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The Evaluation of New Zealand Academic Library OPACs : A Checklist Approach

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Abstract

Purpose – This study aims to investigate the usability features of New Zealand academic libraries online public access catalogues (OPACs). It also makes a comparison of how libraries using the same library software are customizing their interfaces to make them useful to their users.

Design/methodology/approach - The interface/usability features of thirteen academic library OPACs in New Zealand were analyzed using a usability inspection evaluation method. More specifically, the study used a modified checklist based on the checklists of Cherry et al. (1994) and Ibrahim (2005).

Findings - Most OPACs in the study sample received high scores in the areas of bibliographic display, text, layout, labels, and user assistance. Many new features that are associated with search engines such as word cloud, faceted navigation, the most popular ranking and related items were however, not found in the surveyed OPACs. OPACs built on the Voyager library systems on average, scored higher in most feature categories in the checklist. Features found in the OPACs during the evaluation that were not part of the checklist were noted and recommended for inclusion in future evaluation checklists.

Originality/value - Findings from the research would be of interest to not only researchers and practitioners in the field of library and information science in New Zealand, but also in other countries as the sample in this research included OPACs built on library software such as Voyager or Liberty3 that are used in many other countries.

Keywords - Academic libraries, Online catalogues, New Zealand

Paper type - Research paper

Introduction

There are a number of issues that have prompted this study. Firstly, while OPACs have become major retrieval tools in libraries since they were introduced over two decades ago, Breeding (2007) for instance, has pointed out that sometimes, library users find library OPACs so unfriendly and difficult to use that they turn first to sites such as the Amazon site (<u>http://www.amazon/com</u>) to look for books of interest. Furthermore, previous studies have identified relatively new features such as adjunct thesaurus help, limiting devices with a 'filtering' effect, relevance feedback and ranking of retrieval references to reduce search failures (Sridhar, 2004). It would be interesting to examine if academic library OPACs have embedded such features. It would also be interesting to find out if browsing and retrieval features such as faceted narrow ability, visual mapping, most-popular-ranking, user annotation/comment features, metasearch functionality and browsing by hierarchical thesaurus are present in any of these OPACs.

In New Zealand, academic libraries use a variety of library software such as Voyager or Liberty3 (Hudson & Dewe, 2003). The study also aims to investigate and compare how OPACs based on different software are designed and developed. It also investigates how libraries using the same software are customising their OPAC interfaces to make them useful to their users.

Research Design

The study examined OPACs in thirteen New Zealand academic libraries (See Appendix 1). The criteria for choosing the sample include:

- The sample covers all the six different software used in the New Zealand academic libraries
- For a software that is used by more than one library, two to four OPACs concerned were included in the sample so as to allow some comparisons of the features and customisation if any.

The instrument used in the study was a modified checklist, developed based on the checklists of Cherry *et al.* (1994) and Ibrahim (2005). Additionally, relatively new information browsing/retrieval features which have been found in the literature and in other OPACs have been included. All features were classified into ten categories as suggested by Ibrahim (2005). Each category included features belonging to one major function of OPAC such as "Searching" or "Screen display".

The evaluation approach taken was similar to that of Cherry *et al.* (1994). Each time a cell (i.e. specific feature in the checklist) is checked (marked x), one point is assigned to the OPAC concerned. The score for a system is the total number of cells checked for that OPAC.

Key Findings

Searching features

Searching functionality makes up the largest group of evaluation criteria in this study. There is a total of 22 categories with 48 features. Most OPACs received high scores on assessment of their searching capabilities (Table 1). The searching categories indicated that most Liberty3-based OPACs scored higher in search features comparatively. However, the scores depended not only on software ability but also on the customisation undertaken by the libraries such as the numbers of access points or hyperlinks in bibliographic display an OPAC provides. The results showed that OPACs of Libraries A and B each allowed users to search through eleven access points.

All OPACs covered main searching abilities such as Boolean, truncation operators and field searching. All thirteen OPACs offered browse searching using author and subject and some supported browsing/searching using title, series, publisher, call number, new title and type of resources. In addition to Boolean operators, all OPACs supported keyword searching anywhere in the record. However, users only received bibliographic information (records) of the resources and not the full text. A couple of features unique perhaps to academic libraries OPACs were course reserves and new title searching under a field of study.

[TAKE IN TABLE I]

Proximity operators are powerful information retrieval features and is usually a factor in relevance ranking (Smith, 2000). It is surprising to find only two OPACs (Libraries H and J) supporting this. Additionally, language translation and thesaurus features were not found in most OPACs. The evaluation showed that only three OPACs (Libraries, A, B and H) had the language translation functionality and three Liberty3-based OPACs (Libraries, E, F and G) supported the thesaurus search function.

Some of the OPACs in the study sample offered relatively new features that can be found in search engines and some other OPAC software products such as Endeca and Talis. For example, OPACs at Libraries J and K offered links to related items and OPACs. It is worth noting that these new features have only been found in the literature recently and it was the first time they had been mentioned in the OPAC usability evaluation. However, none of the surveyed OPACs provided features such as faceted navigation, metasearch functionality and visual mapping. According to Breeding (2007), today's

typical library users are Web-savvy and have very high expectations. Therefore, libraries should explore if offering such relatively new features in their OPACs will improve usability.

