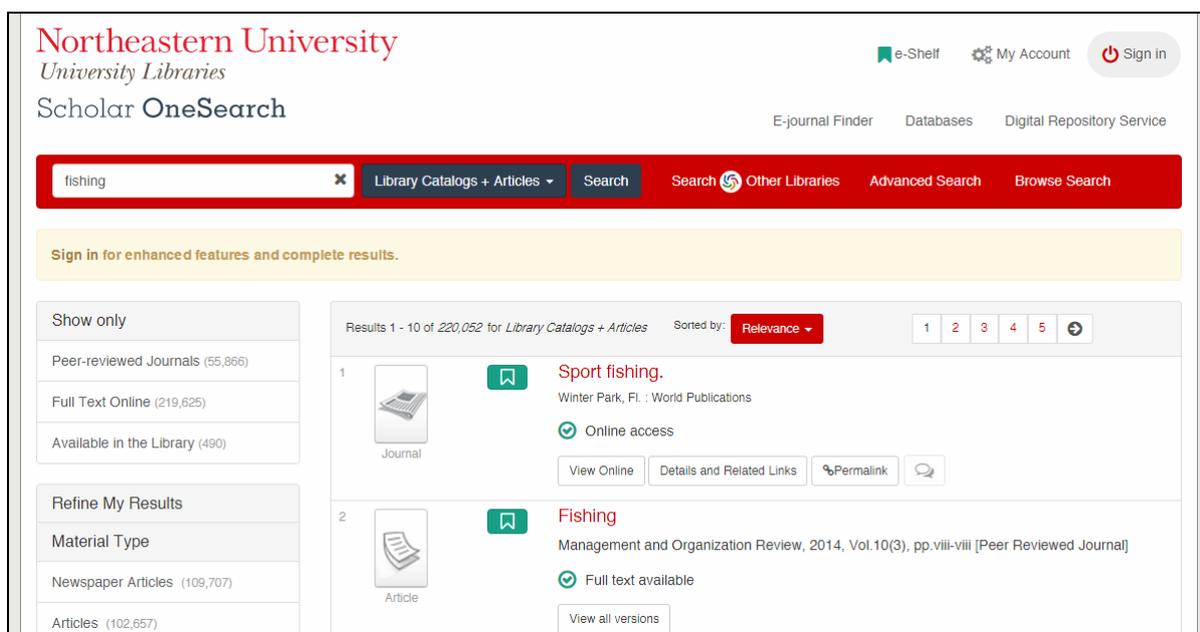
Figure 1: Northeastern University's Primo

Figure 2 (next page) is a screenshot of the Out-of-the Box Primo.

Figure 2: Out-of-the Box Primo

Figure 3 below is a screenshot of Bond University's Primo used in this study.

Figure 3: Primo (Library Search)

The Primo interface referred to in this study is Bond University's customised version. In this paper, to distinguish it from the out-of-the-box interface, it will be referred to as "Library Search", which is the branding familiar to the participants in this study.

