

HYPOTHESIS

THE NEWSLETTER OF THE RESEARCH SECTION OF MLA

Message From the Chair

by Gary Byrd, Ph.D.
(gdburd@buffalo.edu)

The year ahead promises to be an interesting and productive one for our Section. Our membership continues to grow, and research is now widely recognized as a critical priority for improving health information professionals' ability to provide effective health information resources and services. At the MLA Conference in Chicago this spring, Janet Doe Lecturer Sherrilynne Fuller effectively summarized the importance of research and mentorship for "enabling, empowering and inspiring" health sciences librarians through the years.

The MLA Board of Directors, other sections and chapters, and committees such as the Continuing Education Committee and Credentialing Committee have all placed improving our ability to conduct, analyze and use the results of research near the top of their objectives for the immediate future. I believe the Research Section should play a key leadership role in helping to achieve these Association objectives.

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This newsletter and the other information resources available on our Section Website (<http://hubnet2.buffalo.edu/mla/>) are resources that can be accessed, not only by our Section members, but also by the entire MLA membership and others searching the Internet. I hope every Section member will take the time to check these resources regularly, and encourage colleagues to consult them as well. Our newsletter editor, Jan LaBeause, and our Website editor, Kristin Stoklosa, would both welcome suggestions and feedback on the content or organization of these Section communication vehicles.

In addition to ongoing objectives such as continuing to strengthen the Section membership base, maintaining current research resources on our Website and in *Hypothesis*, and planning for research-related program sessions for the MLA 2000 conference in Vancouver (see pg. 3), the Executive Committee has agreed on four major Section objectives for this coming year:

- To work with the MLA Credentialing Committee to strengthen and balance the credits for research activities evaluated for membership at the various levels in the Academy of Health Information Professionals (AHIP).
- To plan and implement strategies to update the Section research mentors database and promote this service to the broader MLA membership via the Section Website.
- To work with the MLA Continuing Education Committee to develop a distance learning course on research methods, targeted at the general MLA membership.
- To work with the Editorial Board for the *Bulletin of the Medical Library Association* to strengthen and highlight the research contents of our primary professional journal.

I will be forming Section task forces over the next several weeks to formulate initial recommendations for strategies to accomplish these objectives. I would be delighted to hear from any Section member with an interest in working on any one of these priority projects. I also look forward to serving as Section Chair in this transition year to the next millenium.

Officers & Executive Committee, 1999-2000



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For contact information, see MLA Directory or
Research Section Home Page
(<http://hubnet2.buffalo.edu/mla/>)

Letter from the Editor ...

I am happy to announce several additions and enhancements to Hypothesis beginning with this issue:

- CINAHL® (*Cumulative Index to Nursing & Allied Health Literature*®) has begun indexing *Hypothesis*. The review boards for Bowker-Saur's *LISA (Library and Information Science Abstracts)* and H. W. Wilson's *Library Literature* should be sending us their decisions soon.
- With the added credibility and responsibility that being indexed brings, *Hypothesis* has received additional support for the editorial process through an **Editorial Board**. I welcome the advice and assistance of my colleagues Alexandria Dimitroff, Jon Eldredge and Ruth Fenske.
- In addition to Ruth's regular column **Literature Review**, we have added two new features. Jon Eldredge's column **International Research Reviews** begins with this issue and promises to bring us research results and ideas from fellow librarians around the world. Also debuting with this issue is a look at the activities of the **Chapter Research Committees**.

This is an exciting time to be involved in the Research Section of MLA and its newsletter *Hypothesis*. The Editorial Board and I welcome your ideas, comments, criticisms and questions. Please let us hear from you.

... Jan LaBeause, Editor

HYPOTHESIS. The Newsletter of the Research Section of MLA

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

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**MLA 2000 -
Evidence-
Based
Librarianship
in Vancouver**

submitted by Jon
Eldredge, Ph.D.,
Program Chair
and Chair-Elect

The Research Section's two programs at MLA in Vancouver during May 2000 will focus upon Evidence-Based Librarianship (EBL). The two programs will emphasize the pragmatic aspects of applying the framework and methods of Evidence-Based Health Care in librarianship. More specifically, EBL stresses making practical decisions in library practice based upon sound research findings. The two sessions will be titled *Evidence-Based Librarianship: Tools We All Can Use*.

Session 1

❖ **Randomized Controlled Trials in Librarianship:
A How-To Guide**

K. Ann McKibbin, McMaster University, Ontario,
Canada

❖ **Cohort Studies in Librarianship: Prospective
and Retrospective Approaches**

Speaker to be Announced

❖ **Ethnographic Studies in Librarianship:
Observing the Behavior in Others**

Michelynn McKnight, Norman Regional Hospital,
Norman, OK USA

Session 2

❖ **An Introduction to Systematic Reviews for the
Library Literature**

Speaker to be Announced

❖ **How Librarians Can Conduct Systematic
Reviews for Healthcare Professionals**

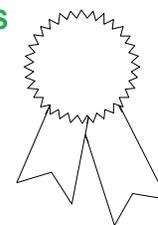
Molly Harris, Veterans Evidence-Based Research
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Texas USA

Anyone with an interest in participating in the final planning for these two sessions is encouraged to contact Jon Eldredge at jeldredge@salud.unm.edu. Suggestions for these programs also are welcome.

RESEARCH SECTION AWARDS

And the winner is ...

... '98-'99 Awards Committee
Zoë Stavri, Chair,
Gary Byrd and Jolene Miller



Congratulations to Andrea C. Talbot, Graduate Student at Dalhousie University School of Library and Information Studies, on receiving the 1999 Annual Research Section Award for Best Paper. Her study "Information Behavior of Pediatric ER Physicians" was presented during the session *Reports of Informatics Research Results: Understanding Our Present to Help Create a More Perfect Future* cosponsored by the Research, Medical Informatics, and Hospital Libraries Sections.

Honorable mention for the Best Research Poster Award went to the Metropolitan Detroit Medical Library Group (MDMLG) for their presentation "Information Seeking Needs of Clinicians in Ambulatory Care Settings." The MDMLG's research project also won the Hospital Libraries Section/MLA Professional Development Award. Carole M. Gilbert, Director, Library Services, Providence Hospital; Lynda M. Baker, Library & Information Science Program, Wayne State University; Daria Drobny, Director, Learning Resources Center, Rehabilitation Institute of Michigan; Sharon Phillips, Director, Media Services, Wayne State University; and Karen M. Tubolino, Chief, Library Services, John D. Dingell VAMC presented the Group's preliminary findings at the MLA Poster Session.