The types of searches varied among the OPACs surveyed. The three OPACs at Libraries E, F, and G which were based on the Liberty3 software provided four types of searches: Basic, Guided, Advanced, and Browse, and the Advanced search allowed users to browse by thesaurus through author and subject. The Guided search in these OPACs had the same function as the Advanced search function of OPACs based on Voyager, Horizon, and Millennium. The labels libraries used for each search type were different in some cases. Most libraries called them Basic and Advanced searches, but libraries that used Liberty3 software labelled them Basic, Guided, and Advanced searches. Additionally, OPACs at Libraries K and M had a function of Basic search but these libraries did not display labels for it.

In short, the results reflected that all OPACs covered the basic search features. The libraries had developed a wide range of search features that allowed users with different levels of searching but the labelling for the different types of searching can be confusing because of the lack of standards in definition.

Search limits and strategies

Table 2 shows that the mean percentage of the scores each OPAC received was 52.4%. The Library B OPAC achieved the best score with 81.3%, while OPACs at Libraries, F and G only received 31.3 % of the total features of this group.

The results also showed that Voyager-based OPACs achieved the highest scores in these categories, while Liberty3-based OPACs were with the least scores. In particular, some features such as search strategy display, refining of initial search, search history and ability of "search strategy saving" were not found in all the Liberty3-based OPACs in the sample.

[TAKE IN TABLE II]

According to Babu & Tamizhchelvan (2003), provision of a search limit should be an essential feature in OPACs. All surveyed OPACs provided search limits by year of publication and item type. However, "previous queries combine" ability or other search alternative options was not found in any of the OPACs surveyed. This echoes the findings of another recent study by Ansari (2008). In his study of five Delhi libraries OPACs, he found that when user's initial approach to the OPACs failed, the OPACS did not provide alternative formulation of the search.

Access Points

Table 3 revealed that the maximum score for access points each OPAC system can receive is 16. The result showed that the mean percentage of access point features was quite high with 76.9 % of all surveyed features relating to access points. Three Liberty3-based OPACs at Libraries E, F, and G occupied the top position with 87.5 % of all features. The Library J OPAC at received the least with 56.3 %.

While search facilities by author, keyword in author, title, keyword in title, subject, name authority control, and subject authority control were provided by all the libraries, keyword in subject heading, series, and class number were provided by 92.3 %, and 53.8 % of the OPACs provided search by publisher and copy location. The poorest frequency was found to be in provision of support of cross references and barcode number. Only three OPACs (Libraries B, C, and D) provided cross references and only the Library H OPAC offered search by barcode-number. According to Babu & Tamizhchelvan (2003), although access points such as ISBN, ISSN, barcode numbers, and class numbers were provided by some OPACs, how useful these are in practice is questionable.

[TAKE IN TABLE III]

Bibliographic Display

The OPACs examined scored highly in the bibliographic display category. Eight OPACs offered from 81.8 to 100 % of the checklist features. The results showed that the overall average for the thirteen OPACs was 78.3 %. The lowest scoring OPAC had 63.6 % of the features. All OPAC systems reported the circulation status and the number of retrieved records. All OPACs provided options for full or brief bibliographic display. Only six of the OPACs had the option to display the records in MARC format. Only three had the options for displaying book covers.

A study conducted by Saracevic, Mokros, and Su (1990) indicated that users did not want large output. Moreover, Cherry et al. (1994) suggested that the upper bound was in the range of 150 items (+/-50). The research shows that all OPACs limited their results display to around 50 hits. Moreover, 53.8 % of the surveyed OPACs allowed users to limit a specific number of records that they wanted to display.

[TAKE IN TABLE IV]

Output, Services, Facilities, External links

There is a total of 18 questions in this category, with 30 features. The results showed that the thirteen OPACs had on an average, only 54.1 % of the features in Table 5. In general, the gap between OPACs was large. The difference in scores between the highest scoring OPACs (73.3%) and the lowest scoring OPACs (36.7%) was quite high. 46.2% of the OPACs received scores under 50% of the total features.

Breeding (2007, p.29) asserts that "one of the most important elements of a successful search interface is the order in which the results display". He suggests that a search interface must have exceptional relevance ranking to be successful. Interestingly only seven of the surveyed OPACs used relevance ranking.

[TAKE IN TABLE V]

It is worth noting that the Amazon site provides a facility for sorting records by bestsellers, by taking advantage of statistics of the number of books that have been sold. Similarly, Encarta has recently offered OPAC products with a facility for sorting by most popular by exploiting circulation data (Fox, 2007). This function has also been made available in the NCSU libraries OPAC (http://www.lib.ncsu.edu/catalog/). However, none of the thirteen academic libraries OPACs in the current study included this function. Moreover, none of the OPACs allowed users to select specific fields for display. Additionally, users could not specify fields to include when printing or downloading results. When multiple records were retrieved in a single search, all OPACs allowed users to select any single record for display. However, only three Liberty3-based OPACs and the SIRSI-based OPAC allowed users to select 'several records not in sequence' for display.

