Research integration for health sciences libraries

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[Abstract] This article is a case study of an innovative academic health sciences library initiative that describes the planning and events in the inaugural year of a new library research program. In response to emerging trends in health sciences libraries to increase research skills of librarians in order to foster expanded research integration within the health sciences disciplines, the University of Michigan Taubman Health Sciences Library established an EXPERT Research Initiative. This new program is part of the strategic planning for the future of the library and is focused on three primary goals: expanding the library’s research portfolio, building librarians’ research skills and competencies, and increasing the library’s research visibility. The article highlights five library projects that illustrate the different kinds of research collaborations librarians are engaged in with health sciences faculty, researchers, clinicians, and students.

[Key words] Academic health sciences libraries; Collaboration; Health sciences librarians; Informationists; Library administration; Library research integration; Library strategic planning; Organizational case studies; Organizational innovation; Role of the librarian

Introduction
This paper focuses on the importance of research as a primary component of current practice in health sciences librarianship and describes opportunities for health sciences libraries to plan and engage in research activities, with examples of initiatives underway at the University of Michigan Taubman Health Sciences Library, and more broadly, as part of the Medical Library Association Research Imperative, dedicated to strengthening professional competencies in research and promoting a culture of research in libraries.

Management & Organizational Structure
The Taubman Health Sciences Library (hereafter as Taubman Library) is part of the University Library System at the University of Michigan. The library organizationally reports to the Vice Provost for Academic Innovation and the Dean of Libraries. Taubman Library provides a wide array of services focused on the health sciences constituencies on campus, including the Medical School, School of Nursing, School of Dentistry, School of Public Health, School of Kinesiology, and College of Pharmacy, as well as the University of Michigan hospitals and health system, collectively known as Michigan Medicine. The Taubman Library consists of twenty-two FTE, and it is organized into three administrative and service units: Administration, Academic and Clinical Engagement, and Research and Informatics.

- Administration is comprised of the following positions: the director and associate university librarian, the deputy director, an administrative assistant, a collections specialist, and two librarian informationist positions. The administrative unit has

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responsibility for library leadership, management and budget, and collection development. The two librarian informationists who work in this unit have responsibility for instructional technology and diversity initiatives between the library and constituency academic units.

- Academic and Clinical Engagement is comprised of an assistant director, seven librarian informationist positions, and one media development position. The unit has responsibility for integrating the library into the health sciences schools and academic and clinical departments; for engagement with faculty on curriculum development, teaching and learning activities, and evidence – based clinical decision making; for consulting with students on projects and assignments; and for linking faculty and students with library services and resources.

- Research and Informatics is comprised of an assistant director and six librarian informationist positions. The unit has responsibility for integrating the library into the health sciences research, laboratory, and entrepreneurial environments; for partnering with researchers on research and grant proposals and projects; for consulting in the development of new resources and tools; for advising on emerging technologies relevant to research activities; and for developing new data management services.

The following chart delineates some of the key responsibilities and functions of each unit.

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**Strategic Planning**

The library’s leadership team meets on a regular basis to monitor and evaluate ongoing services and operations. In addition, the leadership team holds an annual meeting 1) to discuss potential new directions and innovative opportunities and 2) to determine priorities and set goals as part of strategic planning initiatives for the year.

With the recent completion of a major renovation of Taubman Library that re–visioned traditional health sciences library spaces into a new model for linking information resources and services to collaborative learning spaces and interdisciplinary partnerships, the library has a smaller physical footprint with greater emphasis on mission–and curriculum – integrated services. Traditional spaces for print resources have been transformed into new spaces with innovative technologies in response to increased digital demand, and the traditional focus on library services has shifted to one of providing tailored information services and increased library engagement with academic and clinical partners. The renovated library is more
conducive to flexible, collaborative, and self-directed learning spaces, and the redesign has advanced the integration of librarian informationists into the curriculum with expanded roles\(^{[1]}\).

Since many of the longstanding goals the library had set for itself had been accomplished with the completion of the renovation, the timing was right for a new strategic plan for Taubman Library going forward. Through a series of meetings and focused discussions on current trends and issues facing libraries in the future, the importance of enhancing the library’s role in research emerged as a primary theme. While the library’s mission statement identifies research as a significant component of its work (i.e., "The mission of the library is to be a valued partner, fully integrated into the work of the university & providing leadership in knowledge management for education, research, patient care, and community outreach." ), there had not been a unifying programmatic effort focused on advancing the library’s role into the research enterprise. To help chart the future for more library-integrated research activity, a new program was identified for development, the EXPERT Research Initiative.