Look for both of these award recipients to be featured as the Research Spotlight in future issues of *Hypothesis*.

**Food for
thought . . .**



*"Everything that
can be invented
has been invented."*

... Charles H. Duell (Commissioner of U.S. Patents),
urging President William McKinley to abolish
his office, 1899.

*"People say the earth is round. But you
don't have to believe it if you don't want to."*

... Winston Groom, Gumpisms:
The Wit and Wisdom of Forrest Gump, 1994.

E-BIOMED UPDATE



... submitted by Suzanne Grefsheim,
Branch Chief of the NIH Library

I have been asked to briefly describe and summarize Harold Varmus' controversial proposal some thought (feared?) would revolutionize scholarly communication in the biosciences. For more extensive information on the subject, visit the NIH Director's web site <http://www.nih.gov/welcome/director/varmus.htm> and read what is available there on E-biomed. One of the links you can follow from the E-biomed page is a bibliography of all published articles, pro and con, on the subject.

First, if you haven't heard yet, the name E-biomed has been changed to E-biosci. In April, Mary Ann Liebert, Inc. applied for an ISSN for the name E-biomed. It also has rights to www.e-biomed.com and .net.

E-biosci, as initially envisioned would provide universal, free Internet access to all published reports in the reviewed scientific literature and a separate section where scientists could post essentially unreviewed papers for comment. Based on negative feedback from a number of respondents, the idea of providing a repository for unreviewed papers has been abandoned. However, Dr. Varmus is in active negotiation with several society or professional groups in the United States and Europe who are willing to deposit papers reviewed by their editorial boards on the NIH server that will be a home for E-biosci. For example, the editor of the *Proceedings of the National Academy of Sciences*, the American Society for Cell Biology, the British Medical Society, publishers of *BMJ*, are all talking to him about depositing their journals in E-biosci. EMBO indicates that 12 European journal editors are ready to transfer articles with a six-month time lag. In fact, the model that appears

Editor's Note: As you will notice in the minutes of the 1999 Annual Meeting (pages 12-13), "Governmental Relations Committee Liaison Gary Byrd reported that the MLA/AAHSLD legislative task force is looking at the NIH proposal from Dr. Harold Varmus, Director, for an E-Biomed system of prepublication. Gary recommended that Section members read the proposal and respond directly to Dr. Varmus." Following the meeting, Suzanne Grefsheim, Branch Chief of the NIH Library, was invited to submit the accompanying article to Hypothesis.

to be emerging from these discussions is for E-biosci to be a reprint server providing free access to the literature after a period of time.

E-biosci will be maintained by the National Center for Biotechnology Information (NCBI). NCBI is organizationally a part of NLM and it is responsible for maintaining GenBank. It was NCBI's work in trying to link MEDLINE citations to the genetic sequence data in GenBank that led to the development of PubMed, for which NCBI also is responsible. David Lipman, Director of NCBI, continues to work closely with Dr. Varmus on the development of the E-biosci concept. It is their plan to have PubMed link to the full-text of all papers in E-biosci.

Many of the recent changes in the concept are attributable to the comments and editorials written in response to the original proposal. However, in the past few months, Dr. Varmus also has met with a number of publisher groups to listen to their concerns. For example, on June 30 a panel discussion, arranged by a Washington, D.C. area science writers group, was held at NLM's Lister Hill Center. The discussion at this meeting focused primarily on publisher concerns about unreviewed clinical reports, loss of revenue for existing publications, the cost and the threat of government control over biomedical publishing posed by E-biomed. In response, Dr. Varmus noted that NIH would not own E-biomed any more than it does GenBank or PubMed, both of which are highly appreciated.

Although in its present form, E-biosci does not appear to be the threat to publisher/society revenue it might once have seemed, at times during the evolution of the E-biosci concept Dr. Varmus has suggested that publishers should consider changing their business model. Currently most costs are borne by those who want access to the information, which limits access to research results. This is not in the best interest of NIH, which funds much of the published research, nor of the scientist/authors. Both want to share research findings as widely as possible. Dr. Varmus thought publishers should consider shifting all editorial costs to authors instead. He reasoned that many of these costs are already borne by NIH grants and contracts. And if E-biosci were used exclusively to distribute the edited papers, publishers would save the cost of printing, paper and mailing, and libraries would save the cost of subscriptions. While something like this may eventually emerge, it is not likely to happen soon, so don't count on fewer subscriptions or lower serials costs just yet.

RESEARCH PROCESS PANEL:

Expert Advice for Taking the Pain Out of Research, Part I*



INTRODUCTION

by Gary Byrd, Ph.D., AHIP
Director, Health Sciences Library, University at
Buffalo, NY

What is research? We can start by stating what it is not. It is **not** reliance on tradition, authorities, purely human experience, trial and error, logical reasoning or searching for facts. In developing a **definition** for research, several areas should be addressed. Research includes controlled, systematic investigations. It is rooted in objective reality, aims to develop general knowledge, and allows for natural phenomena.

Other definitions of research include:

- “codified common sense,”
- “critical inquiry of any kind,”
- “achieving a systematic interconnection of facts,” and
- “discovery of causes or facts of causation.”

Good research uses the scientific method and logical reasoning. It is a system of problem solving following orderly, disciplined procedures. It takes a skeptical viewpoint and needs replication. The **components** of research are: order and systemization, control, empirical evidence (objective reality), and generalization.

Description, exploration, explanation, prediction and control, and the formulation of theories are all **purposes** of research. However, research also has its **limitations**. There are moral and ethical issues, measurement problems, and human complexity in addition to general limitations.

There are two general **types** of research. **Basic research** seeks to expand our knowledge base by formulating, evaluating and expanding theories. **Applied research**, on the other hand, works to solve practical problems and test theories in real situations.