Libraries have been value-adding bibliographic records with links to external sources (e.g. table of contents). According to Byrum, Jr. (2006), table of contents (TOCs) have been found useful in helping users to better determine the relevance of particular titles to their information needs. Moreover, words in TOCs greatly improve search effectiveness and TOCs also provide the means for overcoming the traditional limitations of subject searching. However, the results showed that only five of the thirteen OPACs supported the display of TOCs.

User Assistance (Instructional Information)

Table 6 shows the data for user assistance characteristics of the thirteen surveyed OPACs. In general, most OPACs scored highly in the area of user assistance. The average % of user assistance features provided by the thirteen OPACs was 75.4 %. Even the lowest scoring OPAC also offered 50 %. The results showed that 76.9 % of all OPACs received high scores with more than 70 % of the total features in Table 6.

To compare software, all the Voyager-based OPACs occupied high positions while the Spydus and Sirsi based OPACs were weak in this area. Among the ten features, only three features including assistance options to the user listed near both the top and bottom of page, abbreviations avoided in textual information, and instructional information free of jargon were found in all OPACs. However, providing options in the OPACs at libraries E and L were not clearly separated from the information round them. In this case, these libraries should use contrasting colors in displays and there should be a space that is large enough between the results and the options (Cherry, 1998).

92.3 % of the OPACs indicated where the remote users can get additional help by providing them with contact information such as phone numbers and email addresses. Additionally, most OPACs offered help messages, but some of them were not very useful because the help information was very simple. The help messages in the libraries F and G were the same and they did not customize them for their users. These help messages might be provided by software vendors. In particular, they listed help messages about "Boolean Operators" and gave two examples. Surprisingly, they did not explain what operators are and how customers should use them or what the differences are between the Boolean operators AND, OR, and NOT. In addition to help messages, online tutorials were found in six OPAC systems (46.2 %). Some tutorials were built in very detailed. The tutorials of the OPAC at library B are a good example of this.

[TAKE IN TABLE VI]

To enhance search tools, some search engines such as Google and word processing programs note miss-spellings and alert users to their alternative. If this function is used, typographic errors while searching the OPAC may be noticed (Theimer, 2002). Only the Library A OPAC in the sample provided this feature. Again, this echoes the findings of other similar studies (Ortiz-Repiso *et al*, 2006; Larsen, 1992). Most of current OPACs have found to be lacking such help systems that help users overcome problems in searching that relate to orthographic and typographic errors, lack of knowledge of the subject headings used in the systems and absence of cross-reference.

Page layout

Most OPACs received high scores in this category. They possessed, on average, 82.3 % of the ideal OPAC layout features. Five of the thirteen OPACs scored 100% while the lowest scoring Library K OPAC had a 40% score.

[TAKE IN TABLE VII]

Highlighting techniques were applied in all systems. Moreover, all libraries provided a facility to help users to check results in the next and previous pages. In particular, some libraries used icons for this function (e.g. Library B) while some other libraries (e.g. Library H) used hyperlinks.

Labels

All labels were free of library jargon and all OPACs provided drop-down or pull-down menu.

[TAKE IN TABLE VIII]

The checklist recommended that labels should be right justified. However, only seven of the thirteen OPACs formatted labels in this fashion. In the Liberty3, Horizon, and Spydus-based OPACs, authors, co-authors, and editors were displayed in a single label.

Text

Table 9 shows that the text area covered eleven features. The average overall %age was 79%. Most text features were found in these OPACs except "Text arrangement" and "Abbreviation in text". The guidelines stated that text should be arranged logically with related fields. For example, author and added author entries, and title and series should be grouped together. However, only two libraries (Libraries D and K) displayed this feature.

[TAKE IN TABLE IX]

There were some redundant/repeated texts. For instance, the Library F OPAC used the "Classification number" field twice in full displays. These two fields were used with "Class" for the first field and "Classification" for the second field although the content of the two fields were the same. In some cases, authors' names were already displayed under the "Author" field but they were still repeated in the "Title" field. According to Cherry (1998), these redundancies are not necessary and they should be avoided.

General features

General features include those discussed by Cherry (1998) such as explanations on the coverage and focus of the library collections and resources, as well as instructions for login and logout. Most of the libraries in the study sample did not have information about their collection contents and coverage in their OPACs. 38.5% of the OPACs did not show the names of the catalogues and the owning libraries.

[TAKE IN TABLE X]

Summary of findings

The maximum score each OPAC could receive was 168 points (100%). Table 11 shows that the thirteen OPACs, on average, scored 68.1%. The best OPACs obtained 79.2% of the checklist features while two OPACs had the lowest score of 60.7%. The results also indicated that the Voyager-based OPACs had higher scores on average (with the first, second, third, and fifth positions). In contrast, the Millennium-based OPACs, on average, received the lowest scores. The Liraries K and J OPACs that used this software occupied the eleventh and twelfth-thirteenth positions.

