World Wide Web displays of bibliographic records: an evaluation

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This paper presents the results of a critical evaluation of full bibliographic displays in Web interfaces to online public access catalogues in academic libraries. Ten different Web-based interfaces were chosen for evaluation. A checklist approach was employed to assess the displays. The data gathered in this study allow for the ranking of the selected interfaces and the identification of weaknesses in present Web-based catalogue displays.

Introduction

In this project we conducted a critical evaluation of bibliographic displays in Web-to-catalogue interfaces in academic libraries. Full bibliographic displays, in contrast to brief bibliographic displays, should provide the user with the most information possible so that the user can identify and assess the usefulness of the item displayed in the catalogue. Displays for full bibliographic records were assessed and ranked according to a checklist of features that were deemed to be essential in Web-based catalogues. The checklist used was divided into four sections: Labels, Text, Instructional Information, and Page Layout. Ten Web-based catalogue interfaces were examined through an evaluation of data from various library sites. Wherever feasible we chose Canadian sites. Four categories of interfaces were examined: those developed by commercial vendors; those using the Center for Networked Information Discovery and Retrieval (CNIDR) gateway software; modified versions of Stanford University's Z39.50-Web interface; and home-grown interfaces developed by individual institutions or persons.

Construction of the checklist

The checklist used in this project is a modified version of a checklist previously designed to evaluate the display of full bibliographic records in traditional OPACs in Canadian academic and public libraries (Chan 1995). Chan's checklist was based on an extensive search of the literature dealing with the display of bibliographic information and was divided into four sections: labels (these

identify parts of the bibliographic description to the OPAC user); text (the display of the bibliographic, holdings/location and circulation status information); instructional information (includes instructions to users, informational messages, options available, etc.); and screen layout (includes identification of the screen, the organization for the bibliographic information, spacing, and consistency of information presentation). Chan's checklist contained 133 questions.

In order to effectively evaluate Web catalogues, it was necessary to modify Chan's checklist. One of the major changes to the checklist was in the area of the concepts of "screen" and "page". In a Web catalogue the concept of one screen of information is replaced with the concept of a page of information, and access to the information on the page is by scrolling through the page, rather than moving through screens of information. Another important difference in Web catalogues is the ability to provide hypertext links from specific bibliographic elements in the display to related elements in other records. It is also possible to provide links to documents external to the catalogue. An additional eight questions were added to the Text section of the checklist to cover this important aspect of Web catalogues. In the Instructional Information section it was also necessary to distinguish between textual instructions and graphical instructions. In Web catalogues it is possible to make use of icons both to display information and to provide direction to the catalogue user. Additional questions were provided to cover the use of icons. We also removed some questions that dealt with command lines, action/menu bars, and pulldown menus. In summary, in the Labels section the number of questions were thus reduced from 17 to 16; through reductions and additions the number of questions in the Text section changed from 36 to 39; in the Instructional Information section the number of questions was reduced from 44 to 15; and in the Page Layout section (renamed and modified from the original screen layout section), there are 21 questions where previously there were 36. The total number of questions on the revised checklist is 91. All questions on the checklist have to be answered either "yes," "no," or "not applicable." There is also a column where the data gatherer can add any comments, and the addition of comments is encouraged. A "yes" answer is regarded as a positive feature of the display, whereas a "no" answer indicates a feature that is lacking. "Not applicable" means that the question does not apply to a particular display.

Selection of interfaces and sites

A selective list of sites that provide access to library catalogues through various Web interfaces was identified. The initial selective listing of interfaces and sites contained access to 42 sites. The interfaces and sites were culled from sources

on the Internet and through postings on electronic lists. Of particular value was the list *Online Catalogs with "Webbed" Interfaces* created by Eric Lease Morgan (1996). The selected interfaces and sites were chosen because they illustrate the many attempts being undertaken at the moment to provide Web access to library catalogues. There is a great deal of diversity at present in regards to both design of the interface and its functionality.