Literature Review

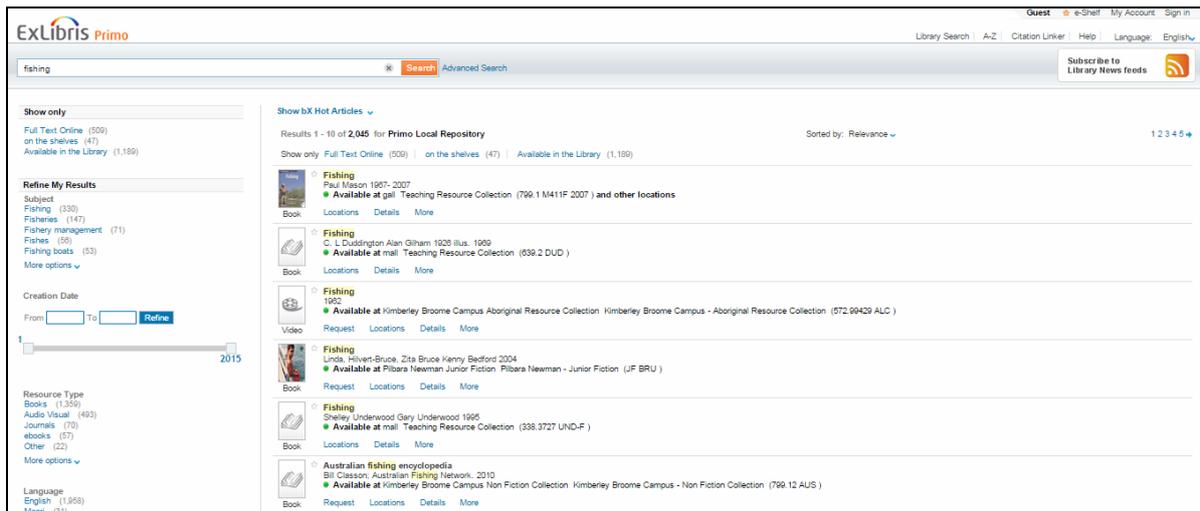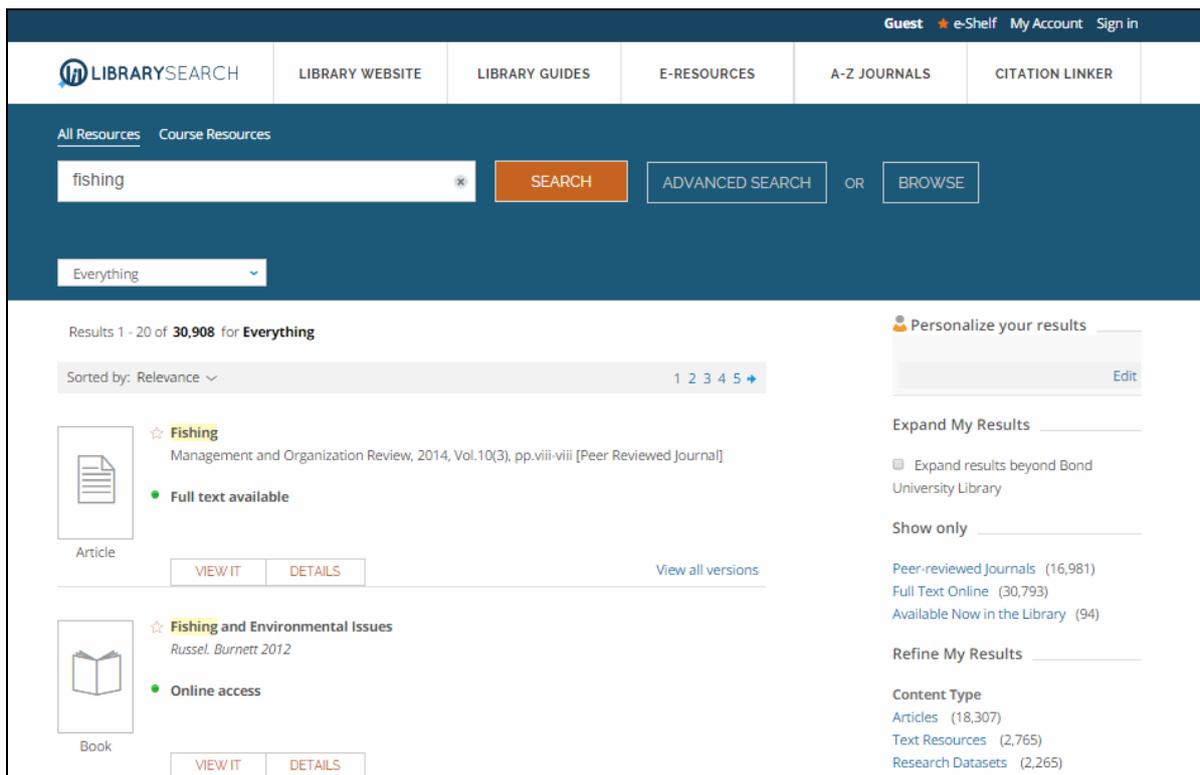Over the last decade, there has been a growing trend in libraries adopting web-scale discovery systems to supplement or replace their existing online catalogues or federated search tools. A study by Hofmann and Yang (2012), verified that the number of academic libraries in both the United States and Canada implementing discovery tools had doubled from 2010 to 2012. As these systems have become more widely implemented in libraries, so too has the body of literature increased, in relation not only to their implementation and performance, but also their usability. There is now a large number of studies describing how to evaluate and choose the right discovery product for your library (Moore & Green 2013; Deodato 2015) as well as literature pertaining to the advantages and disadvantages of implementing these systems (Garrison, Boston & Blair 2011; Wrosch et al. 2012).

There have been several usability studies on single implementations of either Summon or Primo. Niu, Zhang and Chen (2014) provide a comprehensive overview of usability tests conducted on Primo and Summon during 2011 and 2012. They report that discovery tools in general provide better search results than the original catalogue interfaces, and that users like a single search box interface. Perrin et al. (2014) and Nichols et al. (2014) validate these findings in Primo, while Lundrigan, Manuel and Yan (2015) report similar results in Summon.

Some libraries have taken usability testing further with a few studies focusing on comparing the search performance of discovery services with Google Scholar (Ciccone & Vickery 2015; Zhang 2013). Asher, Duke and Wilson (2013) conducted a comparison of student use of Summon, EBSCO Discovery Service and Google Scholar in 2013. In other studies, Foster and McDonald (2013) reported on Summon and ESBCO Discovery Service and Djenno et al. (2014) have reported on Summon and WorldCat Local. All of these studies had similar conclusions; each reported that there is no one ideal resource discovery system. However, libraries can make better informed decisions on the right platform for their users by gaining a better understanding of their end users' searching behaviour expectations and needs.

