HYPOTHESIS
THE NEWSLETTER OF THE RESEARCH SECTION OF MLA

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HYPOTHESIS.
The Newsletter of the Research Section of MLA
VOLUME 14, Number 3 Fall 2000

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Don't forget to return the enclosed ballot for Research Section Officers

Research Spotlight

Editor's Note: *Frances Chen, Judy Rieke and Paul Wrynn won the Research Section's Best Research Paper Award at MLA 2000 for their presentation "Are Dragons Really Free? A Comparative Study of the Costs of Online Journal Access." The following is an interview with the authors on the background, research design, methodology and preliminary conclusions of their project. Also included is an updated abstract of their paper which has been submitted to the Bulletin of the Medical Library Association for publication.*

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Is Free Online Really Free?

A Comparative Study of the Cost of Online Journal Access

An Interview with the Authors: Frances L. Chen, Head, Collection Development, Arizona Health Sciences Library, The University of Arizona-Tucson; Judith L. Rieke, Assistant Director, Harley French Library, University of North Dakota-Grand Forks; and Paul Wrynn, Head, Collection Development, Ehrman Medical Library, New York University Medical Center-New York

Can you give us some background on how you got interested in the subject of your study, and how such a geographically diverse group got together?

Authors: As collection developers, we all received letters from publishers announcing free access to journals to which we held print subscriptions. In the course of setting up online access for these "free with print" titles and reviewing their price increases during the past few years, Frances found that some free online titles actually carried a higher percentage price increase for the print subscriptions than those that did not offer free online access. How free were these "free with print" titles? She took the question to Judy and proposed a joint study. Meanwhile Judy and Paul had actually talked about this very question! Thus, we three agreed to do a joint project. We were skeptical and curious, as we collaborated to find some answers to our question as well as prove our hypothesis that free online access is not free.

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How did you decide on the research design for the project?

Authors: For the research design, we discussed the criteria for selecting the sample population, what kind of data to collect and what kind of statistical measurement to use to analyze the data. We also thought about the contributions that our study might make to the collection development community. We chose to limit our sample population to 300 core journals; each of us took 100 titles to which we have print subscriptions. To be consistent we used one vendor's price list as the source of the price data, and set the study period from January 1995 – January 2000. The journals were grouped into four categories: Print only, Electronic priced separately, Combination of print with "free online" options, and aggregated pricing. The median and mean percentage print price increases were calculated and plotted for each type of access.

Frances L. Chen

Judith L. Rieke

Paul Wrynn

How did you actually carry out the research? What was your methodology?

Authors: As for the mechanics of carrying out our research, Noella Mukoka, a student assistant at the Arizona Health Sciences Library took charge of the task of data input, and the three authors sent lists and exchanged comments via email. There were also several hour-long conference calls for us to discuss complex problems, clear discrepancies, and tie up loose ends. Zoë Stavri, Professor at the University of Arizona School of Information Research and Information Science, generously reviewed our research design at the beginning of the study and offered invaluable advice and encouragement.

What conclusions did you draw from this study?

Authors: Our statistics reveal what actually went on for different types of access purchased in each year in the study, and patterns did emerge overall as we stood back and took a 5-year picture. However, the change in aggregated increases (to be actually below the increases for print only) indicate a likelihood that it could be years before any definitive conclusions can be made. It is altogether possible that there may never be any definitive statements about e-journal pricing that libraries can rely on when trying to do future planning. Flux may become the norm here.

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ABSTRACT

Objective: This comparative study examined subscription increases for journals offering a variety of online access including "free online" with a print subscription. **Methods:** Three hundred core journals were selected from the titles held at three health science libraries. Thirty percent of those studied are Brandon-Hill titles in medical, nursing, and allied health. Using a longitudinal quantitative analysis of print subscription price increases over five years, the authors examined journals offering a variety of access options. These included print only, electronic access priced separately, combination of "free online" with print subscription, and aggregated where electronic access is purchased as part of a collection. **Results:** The percentage of journal price increases over five years showed that libraries paid higher prices for "free with print" journals from 1996-1999. In 2000, subscription prices reflected the movement of several higher priced titles into the aggregator option. The rate of price increases for titles with electronic access through aggregated collections has consistently gone down for the past five years. The print prices showed on the average the lowest rates of increase. Electronic priced separately averaged 3-5% higher than print only titles. **Conclusions:** The authors' findings reveal that the trends of print price increases are related to the type of online access. Aggregated collections may help control increases for print prices. There is no prior objective research in this area, because e-journal pricing is still evolving.