The initial list of interfaces and sites was divided into four sections:

- Commercial vendors: A listing of library system vendors and utilities that are offering Web interfaces to existing library catalogues. Under each vendor an institution that is testing or using the product was identified. In some cases multiple sites were identified so that comparisons could be made between implementations of the interface.
- CNIDR: The Center for Networked Information Discovery and Retrieval has made available a Web-to-catalogue interface. The CNIDR interface can be seen in a selected number of sites. Other institutions, including the Library of Congress and Michigan State University, have modified the interface.
- Stanford University: Stanford University's Z39.50-Web interface developed by Harold Finkbeiner has been adopted and/or modified by a number of institutions, including Brock University and Iowa State University.
- Proprietary developments: Included in this list were institutions and individuals who developed in-house Web catalogues, including Carnegie Mellon University, the University of British Columbia, and the University of Texas at Austin, among others.

For the purposes of this research project it was decided to evaluate ten different interfaces covering the four sections as specified above. A site catalogue was also identified that would be the mechanism to evaluate the interface. Site selection was facilitated by posting a notice about the research project on four separate Internet lists. A number of communications were received from various vendors and interested parties, which helped identify relevant sites and Internet addresses. Not every system vendor or institution is included in the final list, as the list of interfaces for evaluation is intended to be representative and not comprehensive. Table 1 contains the list of interfaces and sites chosen.

It should be noted that ZWeb offers a choice of display depending on the site chosen. For instance, if one chooses to search the Library of Congress catalogue, one gets a choice of fancy, standard, or plain display. If one searches the University of Alberta Library catalogue, one gets a default display. We evaluated all four displays and have included the display that scored highest, which is the University of Alberta Library catalogue display.

Table 1. List of Web catalogue interfaces evaluated

Interface	Developer	Site	Name used in study	Version
Commercial Vendors				
DRAWeb	Data Research. Associates	U. of Toronto Library	DRAWeb	beta test
INNOPAC Web Server	Innovative Interfaces, Inc.	U. of Maine Library	INNOPAC	10
WebZ	OCLC	MELVYL System	WebZ	2
WebCat	SIRSI	U. of N. Brunswick Library	WebCat	7.1.10.0
CNIDR & implementations				
HTTP to Z39.50	CNIDR	MELVYL System	CNIDR	1.04
WWW/ Z39.50 Gateway	Library of Congress	U. of Toronto Library	CNIDR/LC	1.04
ZWeb	Michigan State U.	U. of Alberta Library	ZWeb	
Stanford & implementation				
DB Connect	Stanford University	Stanford U. Libraries	DB Connect	1.9
SCHOLAR	Iowa State University	U. of Iowa Library	SCHOLAR	1.9
Proprietary				
[UBC]	U. of British Columbia	U. of Br. Columbia Library	[UBC]	Pilot test

Before the full evaluation was to proceed, we completed a pilot test in order to measure the reliability of the checklist and to assess the data collection procedures . The checklist used in the pilot test contained 111 questions. The site chosen for the pilot test was the Iowa State University Library using the SCHOLAR interface, Iowa's modification of the Stanford University interface. This site was chosen because it would not be one of the final ten in the full study. The item to be searched in the database was the title *Michael Ondaatje* by Douglas Barbour. This item was known to exist in the catalogues identified for the full study and was expected to provide enough data to evaluate the full bibliographic display.

Two research assistants, working independently, evaluated the interface using the checklist on April 11, 1996. The World Wide Web browser used was Netscape 1.22. Printouts of the full bibliographic display of the record were also obtained by each evaluator. The two sets of data were compared and checked for level of agreement, with reference when necessary to the printouts for clarification. The level of agreement was 83%, equivalent to 92 out of 111 questions. Disagreements were identified and discussed with the evaluators,

and the evaluators resolved all the disagreements by checking and re-evaluating the data.