[TAKE IN TABLE XI]

[TAKE IN FIGURE 1]

Figure 1 shows the mean, minimum, and maximum percentages of desirable features. In general, the mean % of features related to displays such as "Bibliographic displays", "User assistance", "Layout", "Labels", "Text", and "General features" was high. Each mentioned category, on average, reached over 70% of the total features in its area. The features related to "Searching", "Search limits and strategy", "Output and facilities" on average, received lower scores.

In the ten categories, "Labels" received the highest average scores with 85.4% and this was followed by the "Layout" category with 82.3%. In contrast, search "Limits and strategy" was the weakest category with only 52.4%. The results also indicated that some OPACs reached the maximum scores for some categories. However, none of the thirteen OPACs received the maximum scores for the categories related to searching abilities. Moreover, the level of customizations each library had done for each category was very different. For example, in the areas of "Layout", "General features", and "User assistance", some OPACs received the maximum scores while some OPACs only had 40 or 50% of the checklist features.

CONCLUSION AND RECOMMENDATION

The literature shows that many OPAC software vendors have been integrating features of search engines in their products. For this reason, Breeding (2007) asserts that "one of the hottest topics in the library automation arena is creating a vision of the next round of catalogs". In practice, some products such as Endeca, Talis and AquaBrowser have succeeded in creating new searching abilities. However, the enhancements in the New Zealand academic library OPACs have mainly been in bibliographic displays and facilities that help users to transact with librarians remotely as well as to download search results. All OPACs provided facilities for online renewal and reserving materials. However, none of these OPACs provided features such as "Faceted navigation", "Metasearch functionality", "Word cloud" and "Most popular" ranking. Therefore, the weaknesses are in areas such as "Searching", "Output/Services/facilities/External links" and "Search Limits and Strategy". Libraries and software vendors should explore the possibility of integrating features such as metasearch functionality, faceted navigation, visual map", "the most popular" ranking, and "refine menu".

There were also features that exist in a few of the surveyed OPACs that were not included in the current evaluative checklist. For example, some OPACs in libraries such as the Victoria University of Wellington and the University of Auckland are utilizing RSS to inform its users about new books and useful materials. The University of Auckland Library offered a long list of feeds by collection names. Additionally, it allowed users to create a new books feed. This library also provided a facility for comments and suggestions for improving this service. In particular, it informed its users of campus maps, campus wireless coverage maps, and library hours. Therefore, these features could be included in future checklists.

Additionally, the brief bibliographic displays were varied across the thirteen OPACs. Some OPACs provided a title, a main author, a call number, and status information, while other OPACs only offered the title of material. The used checklist, however, only included bibliographic features related to full displays without mentioning any features relating to brief displays. For example, the guideline checklist showed how to customize "labels, and "text" in a full bibliographic display and did not discus on what features should be included and how to display them in a brief bibliographic record. Therefore, future evaluations could expand this category.

Another finding is that the quality of links in the thirteen OPACs was different. Some OPACs provided good links while a few OPACs included many unavailable links. However, the checklist did not provide any means for evaluating the link quality in the records. Future evaluation checklists could include features to assess unstructured and structured links.

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Table I Searching features

	Questions/Library OPAC	Α	B	С	D	Ε	F	G	Η	Ι	J	K	L	Μ
			V	OY	1		LIB	-	H	OR	M		SPU	SIR
1	Offers types of searches:													
	a. basic search	X	X	X	X	X	X	X	X	X	X	X	X	X
	b. advanced search	X	X	X	X	X	X	X	X	X	X	X	X	X
2	conventional access points:													
	a title	x	x	x	x	x	x	x	x	x	x	x	x	x
	h keyword any where	x	x	x	x	x	x	x	x	x	x	x	x	x
	c key word (using and or not)	x	x	x	x	x	x	x	x	x	x	x	x	x
	d publisher name	x	x	x	A	x	x	x	Α	Α	A	Λ	x	~
	e publish place	x	~	~		~	~	~						
	f publish date	x	x	x	x	x	x	x	x	x	x	x	x	x
	σ series	x	x	x	x	x	x	x	x	x		~	x	x
	h author or editor or organization	x	x	x	x	x	x	x	x	x	x	x	x	x
	i subject	x	x	x	x	x	x	x	x	x	x	x	x	x
	i class number (or call number)	x	x	x	x	x	x	x	x	x	A	x	Λ	x
	k ISBN/ ISSN	x	x	x	x	x	x	x	x	x		x		~
	1 theses	A	x	Α	A	Α	Α	<u>A</u>	Α	Α		Λ		
	m notes		Λ			x	x	x			x		x	
	n abstract					x	x	x			Λ		Λ	
	o table of content					Λ	Λ	Λ				v		
3	Provision for Boolean search	x	v	x	v	x	x	x	x	x	x	x	v	x
1	Provision for Truncation	л v	A V	A V	л v	л v	A V	л v	л v	A V	x	л v	л v	л v
5	Provision for exact matching	л v	A V	A V	л v	л v	A V	л v	л v	A V	x	л v	л v	л v
6	Provision for phrase searching	л v	A V	A V	л v	л v	A V	л v	л v	A V	x	л v	л v	л v
7	Word provimity operators	Λ	Λ	Λ	Λ	л	л	Λ	л v	Λ	x	Λ	Λ	Λ
8	Hypertext links in full								Λ		Λ			
0	bibliographic record display													
	a. authors	х	Х	х	х	х	Х	х	х	х	х	Х	Х	х
	b. subject	х	Х	х	х	х	Х	х	х	х	х	Х	Х	х
	c. call number	х		Х	х						х	Х	Х	х
	d. series	х	Х	Х		х	Х		х	х	Х	Х	Х	х
	f. location map			Х	х	х	Х		х				Х	
	Provision for field directed													
9	searching	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
10	Provision of browsing capabilities													
	a. browsing by authors	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
	b. browsing by subjects	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
	c. browsing by series		Х	Х		х	х	х	х	Х				Х
	d. browsing by publishers					Х	Х	Х						
	e. browsing by call number	Х	Х	Х	Х				Х	Х	Х	Х		Х
	f. browsing for new titles	Х	Х	Х	Х	Х			Х	Х	Х			Х
	g. browsing by type					Х		Х						
	h. browsing by title	Х	Х	Х	Х				Х	Х	Х	Х	Х	Х
11	Multimedia searching	х	Х	Х	х	х	х	х	х	Х	Х	Х	Х	Х
10	The user can start a search	Ι.	Ι.		Ι.						1.			
12	anywhere	X	X	X	X	Х	Х	X	Х	X	X	X	X	X
	revious screen and change a													
13	selection	x	x	x	x	x	x	x	x	x	x	x	x	x
14	Search for new items	x	x	x	x	x	x	x	x	x				
15	Language translation	x	x						x		1			
16	Related items	<u> </u>									х	x		