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http://gain.mercer.edu/mla/research/hypothesis.html

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Letters from the Editors …

Time flies when you're having fun, and this marks my 4th year as editor of *Hypothesis.* Seems like a good time to let someone else have some fun! For those who have not heard by now, I am delighted to report that Andrea Ball has volunteered to serve as the next editor. To make a smooth transition, Andrea and I are co-editing this Fall issue and the next issue (Spring). Andrea will assume full responsibility at the May 2001 MLA meeting in Orlando. To help Andrea and me during the transition period, please send your submissions to both of us at the e-mail addresses shown. Until further notice, the full-text version of the newsletter in PDF format will continue to be hosted on Mercer University School of Medicine's server at *http://gain.mercer.edu/mla/research/hypothesis.html*.

Hypothesis has changed a lot. The content has migrated from strictly a membership newsletter to a vehicle for publishing original research manuscripts, reporting on projects in progress, building members' expertise in research methodology, and alerting readers to research in other publications and in other countries. It has also undergone a lot of format changes: we redesigned the nameplate, began numbering the issues, acquired an ISSN number, appointed an editorial board, began publishing an electronic version, and received approval for indexing by *CINAHL.*

I would be remiss if I did not thank all the contributors to *Hypothesis*, especially Ruth Fenske and Jon Eldredge, for their ongoing columns, wonderful advice, unquestioning support, and innovative ideas. Thanks everyone and "keep those cards and letters coming, Folks."

Jan LaBeause
(labeause_j@mercer.edu)

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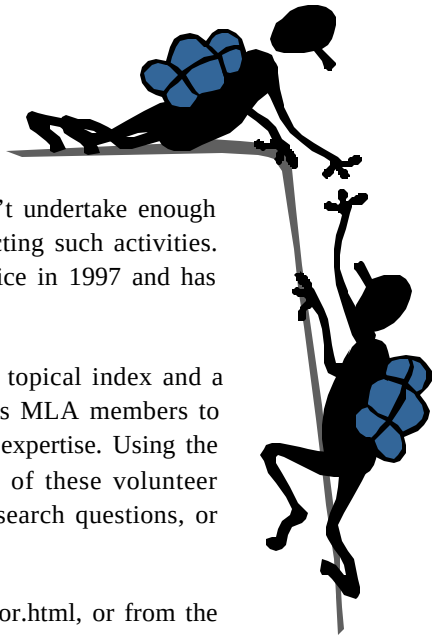
Happy New Year everyone! Fortune must have been smiling on me when I asked, "How can I increase my professional activities AND flex my creative muscle?" Enter Jan and the need for a new *Hypothesis* editor. Needless to say, I am delighted to have this opportunity to work on my professional goals and am honored to carry on the fabulous job done by Jan for the past four years.

I look forward to working with all of you on this project and encourage your comments, input and participation. Goal 3 for our Section is to have "at least 70% of the content of *Hypothesis* ... consist of either research reports or articles devoted to research methods or resources." I will be counting on you all to help us reach this goal and promise to "prod" as gently as possible.

Andrea Ball
(alball@facstaff.wisc.edu)

Need Help?
Research Mentoring Service Updated

Submitted by Nancy Roderer



While librarians are often experts on a number of topics, most of us don't undertake enough evaluation or research to be completely comfortable planning and conducting such activities. Recognizing this, the MLA Research Section developed a mentoring service in 1997 and has recently updated it.

The mentoring service provides direct access to research expertise via a topical index and a directory of mentors. In its updated online version, the service now links MLA members to information about 17 Research Section members with significant research expertise. Using the Research Mentors Index at the Web site, you can contact one or more of these volunteer mentors to discuss ideas for new research, approaches to formulating research questions, or the technicalities of various research methods.

The revised Mentors site is now live at http://hubnet.buffalo.edu/mla/mentor.html, or from the Research Section page of MLANet. The site was authored by Gary Byrd, Ph.D. and the Mentoring Task Force (Dixie Jones, Elizabeth Connor, Nancy Roderer, Ellen Nagle) in cooperation with the mentors.

MLA 2001 Research Section Program

Submitted by Leslie Behm

Mark your calendars now for the following Research Section events at MLA 2001 in Orlando:

- **Research Section Business Meeting**

  Sunday, 5/27/01 7:30am - 9:00 am

- **The Research Process : Skills Needed**

  Invited speakers will discuss the various aspects of the research process - proposal idea, collecting data, analyzing, and reporting on the results.