**EXPERT Research Initiative**

The term EXPERT is an acronym which stands for EXPanding Our Expertise & Research Porflolio.

To gain buy-in for the initiative and to enlist librarian informationist input into the planning process, an all-staff meeting was held, announcing the new library research initiative and the opportunity to help design the components of the program. Three questions framed the discussion and planning process:

- How can we expand our library research portfolio?
- What skill building do we need to be successful?
- How can we increase our research visibility on campus and in the broader health sciences library community?

1) *Expanding the library research portfolio*

During the first part of the planning discussion on expanding the library’s research projects and portfolio, librarian informationists emphasized the importance of both formal and informal opportunities to engage in research. Ideas for these kinds of research-focused opportunities include lunch meetings, research clinics, journal clubs, and writing groups. A preference was indicated for having designated time for conducting research into individual’s workloads, raising a question for what current activities could be changed or replaced by specific research-focused activities. A recommendation was also made to incorporate designated time to discuss research efforts into existing meetings to make the process more efficient. An emphasis was placed on being more intentional about looking at grant funding opportunities from national health sciences organizations, such as the National Institutes of Health, as well as foundations.

2) **Building research skills and competencies**

A second part of the planning discussion involved planning for professional development and the specific skills and competencies that would be needed to increase library research efforts and expand library research collaborations. The following six areas of skill development were identified:

- Methodologies: knowledge of statistical methods, including qualitative, quantitative, and mixed methods approaches;
- Data: knowledge of skills for working with data, including data collection as well as data analysis and interpretation and text mining and forecasting trends;
- Survey techniques: knowledge of techniques for survey construction and design;
- Tools and software: familiarity with research tools and software;
- Writing: experience with formulating good research questions, generating research hypotheses, and writing high-quality abstracts;
- Subject specialization: familiarity with research in specific disciplinary fields and sub-specialties as well as knowledge of faculty expertise in particular subject specializations.
3) Increasing the library’s research visibility

A third part of the planning discussion focused on ways to increase the library’s visibility in producing and partnering in research collaborations. Suggestions were made about highlighting the library’s research initiatives on the library website, including the following ideas for showcasing the library’s contributions to research:

- Research profiles: creating individual librarian informationist research profiles and collaborative research project profiles to share information about areas of research interest and current projects underway;
- Research publications: creating a publications webpage to promote the journal articles published by librarian informationists;
- Research impact: consistently demonstrating the production of methodologically rigorous, substantive research articles;
- Digital scholarship: partnering with the University of Michigan Publishing Office to create an open-access, peer-reviewed journal focused on library innovations in research;
- Subject-specific conference presentations; presenting at subject-specific health sciences disciplinary conferences in addition to health sciences library conferences;
- Annual health sciences events; presenting at established, local campus events, such as the annual Health Professions Education Day, Enriching Scholarship, and other health sciences school’s annual “excellence in research” events.

Research Synergy Event

The Research Synergy Event describes a collaborative program between Taubman Library and one of the basic sciences departments within the University of Michigan Medical School, the Department of Learning Health Sciences (DLHS). The department is comprised of three divisions; Learning and Knowledge Systems, Professional Education, and Clinical Simulation. While librarian informationists from the library and DLHS faculty have collaborated individually on integrated curriculum efforts and other projects in the past, the Research Synergy event was the inaugural effort to bring together the collective groups for the purposes of 1) getting to know each other better; 2) sharing information about emerging research interests and current projects, as well as research technologies and tools in development; and 3) engaging in professional conversations about intersecting interests and potential opportunities for working together on research projects in the future.

For the event, a planning committee was formed, comprised of members from both the library and the department, with responsibilities for program planning, content development and design, publicity, and technical preparations. The committee developed five primary goals for the event, intended as an introductory and informative networking opportunity for librarian informationists and faculty:

- to gain a mutual understanding of the research interests of DLHS faculty and Taubman Library informationists;
- to share information about current and prospective research;
- to identify potential areas for research collaboration;
- to initiate conversations that will foster research partnerships, inquiry, and discovery going forward;
- to increase opportunities for teamwork on research grants and external funding.

Librarian informationists and departmental faculty were invited to submit posters and presentations for the event. The event was funded jointly by the library and the department, and over fifty administrators, faculty, librarian informationists, and doctoral students attended the four-hour program. The event featured twenty poster presentations and six project presentations, covering topics ranging from text mining, clinical performance feedback interventions, information needs assessment for global health, machine computable biomedical knowledge, simulation research, visualization in research, GPS mapping for health, information literacy mapping, community
intervention research, and health-related natural language resource design, among others.