This process led to the refining of the wording of some questions in the checklist, the elimination of five unnecessary questions, a re-ordering of some questions, a better understanding by the evaluators of all of the questions, and a decision to change the item be to evaluated. This change was made because it was found that the content of the record for the original item was too brief to provide enough information to answer all of the questions. The revised checklist after the pilot test contained a total of 106 questions.

Data collection procedures

Two research assistants independently evaluated the full bibliographic display in ten Web-based library catalogues on April 12 and 13, 1996, using the revised checklist. The Web browser used was Netscape 1.22, and the interfaces evaluated are those appearing in Table 1 above. A title search was done in each catalogue for the item *Rattle of Pebbles*. As expected, the title appeared in all of the catalogues being evaluated. If two or more bibliographic records for the same item were in a catalogue, the first item in the list was used for evaluation purposes. Each research assistant also obtained a printout of each bibliographic display. These printouts were compared, and it was determined that each evaluator compared the same display for each site.

The data from the two checklists for each interface were compared, and disagreements in answers were identified. The disagreements were examined and a resolution to each of the disagreements was achieved. The overall level of agreement across all sites averaged 85% (90 out of 106 answers).

During this period of data resolution, additional changes were made to the checklist. As with the pilot test phase, considering the results obtained, some questions were found to be redundant in the context of this research and were thus eliminated from the checklist calculations. Other questions were re-sequenced and wording was improved. With these further refinements to the checklist, for the calculation of results, the total number of questions was 91. The results presented here are based on this version of the checklist. The 91 questions are listed in Appendix A.

Results

Using the collected and reconciled data, a detailed table was constructed that indicated a "yes," "no," or "not applicable" answer to each question on the checklist for all of the interfaces. From this table the rankings of the interfaces within the four checklist sections were determined. An overall ranking was also calculated. The questions on the checklist had been worded so that a "yes"

answer reflected a positive aspect of the interface, while a "no" answer reflected a negative one. Ranking scores were calculated for each individual section by adding up the total number of "yes" answers for the section, dividing by the total number of questions in the section, and multiplying by 100 to arrive at a percentage score. The interfaces were then ranked with the highest scoring interface achieving a rank of 1 and the lowest scoring interface achieving a rank of 10. An overall ranking of the interfaces was arrived at by adding up the total number of "yes" answers across all sections, dividing by the total number of questions in the checklist (91), and multiplying by 100 to arrive at a percentage score, with the highest scoring interface achieving a rank of 1.

Table 2 presents the rankings for the Labels section. The percentage scores ranged from a low of 25% (i.e. four "yes" responses out of a possible 16) for the DRAWeb interface to a high of 63% for both the CNIDR/LC interface and the ZWeb interface. The range in scores thus varied greatly across the interfaces, with a number of sites clustered in the 50%–56% range. The average score was 51%.

Table 3 presents the rankings for the Text section. The percentage scores ranged from a low of 15% for WebZ to a high of 67% for WebCat. The average score was 39%. So again the scores varied greatly.

Table 4 presents the rankings for the Instructional Information section. The percentage scores ranged from a low of 40% for CNIDR to a high of 93% for DRAWeb. The average score at 71% was considerably higher than for the previous two sections. However, the spread between the lowest and the highest score was still great.

Table 5 presents the rankings for the Page Layout section of the checklist. The percentage scores ranged from a low of 57% to a high of 71%. Five interfaces shared the lowest score of 57% and so shared the rank of 6/7/8/9/10. CNIDR and ZWeb shared the highest score of 71%. The average score was 62%. The range of scores in this section was considerably less than in other sections.

Table 6 provides an overall rank for the ten interfaces, based on the total number of "yes" answers to all of the questions in all four sections of the checklist. Out of a maximum of 91 questions, WebZ provided a "yes" answer to 39 questions for a score of 43% and so ranked 10th. WebCat provided 59 "yes" answers for a score of 65% and so arrived at a rank of 1.