This study builds on the literature by directly comparing Summon with Primo. The study was possible due to the unique opportunity that occurred when Bond University Library had two different discovery tools, Summon and Primo, available concurrently for a short transition period. There are few studies in which libraries have had two discovery tools installed at the same time: Foster and MacDonald (2013) compared Summon and EBSCO Discovery Service, while Djenno et al. (2014) compared Summon and WorldCat Local. The only existing study that compares to this study is the dual availability of both Summon and Primo at Princeton University (Niu, Zhang & Chen, 2014).

Methodology

This study was conducted in two phases. Focus groups were used in the first phase, while the second phase involved hands-on usability testing.

The focus groups included both current and new students, and concentrated on the overall look and feel of the two discovery layers, including facets, search box location, and aesthetics. The second phase involved usability testing, which focused on the students' browsing and searching experience; appropriateness of presented search options/alternatives; dead-end searches, and the relevancy of resources retrieved.

Recruitment of participants was undertaken through the daily student news email calling for expressions of interest, with the incentive of a $10 coffee voucher. With Bond University's small cohort of students, there were challenges in attracting enough students to participate in the focus groups. The call for participants targeted undergraduates, although one postgraduate student took part in one of the focus groups. The study focused on undergraduate participants because research has shown that these students experience more of the challenges facing average end-users (Niu, Zhang & Chen 2014). Postgraduate and academic staff searchers would find the transition easier, as they had more experience with library search interfaces generally and a better grasp on types of information resources and bibliographic terminology (Perrin et al. 2014).

Focus Groups

Two small focus group sessions, comprising nine students, were conducted within the first few weeks of semester 2, 2015. Even though the numbers of participants in the focus groups were small, Nielsen (2009) validates that a small number of users can often find the most glaring problems. Prior to joining a focus group, each participant was required to sign an ethics approval form. To ensure as much consistency as possible, the facilitator of each focus group used a set script for the five questions that would be asked. The first two questions related to the overall look and feel of the two interfaces: Primo (known at Bond as Library Search) and Summon (known as Summon). Members of each focus group were encouraged to talk about what they liked or did not like about each interface. During this phase, participants were shown a series of slides illustrating aspects of both interfaces.

Figure 4 below shows a screenshot of Bond University's implementation of Summon, which is located on the left. On the right is a screenshot of Bond University's implementation of Library Search.
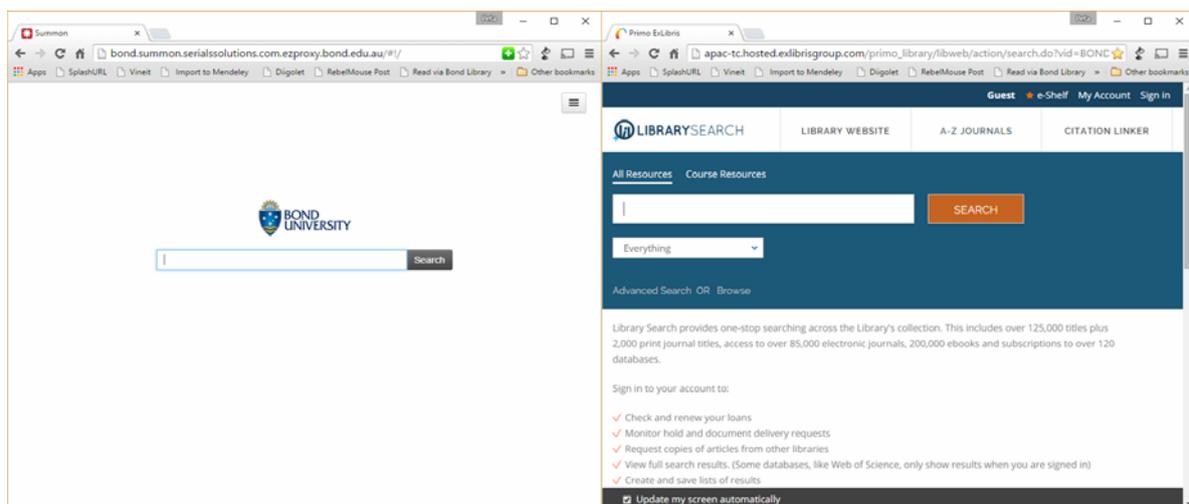

Figure 4: Summon and Library Search

The second part of the focus group involved hands-on activities. Participants were asked to perform a few exercises on each of the interfaces and record their impressions in an online survey. The online survey was administered via Qualtrics[i] and all participants' responses were anonymous. Exercises included a simple search for a book and then for a journal title. The groups were then asked if their opinions about the two interfaces had changed.

Audio recordings of each the sessions were made, and both the audio recordings and responses to the survey were analysed to identify themes and opinions about each of the interfaces, and the reasons expressed to support those opinions. NVivo[ii] was used to assist in the analysis of the audio recordings.

Usability Tests

Eight participants were recruited through the University's daily student news email for usability testing of Summon and Library Search. These tests were undertaken individually in library meeting rooms, and at the beginning of the user test, participants were briefed about the purpose of the study. They then read and signed a consent form and were asked by the facilitator to complete eight tasks. Participants were encouraged to talk about their expectations, difficulties, and general comments about using Summon and Library Search during the tasks. The facilitator provided assistance only when participants explicitly requested help. After performing each task, participants recorded their results on a response sheet. After completing the tasks, participants completed one final question, which asked them to comment on their overall impression/experience of Summon and Library Search.

