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Running head: LANE MEDICAL LIBRARY OPAC

Lane Medical Library OPAC: User-friendly or User-foe?

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Abstract

The Lane Medical Library serves a diverse group of users who want reliable information in a convenient manner. The current OPAC is not user-friendly. Information seekers lack an understanding of how to effectively search library catalogs and are influenced by the simple interface and ease of Web-based/internet searching. Research indicates that library professionals must make changes to improve library catalogs to better meet users’ needs. Using a number of qualitative and quantitative evaluation methods, the Lane Medical Library staff studied the usability of the current catalog from the user’s perspective. The Lane Management Committee will analyze the data and make recommendations for improving the usability of the Lane library catalog.

 Lane Medical Library OPAC: User-friendly or User-foe?

Lane Medical Library serves students, faculty, and staff from Stanford University, the School of Medicine, Stanford Medical Hospitals and Clinics, and the public. The Lane Catalog (LC) is home to the Lane Medical Library collections.  On a daily basis, Lane librarians and staff are asked in person, by phone, e-mail or via instant messaging (IM) whether the library has certain journal publications or monographs. The first question asked by the circulation and reference staff, is if they searched the LC. The library user typically responds perplexed, and the library staff provides the user with an introduction and tutorial on the LC. Currently, library catalogs are facing tough competition compared to that of Google search engines and searchable book databases like Amazon. More often than not, users approach a library OPAC using a "Google" search mentality.  Lane librarians and staff regularly observe OPAC users having difficulty retrieving information from the catalog; some try and do not get relevant results, and all users find it hard to navigate –which may be attributed to their familiarity with simple one window searching techniques often used in popular databases. Users do not know they must perform their search in the catalog using author, title or keyword options. The library’s OPAC should meet both the administrative needs of library staff for the purpose of collection development and preservation, as well as meet library patron’s searching preference needs. Lane’s librarians and staff must identify OPAC user preferences to support their library patrons in successful catalog use.

**The Problem: LC Usability**

The Lane Medical Library implemented Voyager ILS software in 2004, since then, the OPAC has not been customized or upgraded to enough to enhance all of its features/capabilities to better serve its users. The Lane Catalog is not user-friendly. There is a lack of knowledge by users when using the catalog. They do not understand how to view holding records, view account information, recalling items, and requesting items from offsite. The following reflects aspects of the LC where attention is most needed: search result relevancy, catalog record format, the time and amount of steps needed to perform a search, lack of intuitive searching capabilities, and lack of mobile availability to library users.

**LC Issues**

Users do not retrieve relevant searching results. Users attempt to search the LC for book or serial searching, but always seem to get irrelevant search results. Users do not understand how to search in the catalog. Users usually perform keyword searches not understanding that they can use other search identifiers such as title phrase, journal title browse, or advanced searching to improve their search results. Users do not take advantage of using the limit options offered by the LC, which would provide them with a more accurate search.

The catalog record format is not understandable to users. The catalog’s item record display is full of content that users do not understand and cannot sort through. Users do not know where online links are located, where to find the physical location of the item from the record, or how do identify the call number of an item.

Too many steps are involved when searching the LC. There are so many steps involved when using the Lane Catalog that users often get frustrated and discouraged. Many times users will not even attempt to look for an item using the LC because they are not comfortable or successful in their searching ability to get the results they want.

The LC does not allow for intuitive searching. Searching the Lane Catalog is not as intuitive as Amazon or Google.  Users do not have a blank search box to conduct their searching.  They must use a search identifier, such as: author, title, title browse etc., in order to retrieve accurate search results.

The LC does not have mobile availability. The catalog cannot be accessed on mobile devices. There are no mobile downloads for the Lane Catalog. Users are unable to: access library collections outside of the library, place recalls, request off-site materials, or view their library account or “wish list” option.

Using the fishbone diagram (see Figure 1), as an analysis tool, we systematically looked at the effects and causes surrounding the user-friendliness of the LC and the contributing causes to those effects, as described above.

**Scope of the Analysis**

The evaluation of this study aims to address the usability of the LC and its clarity from the perspective of the LC user. The main issues addressed concerning the usability of the LC consist of the following: determining how users use the catalog, patterns of misuse by library users, functionality, and customization enhancements by Ex-Libris. Clarity of the catalog will emphasize how understandable the catalog is to users, and determine if the catalog could become less confusing in nature.