  Sunday, 5/27/01 4:00pm - 5:30pm

- **From Idea to a Research Plan: How to Get Started**

  Co-sponsored Session with Consumer and Patient Health Information & History of Health Sciences Sections

  Contributed papers on how people have accomplished research : getting started, collecting data, analyzing, and reporting the results.

  Wednesday, 5/30/01 9:00am - 10:30 am

Food for thought . . .

Not everything that can be counted counts, and not everything that counts can be counted.

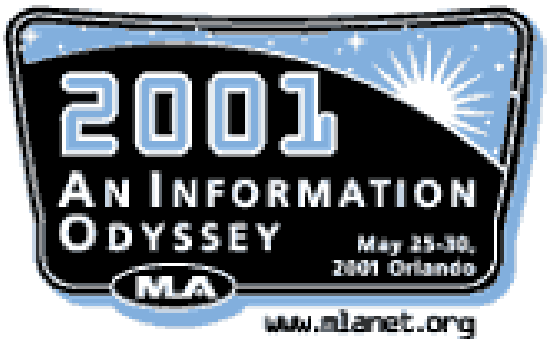
…Albert Einstein (1879-1955), Swiss-German-US physicist

He uses statistics as a drunken man uses lampposts – for support rather than for illumination.

… Andrew Lang (1844-1912), Scottish poet, folklorist, biographer, translator, novelist, and scholar.

Statistics are mendacious truths.

… Lionel Strachey (1864-1927), British writer, translator, and humorist.



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MLA 2001 Research CEs

MLA's continuing education courses are organized in tracks that correspond to the seven Essential Areas of Knowledge for health sciences information professionals. One of these areas is 700s: Research, Analysis, and Interpretation. The following courses in this area will be offered in Orlando:

- Qualitative Research Methods for Health Sciences Librarians: An Overview
- Conducting Needs Assessment: A Practical Approach
- Evaluating Student MEDLINE Searches: How Well Do They Search
- Panning for More Gold: Advanced Topics
- Introduction to Health Informatics

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Awards Committee Seeks Volunteers

Submitted by Bob Wood, Ph.D.

If you will be going to the 2001 MLA Annual Meeting in Orlando, the Research Section Awards Committee can use your wisdom and judgment. We need volunteers to help pick out the best posters and contributed papers for professional recognition and awards. If interested, please contact Bob Wood, Ph.D., Chair of the Awards Committee, at rwood@lsuhsc.edu or 318-675-5679.

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Chapter Research Committees Column

Southern Chapter (SC/MLA) Research Grant

Submitted by Martha Earl

For their project, "**Implications of Web-based Loansome Doc for librarians and end-users: preliminary research findings",** Shelley Paden, Andrea Batson, and Rick Wallace received the Southern Chapter Research Award of $1000 for 1999. Shelley Paden is Interlibrary Loan and Serials Librarian, University of Tennessee Medical Center, Preston Medical Library, Knoxville, TN; Andrea Batson is Science Librarian, Tennessee Technological University, Cookeville, TN; Rick Wallace is Outreach Librarian, East Tennessee State University, College of Medicine Library, Johnson City, TN. They presented preliminary findings at the 1999 Annual Meeting of SC/MLA, in Greenville, South Carolina. This project grew out of an initial statewide survey that the researchers first administered when Loansome Doc became available. An outline of their research follows.

The Problem: The National Library of Medicine' s free Internet-based MEDLINE systems, PubMed and Grateful Med on the Web, expanded access for Loansome Doc end-users. A preliminary survey of librarians in the Tennessee Health Sciences Libraries Association revealed an increase in training opportunities for end-users to learn those search systems, and an interest in Loansome Doc. The authors wanted to examine the effects of Loansome Doc on libraries and end-users. They planned to investigate how Loansome Doc services were being implemented and utilized by libraries and registered end-users in the southeastern region. They would also explore the effect of Loansome Doc services on the end-users, and their satisfaction with the service.

Methodology: This was a quantitative study of two sample groups using survey research methods. The first sample group encompassed the Loansome Doc libraries. The second sample group included Loansome Doc end-users. Investigators prepared separate questionnaires for libraries and for end-users. The libraries survey focused on the current status of Loansome Doc activities at each institution (including marketing, training, fee structures, type of Loansome Doc users), statistical data (including number of users and number of requests) and subjective assessments of problems with and usefulness of Loansome Doc. The Loansome Doc end-users questionnaire focused on how they found out about Loansome Doc, if they received training, the number of requests they made, the problems they encountered, and the reasons why they used the service.