	Provision for single search													
17	interface	х	х	х	х	х	х	Х	х	Х	х	Х	Х	Х
18	Metasearch functionality													
19	Provision for a visual map													
20	Course reserves	Х	Х	Х	х	Х	Х		х	Х	Х	Х	Х	
21	Faceted navigation ability													
22	Thesaurus search					Х	Х	Х						
	Score: (maximum 48)	34	34	34	31	36	34	32	34	31	30	30	29	29

Notes: A=Victoria University of Wellington; B=University of Auckland; C=Lincoln University; D= Manukau Institute of Technology; E= Whitireia Community polytechnic; F= Southern Institute of Technology; G=Northland Polytechnic; H= University of Canterbury; I=Otago Polytechnic; J= The Open Polytechnic of NZ; K= Massey University; L=Wellington Institute of Technology; M= Unitect New Zealand;

VOY=Voyager; LIB=Liberty3; HOR= Horizon; MIL=Millennium; SPU= Spydus; SIR= Sirsi

Table II Search Limits and Strategies

	Questions/Library OPAC	Α	B	С	D	Ε	F	G	Η	Ι	J	K	L	Μ
	Questions/Elbrary Of AC		V	ΟY			LIB		HO)R	N	IIL	SPU	SIR
1	Displays search strategy	х	х	х	х				Х	х			Х	
2	Refining of initial search								х	х	Х	х	х	Х
	Entire previous queries could be													
3	combined													
4	Option for search history	х	х	х	х				Х	х	Х	х		
5	Search strategy can be saved	х	х	х	х									
6	Provision for comprehensive search													
	limits:													
	a. specific year of publication	х	х	х	х	х	х	х	х	х	х	х	х	х
	b. year publication (before, after,													
	between)	Х	Х	Х	х	X	Х	х	Х	Х	Х	Х	Х	Х
	c. publication status		х											
	d. library location	х	х	х	х	x	х	х	х			х	х	х
	e. publisher											х		
	f. place of publication	х	х	х	х									
	g. medium	х	х	х	х	х	х	х	Х	х	х	х	Х	
	h. item type	Х	Х	Х	х	х	х	х	х	х	х	х	х	х
	i. language	х	Х	Х	х				х			х	х	х
	j. serials	х	Х	Х	х	х								
	1. theses		х	Х					х					
	Score: (maximum 16)	11	13	12	11	6	5	5	10	7	6	9	8	6

Table III Access Points

0	actions/Library OBAC	Α	В	С	D	Е	F	G	Н	Ι	J	K	L	М
Qu	estions/Library OFAC		V	OY			LIB		н	OR	N	IIL	SPU	SIR
1	Author	х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
2	Keyword in author	х	х	х	Х	Х	Х	Х	х	х	х	х	Х	х
3	Title	х	х	х	Х	х	Х	Х	х	х	х	х	Х	х
4	Keyword in title	х	х	х	Х	х	х	х	х	х	х	х	х	х
5	Subject heading	х	х	Х	Х	х	Х	х	х	х	х	х	Х	х
6	Keyword in subject heading	х	х	Х	Х	х	х	х	х	х		х	Х	х
7	Publisher	х	х	х		х	х	х					х	
8	Class number	х	х	х	Х	х	Х	Х	х	х	х	х		х
9	ISBN/ISSN	х	х	Х	Х	х	Х	Х	Х	х		х		
10	Series	х	х	Х	Х	х	Х	Х	Х	х		х	Х	х
11	Barcode number								Х					
12	Provides name authority control	х	х	Х	Х	х	Х	Х	Х	х	Х	х	Х	х
13	Provides subject authority control	x	x	x	x	x	x	x	x	x	x	x	x	x
14	Supports cross-references		х	х	Х									
15	Provision for the copy location					X	Х	X		X		Х	Х	X
16	Notes					X	Х	X			Х		Х	
	Score: (maximum 16)	12	13	13	12	14	14	14	12	12	9	12	12	11