**Does the Answer Already Exist?**

The literature review (see Appendix A), cites multiple studies performed on the subject of library catalog usability. Many of the reviewed articles contained comprehensive research and thorough analysis studies that have brought the library profession valuable insights on how to improve the library catalog to better meet user needs. It was discovered in a protocol analysis study performed on both novice and experienced library catalog users at Pennsylvania State University, that library catalog users are heavily influenced by trends in Web searching and lacked a fundamental understanding of how to search the library’s catalog (Novotny, 2004).

Another study revealing similar findings, found that a correlation did not exist among computer literate students at Washington State University with their proficiency to navigate the campus libraries’ catalog (Chisman et al., 1999). Both studies revealed that catalog users did not have a clear understanding of their college’s OPAC capabilities, the use of cross-references and multiple call number schemes in the library. A number of conclusions were drawn from a panel debate among leaders within the LIS profession discussing user search preferences, most significantly, that users have different needs (Kenney, 2004). Whereas the average user of a library catalog seeks only ease and convenience, a scholar or researcher’s demands are more specific, requiring timely information with a high level of accuracy (Kenney, 2004).

A report posted in 2005 indicated that 89% of students begin to research a topic using a search engine on the internet with only 2% of the polled student population, stating they begin with the library catalog (Wisniewski, 2009). This trend is largely attributed to the convenience of online searching and the number of results retrieved by online searching methods –regardless of their quality. In addition to convenience and positive search results, students also expressed an interest in wanting a more dynamic interaction with the library catalog (Harris, 2008).

User needs and behaviors share similarities and differences. A study aiming to identify strengths and weaknesses in the system design of six medical digital libraries for the purpose of improving the libraries’ catalogs for student and faculty use, determined that multiple access points to the collection were necessary in order to accommodate the differences in user needs and behaviors of library patrons (Ismond et al., 2007). It is repeatedly argued within the literature that OPACs should be made with user needs as a primary focus (Mi & Weng, 2008). Gathering user input throughout the many phases of the catalog’s development will result in a more usable interface (Zuehlke et al., 2008).

The development of new software requires funding –a scarce resource, in addition to timely, and considerate coordination of all members involved. One OPAC interface study identified the need for libraries to take full advantage of the many capabilities that integrated library systems (ILS) offer (Mi & Weng, 2008). In an attempt to compete with search engines like Google and Amazon, Tasmania’s state libraries are developing new OPACs to provide their users with browse-able interfaces and to improve cataloging techniques to enhance search functions and increase accurate information retrieval by users (Sokvitne, 2006). In an attempt to improve online catalog capabilities for Western North Carolina Library Network users, a study was conducted on the inclusion of the Library of Congress (LC) classification system and how it would improve user’s searching capabilities (Bland, 2008). The incorporation of the LC into the online catalog did not intend to replace keyword searching, but did note an increase in subject access that is not possible through standard alphabetical subject headings and keyword searching alone (Bland, 2008).

Separate in scope, albeit important to the study of the Lane medical Library OPAC’s user-friendliness was the development of a systematic method used to evaluate the performance of library catalog or technical services department Web site. The study served to validate the researcher’s proposed model that confirms the use of the performance index (PI) as an objective measure to assess the usability or workability of a catalog department website (Mundle et al., 2006). Used in combination with the developed study tool, the developed model allows for library Web site comparison based on the PI of a Web page with the average PI of 1.5 to ascertain the performance of an individual Web site (Mundle, et al., 2006). Although this study did not provide an answer to any of the specific questions asked about the LC, the study did demonstrate the use of a quantitative tool that may be initially used to determine whether a library’s OPAC is in need of improvement.

**Recommended Analysis**

Users of the Lane Medical Library are quite diverse, and different patron subgroups have very different desires and needs. Both qualitative and quantitative evaluation methods will be needed to analyze the usability of the Lane Medical Library catalog to support the diversity of users the library serves. These evaluation methods will create the data needed by the Lane Knowledge Management Committee to make informed decisions on how to improve and customize the LC.

**Focus Groups**

Focus groups are a qualitative evaluation method designed to elicit the beliefs, attitudes, and experiences of the participants. All of the different subgroup users of the Lane Medical Library will participate in focus groups in order to ascertain information related to their use of the library catalog. Focus groups are an excellent way of facilitating thought-provoking collaboration among the participants. Focus groups are a practical and economic tool that will be used to stimulate users and generate creative thoughts and excitement about user contribution’s positively affecting the future of the LC. The tool provides an opportunity for Lane librarians and staff to interact with patrons, for the purpose of gathering needed input while also promoting library planning efforts and future goals.