Conclusion

Table 7 provides the rankings for the interfaces in the order in which the interfaces are listed in Table 1—that is, according to the broad type of organization making the interface available. What is most noteworthy is that no one

Table 2. Label scores for full bibliographic displays in Web catalogues

Rank	Interface	Site	"Yes" responses (max. 16)	Percentage score
1/2	CNIDR/LC	University of Toronto Library	10	63%
1/2	ZWeb	University of Alberta Library	10	63%
3/4/5	CNIDR	MELVYL System	9	56%
3/4/5	[UBC]	U. of British Columbia Library	9	56%
3/4/5	INNOPAC	University of Maine Library	9	56%
6/7/8	DB Connect	Stanford University Libraries	8	50%
6/7/8	SCHOLAR	University of Iowa Library	8	50%
6/7/8	WebZ	MELVYL System	8	50%
9	WebCat	U. of New Brunswick Library	7	44%
10	DRAWeb	University of Toronto Library	4	25%
		Average	8	51%
		Lowest	4	25%
		Highest	10	63%

Table 3: Text scores for full bibliographic displays in Web catalogues

Rank	Interface	Site	"Yes" responses (max. 39)	Percentage score
1	WebCat	U. of New Brunswick Library	26	67%
2	INNOPAC	University of Maine Library	24	62%
3	SCHOLAR	University Iowa Library	19	49%
4	[UBC]	U. of British Columbia Library	18	46%
5	DRAWeb	University of Toronto Library	17	44%
6/7	DB Connect	Stanford University Libraries	11	28%
6/7	ZWeb	University of Alberta Library	11	28%
8	CNIDR	MELVYL System	10	26%
9	CNIDR/LC	University of Toronto Library	9	23%
10	WebZ	MELVYL System	6	15%
		Average	15	39%
		Lowest	6	15%
		Highest	26	67%

Table 4. Instructional Information scores for full bibliographic displays in Web catalogues

Rank	Interface	Site	"Yes" responses (max. 15)	Percentage score
1/2	DRAWeb	University of Toronto Library	14	93%
1/2	WebCat	U. of New Brunswick Library	14	93%
3	WebZ	MELVYL System	13	87%
4	SCHOLAR	University of Iowa Library	12	80%
5	[UBC]	U. of British Columbia Library	11	73%
6/7	ZWeb	University of Alberta Library	10	67%
6/7	INNOPAC	University of Maine Library	10	67%
8/9	CNIDR/LC	University of Toronto Library	8	53%
8/9	DB Connect	Stanford University Libraries	8	53%
10	CNIDR	MELVYL System	6	40%
		Average	11	71%
		Lowest	6	40%
		Highest	14	93%

Table 5: Page Layout scores for full bibliographic displays in Web catalogues

Rank	Interface	Site	"Yes" responses (max. 21)	Percentage score
1/2	CNIDR	MELVYL System	15	71%
1/2	ZWeb	University of Alberta Library	15	71%
3/4	CNIDR/LC	University of Toronto Library	14	67%
3/4	DB Connect	Stanford University Libraries	14	67%
5	[UBC]	U. of British Columbia Library	13	62%
6/7/8/9/10	DRAWeb	University of Toronto Library	12	57%
6/7/8/9/10	SCHOLAR	University of Iowa Library	12	57%
6/7/8/9/10	WebCat	U. of New Brunswick Library	12	57%
6/7/8/9/10	INNOPAC	University of Maine Library	12	57%
6/7/8/9/10	WebZ	University of Alberta Library	12	57%
		Average	13	62%
		Lowest	12	57%
		Highest	15	71%