Researchers surveyed all 251 active DOCLINE libraries in the six continental states of SC/MLA: Tennessee, Georgia, Florida, Alabama, Mississippi, and South Carolina. The survey was both mailed and posted on the SC/MLA website. 171 responses constituted an overall response rate of 68%.

For Loansome Doc End-Users, researchers gathered a sample of end-users from registered users of Loansome Doc in Florida and Tennessee, since these two states had the highest number of Loansome Doc users in the Southern Chapter region. Twenty-three libraries gave permission to survey 512 of their users. At the time of their presentation, 292 users had responded for a return rate of 57%.

Results: Roughly one half of the respondents offered Loansome Doc services to their patrons. Of the libraries who did not, most indicated they would not offer it in the future either; more research is needed to find out why. Most libraries increased users awareness of Loansome Doc through informal contact and rarely encountered problems or the need to revoke users' privileges. The majority of libraries had a small number of end-users and minor increases in interlibrary loan activity. Libraries using Loansome Doc reported high satisfaction with the Loansome Doc system.

Loansome Doc end-users, usually physicians or other health care professionals, generally requested articles for research and patient care. Most end-users learned about Loansome Doc through PubMed or Internet Grateful Med, rather than from librarians. End-users appeared to be self-taught or received informal instruction from librarians on PubMed/IGM and Loansome Doc. Loansome Doc filled document requests in a timely manner; end-users reported satisfaction with the service.

Conclusion: Satisfaction levels with Loansome Doc services were very high among both libraries and their end-users. Loansome Doc libraries were generally not overburdened with requests. Librarians appreciated the convenience of the service. Unfortunately, a large number of libraries did not have the service and were not interested in offering it in the future. Greater promotion of what Loansome Doc is and how it can benefit libraries could potentially increase the number of participating libraries. Librarians could be more proactive in their institutions by publicizing Loansome Doc on their web page, and developing brochures and training sessions. While satisfaction of end-users was high, their satisfaction levels could increase with more training.

After presenting the preliminary results, investigators received more surveys and updated findings in the final research report. The paper was submitted to the *Bulletin of the Medical Library Association* and is currently undergoing peer review.

The Southern Chapter of the Medical Library Association Research Committee offers their Research Award annually, but does not always select a winner. This is only the second award that has been granted. The results of the first, "Using scientific evidence to improve hospital library services: Southern Chapter/Medical Library Association journal usage study", by Cheryl Dee, Jocelyn Rankin, and Carol Burns, were published in the Bulletin of the Medical Library Association, 1998 Jul;86(3):301-6. The authors won the MLA Ida and George Eliot Prize in 2000, the Majors/MLA Chapter Project of the Year Award in 1998, and the Research Section's Best Paper Award in 1996. The project was featured in the Research Spotlight of Hypothesis Spring 1997. vol. 11, no. 1, pp. 6-7.

Research Section News

What One Question Would You Say Is Most Important?

The Evidence-Based Librarianship Implementation Committee (EBLIC) has begun the first phase of its charge, which involves asking a simple question: "What are the most important research questions facing the profession at the start of the year 2001?"

Jon Eldredge

Specifically, the EBLIC has made the following request to different library groups, organizations, and listservs:

> **Identify the most relevant and answerable research questions facing the practice of health sciences librarianship.**

How would you respond?

Of all the questions you might ask, what would you identify as your one question?

Would you base your question on your everyday responsibilities? Would you focus your question on the adaptation of a new technology to the workplace of the future? Maybe your question would center upon your own sphere of responsibility?

Could you categorize your question into the functional areas of librarianship: reference, collection development, web development, administration, technical services, mediated online searching, outreach, or library instruction? Or, would you categorize your question by the type or size of the library where you work? Or, would you focus upon the types of populations your library serves?

How might you answer your question? Would you focus on a question that requires a more exotic research design such as an ethnographic study or randomized controlled trial to answer?

No doubt that you would soon find that you were developing multi-part questions, or even several discrete questions, while attempting to formulate your most important question. How might you arrive at suitable criteria for prioritizing your growing list of research questions, most of them enticing?