  Focus Groups consisting of School of Medicine students, Stanford/LPCH Hospital faculty and staff, and Lane staff will discuss how they use the catalog, what they would like to see improved and what they would like to see added to the Lane Catalog interface. Due to the diversity of the groups, the results will provide instrumental data needed to influence the library’s knowledge management committee in their analysis and evaluation of the LC. Participants will be designated by the Lane library knowledge management committee and the Lane Library Director.  They will be chosen based on the following criteria: affiliation, their library use frequency, types of library resources used, and what level or type of research they participate in.

**Survey**

Surveys are a quantitative evaluation tool that will help the Lane Library Knowledge Management Committee establish a profile of their LC users as well as provide pertinent data that may be used for the purpose of making improvements to the library’s OPAC. The Lane Library Knowledge Management Committee will be creating, implementing and distributing surveys to Lane Users. Survey Monkey will be used for convenience purposes for online library users who will be able to access the survey on the Lane Website. A hard copy version of the survey will be provided to library patrons at the service desk of the Lane library as well. The survey will ask users to identify the following information: their knowledge of the LC, when and how they use the catalog, how comfortable they are using the LC, issues or concerns they have had with the catalog, their satisfaction with their search results using the LC, and what improvements, if any, they would like to see made to the catalog.

**Desk Diary**

A desk diary is a qualitative evaluation tool that serves as a very insightful repository of information. What information and how often the information is to be recorded are two important components that need addressing before beginning the diary keeping process for ease of assessment purposes. A collaborative desk diary with entries made by Lane library staff would serve as invaluable tool used for collecting data on patron/staff transactions that would otherwise go unrecorded. A desk diary will be conducted at the Lane Service Desk for three months, January through March.  All questions and answers given and received will be entered into a template excel desk diary.  Staff will fill in the date, their initials, what the question was, their answer or referral, and the amount of time it took for them to answer the user’s question. Components of the desk diary include: a formatted excel spreadsheet, circulation and reference staff updates, and regular monitoring by the Lane Knowledge Management Committee for the three month duration period.

**AskLane E-Mail Review**

AskLane E-mail Review is a general contact address for users on the Lane Website. This form of feedback is qualitative in nature and will need to be evaluated as objectively as possible. All E-mails received during the last year concerning the Lane Catalog will be reviewed and analyzed by the Lane Access Service Director for OPAC improvement feedback.

**Group Observations**

Observations are another qualitative tool used for the purpose of learning about the activities of a library customer. Although the evaluation tool is rarely used in evaluation studies, this method offers many insightful benefits that other tools do not. Lane Librarians will conduct a series of workshops instructing users in finding a series of citations. They will monitor how the users go about finding the answers. Observing how users interact with the catalog and what issues occur during the process, as well as the information seeking behaviors to include process steps and work-flow speed, will inform the Lane Knowledge Management Committee on what should be adjusted and customized in the catalog to meet user needs. Observations will be conducted based on the following criteria: Lane Knowledge Management Committee will select members and divide them into groups, group members will meet in the Lane Conference room, and a librarian will be designated to observe participants.

**Data Collection**

The data collected from the various evaluations will be analyzed by the Lane Knowledge Management Committee. Recommendations by the Committee will be given to the Lane Library director for review and consideration on further actions related to the catalog and its use. Data will not be collected on unrelated topics, such as the website, collection, or other Lane Library services. The study seeks only information related to the usability of the Lane Medical Library OPAC.

**Conclusion**

Research shows that popular search engines, such as Google and Amazon, are influencing the expectations of users looking for information. Users want to experience the same simple interface and ease of use when searching the library catalog. Lane’s diverse community of library users involves meeting a variety of user needs. In order to determine users’ current experience with the Lane Medical Library catalog for the purpose of making LC improvements to better meet Lane user needs, a number of qualitative and quantitative evaluation methods were used to analyze the usability of the catalog. Lane librarians have a responsibility to design, customize, and catalog their ILS to meet the interest needs of Lane’s user population.  Upon identifying user needs, implementing the improvement plan, and making the necessary changes to the LC, the Lane Management Committee will have succeeded in their ability to assess and recommend a solution to improve the user-friendliness of the Lane Medical Library OPAC to the IT team.

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Novotny, E. (2004). I Don’t Think I Click: A Protocol Analysis Study of Use of a Library Online Catalog in the Internet Age. *College & Research Libraries*, 65(6), 525-537.