Table 6: Overall scores for full bibliographic displays in Web catalogues

Rank	Interface	Site	"Yes" responses (max. 91)	Percentage score
1	WebCat	U. of New Brunswick Library	59	65%
2	INNOPAC	University of Maine Library	55	60%
3/4	SCHOLAR	University of Iowa Library	51	56%
3/4	[UBC]	U. of British Columbia Library	51	56%
5	DRAWeb	University of Toronto Library	47	52%
6	ZWeb	University of Alberta Library	46	51%
7/8	CNIDR/LC	University of Toronto Library	41	45%
7/8	DB Connect	Stanford University Libraries	41	45%
9	CNIDR	MELVYL System	40	44%
10	WebZ	MELVYL System	39	43%
		Average	47	52%
		Lowest	39	43%
		Highest	59	65%

Table 7: Rankings for full bibliographic displays in Web catalogues: by section and overall

Interface	Label	Text	Instructional Information	Layout	Overall
Commercial Vendors					
DRAWeb	10	5	1/2	6/7/8/9/10	5
INNOPAC	3/4/5	2	6/7	6/7/8/9/10	2
WebZ	6/7/8	10	3	6/7/8/9/10	10
WebCat	9	1	1/2	6/7/8/9/10	1
CNIDR & implementations					
CNIDR	3/4/5	8	10	1/2	9
CNIDR/LC	1/2	9	8/9	3/4	7/8
ZWeb	1/2	6/7	6/7	1/2	6
Stanford & implementation					
DB Connect	6/7/8	6/7	8/9	3/4	7/8
SCHOLAR	6/7/8	3	4	6/7/8/9/10	3/4
Proprietary					
[UBC]	3/4/5	4	5	5	3/4

interface excels in all areas of evaluation. There is a broad range of ranking for each interface across the four sections of Label, Text, Instructional Information, and Page Layout. For instance, DRAWeb ranked 10th in the Labels section, 5th in the Text section, 1st/2nd in the Instructional Information section, and shared the rank of 6/7/8/9/10 in the Page Layout section, with a overall ranking of 5. Such a pattern is typical of most of the interfaces. There is, therefore, room for improvement in how the various interfaces address the multiple aspects of the full display of bibliographic records in Web-based library catalogues.

This research is an initial attempt to evaluate Web-based library catalogues. One must remember that these interfaces are in their infancy, yet they can be expected to proliferate. The data collected reflects what was current as of April 1996, and that is expected to change rapidly as vendors and institutions modify and update their software. This study is therefore limited to the extent that it does not cover every available system, nor is it operating in a static environment.

There are, however, areas where further research could be carried out. One such area is the refinement of the checklist, taking into account a growing body of literature concerning good design principles of electronic and particularly Web-based documents and systems.

It would also be worthwhile for systems designers to take into account the weak areas of the bibliographic displays as identified through the scores presented here. The Bibliographic Elements and Displays Project at the Faculty of Information Studies at the University of Toronto will be concerning itself with this research aspect by creating and testing prototype displays and by addressing such weaknesses.

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References

Chan, Juliana. 1995. *An evaluation of displays of bibliographic records in OPACs in Canadian academic and public libraries.* Master of Information Science Research Project Report. Toronto: Faculty of Information Studies, University of Toronto.

Morgan, Eric Lease. 1996. *Online catalogs with "webbed" interfaces.* URL: http://www.lib.ncsu.edu/staff/morgan/alcuin/wwwed-catalogs.html

Appendix: Evaluation checklist for full bibliographic displays in Web catalogues

The checklist consisted of four sections: Labels, Text, Instructional Information and Page Layout. It was presented in tabular form with columns for yes/no answers and comments. The checklist questions are reproduced below. All questions required yes/no answers. If a particular question on the checklist was not relevant to the display being evaluated, then evaluators were instructed to mark the question "Not Applicable." They were also encouraged to write comments about any question in the column titled "Comments." A copy of the version of the Checklist formatted for data collection is available from the authors.