The EBLIC welcomes your suggested research questions. We will be publishing the list of questions that the EBLIC has received and has further refined (after some discussion) in the next issue of *Hypothesis*. We will credit you for any questions that you formulate for the EBLIC that we eventually publish.

If you're having trouble formulating or refining your question(s), you might want to read an article of mine in the Winter 2000 issue (volume 22, number 22, pages 74-77) of *Bibliotheca Medica Canadiana; BMC* entitled "Evidence-Based Librarianship: Formulating EBL Questions."

To suggest your question or list of questions to the EBLIC, simply email them <jeldredge@salud.unm.edu> or fax them to me at 505/272-5350 ("attention Jon Eldredge").

Research Section Executive Committee Goes Virtual

The Research Section Executive Committee consists of elected officers, committee chairs and certain liaisons to other groups. The Executive Committee has traditionally met only once a year during the MLA Annual Meeting. In the past, we also sometimes met once or twice a year via conference phone calls among members.

During November 7-9, 2000, the Executive Committee held its first virtual business meeting via a listserv residing at the Health Sciences Center Library at The University of New Mexico. The meeting process was a little awkward, but we did manage to review committee reports and to have sustained "discussions" about some issues. Some outcomes:

- The **AHIP Research Points Task Force** (Ann Weller, Chair; Carole Gilbert, Carolyn Lipscomb) reported its recommendations. I have forwarded the Task Force's recommendations for increasing the amount of AHIP points granted for research activity to the MLA Credentialling Committee which will consider them as an agenda item at their next meeting during MLA in Orlando.

- **Awards Committee** Chair Bob Wood reported on his efforts to revitalize the MLA Research Awards. If you are interested in discussing these efforts or to be considered to serve on the Awards Committee, please contact Bob directly.

- **Membership Committee** Chair Sarah Adcock received some excellent suggestions on how the membership rolls

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of the Research Section might be enlarged through specific recruitment strategies. Please forward any recruitment suggestions (or even the names of possible new members) to Sarah directly.

- **Website** Editor Kristin Stoklosa and her Editorial Board, consisting of Kris Alpi and Linda Azen Martin, recommended that the Research Section website be relocated to MLANET.

- Received official notification that Andrea Ball will succeed Jan LaBeause as **Editor of *Hypothesis***. Jan has transformed *Hypothesis* from a section newsletter to viable, research-based publication indexed by CINAHL and under consideration for indexing by LISA and Library Literature.

I hope you will join me in extending our heartfelt thanks to Jan for her outstanding work.

Since the virtual business meeting, Past Chair Gary Byrd reported that the **Mentoring Service** Link is now a reality.

This issue of *Hypothesis* contains more detailed descriptions of some of these activities and accomplishments. As Chair, I greatly appreciate the excellent work of our active members.

This column covers news items of broad interest to the membership. If you have any specific queries or suggestions on how we might improve the Research Section, please do not hesitate to contact me.

Jon Eldredge, MLS, PhD, Chair
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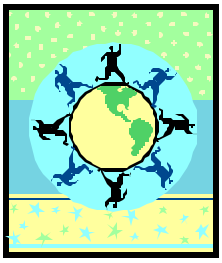

International
Research Reviews

Towards Evidence-Based Public Health

Submitted by Anne Brice, on behalf of Louise Forsetlund, Arild Bjørndal, Peter Bradley, Lena Nordheim and Gro Jamtvedt

Background and main objective: The main purpose of this research project is to change public health physicians' behaviour in the direction of making better use of medical knowledge, i.e. to exercise evidence-based public health practice.

Methods: The project involves a three-stage process, and different methods have been used for each phase of the project. During the first phase we surveyed the practitioners' own descriptions of which information sources they used as a basis for their decisions, the manner in which they collected information and how they evaluated its quality. The second part of the project consisted of exploring the potential for the use of scientific information and the barriers against the use of it. We used focus groups and observations combined with short interviews as methods for this investigation. To guide us through these two first phases of the project we used Wilson's model for information behaviour. The third phase of the project is a randomised-controlled trial.

Setting: Public health practices in Norwegian municipalities.

Participants: 148 public health practitioners.

Main outcome measures: The main outcome variables in the randomised-controlled trial will be change of behaviour (explicit use of evidence in the practitioners' documents), self-reported behaviour, changes in attitude, self-efficacy and knowledge.