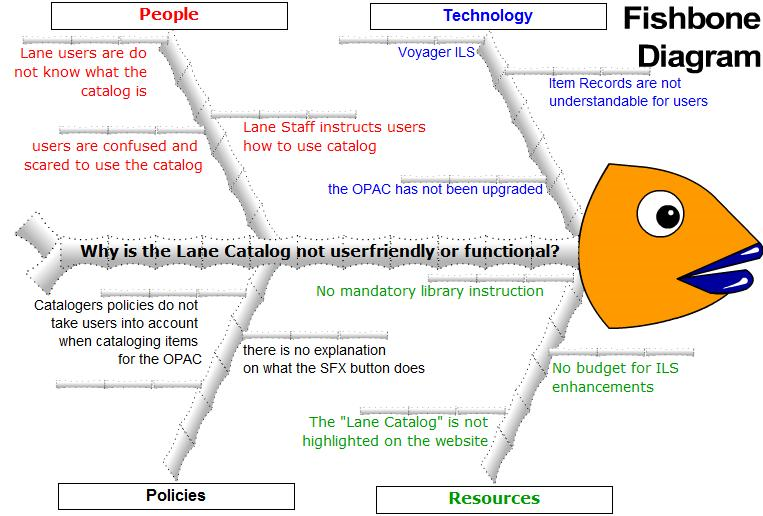
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**Figure 1: Lane Medical Library Fishbone Diagram**



**Appendix A: Literature Review**

Bland, R. N., et al. (2008). Returning Classification to the Catalog. *Information Technology and Libraries*, 27(3), 55-60.

The objective of the Western North Carolina Library Network (WNCLN) was to enhance online catalog capabilities for its library users. The libraries asked themselves how the adoption of the Library of Congress (LC) classification system into their online catalog might improve user’s searching capabilities. The article did not include a study, but identified how the classification system worked and how users would benefit from its services. The incorporation of the LC into the online catalog was not intended to replace keyword searching, but provides enhanced subject access that is not possible through standard alphabetical subject headings and keyword searching alone.

Chisman, J. K., et al. (1999). Usability Testing: A Case Study [at Washington State University]. *College & Research Libraries*, 60(6), 552-569.

A library task force conducted a case study on usability testing after learning that Washington State University (WSU) Libraries’ online public access catalog (OPAC), Article Indexes, Full Text, More, and Other Library Catalogs sections revealed problem areas that they needed to produce solutions for. The purpose of the study was to see how easily users could navigate the Web-based Griffin catalog and whether they understood what they were seeing. The sample population included eight participants: 4 novice and 4 expert computer/library users. The results of the study revealed that the WSU team's categories of novice and expert computer/library user did not correlate to a participant's ability to use the WebPac. Other findings included: users of the WebPac do not understand serials, did not always understand how to search for items on a specific WSU campus, do not understand cross-references, and do not understand the use of multiple call number schemes in the library.

Harris, C. (2008, January). Fishing for Information. School Library Journal, p. 24. Retrieved from Academic Search Premier database.

The article addresses the problem that OPAC's are about "delivering MARC records to users who aren't looking for MARC records". The issue is catalogs should be built to meet the needs of the users. What should define library catalogs for the next generation? Harris ask his school library system to integrate the traditional library catalog with Fish4Info, a portal in a simple format that highlights book summaries, cover images and other content to promote reading. A pilot program in 2006, partnered a middle school with a special education training center to test the "complete online library experience". The results discovered that students want to have a more dynamic interaction with the library catalog. Findings also showed when the catalog becomes a destination for information, not just a tool for finding resources, it can have a positive impact on student achievement.

Ismond, K. P., & Shiri, A. (2007). The medical digital library landscape. Online Information Review, 31(6), 744-758. Retrieved June 18, 2010, from ABI/INFORM Global. (Document ID: 1388090731).

The volume of scholarly information is growing at such an alarming rate that there is increasing concern about how best to effectively and efficiently access it. The purpose of the study was to identify the strengths and weaknesses in the system design of six medical digital libraries, in order to establish some basic data for use in improving the organization of and access to scholarly information by health-care professionals. Thirty-five original studies from 1994 to 2004 involving medical doctors, showed the main obstacles to retrieving desired information were: lack of time, costs, too much to sort through, unreliable information that could create liability issues and lack of searching skills. The medical library needs "to provide quick access to free, pre-evaluated, relevant information of high quality in an easy-to-use online environment". Results showed a medical library should provide multiple access points to the collection in order to accommodate the differences in user needs and behaviors. Medical professional preferred a basic search function, "like the blank box" in a Google search interface, with an additional more advanced search feature and browsability. In terms of usability, users wanted a "persistent" homepage with menu, links, help information and the ability to save searched records as well as the function to export selected records to a "citation management software program". Only a few of the medical digital libraries fulfilled the criteria.