Table IV Bibliographic Display

	Questions/Librowy ODA C	Α	B	С	D	Ε	F	G	Η	Ι	J	K	L	Μ
	Questions/Library OFAC		VC	ŊΥ			LIB		HC	DR	N	IIL	SPU	SIR
1	Provision for bibliographic displays													
	a. short display	х	х	х	Х	Х	Х	Х	х	Х	х	х	Х	Х
	b. long display	х	х	х	Х	Х	Х	Х	х	Х	х	х	Х	Х
	The display text use both upper and lower													
2	case	Х	Х	Х	Х	Х	Х	Х	Х	х	Х	Х	х	Х
	Presenting bibliographic records with image													
3	files of book covers										х	Х	Х	
	Limiting the number for the display of													
4	records (output control)	Х	Х	Х							Х	Х	Х	Х
5	Support for MARC formats	х	х	х					х	х		х		
6	Provision for library structured format	х	х	х	Х	Х	Х	Х	х	Х	Х	х	Х	Х
	Both MARC format and library structured													
7	format	х	х	х					х	х		х		
8	The number of hits retrieved is reported	х	Х	х	х	Х	Х	Х	х	х	х	х	Х	Х
	The circulation status is shown on the same													
9	screen with a call number	х	х	х	х	х	х	х	х	х	х	х	Х	Х
	Items in a set are numbered successively													
	when there are more items than can be													
10	displayed on one screen	Х	Х	х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х
	Score: (maximum 11)	10	10	10	7	7	7	7	9	9	9	11	9	8

	Questions/Library OPAC	A	В	С	D	Е	F	G	Н	I	J	K	L	М
	Questions/Library Of AC		V	OY	•		LIB		Н	OR	М	IL	SPU	SIR
	Facility for sorting records													
1	a. author	Х	Х	Х	Х				Х	Х			Х	х
	b. title	Х	х	х	х	х	х	х	х	Х	х	х	Х	х
	c. relevance	Х	х	х	х						х	Х		х
	d. classification					х	х	х						
	e. date of publication	Х	х	х	х	х	х	х	х	х	х	Х	Х	х
	f. format								х					
	g. ranks output by popularity													
	h. subject heading													х
2	When multiple records are													
	retrieved in a single search, the													
	user can select:													
	a. any single record for display	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
	b. several records not in sequence													
	for display (e.g., record #2, #5,							~~						
	etc.)					Х	X	X						X
	(i.e. by specifying the first and the													
	last records e.g. from record #5													
	to #9)					х	x	х						х
	The user can select specific													
3	field(s) for display													
	The user can specify fields to													
	include when printing or													
4	downloading results													
	The user can select which records													
5	from search results to print or	v	v	v	v	v					v		v	v
5	A coose to 720 50	A V	A V	A V	A V	A V	v	v	v	v	A V	v	л v	A V
7	Access to 259.50	A V	A V	A V	A V	A V	Λ	Λ	Λ	Λ	<u>л</u>	Λ	Λ	A V
/	Secret regults can be served	A V	A V	A V	A V	Λ					v		v	A V
0	Search results can be added to the	Λ	Λ	Λ	Λ						Λ		Λ	Λ
9	user's list	x	x	x	x				x	x		x		0
	Interface with the circulation													Ŭ
10	system	х	х	х	х	х	х	х	х	х	х	х	х	х
	Provision for													
	exporting/downloading of													
11	retrieved records	Х	Х	Х	Х	Х			Х	Х				Х
1.2	Provision for the transmission of				1									
12	retrieved records through e-mail	Х	Х	Х	Х	Х			Х	Х				Х
13	The user's details	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
14	Provision for options such as ILL,	v	**				**	**	**			**	**	**
14	Provision of online meilboxes for	X	X	X	X	X	X	X	X	X	X	X	X	X
15	user comments or suggestions	x	x	x	1				x				x	
15	The user can send messages to a	л	Λ	^					Λ				Λ	
	specific library staff member or													
16	department.	х	x	x	х	x	х	х	x	x	х	х	х	х
17	Links to external sources													
	a. free sources selected on the				1									
	internet (URL)	Х				x			x	x	x	х	Х	X
	b. links to book review	Х	x	x										X
	c.links to table of contents,													
1	companion and supplementary	Х	Х	Х		1	1		1	1	1	Х		х

Table V Output/Services/Facilities/External links

1	materials													
	d. links to e- journals and e-books	Х	Х	Х	х				Х	х	Х	Х	Х	Х
18	Purchase recommendation	Х	х	х					х					
	Score: (maximum 30)	22	22	21	17	17	11	11	18	14	13	13	14	22