Each participant's experience was recorded using Camtasia[iii], capturing both the onscreen activities and any comments voiced by the participant. The usability tests were conducted using a laptop or desktop computer.

The activities undertaken by participants included finding books, journals, electronic journals and articles, and answering questions such as availability, authors' names, date coverage and source of full text. In each activity, the participants were asked which of the two interfaces they preferred, and then at the end for an overall preference and the reason for their preference.

The video recordings were then analysed for emerging themes, commonly-held opinions and the reasons underpinning them. A rubric was used to analyse the video recordings, and capture test metrics. This rubric was based on the U.S. Department of Health & Human Services, Planning a Usability Test (n.d.), and was designed to capture metrics on successful task completion, critical and recovered errors, time on task and subjective measures such as the participants' likes and dislikes.

Results

Focus Groups

All except one of the participants indicated that they had previous experience searching library interfaces. Their first impressions of the two interfaces, based on a

view of the two home pages separately, and then side by side, resulted in mixed opinions. When students were asked which interface they preferred in terms of the look and feel there was no clear preference. Students that preferred Summon said they liked its simplicity and clean layout and students that preferred Library Search said they liked the styling and the options for refining searches.

Similarly, no clear preference regarding placement of the facets on either the left or right side emerged. Slightly more students preferred continuous scrolling than clicking through pages of results.

When students were asked what they thought was the purpose of the "E-shelf" feature (save selected search results), there were various responses:

- Bookmarks to look at later
- Temporary bookshelf
- Saving citations
- Saving books
- Saving PDFs.

A feature particular to Library Search when using Basic Search is the drop-down menu that enabled pre-search limits to be set to define options such as 'library' and 'collection'. None of the students had previously used the drop-down menu in Library Search. In Basic Search, the rest of the options are provided in the facet display. Two of the students assumed that if the drop-down menu were used to refine to Law Library for example, their search results would also include electronic resources, when in fact only items physically held in the Law Library are included. This highlights the difficulties of providing the appropriate labelling and clues to assist novice searchers.

After the demonstrated searches in the two interfaces the students' likes and dislikes were sought.

Interface	Likes	Suggested Improvements/Dislikes
Summon	• Right-side panel displaying additional information when hovering over search result • The "cite" function to produce a citation that can be copied • Simplicity of design	• Easier way to distinguish if an item was available or if it had full-text, e.g. green text for available and red text for unavailable. • Styling to distinguish more between the right panel and the centre panel of results
Library Search	• Deduplication of book editions in initial results list - editions are grouped together • "Available in the library" facet • Styling and layout	• Delay in display of "Get It" tab resulted in signing in unnecessarily

Table 1: Summary of comments on discovery platforms from focus groups

The participants were then asked to do some individual searching using pre-defined terms before their final impressions were sought. By the end of focus group, a couple of the students changed their original preference for Summon to Library Search. The

attractive colours of the Library Search interface received favourable comments from both focus groups.

One student felt that there were extra clicks to get to the information they needed in Library Search compared to Summon. The student wanted the important information in fewer sections.

Many of the students commented on the usefulness of the other features in Library Search that they had not previously used, such as the actions menu and the e-shelf. One student said that he/she did not actively try to find out what these options were for, but was glad to learn about them in the focus group.

Usability Testing

In the usability testing, Library Search was selected more often than Summon as the preferred interface across all of the activities. In fact, as an overall preference, all of the participants selected Library Search. However, a review of their comments shows that this preference was marginal for at least one activity. "The difference between Summon and Library Search is not a large one, however that is because Summon was effective as well", stated one participant. Another participant indicated the same level of ambivalence in the comment "Refining a search seems more user-friendly in Summon but not significantly so".

Reasons for Library Search Preference	Number of participants
Ease of use	5
Presentation of Records	6
Relevance of results	2
Aesthetics	3

Table 2: Reasons cited by participants for their Library Search preference

One of the participants echoed the focus group comment about the advantage of using colour: "use of colouring makes it simpler to identify articles available in full text".

It should also be noted that a flaw in the test design might have contributed a bias towards Library Search. In each activity the participant was asked to use Summon first and then Library Search, thereby enabling the participant to learn from the experience with Summon before undertaking a similar task in Library Search.

The results show a greater success rate in Library Search, with a higher number of critical and recovered errors in Summon. Additionally the time spent on each task was longer for Summon than for Library Search.

Table 3 (next page) shows the usability tasks.