Kenney, B. (2004). GOOGLIZERS vs. RESISTORS. Library Journal, 129(20), 44-46. Retrieved from Academic Search Premier database.

  The article is excerpts from a panel discussion by library leaders at a conference debating the use of search engines, like Google, compared to finding information in a library. Search engines, such as Google and Yahoo are known for their "simple interface", easy use and popularity.  Costly library databases deliver more precise and higher quality results, however, users find accessing library catalog content too complex and require too much effort to learn how they work. Google's search box and relevancy ranking are changing the design for accessing library catalog information. Some library leaders are concerned that although research of a topic on Google can provide millions of results in seconds, most of the outcomes do not match the request. A subject search of the same topic using the controlled vocabulary of a library database found 107 results matching the request. The debate noted users have different needs. Scholars and researchers need specific results within a designated time, compared to the average user who wants ease and convenience.

Mi, J., & Weng, C. (2008). Revitalizing the Library OPAC: Interface, Searching, and Display Challenges. *Information Technology and Libraries*, 27(1), 5-22.

  Mi and Weng’s study of the library OPAC set out to determine why current library OPACs are ineffective and how they may be improved to better serve library users. The two aspects of OPAC use that were studied was the current OPAC interface and its searching capabilities, and the OPAC bibliographic display. The first aspect studied focused on searching ability, relevance ranking, layout, and linking functionalities. The interfaces of 123 Association of Research Libraries (ARL) libraries’ OPACs powered by five major integrated library systems (ILS); Aleph, Horizon, Millennium, Unicorn, and Voyager were examined. The study on the OPAC bibliographic display examined the OPACs of 15 academic libraries and focused on the effectiveness of the display of records in different formats with an emphasis geared towards a user’s perspective and needs. The bibliographic study concluded that MARC standards are unsuitable to online bibliographic displays. The OPAC interface study’s findings identified the need for libraries to take full advantage of the many capabilities that ILSs offer; public services, technical services, and systems librarians should work together to make OPAC improvements; all current OPACs lack spell-check and automatic stemming functionality; improvements of OPACs should be made with user needs as the primary focus (Mi & Weng, 2008).

Mundle, K., et al. (2006). ARL Library Catalog Department Web Sites: An Evaluative Study. *Library Resources & Technical Services*, 50(3), 173-185.

An accepted and systematic method used to evaluate the performance of library catalog or technical services department Web sites does not exist. A pilot study was first conducted by the researchers of this study to propose an assessment model. The aim of this study however, was to validate the proposed model that confirms the use of the performance index (PI) as an objective measure to assess the usability or workability of a catalog department website. A questionnaire consisting of 32 questions, mostly “Y/N” with 5 nominal answer questions was used by 3 investigators who independently rated 87 Web sites over a month’s duration; examined the Web sites on the same day. Specifically, the questionnaire’s study parameters included: accessibility, design and structure, internal documentation, and external resources. The study concluded that the use of the PI, which is the mean of scores of all study parameters, may be used as an objective measure of usability and workability of a Web site. Used in combination with the developed study tool , the developed  model allows for library Web site comparison based on the PI of a Web page with the average PI of 1.5 to ascertain the performance of an individual Web site.

 Novotny, E. (2004). I Don’t Think I Click: A Protocol Analysis Study of Use of a Library Online Catalog in the Internet Age. *College & Research Libraries*, 65(6), 525-537.

A protocol analysis study was performed on Pennsylvania State library users to evaluate the newly adopted commercial library catalog on its usability from the perspective of library users. The goals of the analysis were to address the following issues: expectations or assumptions of users; identify the aspects of the library catalog that users found confusing, surprising, or frustrating; the performance differences between novice and experienced library catalog users. The study was performed using three assessment groups. The first group surveyed users of the catalog to determine satisfaction with the system. The second group consisted of focus groups. The third group observed how users searched the catalog. Eighteen novice users (newly admitted students with no prior experience using the library’s online catalog), and nine experienced users (upper level undergraduates and faculty that had used the catalog more than ten times) were the sample population from Penn State. Two important trends were revealed from the study: library catalog users are heavily influenced by trends in Web searching, and that library catalog users (both novice and experienced), lacked an accurate understanding of the capabilities of the library’s online catalog.