**Editor’s Note: This panel session was sponsored by the Research, Medical Informatics, and Hospital Libraries Sections of MLA and was presented at MLA ‘99 in Chicago. Gary Byrd, Ph.D. served as Moderator, with speakers P. Zoë Stavri, Ph.D., Jocelyn A. Rankin, Ph.D., Nancy Woelfl, Ph.D., and Joyce Backus. Part I (published here) includes Gary’s “Introduction” and the presentations of Zoë and Jocelyn. Part II will be published in the Fall issue of *Hypothesis*. It will include “Appropriate Analysis: How Can You Make Sense of Your Data?” by Nancy Woelfl, “Winning Presentations: How Can You Present Your Results?” by Joyce Backus, and Gary Byrd’s “Closing Remarks.”*

DEFINING A RESEARCH QUESTION: WHAT DO YOU REALLY WANT TO KNOW?

by P. Zoë Stavri, Ph.D.
Assistant Professor, School of Information
Resources and Library Science, University of
Arizona-Tucson

While a research question is, in some sense, no more than a **construction**, it is the cornerstone of research. It identifies what you really want to know by codifying curiosity into something that can be communicated and measured.

There are two important **axioms** concerning research questions which must be taken into account while designing a research project. First, not all questions are researchable, and second, not all systematic data collections start with research questions. In terms of the former, there are several research question “**pretenders**” such as those that elicit information about customer satisfaction in a service. In terms of the latter, the impetus for systematic collection of reference transactions need not have been a research question.

Good research questions do have several **characteristics**. The first is the clear statement of shared assumptions and unambiguous definitions of all variables that will be measured and/or controlled. The research **hypotheses** which rise from the research questions should be generalizable, testable, theory-based, and formally express the hypothesized relationships between the well-defined variables.

A note about **variables**: By their very nature, variables vary (i.e., have the potential for more than one value). In addition, they must be measurable, and these measures must be both reliable and useful. Variables which are manipulated are often called **independent variables**, and by extension, the variable within which change is expected is the **dependent variable**.

Variables can vary for many reasons beyond having been manipulated by the researcher! **Variable confounds** systematically bias the research by changing, or vary along with an independent variable. For example, if you hypothesized that you were able to see better at night when there was a full moon, and used the full moon as the independent variable without taking into account that the full moon also reflected more light than a new moon, you'd have a confounded variable! This example should also point out that an independent variable need not be under the researcher's control.

Various other variables need to be considered which can also affect the study outcomes. Researchers attempt to control for as many of them as possible. The best way to do this is to identify elements in design that might change the outcome of the study, if it were repeated later.

To better illustrate these points, let's look at a more realistic **scenario** which will be followed throughout the rest of the discussion:

- Your academic health science library is providing a growing number of electronic journals to faculty and staff. You are sensing that electronic journals are used for different purposes than print journals, for example for quick reference rather than background research, but that both versions may be necessary to serve the information needs of your constituents.

For the sake of this discussion, the **primary research question** will be:

- *Do electronic journals and paper journals serve different information needs?*

Research questions are very often comprised of several

small **sub-questions**. For the sake of this discussion, we will use the following sub-questions:

- *Is there a type of information need that is more strongly correlated with the use of electronic journals compared to paper journals?*
- *Are certain journals more likely to be used in electronic format?*

Sub-questions give rise to specific predictions using the well-defined variables in particular relationships as discussed above. From the sub-questions we are using, the following **hypotheses** might be generated:

- *Researchers doing reviews of the literature will most likely use paper journals.*
- *Researchers will use electronic journals less frequently than clinicians.*

To return to the notion of **controlling** as many variables as possible up front to enhance reproducibility

of the study, the following types of variables might be considered for control: attribute variables, journal type variables, technological expertise variables, physical proximity to resources variables, and the like.

For example, by controlling for user demographics, such as by specialty or discipline, the type of user would not potentially confound the results if, for example, more e-journals were available in the research rather than the clinical disciplines. In the hypotheses listed above, this control could be achieved by limiting the users of e-journals to researchers.

Finally, there is much written about hypotheses and their testing, but very little emphasis seems to be given to their ultimate purpose. In the final analysis, the **hypotheses that you test and report should address the research question**. Keep returning to the question of the question: what do you want to know? Once that is clear, what you test, measure, analyze, and report should follow. Instead of going off on interesting tangents as they strike you and in the end wondering what you learned, keep coming back to the question to maintain clarity and economy of effort!

Research includes controlled, systematic investigations. It is rooted in objective reality, aims to develop general knowledge, and allows for natural phenomena.

CHOOSING A METHODOLOGY: HOW CAN YOU ANSWER YOUR QUESTION?

by Jocelyn A. Rankin, Ph.D., AHIP
Director, Medical Library, Mercer University
School of Medicine, Macon, GA

Once the research question is formulated, a research approach or methodology can be chosen by asking this simple question: **How can you answer your research question?** For this there are three sub-questions:

- What do I need to know?
- What kinds of data answer this question?
- Where can I find the data?

A **literature search** can be done next or even earlier, during the research question formulation steps. The search will establish what we already know and help us decide if there is an existing study that might be replicated or modified. While we often think we have a unique issue to study, this is actually rarely the case.

When choosing a methodology, there are several other considerations:

- **The research problem and the question:** The methodology must be suited to the question and must answer the question.
- **The audience:** Your audience will influence your choice in methods. While your administrators may be looking for “hard science” (numbers), your colleagues may be more receptive to a mix of numbers and sociological observations.
- **Your resources:** Some methods will be too costly in one setting, but feasible in another (i.e., where a graduate student would be available).
- **Triangulation strategies:** Triangulation is a way to improve your study’s validity by examining the research question from more than one perspective. This might include using several data sources, or using multiple methods such as interviews and surveys.

The best way to learn a new method is to simply **DO IT!** But before you start:

- Read about it
- Design a systematic approach

- *Review with an expert:* Both your institution and the **Research Section’s Mentoring Program** are excellent sources for methods experts!
- Do a pilot

When choosing your methodology, there are two different overarching research strategies:

- **Quantitative** research traces its origin to the bench sciences, and arrives at numbers to quantify or measure processes, activities and opinions. Typical approaches to data collection are surveys, test scores, and usage data. Data can be analyzed with standard statistical software packages such as SPSS and SAS. When you use this approach, you should try to obtain data that will allow you to examine the issues in more depth than descriptive statistics which limit your analyses to frequencies, percentages, standard deviations, etc.

- **Qualitative** research takes a sociological perspective. It looks at the nature of things to arrive at an understanding of the meaning of something, the context which produces an action, or the process itself. Data is derived from case studies, interviews, focus groups, etc. While the theoretical underpinnings of quantitative and qualitative research are quite different, recently the distinction between the two is becoming more blurred. You can use software - Nud*ist, for example - to code and analyze qualitative data. Nud*ist data can be exported into SPSS or SAS, so you can quite easily do both qualitative and quantitative analyses on the same data set.