Features Tested	Usability Test Metrics	Count Successful	Count Critical Errors	Count Recovered Errors	Average on (minutes)	Time Task
Search Identifying availability	In Summon find a book by Kay Burley (a) What is the title of the book? (b) What year was it published?	9	4	1	3.2	
	In Library Search find the book called "first ladies" (a) Who is the Author? (b) Is the book available for loan?	14	0	0	1.2	
	Did you prefer Summon or Library Search?	7 Library Search		0 Summon		
Search Identifying journal availability	In Summon look up the electronic journal called Journal of Software (a) What dates does the library have access to? (b) Please list what sources you can get it from	6	3	5	4.1	
	In Library Search look up the electronic journal called International Journal of Childbirth (a) What dates does the library have access to? (b) Please list what sources you can get it from	12	1	1	2.6	
	Did you prefer Summon or Library Search?	6 Library Search		0 Summon	1 Neither	
Search Limit to location Identifying availability	In Summon look up the book held in the Law Library called Australian master family law guide (a) Limit your search to books, how many results do you get? (b) How many editions are there of the book by Alexander Renata? (c) What years are available	18	1	2	3.2	
	In Library Search look up the book held in the Law Library called Family provision in Australia (a) Limit your search to books, how many results do you get? (b) How many editions are there of the book by John K De Groot? (c) What years are available	17	3	1	2.3	
	Did you prefer Summon or Library Search?	6 Library Search		1 Summon		
Search Combining keywords Limit to peer review	In Summon you need to find 2 Peer-reviewed articles on Anorexia Nervosa and Self esteem 1a) Article 1 Title/ Journal/ Date 1b) Is the fulltext of this article available? 2a) Article 2 Title/Journal/Date 2b) Is the fulltext of this article available?	21	6	1	6.0	
	In Library Search you need to find 2 Peer-reviewed articles on Bulimia and Self esteem 1a) Article 1 Title/ Journal/ Date 1b) Is the fulltext of this article available? 2a) Article 2 Title/Journal/Date 2b) Is the fulltext of this article available?	20	4	4	5.8	

Features Tested	Usability Test Metrics	Count Successful	Count Critical Errors	Count Recovered Errors	Average on (minutes)	Time Task
	Did you prefer Summon or Library Search	6 Library Search		1 Summon		

Table 3: Usability tasks

There were a few common errors experienced by the students in the usability testing of Summon. For example, when beginning a new search, students would forget that they had particular facets selected from their previous search. Often students would not immediately realise this was negatively influencing their search results. In Library Search, each new search refreshes the facet selection, thereby avoiding this issue. Interestingly, for some tasks several students began their searches with facet selection before typing keywords into the search.

In the task relating to finding full-text peer-reviewed articles, the students clicked all the way through to the database and opened the PDF before being satisfied that full-text was available, not trusting the "full-text available" information presented in Summon or Library Search.

Students commonly misinterpreted labelling used in Summon and Library Search. In using both platforms, there were instances of students selecting the journals/ ejournals facet when they were actually searching for journal articles and vice versa. In Library Search, another possible labelling issue caused confusion between the item information available in the "View it" tab and the "Details" tab. Four participants went to the "Details" tab first to find the availability information of a journal. For example, one participant looked in the "Details" tab for the availability of a journal and instead of checking the "View it" tab and thought that the author/publisher field listed the availability of the journal, and recorded that information on the task response sheet.

Generally, when it came to locating date and source information for a journal or article, students had more success in Library Search, where the Alma openURL resolver is more tightly integrated into the "View It" tab. The following three screenshots (Figures 5, 6 and 7) show examples of what the students were experiencing, while searching. Figure 5 (next page) shows the "View it" and "Details" tab information displayed in Library Search.
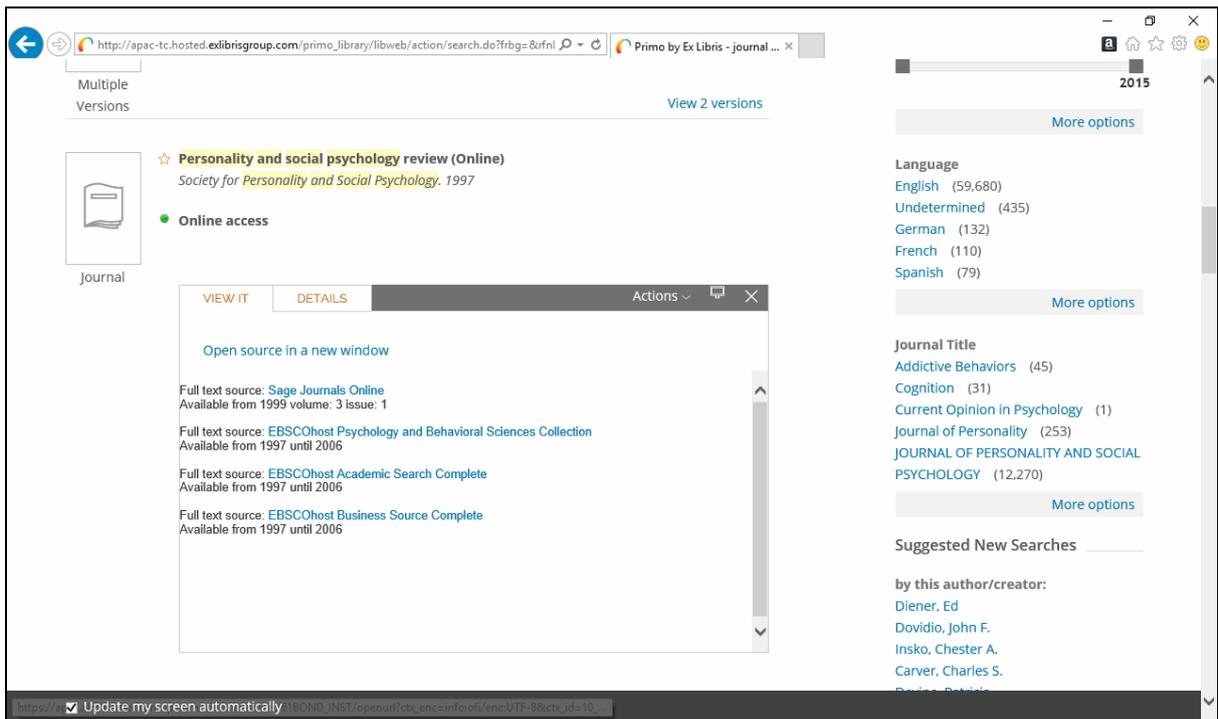
Figure 5: Library Search with embedded Alma openURL resolver