Section 1: Labels

1.1. Are all fields/variables labeled?
1.2. Are all labels full words, i.e. not abbreviations? (Commonly used abbreviations such as ISBN are OK)
1.3. Are all labels free of library jargon? (e.g. LCCN, OCLC#, added entry. Commonly used jargon such as ISBN is OK.)
1.4. Are all labels accurate/appropriate/meaningful? (e.g. if a field contains co-authors, the label is "CO-AUTHORS".)
1.5. Are the labels displayed less prominently than the text (i.e. data/field values)?
1.6. For bibliographic information:
  (a) Are all labels in UPPERCASE?
  (b) Does each label begin on a new line?
  (c) Are labels right justified?
  (d) Are labels located to left of the corresponding fields and on the same line?
  (e) Is the amount of space provided for labels at least 12 spaces and no more than 20 spaces per line?
  (f) Are labels separated from the corresponding fields by a colon and followed by at least one space?
  (g) If it takes more than one line (e.g. a long title) or sub-field (e.g. subject) to display a field value, is the corresponding field label displayed only once, i.e. not repeated?
  (h) Are labels without corresponding field values avoided?
1.7. If information is displayed in tabular format (e.g. holdings information):
  (a) Are the column labels displayed in one of the following ways:
    (1) UPPERCASE only,
    (2) UPPERCASE and Underlined (e.g. UPPERCASE),
    (3) UPPERCASE with hyphens (e.g. — UPPERCASE —), or
    (4) UPPERCASE in REVERSE VIDEO (e.g.)?
    (5) Other highlighting technique used (e.g. colour, bold, etc.): *please specify in Comments section*
  (b) Are the column labels located immediately above the column of fields, i.e. no blank line(s)?
  (c) Are the column labels centered above the column of fields?

Section 2: Texts

2.1. Is the text in mixed case (upper and lowercase)? If all UPPERCASE, go to 2.3.
2.2. Does the text contain conventional use of capitalization, i.e. to start sentences, to indicate proper nouns, acronyms, or significant words, etc.?
2.3. Is the text full words, i.e. not abbreviations? (Commonly used abbreviations such as "cm" for centimeter, "p" for page are OK. But "c" for copyright is not OK.)
2.4. Are the use of special characters (e.g. slash, hyphen, and colon) to separate the words of the text avoided?
2.5. Is the text vertically aligned and left justified?
2.6. Are the right margins of the text ragged?
2.7. Are all lines broken at words without splitting a word into two with hyphenation?
2.8. Is non-essential text omitted? (e.g. OCLC#, LCCN, price)
2.9. Is redundant/repeated text avoided?
2.10. If the text contains a number which should have natural splits or predefined breaks, are the splits and breaks included in the display? (e.g. Date displays as 07/21/79 instead of 072179, and call number displays as HF 5415.12 C35 M36 instead of HF541512C35M36)
2.11. If the text contains a number with more than four digits, or an alphanumeric value with more than four characters, is the value displayed in groups of three or four characters, with a blank, hyphen, or slash between each group? (e.g. K349 612 094 instead of K349612094)
2.12. If numeric data values are present (e.g., number of pages, size, etc.), is the unit of measurement displayed either as a label or with the text?
2.13. If a field or sub-field has more than one line of text, are the subsequent lines further indented?
2.14. Is text arranged logically with related fields, such as author and added author entries, and title and series grouped together?
2.15. Are call numbers displayed?
2.16. Is holdings/location information included on the full display?
2.17. Is circulation status information included on the full display?
2.18. If holdings/location and/or circulation status information are displayed:
(a) Is the holdings/location and circulation status information separated from the information above and below (e.g. bibliographic information and options) by a dashed/solid line or a blank line?
(b) Is the holdings/location information displayed in the same area of the page as the circulation status information?
(c) Does the circulation status information of a copy include the call number?
(d) If a copy is on loan, does the circulation status information display the date to be returned?
(e) Is each additional copy of a title displayed on a new line?
(f) Is a blank line left after every fifth copy?
(g) Are all copies listed in a recognizable order?
(h) If the copies in a list are numbered:

(1) Does the numbering start with 1 rather 0?
(2) Is each copy identifier/number positioned to the left of the copy description?
(3) Is each copy identifier/number separated from the copy description by two blank spaces, or a symbol and one space (e.g. a period followed by a space)?
(4) Are the copy identifiers/numbers vertically aligned (and right-justified if two or more digits)?