Qualitative research can be implemented through different methods. In **structured** research, the study objectives are very specific and questions are written beforehand. This process is similar to using an open-ended questionnaire. With an **unstructured** study design, objectives are general and questions are developed during the interview. This approach requires a highly trained interviewer and the data analysis is quite complex. In between these two is an approach called **semi-structured** which combines some of the attributes of both the unstructured and the structured methods.

To illustrate, let’s look at the research question proposed in the previous presentation: ***Do electronic journals and paper journals serve different information needs?***

Where can I find the data? The data could come from at least three sources and could be collected through a variety of techniques. Data sources could be opinions

(derived from a survey, interview, or focus groups), recollections (also from surveys, interview, or focus groups), or actual usage (which could come from critical incident, diaries, transaction logs).

What is a good sample? Sampling is the who, what, where, when, and how of your study. A sample should represent:

- The setting, individuals or activities
- The heterogeneity of the group
- The critical cases
- Establish controlled comparisons

The **goal is a purposeful sample** in which you create a representative group whose composition could be repeated, and from which you can generalize your findings. Sometimes, however, the only available strategy is to use a **convenience sample**. The sample type should be identified in your write-up or presentation. Whenever human subjects are used, approval should be obtained from your Institutional Review Board.

For our study question, there are many possible methodologies. We identified five different study designs to provide examples of progressively more complex studies with increasing levels of control. Two of these examples described were a **quantitative study with some control** and a **qualitative study using focus groups**.

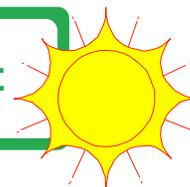
After selecting a study plan, **validity** and **reliability** should be checked. **Internal validity** is the degree to which you have measured what you intended to measure. **External validity** refers to whether you can generalize your findings to other times and other settings. Will it be measured the same way the next time?

In evaluating **reliability**, be sure your data is consistent and dependable. Would your study procedures result in the same answers no matter when or where you implemented them? Have you included and accounted for the outliers and variations over time?

Uncontrolled or **intervening variables** will affect your validity and reliability, but half the battle is identifying these so that you can work at controlling them. Triangulation helps improve validity.

By following these steps and thinking through this process, MLA researchers can avoid some **common methods errors**: methods not matched to the question, data not really answering the question, sampling errors, and lack of control over intervening variables.

Research Spotlight



NLM Library/Informatics Fellows: Round One

By Andrea L. Ball, with material provided by Natalie Norcross, Phil Bergen and Fran Rice.

The National Library of Medicine this past year began funding a new fellowship for mid-career Medical Librarians who were interested in Medical Informatics. The fellowship is for one year and enables the medical librarian to explore medical informatics through coursework, national conferences (MLA and AMIA) and research.

Three institutions were selected to host the first round of fellows: Oregon Health Sciences University [OHSU], University of Missouri - Columbia, and the University of Pittsburgh. The hosting institutions were given the flexibility to structure the fellowships to best fit their resources and environment. Each site hosted two fellows, with the exception of Pittsburgh which hosted one. An advisory committee, consisting of liaisons from the Medical Library, the Informatics program and the Library Science program at each site, was established. (Prudence Dalrymple served as the Library Science advisor for OHSU since they do not have an affiliation with a Library school.)

The five Fellows came from varied backgrounds and brought with them a wealth of experience. Some had been working in medical libraries for several years while others had just recently earned their library degrees. All of the recipients had a strong interest in medical informatics.

I graduated from the University of Pittsburgh in December 1996, where I first started taking Informatics courses. I moved to Oregon in 1998 and was working in the OHSU Library and for the Informatics department when I received the Library/Informatics Fellowship last Fall. Throughout the past year I have completed coursework in statistics and organizational behavior, have presented at regional conferences and have spent the majority of my time investigating the world of distance learning and educational technologies. I have been involved heavily in the evaluation of the Virtual Learning Center, a Web-based program for delivering graduate nursing courses around the state and region. I am currently working on the Medical Informatics Distance Learning Task Force as they begin a pilot study for delivering their

coursework via the Web. At the end of August I will be moving to Madison, Wisconsin, as the Coordinator of Education and Distance Learning for the Health Sciences Libraries at the University of Wisconsin-Madison. I will be busy with teaching, training, serving on the IAIMS committee and being the liaison with the School of Medicine where I will be involved with enhancing collaborative teaching practices.

Natalie Norcross, the second Fellow at OHSU, had been working for the past 15 years as a Medical Librarian and Coordinator of Community Education and Libraries for Tuality Healthcare in a Portland, Oregon suburb. She was formerly the Head of Public Services at the Chicago College of Osteopathic Medicine after receiving her MLIS from Brigham Young University in 1974. Natalie had no prior medical informatics training but saw the Fellowship as a way to transition from a hospital to an academic library and believes that informatics will play a vital role in the future of medical libraries.

Since starting the Fellowship this past January, Natalie has taken three courses each term, attended MLA and the NLM Training Directors Meeting, and will be attending and presenting at AMIA this Fall. Her research involves identifying a way of measuring the complexity of physicians' questions and determining if there is a relationship between that complexity and the physicians' information seeking behavior.

Natalie will also be moving to Madison this Fall where she will be the Assistant Director of Information Services for the UW's Health Sciences Libraries.

Phil Bergen was the Fellow at the University of Pittsburgh. Oddly enough, Phil went to Pittsburgh from Madison, where he earned his MA in Library Science in 1996 and where he worked at the University of Wisconsin's Health Sciences Libraries for nearly two years. Phil chose to move to Pittsburgh for the Fellowship both to learn about medical informatics and to gain library experience in a different environment.

Having had no prior Informatics training, Phil spent a good part of his year taking courses in biostatistics, evaluation methods and clinical multimedia from the Center for Biomedical Informatics (CBMI). He was involved in the weekly journal club at the CBMI, presenting for one session, and attended several symposia and conferences including AMIA and the NLM Training Directors Meeting.

In place of a research project Phil implemented a database server and cgi parser, and created and implemented scripts and a Web-based interface to manipulate and generate content pertaining to electronic resources (electronic journals and Internet resources) on the Falk Library's Web site. Phil was able to work this project into a job at Falk as an Electronic Resource Access Librarian. He will also begin working towards a Masters in Information Science this Fall.