Results: The survey results indicated that public health physicians' information management did not differ much from other health care professionals. Relevant scientifically based medical information was seldom obtained or explicitly used. In judging the scientific validity of an article the majority compared the content with their own experience. Results from the second part of the project demonstrated that there is a potential for the use of scientific information in public health practice, and we were able to identify several barriers against its use. On the basis of these two pre-studies, other previous research in this field and Rogers' model of how an innovation is diffused, we tailored a targeted intervention. This intervention is still running, implemented as a randomised controlled trial, whose results still remain to be seen. As a result of this project we have developed a tailored information system that will be open to all public health practitioners in Norway when the project is ended.

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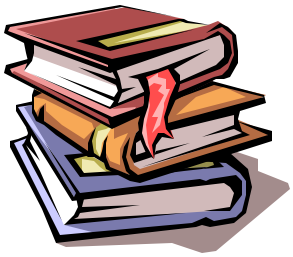

Literature Review

Submitted by
Ruth E. Fenske, Ph.D.

Sutcliffe, A.G., M. Ennis, and S.J. Watkinson. Empirical Studies of End-User Information Searching. *Journal of the American Society for Information Science*. 51(13):1211-1231, November, 2000.

Three British human-computer interaction researchers performed a MEDLINE search and retrieval experiment, using seventeen advanced medical students as subjects. Subjects were divided into novice and expert groups, based on a pre-test of domain and device knowledge. Device, in this case, refers to the information retrieval system. All subjects were also given training on the system used in the study. Subjects searched four questions, developed by a medical expert, one at a time. Think aloud verbal protocols were recorded on video- and audiotape. Recall and precision for each search was calculated and search behavior was analyzed. This paper concerns only the quantitative results; protocol analysis is reported elsewhere.

Sixteen pages of detailed quantitative results are presented. Overall performance was poor. Average recall was only 13.94%. Subjects failed to retrieve much relevant information. Reasons for success varied tremendously among tasks. Above average performers tended to use narrowing and broadening search strategies and/or longer periods of evaluation. Poor term choice could sink an otherwise good performance. Experienced searchers did search differently from novices. Experienced searchers used the system facilities more and novices spent more time evaluating the results.

Matching user and system vocabularies was a major problem despite MEDLINE's thesaurus and term suggestion facilities, as they called MeSH. Only a minority consulted the thesaurus. The thesaurus requires some effort to use, perhaps deterring users.

Users thought system feedback was insufficient. Targeted assistance for need articulation and search activity is indicated, according to the authors.The authors are developing a cognitive model of search behavior which will eventually lead to development of an expert search advisor.

As for whether the results of this study are believable, I suspect that much end-user searching, even after training by a librarian, is as poor as that done by the subjects in this study.

Basically, the authors are saying that end-user search systems are not yet able to take over the role of the librarian as negotiator of the interface. Librarians are able to search MEDLINE in behalf of the user but end-users still are not achieving optimal results. NLM has made a considerable effort in the design and evaluation of the Grateful Med and PubMed end-user retrieval systems. It remains to be seen if better systems design, better training of end-users, or better discernment of the need for the help of a librarian is the answer to the end-user searching problem.

Pratt, Wanda and Lawrence Fagan. The Usefulness of Dynamically Categorizing Search Results. *Journal of the American Medical Informatics Association.* 7(6):605-617, November/December, 2000.

Dynamic categorization, a method of organizing citations into meaningful groups that correspond to the question, is presented as an alternative to relevance ranking and clustering. Groups of citations are given meaningful labels and are arranged in a hierarchy.

Evaluation methods from human-computer interaction were used. Effect of the organization of the documents was measured. Subjects were fifteen breast cancer patients and their families. All subjects used a category tool, a clustering tool, and a ranking tool. Each answered twenty-six user satisfaction items also.

There was no significant difference among tools for the time taken to find answers to specific questions. Users were more satisfied with dynamic categories than with clusters or rankings. All fifteen said they would use it again when searching the literature. Clustering did provide groups, but not necessarily meaningful groups. Users did not understand how rankings were done and didn't trust machines to do ranks consonant with their needs.

I would like to know more about how they created their query model and how category names are generated.

Cook, Colleen and Bruce Thompson. Reliability and Validity of SERVQUAL Scores Used to Evaluate Perceptions of Library Service Quality. *Journal of Academic Librarianship*. 26(4):248-258, July 2000.

Cook, Colleen and Bruce Thompson. Higher-Order Factor Analytic Perceptions on Users' Perceptions of Library Service Quality. *Library and Information Science Research*. 22(4):393-404, 2000.