Sokvitne, L. (2006). Redesigning the OPAC: Moving Outside the ILMS. Australian Academic & Research Libraries, 37(4), 246-259. Retrieved from Academic Search Premier database.

            The article discusses the State of Tasmania's process in developing a new OPAC that would better meet the needs of the users. The state libraries were feeling the pinch of strong online competitors, such as search engines like Google and Amazon. Library OPAC's have fallen behind on the relevance ranking outcomes delivered on the web. The focus of the process was how to provide a user oriented, browsable interface, and how to change cataloging to better deliver required data as well as search functionality. The State Library decided to try new software that would be easier to use and produce better outcomes for the users. An internal evaluation of user search behavior confirmed that browsing was the preferred technique of web users. The analysis of user behavior revealed that OPAC's must be redesigned to enable user to browse a collection easily and effectively, and provide more contextual information in order for users to make selections. The State Library decided the new OPAC software needed to offer simple choices right from the homepage that would produce a set of results, which could then be refined further.

Wisniewski, J. (2009). Next-Gen OPACs: No Time Like the Present. Online, 33(5), 54-57. Retrieved from Academic Search Premier database.

            In a report by OCLC on the "Perception of Libraries and Information Resources" from 2005, the research showed that when students start to research a topic 89% go straight to a search engine and only 2% think to use the library catalog. Follow-up surveys have shown that library catalog use has gone down even further. Students find library catalogs too hard to use compared to the ease of using search engines like Amazon. The fact that libraries offer quality information is not enough to keep them from losing out to the ease and convenience of search engines that users expect. The next generation catalogs will offer "content integration, social features, and data visualization". Content integrated catalogs will bring multiple sources in multiple formats together in a single interface, such as links to Google Books, Amazon and LibraryThing user tags. Social features will include user created content like tagging, reviewing, rating, sharable lists, and RSS feeds. Visual enhanced catalogs will offer less text and more icons as well as other visual displays. Usability means a catalog that is convenient and easy to use for the average information seeker.

Womack, K. (2006). Conformity for Conformity's Sake? The Choice of a Classification System and a Subject Heading System in Academic Health Sciences Libraries. Cataloging & Classification Quarterly, 42(1), 93-115. doi:10.1300/J104v42n01\_07.

The article reviews classification and subject heading catalog systems used in academic health sciences libraries and why the systems were chosen. The study also investigates if there is any interest in conforming the corresponding systems used in the general libraries of the same academic institutions with the health science libraries through use of a shared OPAC. Seventy-three health science libraries in North American who are ARL (Association of Research Libraries) members received invitations to take a brief online exploratory survey sent by e-mail. The results indicate that of the health science librarian participants surveyed 75% use NLM (National Library of Medicine) method of classification and 95% use MeSH (Medical Subject Headings). The reason given for using NLM is it is thought to be the "most appropriate" for medical collections. The general libraries at the same academic institutions "overwhelming" use the Library of Congress system. Although no problems were reported from those medical and general libraries that share more than one classification or subject heading system in one OPAC;  the respondents expressed fear about more complicated organizational issues, while acknowledging that sharing would alleviate costs and give users access to more resources. Further research should be conducted with the patron user groups of medical libraries to ensure the OPAC's classification systems and controlled vocabulary inventories are accessible, user-friendly and intuitive.

Zuehlke, D. & Thiels, N. (2008). Useware engineering: a methodology for the development of user-friendly interfaces. Library Hi Tech, 26(1), 126-140.  Retrieved June 18, 2010, from ABI/INFORM Global. (Document ID: 1462850321).

Shorter product development cycles provide little time or money to enhance the usability of software, leaving users on their own to cope with a problematic interface. A structured engineering process is introduced to improve user orientation, leading to higher acceptance and a more practical interface. The process includes extensive use of target group users at the analysis, structure and design phases of the software development, rather than waiting until the end. Including library users and librarians from several different sectors, including medicine, throughout the process increases transferability from one phase to the next, and improves the possibilities of planning for a more user friendly online catalog. The user's subjective perception of the programs usability is increasingly the primary factor when decision makers are differentiating one software product from another to purchase. The definition of user friendly is intuitive operations and task oriented structure. The combination of an interdisciplinary team of software developers with the integration of future user input throughout all phases of product development did result in a more usable interface.