(i) Is tabular layout used for displaying the information? If no, go to 2.19.
(1) If there is more than one row, is the information in each column of the table left-justified?
(2) Is a minimum of three spaces left between the longest field in one column and the first character position of the adjacent column?

2.19. Are hypertext links provided in the bibliographic record through:
(a) Classification numbers?
(b) Authors?
(c) Titles?
(d) Subjects?
(e) Holdings?
(f) Locations?
(g) Other? *(Please specify in Comments section)*

2.20. Are hypertext links provided from within the bibliographic record to items external to the catalogue?

Section 3: Instructional Information

3.1. In general, are textual instructions displayed in normal mixed case (upper and lower-case)?
3.2. Are textual instructions simple, concise, clear, and free of typographical errors?
3.3. Are unnecessary negative statements avoided in textual instructions? (e.g. should use "Press RETURN to begin a new search" rather than "Do not press RETURN unless beginning a new search")
3.4. Are textual instructions in the active voice?
3.5. Are condescension, accusation, humor, punishment, and chitchat avoided?
3.6. When icons are used:
(a) Is the icon's meaning readily discernible independent of any accompanying text?
(b) Is explanatory text contained within and/or in close proximity to the icon?
3.7. Is online help provided?
3.8. Are abbreviations avoided in instructional information?
3.9. Is instructional information free of jargon?
3.10. Do all sentences end with a period?
3.11. Are options available to the user listed near both the top **and** bottom of the "page"?
3.12. Are options (as a group) clearly separated from the information around them? (e.g. by using blank lines)
3.13. Are the options arranged in a recognizable order? (e.g. sequence of use, function, importance, or alphabetical)

3.14. Are system messages (such as error messages) displayed by using contrasting display features, such as reverse video, bolding, color?

Section 4: Page Layout

4.1. Are labels, text, and instructional information displayed in consistent locations and formats throughout the display?
4.2. Is wording/terminology consistent?
4.3. Is the search strategy displayed near the top of the "page"?
4.4. Is there a dashed/solid/blank line(s) before and after the bibliographic information?
4.5. Are related fields in the bibliographic data grouped together and separated from other data (by, for example, blank lines, white space, etc.)?
4.6. Are dashed/solid lines used to segment the "page"?
4.7. Are highlighting techniques used? (Highlighting techniques include capitalization, bold, size of font, reverse video, and underline.)
4.8. Are there at most three types of highlighting used?
4.9. Is the screen density less than 30%? (i.e. less than 600 characters or 100 words per screen size)
4.10. Does it indicate at the top of the "page":
  (a) The database being searched?
  (b) The system/host being used?
4.11. Is there at least one blank line between the "page" title and the body of the display?
4.12. Is a call number displayed close to the top of the bibliographic display?
4.13. Is the width of the display no more than 40 to 60 characters?
4.14. If abbreviations (other than common abbreviations such as "cm", "p", and ISBN) are used:
  (a) Are all abbreviations significantly shorter than the full words?
  (b) Are all abbreviations either more meaningful than the full words (e.g. IBM, DOS), or, are all abbreviations used for good reasons? (e.g. because of spacing problems, to achieve proper alignment)
  (c) Is only one abbreviation for the same word used in a display?
  (d) Is abbreviating several words in a single phrase avoided? (e.g. cat. no.)
  (e) Are all abbreviations (within a section of the display) created using a consistent abbreviation rule? (e.g. truncation with fixed-length or variable length rules; contraction with fixed-length or variable length rules)
  (f)Do all abbreviations omit punctuation?
4.15. Are no more than four colours used on one display?