Table VI User assistance

	Questions/Library OBAC	Α	В	С	D	Е	F	G	Н	Ι	J	К	L	М
	Questions/Library OFAC		v	ЭY			LIB		н	OR	Μ	IL	SPU	SIR
1	There is an online tutorial		Х	Х	Х				Х		Х	х		
2	Help messages are provided	Х	Х	х		Х	х	х	х	Х	Х		Х	х
3	User-friendly, requires little staff assistance	Х	Х	х	х	Х			х	Х	Х			х
4	Abbreviations avoided in textual information?	Х	Х	х	х	Х	х	х	х	Х	Х	х	Х	х
5	Instructional information free of jargon	Х	Х	х	х	Х	х	х	х	Х	Х	х	Х	х
6	Display system messages (such as error messages) by using contrasting display features (e.g.) bolding, color	x	x	x	x	x	x	x	x		x			
7	The system indicates where the remote user can get additional help.	x	x	x	x	x	x	x	x	x	x	x	x	
8	Spell check software is available to the user.	Х												
9	Provide options to the user listed near both the top and bottom of page	x	x	x	x	x	x	x	x	x	x	x	x	x
10	Provide options clearly separated from the information round them	x	x	x	x		x	x	x	x	x	x		x
	Score: (maximum 10)	9	9	9	8	7	7	7	9	7	9	6	5	6

Table VIIPage layout

	Questions/Library OPAC	A	В	С	D	E	F	G	Н	Ι	J	К	L	Μ
	Questions/Library Of AC		VO	Y			LIB		н	OR	М	IL	SPU	SIR
1	Instructions on the screen are simple, clear and inviting?	x	x						x	x	x			x
2	Less use of technical jargon and codes	X	X	х	х	х	x	х	X	X	X	х	x	X
3	Wording/terminology consistent	X	X	X	X	X	X	X	x	X	X	X	X	X
4	Is there at least one blank line between the page title and the body of the display?	x	x	x	x		x	x	х	x				x
5	Search strategy is displayed near the top of the page?	x	x	x	x				х	x			x	x
6	Is the search request always displayed on the screen, so that the user can see what was typed while viewing the hits?	x	x	x	x				x	x			x	x
7	Related fields in the bibliographic data grouped together and separated from other data	x	x	x	x	x	x	x	x	x	x		x	x
8	Highlighting techniques used (bolding, font size, underline)	x	x	x	x	x	x	x	x	x	x	x	x	x
9	Labels, text, and instructional information displayed in consistent locations, formats throughout the display	x	x	x	x	x	x	x	x	x	x		x	x
10	Provision of next/previous	х	х	х	х	х	х	х	х	Х	х	х	х	х
	Score: (maximum 10)	10	10	9	9	6	7	7	10	10	7	4	8	10

	Or and a second stranger ODA C	Α	В	С	D	Е	F	G	Н	Ι	J	K	L	М
	Questions/Library OPAC		V	DY			LIB		но)R	М	IL	SPU	SIR
1	All variable fields labeled	х	х	х	х	Х	Х	Х	Х		Х	Х	х	Х
2	All labels full words (not abbreviated)	х	х	х	х	х	Х	х	х	х	Х	х	х	
3	All labels free of library jargon	х	х	х	х	х	Х	х	х	х	Х	х	х	х
4	Labels accurate, appropriate, meaningful	х	х	х	х	Х	Х	Х	Х	Х	Х		Х	х
5	Provision for drop-down or pull-down menu	х	х	х	х	Х	Х	Х	Х	Х	Х	Х	Х	х
6	Other highlighting techniques used (e.g.) color, bold	х	х	х	х	x	x	x	x	х	x		x	x
7	For bibliographic information:													
	a. labels are right-justified	х	х	х	х							Х	х	х
	b. each label begins on a new line	х	х	х	х	Х	Х	Х	Х		Х	Х	х	
	c. labels are located to left of the corresponding fields and on the same line	х	х	х	х		х		x	x		x	x	x
	d. all labels separated from corresponding fields by a colon and followed by at least	x	x	x	x	x	x	x	x				x	
	Score: (maximum 10)	10	10	10	10	8	9	8	9	6	7	7	10	7

Table VIII Labels

Table IX Text

	Questions/Librory ODAC	Α	В	С	D	Е	F	G	Н	Ι	J	K	L	Μ
	Questions/Library OFAC		v	OY			LIB		но	DR	М	IL	SPU	SIR
	The limits to the number of hits which can be													
1	displayed equal to 50	х	х	х	х	х	х	х	х	х	х	х	х	х
	Text arranged logically with related fields													
2	(author, added author)				Х							х		
3	Text vertically aligned and left justified	х	х	х	х	х	х	х	х	х		х	х	х
4	Redundant/repeated text avoided	Х	Х		х	Х		х	х	х	Х		х	х
	Circulation status information included in the													
5	full display	Х	х	х	х	х	х	х	х	Х	Х	х	х	х
6	Copies listed in recognizable order	Х	Х	Х	х	Х	х	х	х	х	Х	х	х	х
	Provision of hypertext links in the record													
7	through	х	х	х	х	х	х	х	х	х	х	х	х	Х
	The total number of items to be displayed is													
	identified in the display of each item (e.g., item													
8	1 of 100)	Х	Х	Х	Х	Х	Х	Х			Х	Х	Х	Х
	Items in a set are numbered successively (e.g.,													
	1 to 8, 9 to 18, etc.) when there are more items													
9	than can be displayed on one screen	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
10	Call number display	х	х	Х	Х	Х	х	х	Х	Х	Х		х	Х
	The text is in full words, not abbreviation													
	(Commonly used abbreviation such as "cm"													
	for centimeter,"p" for page are OK. But "c" for													
11	copyright is not OK.												Х	
1	Score: (maximum 11)	9	9	8	10	9	8	9	8	8	8	8	10	9