Phil describes the past year as "...perhaps the most intense learning experience of my life. In the past year, I have been exposed to many new (to me, at least) ideas, given the freedom and support to learn valuable new skills, and afforded the opportunity to explore the relationship between medical librarianship and informatics, as well as the role of the library in the larger academic medical center enterprise."

The University of Missouri-Columbia hosted two Fellows: Beth Carlin and Fran Rice. Beth took courses on vocabulary and hospital decision making for administrators, and worked on a variety of projects throughout the year. She presented at MLA this past Spring and also has been developing a database of general pediatric web sites for consumers. She is on sabbatical from the Children's Hospital Library.

Fran has worked primarily in medical libraries since receiving her Library degree from Simmons College in 1979. She has been interested in informatics for several years and has experience in Web site development for a consumer health library and the evaluation of clinical software. Her Fellowship has consisted of taking classes, presenting at a virtual Web conference, attending other conferences, and working on several research projects she intends to publish. Fran will be returning to her position as Director of Library Services for Avera McKennan in Sioux Falls, South Dakota.

There is little doubt that informatics will continue to grow in popularity, prominence and importance within the health sciences arena. Medical librarians, especially given our training in information management, are obvious candidates for informatics research projects and partnerships. The NLM Library/Informatics Fellowship provides those librarians interested in enhancing their informatics understanding with the opportunity to take courses, network with faculty and explore research options. If you would like further information on this Fellowship opportunity please feel free to contact any of the individuals listed below.

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Natalie Norcross
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Andrea Ball

Literature Review



... Prepared by Ruth E. Fenske, Ph.D.

VARLEJS J. On their own: librarians' self-directed work-related learning. *Library Quarterly*. 1999 Apr;69(2):173-201.

This article is based on the author's dissertation. After examination of the literature of adult education and professional development (particularly the work of Philip Candy), she developed a model and hypotheses. Independent variables having to do with the individual, learning opportunities, and the work setting were thought to influence the dependent variables of self-directed learning and professional achievement. The primary hypothesis was that librarians spend more time on autodidactic activity than on formal continuing education. It was further hypothesized that there would be statistically significant, positive relationships between self-directed learning and workplace information richness, learning opportunity, and sense of autonomy. It was thought self-directed learners would be professional achievers.

Questionnaires were mailed to 773 personal members of the American Library Association, who work in libraries in the United States. There was a 67% (521) response rate. Subjects were asked about work-related learning projects on which they spent at least seven hours within six months during the last year. They were also asked about formal continuing education activities.

Results show that ALA members spend substantially more time on self-directed learning than they do in organized continuing education activities. Seventy-seven percent (400) had carried out self-directed learning projects. Three hundred three (58%) met the autodidaxy criteria, established in her model. There was a significant, positive correlation between self-directed learning (SDL) and autonomy but surprisingly not between SDL and the work setting variables. Size of library and seniority appear to be more important than originally hypothesized. She tells us "a revised model that takes into account the relationships suggested by the data and proposed additional variables to study is presented elsewhere" (in her dissertation). It would be interesting to see the new model.

Varlejs points out that special librarians are under represented in ALA. It would be interesting to replicate this study with special, law, and medical librarians as subjects. MLA's continuing education activities tend toward formal continuing education and group activities, such as journal clubs. Do special librarians also tend to be autodidacts? If so, should MLA's professional development program be doing anything to support them?

GRAVOIS J. Poster sessions, promotion, and publishing: is there a connection? *Journal of Academic Librarianship*. 1999 Jan;25(1):38-43.

This study looks at who presents posters at ALA and the relationships between presentation of a poster and publishing. Institutional views of posters as research are also examined.

In 1994, 1995, and 1996, 286 posters, involving 523 authors, were presented. The majority of the posters were presented by more than one person. Most were from academic libraries. The author sent e-mail questionnaires to 180 librarians for whom he could find e-mail addresses. This is 34% of the total number of presenters. He achieved a 66.1% (119) response. Hence, his data are based on responses from less than 25% of the presenters. Respondents generally rated the experience of presenting a poster as positive. Sixty-five articles based on posters were submitted and 56 were published.

Directors of ten libraries having five or more posters were contacted; nine responded. As would be expected, these nine directors supported poster activity. All thought poster presentation helped librarians achieve tenure. About half indicated poster sessions alone, without refereed publications, would not be sufficient for tenure.

Although the results are based on a small percent of the population, the fact that almost half the respondents achieved a publication, based on their poster, provides some evidence that doing a poster does lead to publication. Are we in MLA turning good posters into journal articles?

KREIDER J. The correlation of local citation data with citation data from journal citation reports. *Library Resources & Technical Services*. 1999 Apr;43(2):67-77.

Kreider examines correlations between 12.5 years of local citation data and one year of global citation for twenty science and social science subjects. Local citation data were generated by a search by the Institute for Scientific Information for citations from articles by University of British Columbia authors. Correlations were calculated using the Pearson correlation coefficient on logarithmically transformed data.

All correlations were moderate to moderately high. The author points out that smaller institutions have faculty doing research and publishing on a narrower range of topics. Hence, citation data from a small institution would be less likely to correspond to global data than would data from a large institution. In conclusion, she suggests that large institutions could depend on global citation data for titles having high numbers of citations. However, global data should not be used for titles with low numbers of global citations.

PIERCE SJ. Boundary crossing in research literatures as a means of interdisciplinary information transfer. *Journal of the American Society for Information Science*. 1999 Mar;50(3):271-279.

Twenty years of four core journals in political science and sociology were examined to find articles written by first authors holding academic appointments in other disciplines. One hundred ninety-nine articles were identified. Data elements were academic rank and discipline of first authors, discipline of coauthors, and reception given the articles. Citation data were gathered from the Social Sciences Citation Index.

Findings were that faculty of all ranks publish across disciplines, the interdisciplinary articles of full professors receive more citations than do those of professors of lower rank, articles tended to have single authors, or to be entirely written by disciplinary outsiders, and authors tended to be from other social sciences or from applied disciplines based on the social sciences.

The articles written by interdisciplinary authors received somewhat fewer citations per article than others in the same journals. The articles received a higher percentage of cites from sociology or political science journals than from the discipline of the first author. They received even more citations from journals outside sociology, political science, and the first author's area. However, if the coauthor were from the publishing journal's discipline, the number of cites from the discipline of the publishing journal went up.