In recent years, a number of articles on using SERVQUAL to evaluate library services have been published, and the Association of Research Libraries is sponsoring a pilot administration of SERVQUAL in twelve libraries. Now Colleen Cook, a librarian, and Bruce Thompson, an educational psychologist, have published two articles looking at the reliability and validity of SERVQUAL scores.

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SERVQUAL is a twenty-two item scale developed by Parasuraman, Berry, and Zeithaml in 1988 to measure service quality in retailing. Data are gathered on minimally acceptable performance, desired performance, and perceived actual performance (called frames of reference). Quality is the gap between perceived actual service and expected service. Data are thought to reflect five dimensions or factors: tangibles, reliability, responsiveness, assurance, and empathy.

In the first study, data from 697 randomly selected faculty, staff, undergraduates, and graduate students, collected in 1995, 1997, and 1999 were analyzed. Use of Cronbach's alpha showed the scores to be highly reliable. Factor analysis, a statistical method for grouping similar variables, was used to assess construct validity. Results show that subjects did distinguish among the three frames of reference. However, three separate analyses of the three frames of reference revealed only three dimensions for each frame of reference, rather than five. Names and composition of the three factors varied across frames of reference, making direct comparisons across frames of reference questionable. This also calls into question the appropriateness of calculating gaps between perceived and expected service. The authors suggest caution in interpreting results using the five-dimension model.

In the second study, data from staff were dropped, leaving 596 subjects. Second-order factor analysis takes into consideration correlations between first-order factors. This analysis revealed a single second-order factor of the perception data they called service quality. Minimum acceptable and expected performance data were not analyzed for this study.

The author's point out that possibly SERVQUAL does not measure all dimensions of service quality in the library context. In reviewing the twenty-two questions, it is apparent that only one question has to do with the quality of the answer. Also availability of relevant material and reliability of equipment are not items.

Germain, Carol Anne. URLs: Uniform Resource Locators or Unreliable Resource Locators. *College & Research Libraries*. 61(4):359-365, July, 2000.

Taylor, Mary K. And Diane Hudson. "Linkrot" and the Usefulness of Web Site Bibliographies. *Reference & User Services Quarterly*. 39(3):273-277, Spring, 2000.

These two articles with catchy titles look at outdated and inaccessible URLs.

Germain accessed sixty-four URL citations from thirty-four randomly chosen academic journals in library and information science, the hard sciences, computer science, and the humanities, published between 1995 and 1997. URLs were searched once a month for three consecutive months in 1997, 1998, and 1999. By 1999, 48.4% of the URLs were no longer accessible. She points out that, as opposed to Internet sites, once an article is published in paper, it never moves or ceases to be. If it is incorrectly cited, using indexes will lead to the correct citation. Internet search engines may help in finding lost Internet sites, but they are not as effective as indexes. In order to serve its purpose, academic citations need to be reliable and accessible. The Internet is neither, especially over time.

Taylor and Hudson checked 428 URLs cited in the College & Research Libraries News Internet resources column, from October of 1997 to October of 1998, in October, 1998, and May, 1999. If the site was not found, they tried using the annotations to formulate a MetaCrawler search for the site. By May, 1999, 22.2% of the URLs were inactive. The older the article, the greater the percentage of inactive URLs. It is not clear if 22.2% is the number of addresses inaccessible even when directions to the new address were given, or if it is the number of sites that had moved, with or without directions to the new site.

Although the methods used by these authors are very simple, the results of these two studies are informative.

Hart, Richard L. Collaborative Publication by University Librarians: An Exploratory Study. *Journal of Academic Librarianship*. 26(2):94-99, March, 2000.

Hart, Richard L. Co-authorship in the Academic Library Literature: A survey of Attitudes and Behaviors. *Journal of Academic Librarianship*. 26(5):339-345, September, 2000.

Bahr, Alice Harrison and Mickey Zemon. Collaborative Authorship in the Journal Literature: Perspectives for Academic Librarians Who Wish to Publish. *College & Research Libraries*. 61(5):410-419, September, 2000.

As a person who enjoys collaborative research, these three articles on collaboration caught my attention.

Hart first studied vitae and surveyed his Penn State colleagues about their collaborative writing practices. He then expanded his survey to co-authors of articles in the *Journal of Academic Librarianship* and *College & Research Libraries*. Bahr and Zemon studied co-authorship in the *Journal of Academic Librarianship* and *College & Research Libraries* by examining author information provided in the journals themselves.