Table X General

Questions/Library OPAC		A	В	С	D	Е	F	G	Н	Ι	J	К	L	Μ
		VOY			LIB			HOR		MIL		SPU	SIR	
	Show in every display the name of the catalog													
1	and the owning library or other organization	Х	Х	Х		х	х		Х	х		Х		
	Customization of the features as per the													
2	library requirements	х	х	х	х	х	х	х	х	х	Х	х	Х	Х
	Explains the contents and coverage in the													
3	OPAC	х							х	х	х		Х	Х
4	Provides log in / log out instruction, if desired	Х	Х				Х		Х	Х	Х			Х
	Remote access is unrestricted in terms of time													
5	of day	х	х	х	х	х	х	х	Х	Х	Х	Х	Х	Х
	Score: (maximum 5)	5	4	3	2	3	4	2	5	5	4	3	3	4

Table XIRankings of the Thirteen OPACs

Rank	Institution	OPAC software	%age of Features Desirable
1	В	VOYAGER	79.2
2	А	VOYAGER	78.6
3	С	VOYAGER	76.8
4	Н	HORIZON	73.2
5	D	VOYAGER	69.6
6	Е	LIBERTY3	66.7
7	М	SIRSI	66.1
8	Ι	HORIZON	64.9
9	L	SPYDUS	64.3
10	F	LIBERTY3	63.1
11	K	MILLENNIUM	61.3
12	J	MILLENNIUM	60.7
13	G	LIBERTY3	60.7

Figure 1 Percentages of features each category received



OPACs	Library OPAC	URLs
VOYAGER	University of Auckland	http://voyager.auckland.ac.nz/
	Victoria University of Wellington	http://victoria.lconz.ac.nz/
	Lincoln University	http://www.lincoln.ac.nz/libr/
	Manukau Institute of Technology	http://catalogue.manukau.ac.nz/
LIBERTY3	Whitireia Community Polytechnic	http://www.whitireia.ac.nz/category_displ
		ay.php?category_id=12&menu=current
	Southern Institute of Technology	http://www.sit.ac.nz/pages/library/
	Northern Polytechnic	http://lis.northland.ac.nz/liberty3/gateway
		/gateway.exe?displayform=opac/main≈
		plication=Liberty3
HORIZON	University of Canterbury	http://library.canterbury.ac.nz/
	Otago Polytechnic	http://www.library.otago.ac.nz/billroberts
		<u>on/</u>
MILLENNIUM	Massey University	http://kea.massey.ac.nz/search/q
	The Open Polytechnic of New	http://batgirl.topnz.ac.nz/search/X
	Zealand	
SPYDUS	Wellington Institute of Technology	http://library.weltec.ac.nz/spydus.html
SIRSI	Unitect New Zealand	http://library.unitec.ac.nz/

Appendix 1: Research Sample of New Zealand Academic Library OPACs

Appendix 2: Percentages of the feature categories each OPAC received

Feature/ OPACs	Α	В	С	D	Е	F	G	н	Ι	J	К	L	М
Searching features		70.8	70.8	64.6	75	70.8	66.7	70.8	64.6	62.5	62.5	60.4	60.4
Search limits & Strategies	68.8	81.3	75	68.8	37.5	31.3	31.3	62.5	43.8	37.5	56.3	50	37.5
Access points	75	81.3	81.3	75	87.5	87.5	87.5	75	75	56.3	75	75	68.8
Bibliographic display	90.9	90.9	90.9	63.6	63.6	63.6	63.6	81.8	81.8	81.8	100	81.8	63.6
Output, facilities, external links	73.3	70	70	56.7	53.3	36.7	36.7	56.7	46.7	43.3	43.3	46.7	73.3
User assistance	90	90	90	80	70	70	70	90	70	90	60	50	60
Layout	100	100	90	90	60	70	70	100	100	70	40	80	100
Labels	100	100	100	100	80	90	80	90	60	70	70	100	70
Text	81.8	81.8	72.7	90.9	81.8	72.7	81.8	72.7	72.7	72.7	72.7	90.9	81.8
General features	100	80	60	40	60	80	40	100	100	80	60	60	80
% of Features Desirable	78.6	79.2	76.8	69.6	66.7	63.1	60.7	73.2	64.9	60.7	61.3	64.3	66.1

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