Results of this study should be of interest to library and information scientists publishing outside our field. Do we get similar results when we publish outside our field? What happens when health scientists publish outside the field?

O'KEEFE KM, WILDEMUTH BM, FRIEDMAN CP. Medical students' confidence judgments using a factual database and personal memory: a comparison. *Journal of the American Society for Information Science*. 1999 Jun;50(8):698-708.

The authors ask: "Are medical students able to recognize whether a need for information has been fulfilled 1) through relying on the students' individual memories or 2) through the assistance of a factual database?" "The authors also looked at whether confidence in answers was greatest before study of a subject, right after study of the subject, or several months after study.

Forty-three medical students were asked to solve a set of bacteriology problems based on personal knowledge alone and to rate their confidence in the answer. Next, they were asked to solve problems which were incorrect on the first pass, using a factual database and to rate their confidence.

The two passes were repeated before, shortly after, and several months after study. Only the twelve students who answered and provided confidence judgments for at least two questions on the second pass for each of the assessments, were included in the analysis.

Brier scores, which are explained in the article, were used as the measure of confidence. Calibration refers to agreement between proportion true and the predicted proportion true. Calibration deals only with proportions, not with actual agreements on individual questions between predicted correct and correct. Resolution, on the other hand, refers to the ability of a forecaster to separate a correct from an incorrect prediction. Brier scores are a compromise between the two.

The authors point out that the results are hard to interpret because it is not clear if students were estimating the probability of receiving full credit for an answer or if they were estimating the percentage of credit they would get. In either case, overconfidence was highest right after study of the subject.

Obviously this study needs to be redone. This is an important subject, because if medical practitioners and researchers are overconfident, they will stop looking for information too soon and reach erroneous conclusions.

This article includes an interesting review of the literature of confidence judgments. This is a potentially fruitful area of study as applied to all health professions and to library and information science.

POWELL RR. Recent trends in research: a methodological essay. *Library & Information Science Research*. 1999;212(1):91-119.

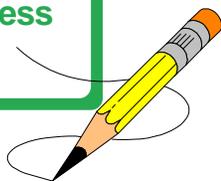
As the title indicates, this article is more an essay than a research study. However, the subject matter is relevant to the focus of this column.

Powell first goes over a number of similar reviews of research methods used in library and information science and presents their results. He then defines and gives examples of the use of specific qualitative and quantitative methods used currently in the social sciences, and he indicates each method's potential for library and information science.

Librarians wanting to expand their repertoire of research methods could benefit from reading this article and following up on his citations to examples of the use of each method in the social sciences.



Research Section Business Meeting Minutes



Medical Library Association May 18, 1999, Chicago Hyatt

1. Call to Order - Ruth Fenske called the meeting to order at 12:35 pm. Twenty-four members were in attendance.
2. Approval of the Minutes - The minutes of the 1998 annual meeting business meeting as printed in the Summer 1998 *Hypotheses* were approved.
3. Treasurer's report - none.
4. Chair's Report - Ruth Fenske reported that the Section is in a good position to have its goals represented in those of the Association for the year, in part due to early discussions she has had with incoming President, Frieda Weise. She commented favorably on the positive attention the importance of research received in the Janet Doe lecture given that morning by Sherrilynne Fuller. She is leaving several recommendations to Gary Byrd, Chair-elect including updating the Section brochure and staffing a Section table.
5. Chair-elect Report - Gary Byrd described the sessions the Section co-sponsored with other sections at this Annual Meeting. The first was an invited panel co-sponsored with Hospital Libraries and Medical Informatics that consisted of expert advice on the research process. This program has the potential to be repeated at chapter meetings. He acknowledged that there were not a lot of papers submitted for the invited papers session. The section also co-sponsored a session on research goals for the next century and an informal session on outreach services evaluation and planning. Gary will be working with the new Chair-elect, Jon Eldredge, on next year's program.
6. Section Council Representative Report -
 - a. Julie Kelley relayed thanks for the Section's support of the Centennial Fund from Carla Funk.
 - b. The continuing education committee is looking for nominees for the new continuing education award.
 - c. She brought up the request for a new SIG on the Voyager ILS system. Members voiced concern about MLA sponsoring SIGs based on commercial products. After some discussion, the Section agreed that the proposed SIG does not conflict with any existing group.
7. Editor's Report
 - a. Newsletter —Jan LaBeause reported that postage is being saved on newsletter mailing because of fewer copies going to other sections' and chapters' newsletter editors. *Hypothesis* is also now available from the Section Web page. Jan has submitted *Hypothesis* for indexing and it has been accepted by *CINAHL*. *Library Literature* and *LISA* have yet to respond to this request.
 - b. Web - Kristin Stoklosa has updated the Web site. It is still being generously hosted at the University at Buffalo.
8. Committee Reports
 - a. Research Resources - Leslie Behm has updated the bibliography and will soon have the update on the Section web page. She also reported that the research resources database will soon be moved to the web page.
 - b. Awards - Jolene Miller, Gary Byrd, and Zoe Stavri served on the awards committee for this annual meeting. Ruth Fenske reported that there were two awards last year. Jan LaBeause suggested that the Section award Section membership as part of the Research awards as was done in the past.
 - c. Bylaws - Andrea Ball described proposed Section bylaws changes which the Section membership approved. These changes bring Section bylaws language in line with those of the Association including having new officers take office at the close of the annual meeting and increasing the term of the secretary/treasurer from one to two years. They were approved by the Section membership.
 - d. Continuing Education - Julia Kochi. Report from Alexandra Dimitroff the C.E. liaison asked for suggestions for additional C.E. courses, instructors, and topics. The committee is also looking for suggestions for symposia topics.
 - e. Governmental Relations - Gary Byrd reported that the MLA/AAHSLD legislative task force is looking at the NIH proposal from Dr. Harold Varmus, Director, for an "E-Biomed" system of prepublication. Gary recommended that Section members read the proposal and respond directly to Dr. Varmus. Jocelyn Rankin volunteered to put information in the upcoming issue of *Hypothesis*.
 - f. Membership Committee - Ann Weller reported that membership is up, but didn't have a number yet. Suggestions were made to recruit students and authors of research papers who are not already section members.
 - g. Nominating Committee - Members Jocelyn Rankin, Prudence Dalrymple, and David King nominated Jon Eldredge for Chair-elect, Joyce Backus for Secretary/Treasurer, and Alexandra Dimitroff for the MLA Nominating Committee.