In his first study, Hart achieved a 75.6% (59 librarians) response rate from his colleagues. Penn State librarians reported spending almost twenty hours per month on research and scholarship. As a group, they had authored 315 articles. Over 80% had co-authored at some point in their career. Single author articles tended to appear in non-refereed journals. Articles in refereed journals were more likely to be co-authored, and nearly half the 111 articles that appeared in thirty-five core library and information science journals were co-authored. Hence, collaboration is more frequent in higher quality journals.

It is interesting to note that our *Bulletin* is not included in the list of core journals. Several Haworth Press titles are included, as is *Notes* online from the Music Library Association and the *Bulletin* of the Special Libraries Association Geography and Map Division.

Hart achieved an even higher 77.2% response rate (98 librarians) in his second study. In addition to descriptive information, co-authors were asked questions about benefits of co-authorship, the importance of each of seven research tasks, the model of collaboration used in each study, and the order of authorship. Chi square was used to test for statistically significant differences between and among groups.

Improved quality of article, expertise of the co-author, and valuable ideas of co-author were the most important benefits of collaboration. Writing the paper was the most important task. Two-thirds worked in collegial relationships, and order of authorship was determined in a wide variety of ways.

Bahr and Zemon made a database of information on 229 articles in the *Journal of Academic Librarianship* and *College & Research Libraries* from 1986 to 1996. After an extensive review of the literature, they tell us university librarians are more likely to co-author than are college librarians. Two authors is the collaborative norm. Few articles had more than three authors. Women are more likely to be collaborative authors than men. Men do not tend to work with other men. *College & Research Libraries* had a higher rate of collaborative authoring than did the *Journal of Academic Librarianship*. Pointers on collaborating are given.

Millennium Project Research Agenda: Management of Libraries and Information Centers. *Library Quarterly*. 70(3):vii-xvii, July, 2000.

In the third in a series, John Richardson, editor of *Library Quarterly*, has invited six practitioners and researchers to comment on the research front and the research agenda for management of libraries and information centers.

Ragnar Audunson, of Norway, says we need research which will help us "reflect upon the content of the changes taking place and the role and relevance of libraries in the new situation. As things change, the fundamental problem for sound management is choosing directions."

Beverly Lynch, of the Center for Research Libraries, points out that management is rarely studied at the doctoral level in library and information science. Master's courses emphasize job skills rather than broader issues relating to organizations and their management. The for-profit sector tends to dominate the management literature. She calls for systematic research on team effectiveness and a synthesis of the literature on ongoing change in individual libraries.

Deanna Marcum, of the Council on Libraries and Information Resources, maintains library management is no longer defined by buildings, collections, and services to provide access. Digital libraries create new questions for managers. How will staff need to change in the new environment?

Barbara Moran, of the University of North Carolina at Chapel Hill, says we need more research on the types of organization structures which work in today's world, the types and mobilization of employees, and the kinds of leaders needed.

Virginia Walter, of UCLA, talks about management questions for public libraries.

Finally, Darlene Weingand, of the University of Wisconsin-Madison and the University of Hawaii at Manoa, suggests three strategies for dealing with rapid change: (1) focus on customer service excellence, (2) market and plan, and (3) empower staff.

Millennium Project Research Agenda: Collection Development. *Library Quarterly*. 70(4):xi-xix, October, 2000.

The next topic in this series is collection development.

David Carr, a library and information science faculty member at the University of North Carolina at Chapel Hill, talks about the collection as being designed, as opposed to being a response to a need and proposes related research questions.

Jacqueline Mancall and Carol Hansen Montgomery, of Drexel, consider questions brought on by the rise in the availability of digital information, distance education, learning communities, and globalization.

Don Davis, of the University of Texas at Austin, says we are facing an "increasing lack of knowledgeable and scholarly bibliographical expertise in the profession." He raises recruitment and preparation, interface among players, rising prices, resource sharing, and protection and preservation issues.

Kathleen Kluegel, a practicing librarian, at the University of Illinois at Urbana-Champaign, talks about the move toward "microchannels of information tailor-made for each individual and delivered to ever smaller personal information devices." Digital access expands our user community. She says "collection development and assessment models need to be reimagined." We need to expand our definition of library collections.

Anne Lundin, of the University of Wisconsin-Madison, would "like to see more application of postmodern theories that question canons and examine cultural production in new ways."

Some of these ideas would seem to be more applicable to health sciences libraries than others.