Figure 6 shows a screenshot of Summon and the results given to the end user from the 360 link resolver.
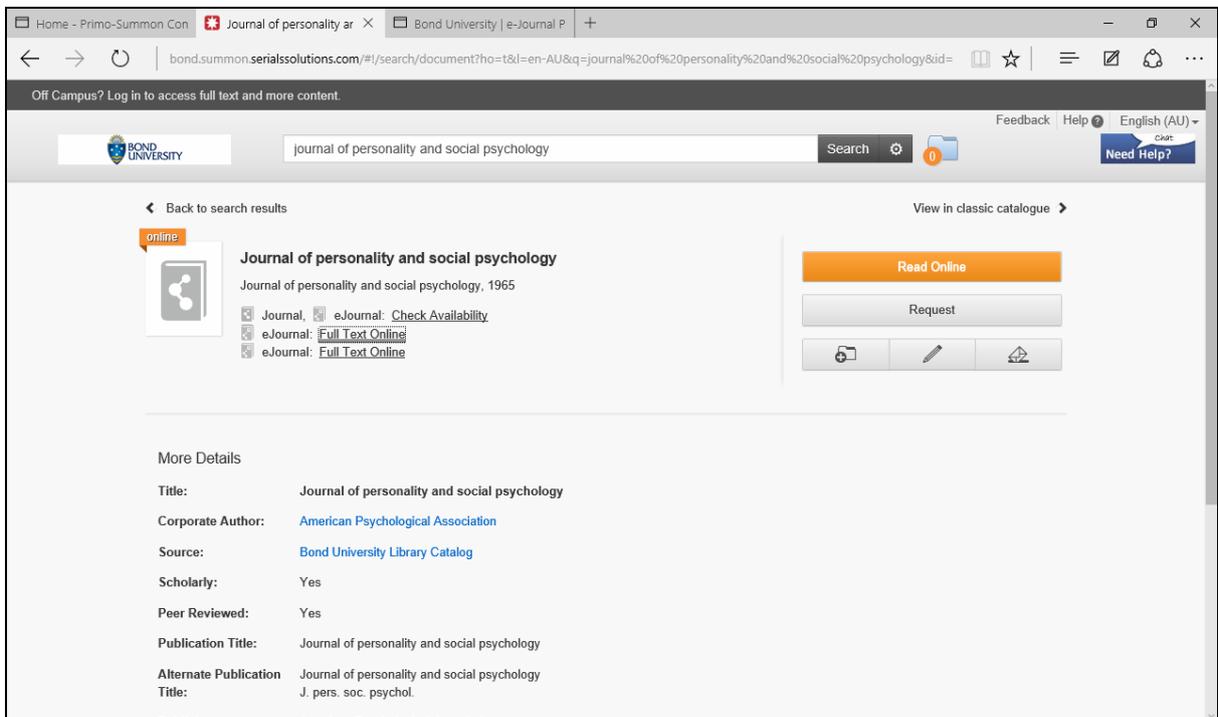