9. Planning for 99/00
 - a. The Executive Committee had a meeting and recommends that the Section appoint a task force to develop recommendations regarding research to the Credentialing Committee. Also, the research mentor database needs to be updated.
 - b. Program report - Jon Eldredge reported that there will be an EBM session that the Section will co-sponsor with the Medical Library Education Section. There will also be a "new perspectives" session for students' and new presenters' papers.

10. Closing - Ruth Fenske turned over the Chair's position to Gary Byrd who thanked the 98-99 officers for their good work.

Submitted by Joyce Backus, Secretary/Treasurer

LAST CALL
For Award Nominations!!
November 1, 1999

is the deadline for nominations recognizing the professional accomplishments of MLA members. Completed nominations for all MLA awards and honors should be sent directly to Dixie Alford Jones, AHIP, Medical Center Library, LSU Medical Center, P.O. Box 33932, 1501 Kings Highway, Shreveport, LA 71130-3932.

For further information, contact the professional development department at 312/419-9094 x28; mlapd2@mlahq.org





Southern Chapter Research Committee submitted by Martha Earl, Chair

The Research Committee of the Southern Chapter of the Medical Library Association, SC/MLA, originated in 1990 with a mission to encourage individual and joint research efforts within the Southern Chapter membership. Responsibilities include fostering individual research efforts among chapter members through sponsored research forums, mentoring, continuing education opportunities and other professional development methods. The Committee also develops and promotes joint research projects within the Chapter and with other organizations.

Members include the chair and six members representing the different states within the chapter, if possible, and balanced between those serving clinical clientele and those serving academic user populations. In addition, two ex-officio members serve as consultants, adding their wisdom to current Committee decisions.

In order to be considered for membership on the Research Committee, candidates must have a demonstrated background in research, be willing to mentor, and take an active role in the chapter. 1998-99 members include Martha Earl, University of Tennessee Medical Center at Knoxville, Chair; Marcia Epelbaum, Vanderbilt University, Eskinid Biomedical Library, Southern Expressions liaison; Lisa Rains Russell, University of Alabama; Steven MacCall, PhD., University of Alabama; Robert Poyer, Medical University of South Carolina; Mary Fielder, Three Rivers AHEC, Georgia; Tara Tobin, University of Florida Health

Sciences Center Library; Cheryl Dee, PhD., University of Florida, ex-officio; and Jocelyn Rankin, Mercer University School of Medicine, ex-officio.

The SC/MLA Research Committee rewards and encourages research efforts within the chapter. The committee awards a stipend of \$500 as a Research Award to aspiring and inspired researchers. The 1998 award went to Shelley Paden, Rick Wallace, and Andrea Batson for their study of how libraries and end users utilize Loansome Doc. A member of the committee writes a regular column for the chapter newsletter, *Southern Expressions*, that highlights individual researchers. The Committee also maintains a mentor list, a research interests database, and a Website (<http://www.slis.ua.edu/researchcommittee-scmla/>)

The Committee sponsors research presentations at the chapter's annual meeting and encourages library school students to present papers or posters. In addition, the Committee encourages chapter members to participate in research at the national level.

The Committee actively seeks out projects of worth to the whole chapter. In 1998, the Southern Chapter won the Majors/MLA Chapter Project of the Year Award for its chapter-wide journal usage study. Details can be found in the following article: Dee CR, Rankin JA, Burns CA. "Using scientific evidence to improve hospital library services: Southern Chapter/Medical Library Association journal usage study." *Bulletin of the Medical Library Association* 1998 Jul;86(3):301-6.*

***Editor's Note:** The project was also reported at MLA '96 where it won the first Research Section Award for Best Paper, and was featured in the Research Spotlight column of *Hypothesis* 1997 Spring;11(1):6-7.



Evidence-Based Librarianship (EBL) Needs International Collaboration

Jon Eldredge, MLS, Ph.D.

This new column will aid Evidence-Based Librarianship (EBL) efforts by summarizing research reports otherwise not readily accessible to *Hypothesis* readers. A basic tenet of EBL points to the need to search widely and creatively to compile sufficient evidence to make sound decisions.

At least one study on the efficacy of systematic reviews in medicine has pointed to the need to include all clinical trials regardless of language or place of publication.¹ There are so few health sciences librarians, relatively speaking, compared to both other health sciences professions and other types of librarians.² Even fewer health sciences librarians are actively involved in research projects.^{3,4} Increased international collaboration that would enable health sciences librarians to pool their research results seems to be a strategy likely to overcome our small population of researchers.

Many of our health sciences librarian colleagues around the world are faced with a number of the same challenges facing us here at home. The author was reminded of this fact a couple of years ago when he made a presentation to the staff at the National Medical Library in Prague, Czech Republic. At the conclusion of his formal presentation he noted that the questions posed from the staff all could have come from an audience of US health sciences librarians. Later in the day, the author learned about some of the innovative methods used by the Czech health sciences librarians to solve specific problems also shared by US librarians. This experience in the Czech Republic tended to validate the author's previous observations in Europe and China during the 1970s. Readers of health library listservs probably can recall fruitful discussions involving both US and non-US librarians.

This column will feature structured abstracts of research conducted outside the US. Current evidence suggests that structured abstracts are more effective in quickly communicating research results when compared to traditional abstracts.⁵⁻¹⁰

With the gracious assistance of MLA International Cooperation Chair Carole Francq Gall, the author sent out email inquiries earlier this year to health sciences librarians outside the US about how they communicated their research results. We received responses from health sciences librarians in the following countries: Canada, Chile, China, Denmark, Germany, India, Israel, Japan, Poland, South Africa, Taiwan, Zambia, and Zimbabwe. The author already had information about the United Kingdom. This highly informal survey pointed to the possible need for this column as a communication vehicle.

All health sciences librarians who have either conducted research outside the US or have reported the results of their research in journals published outside the US are invited to submit English-language structured abstracts of these research projects. Neither the Editor nor Editorial Board of *Hypothesis* promise to publish all submissions.

Structured abstracts will be evaluated for publication in *Hypothesis* according to the following criteria: (1) relevance of the reported research to US librarians; (2) higher levels of evidence to the research, which will be explained in Table 1 below; (3) originally published outside the US in a journal with contents not readily accessible to US health sciences librarians; (4) compliance with the conventions of presenting structured abstracts as explained in two sources^{11,12} and witnessed with increasing frequency in many core medical journals. The Associate Editor assigned to this column will edit submissions as needed for clarity and conciseness. A generic elements example appears below, followed by a sample involving a recent research report published by the author.