Figure 6: Summon

Figure 7 shows a screenshot of Bond University's Journal Portal, the 360 link openURL resolver is not as tightly integrated with Summon and had completely different styling as shown in Figure 6.
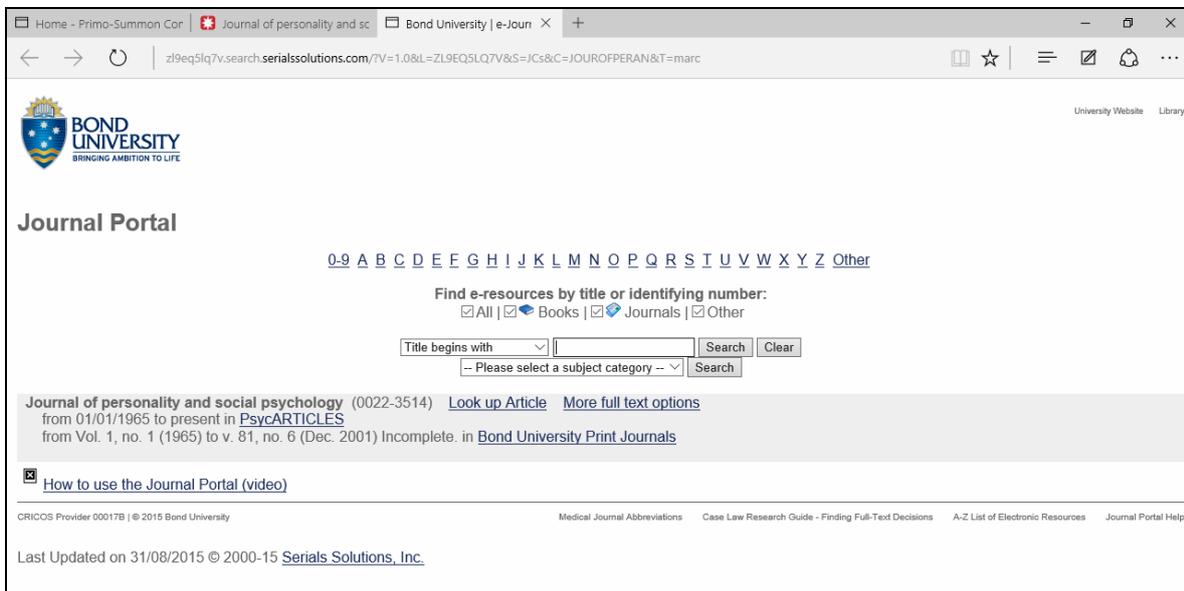

Figure 7: Journal Portal at Bond University

One participant commented on some styling issues within Library Search. When presented with the full-text information screen from the Alma openURL resolver, this screen sometimes opens up in a new window rather than within "View It" tab. The participant commented that the page "looked like something from the 1990s". An example of this if highlighted below in Figure 8.
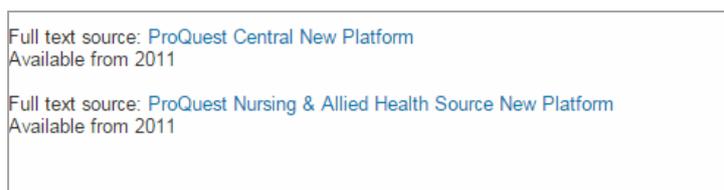

Figure 8: Alma openURL resolver full text information

For each of the tasks, participants were able to choose either "Basic search" or "Advanced search" within the discovery layer. There was little difference between the total number of times students used the basic or advanced search options in either Summon or Library Search; see Table 4 below. Interestingly, Participant 1 used the advanced search 90% of the time, and three out of seven participants only used the basic search in both discovery layers. Participants would switch between browser windows and could initiate the next task from whichever page was left from the last search. They were not asked to go back to the home page each time.

Search type used	Summon	Library Search
Basic search	26	22
Advanced search	6	8
	Total = 32	Total = 30

Table 4: Types of search functions used

All of the participants used additional search refinements in both the discovery layers in order to complete the tasks at some point. The refinements used in Summon and Library Search included the panel of facets (placed on the right side in Library Search and left side in Summon) such as content type, discipline, and publication date, and the options presented in the advanced search. The tests found that participants used the refinements more often in Summon than in Library Search. See Table 5. The refinements were also used incorrectly in more cases in Summon than Library Search. For example, four of the participants used the journal articles refinement instead of the journals refinement in Summon when attempting to find the nominated journal title.

Refinements	Times used in Summon	Times used in Library Search
Format (e.g. books, journal articles)	22	11
Peer reviewed	7	6
Discipline	2	
Author	1	
Full text online	1	
Library (Main or Law Library) – pre-search limit only available in Library Search		4
	Total = 33	Total = 21

Table 5: Refinements used in Summon and Library Search

Participants could apply refinements either pre-search or post-search to locate items. The uses of post-search refinements were utilised more often than pre-search in both platforms. The refinement options in the facet panel are nearly the same in both platforms; however, there is a wider selection of options in the advanced search of Summon compared with Library Search. In Library Search, pre-search limits can only be applied using the advanced search, with the exception of the one drop-down menu available in the basic search. This menu offers a small combination of location and content type refinements. This could account for the low use of pre-search refinements in Library Search. In one case, a participant was looking for the option to refine to peer review pre-search but could not locate it, as it was not an option in either the advanced search or the drop-down menu.

All participants used pre- or post-search refinements in most tasks; however, there were 11 instances where no refinements were used during a task to be completed in Library Search. This only happened seven times in Summon. In these instances, the participants were able to locate the item without the need to refine the results.

Search refinements applied	Summon	Library Search
Pre-search	10	6
Post-search	23	15
	Total = 33	Total = 21

Table 2: Search refinements applied

Recommendations

The findings obtained from the focus groups and usability tests highlighted a number of recommendations that institutions moving from one discovery platform to another may wish to consider..

Customisation prior to launch

A key component of the discovery layer implementation was the work that went into the styling of Library Search pre-launch. The aim was to have Library Search replicate a similar format and style to that of the Library website. The positive feedback and comments made by participants in the focus groups and usability tests indicate that the familiar style and navigation made the transition to a new discovery layer trouble-free, and resulted in Primo being preferred over Summon. The authors recommend reviewing the out-of-the-box usability and styling of a new discovery layer well before the anticipated launch date.

Participants in the usability study had difficulty in using the discovery layer where the styling had not been completed to match the overall style of Library Search, i.e. identifying journal availability from the Alma openURL resolver as displayed in Figure 8. Following this study additional customisation of Library Search will occur.

Labelling and Placement of Search Facets and Scopes

Discussion in the focus groups revealed issues with labelling in Library Search. Participants came up with multiple explanations for what the function of "E-shelf" in Library Search was. The drop-down menu scope option for the Law Library was thought to include electronic resources as well as physical resources. Some labelling modifications have already been completed to the out-of-the-box Alma openURL resolver, and the term "Available" has been changed, as it was found to be ambiguous when it was applied to both the source and date information about a journal. However, based on the results of the focus groups, all terminology used in Library Search will be revisited for relevancy.

In the usability study, participants continuously made errors when using search facets. Reviewing the labelling is a key action to be undertaken in order to help users avoid making errors. Fewer errors were experienced when participants completed tasks in Library Search. Contributing factors could be the fact that there are fewer pre-search facet selections available, and the location of the facet panel on the right side of the screen, where users are not as tempted to select a facet before reviewing their search results (Lundrigan, Manuel & Yan 2015). Institutions should carefully consider the number of facet options and their placement, to ensure users are not overloaded with choice or make facet selections that result in critical errors.

Mobile Usability Testing

In this study, only one participant undertook the usability tasks on a mobile device, which was an iPad. This was unplanned, and was due to three participants showing up at the same time and there being no available laptop or desktop with Camtasia installed. The iPad tasks were therefore not recorded by screen capture software, and have not been included in the findings of this paper. However, the responses recorded on the task sheet by the participant hint at some potentially useful findings relating to the visual display. For example, when searching for information on the iPad, one issue that was found was that to be able to display all of the facet options available to the user, the iPad had to be turned to landscape view. The increasing use of mobile devices demands that further research into the usability of discovery layers be undertaken on tablets and smart phones.

Usability Test Design

A flaw identified in the design of the usability tasks may have contributed some bias towards Library Search. The tasks should have alternated the order of activities between the two discovery layers, rather than always having Summon as the first discovery layer explored. In future usability testing it is recommended that the order of discovery layer activities be randomised.

Key Issues in Moving

When moving from one discovery layer to another there are some key issues to consider, including adaptability of students; search skills development; and most importantly support and communications strategies.

- Student adaptability
  - Undergraduate students in this study were accepting of either discovery layer and appeared to quickly identify similarities between Summon and Library Search, indicating a level of comfort when faced with changing interfaces. This suggests that there are unlikely to be major issues with student acceptance of changing systems.
- Search skills development
  - Even with the best efforts in design and customisation of the Primo interface, the skill levels of undergraduate searchers still need to be, taken into consideration. Despite their acceptance and seeming comfort of switching between interfaces, undergraduate search behaviour demonstrates to an expert user that substantial

improvements in their skills, whatever the discovery layer, would be a major time-saver for them.

- Support and communication strategies
  - The Library invested heavily in a communication plan for the launch of the new library system, including publishing tips on the website and social media channels, digital and physical signage and promoting the availability of in-person assistance. This campaign may have assisted students in feeling generally supported and comfortable about the change, and positively influenced the outcomes from the focus groups and usability testing.

Conclusion

This research has shown that the customisation of Primo prior to launch have been well received by undergraduate students. Through the focus groups and the usability study, some excellent insight into undergraduate searching behaviour has been obtained and these findings are now being used to adapt Bond University Library's information literacy programs, including how-to videos and class content.

Importantly, the research has provided further valuable information to enable fine-tuning of the configuration of the Library Search interface, including labelling, rethinking the drop-down menu in the simple search and adding facets for post-search refinement.

While time-consuming, conducting research with real users and listening to their voices is invaluable for making decisions about discovery layer customisation, information literacy planning and service design. As with all other aspects of a library's web presence, discovery platforms require continual evaluation and enhancement.

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Endnotes

[i] Qualtrics is an online tool for creating and distributing surveys. For more information go to http://www.qualtrics.com/research-suite/.

[ii] NVivo software is used to manage and analyse qualitative data. For more information go to http://www.qsrinternational.com/product.

[iii] Camtasia is a screen recorder and video editor and can also be used to record audio. For more information go to https://www.techsmith.com/camtasia.html .