Table 1 outlines the levels of evidence for Evidence-Based Librarianship (EBL). The structured abstracts will be accompanied by a modified bibliographic citation. The generic elements for submissions are outlined below.

GENERIC ELEMENTS OF MODIFIED BIBLIOGRAPHIC CITATION AND STRUCTURED ABSTRACT

Descriptive title of the research project

ABSTRACT (limit of 300 words length)

Objective
Method
Results
Conclusion

Additional elements to the abstract that comply with guidelines for writing abstracts referenced above might be added if relevant to report:

Keywords (optional)

First six names of investigators

Name(s) of translator of abstract into English language
(if other than the author)

Name of investigators' library and parent institution

Source Journal Title (including ISSN)

Year, month

Volume, number

Pages

If report has not been published to date, any information about the organization sponsoring the research

Complete mailing address of author to contact for additional information

E-mail address of author to contact

Reprints of article or full report available from author?
(yes or no)

Willing to share raw data? (yes or no)

SAMPLE MODIFIED BIBLIOGRAPHIC CITATION AND STRUCTURED ABSTRACT

The vital few meet the trivial many: unexpected use patterns in a monograph collection

Objective:

To test three related hypotheses about monographs circulation at academic health sciences libraries: (1) Juran's "Vital Few" Principle, sometimes incorrectly referred to as the "Pareto Principle"; (2) most (>30%) new monographs will not circulate within four years; and, (3) Trueswell's 20/80 rule concerning intensity of monographs circulation.

Method:

Retrospective cohort study at a major academic health sciences library in November 1997 on monographs acquired during 1993, utilizing an online review file.

Results:

Unexpectedly, most (84%) monographs had circulated at least once in the four years following acquisition. Combining circulation and in-house usage data revealed that 90.7% of the monographs acquired in 1993 had been used at least once. Small percentages of these monographs produced disproportionately high circulation levels.

Conclusion:

Monographs circulation rates confirm Juran's "Vital Few" Principle. Most monographs circulated at least once in contrast to results reported by the Pittsburgh Study or other studies reported by Hardesty and Fenske. The results do not comply with Trueswell's 20/80 ratio rule. Further research needs to investigate the effects of low students to books ratios and problem-based learning (PBL) curricula upon monographs utilization.

Keywords: retrospective cohort study; use study; monographs; circulation analysis; problem-based learning (PBL); medical education; collection development, library circulation studies

Jonathan Eldredge, [not translated], Health Sciences Center Library, The University of New Mexico, *Bulletin of the Medical Library Association* (ISSN 0025-7338) 1998 Oct;86(4): 496-503.

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Reprints available from author

Willing to share data

THE NEXT STEPS

Finding the needed evidence, the primary concern of this column, represents the second step in the EBL process. The first step involves formulating a clearly defined, answerable question that addresses an important issue in librarianship.¹³ CINAHL (Cumulative Index to Nursing and Allied Health Literature) recently picked up *Hypothesis* for indexing, which should help keep the contents of these abstracts accessible in the future as questions potentially answerable by these abstracts arise in the minds of health sciences librarians. LISA (Library & Information Sciences Abstracts) and Library Literature are currently deciding whether to begin covering *Hypothesis* as well. Research Section programs at MLA Annual Meetings can assist the reader with EBL steps three and four: evaluating the validity and relevance of the evidence; assessing the value of expected benefits and costs of any decided upon action plan.

The author will be contacting colleagues directly in other countries within the next few months to encourage participation. Any *Hypothesis* readers with research studies to suggest for inclusion in this new column are strongly encouraged to contact the author.

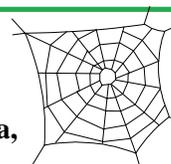
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12. Haynes RB, Mulrow CD, Huth EJ, Altman DG, Gardner MJ. More informative abstracts revisited. *Annals of Internal Medicine* 1990 Jul 1;113(1): 69-76.
13. Byrd GD. Letter on Evidence-Based Librarianship. *Hypothesis* 1998 Spring;12(1): 5, 12.
14. Eldredge J. *Evidence-Based Librarianship (EBL)*. MLA Continuing Education Course #753. Session 3: Evaluating the Validity and Relevance of the Evidence. Chicago, IL: Medical Library Association, 1999.
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TABLE 1 EVIDENCE-BASED LIBRARIANSHIP: LEVELS TO EBL EVIDENCE ¹⁴

1. SYSTEMATIC REVIEWS OF MULTIPLE RIGOROUS RESEARCH STUDIES
2. SYSTEMATIC REVIEWS OF MULTIPLE, BUT LESS RIGOROUS RESEARCH STUDIES SUCH AS CASE STUDIES OR QUALITATIVE RESEARCH
3. RANDOMIZED CONTROLLED TRIALS (RCTs)
4. CASE-CONTROLLED TRIALS
5. COHORT STUDIES
6. SURVEYS
7. CASE STUDIES
8. DECISION ANALYSIS
9. QUALITATIVE RESEARCH SUCH AS FOCUS GROUPS, ETHNOGRAPHIC OBSERVATIONS, HISTORIC APPROACHES, ETC. ¹⁵

SITES TO SEE ...

... submitted by **Kristin Stoklosa**,
Web Site Editor



If you haven't visited it lately, take a look at the **Research Section Web site** (<http://hubnet2.buffalo.edu/mla/>) for some great new links:



Research Bibliography is prepared by the Research Resources Committee. The 1999 document has been updated by Leslie M. Behm, Jana Allcock, and Kristin Stoklosa.



Research Section History was compiled and written by Robert Braude, Ph.D. It was originally published in *Hypothesis*. 1998 Sum; 12 (2):9-16.



Research Section Awards and Criteria 1999 Award Recipients provide links to the abstracts of the Best Paper and Best Poster receiving awards at the 1999 Annual Meeting (see pg. 3 for titles of presentations).



Research Roundtable Summary from May 16, 1999 includes questions, suggestions and ideas expressed at the Chapter Sharing Roundtable on Research at the Annual Meeting. Several Research Section members attended including Jolene Miller, Ruth Fenske who served as Resource Person, and Jan LaBeause who acted as Recorder.