**EXPERT Research Initiative – Current Librarian Informationist Research Projects**

The establishment of the EXPERT Research Initiative is paving the way for increased librarian informationist integration into research activities and collaborative partnerships with the health sciences faculty and researchers on campus. The following five projects exemplify the kinds of research projects that librarian informationists are engaged in with research faculty and clinicians and the kinds of research skills that librarian informationists can contribute to advancing the research mission of the university and the health sciences schools, including skills in conducting information needs assessments, systematic reviews, impact evaluation studies, and citation analyses, in addition to creating innovative tools for health sciences education.

Research Project #1: Longitudinal Information Needs Evaluation – this project is focused on information needs of School of Nursing students in order to: 1) identify gaps in student information needs, 2) identify the most opportune time for library interventions and communication, 3) improve selection and usage of learning tools and resources, 4) improve instruction practices, and 5) improve library integration in the nursing curriculum. Preliminary findings by the librarian informationists leading the study are that students have misconceptions about the library’s role in education and about access to information resources; that identifying relevant, reliable resources and conducting effective searches for information are a challenge for students; and that student information skills need to be strengthened for advanced research assignments. These findings will help librarian informationists improve connections to information resources for nursing students’ research and will help make a compelling case with faculty and curriculum committees for earlier integration points in the curriculum for library skill development.

Research Project #2: The Franklin Expedition: A Systematic Review – this project paired a librarian informationist and School of Dentistry faculty researcher, utilizing systematic review methodology and specialized software, to analyze the literature on the Franklin Expedition of the Arctic. The expedition began in 1845, through portions of the Northwest Passage, and resulted in two British Royal Navy ships becoming trapped in ice near King William Island in 1846. Ultimately no crew members survived after two years of living in harsh conditions, as they waited for the ice to melt and break free the ships. The resulting review of the literature helped elucidate a new theoretical understanding to explain what happened to the crew members. Historians and researchers had previously speculated causes of death ranging from exposure and starvation to scurvy, lead poisoning, botulism, and tuberculosis. The librarian informationist, working with the dentistry faculty member, constructed a search strategy of terms describing the crew members’ physical conditions and known diseases, searched in relevant health sciences databases. The analysis of over 1,700 citations in the medical literature led to a journal publication, advancing a new finding that Addison’s disease is an additional explanatory factor in understanding the mystery of the Franklin Expedition.

Research Project #3: Comic Creation as an Innovative Library Role – this project is a partnership between librarian informationists and clinical research faculty, utilizing graphic novels, also known as comic books, to illustrate communication challenges between physicians and patients, with a goal of enhancing empathy between the two as well as improving patient comprehension and self regulation. As part of the project, and to create the comic book component, librarian informationists used specialized comic creation software and co-authored content with the aid of a graphic artist. The results of the study have been published in the Journal of the American College of Radiology, demonstrating an innovative use of comics for medical education and co-learning experiences between healthcare providers and patients.
Research Project #4: Library Impact on Patient and Population Care—this project represents an effort to better understand and measure the library’s impact within the health sciences clinical environment. Librarian informationists are conducting a sequential exploratory mixed methods study, using both semi-structured interviews of key stakeholders and a survey, to examine the library’s impact on patient and population care. To inform the mixed methods approach to the study and strengthen expertise, librarian informationists have consulted with experts in health policy and innovation as well as statistical methods, and one librarian informationist has completed a workshop on mixed methods approaches to research[6].

Research Project #5: Trends in Authorship and Collaboration: A Citation Analysis – this project features a collaboration team comprised of a librarian informationist, the University of Michigan Medical School (UMMS) Executive Vice Dean for Research, and researchers from the UMMS Departments of Molecular and Integrative Physiology, Computational Medicine and Bioinformatics, and the Michigan Institute for Data Science. The citation analysis involved an assessment of publications in ten select clinical and basic science journals from 2000 to 2015, as a measure of research output. Findings from the study include that while the United States maintained the highest ranking in terms of percentages of the most clinical and basic science research articles published in high ranking journals, there is a notable shift from US-based research to US—international collaboration, coupled with a notable decline in US-based research in high—ranking journals, as measured by biomedical research publication output. At the same time, the percentage of clinical and basic science research publications from China has steadily increased in both high—ranking and mid—ranking biomedical journals. This increase in research publication output corresponds with significant increases in China’s investments in research and development during the same time period[7].

Medical Library Association’s Research Initiatives

An emphasis on building library research skills and competencies extends beyond Taubman Health Sciences Library to the health sciences library community at a national scale. The Medical Library Association (MLA), the premier professional organization of health sciences librarians, has introduced several initiatives aimed at increasing health sciences librarians’ research impact and integration.

With its Research Imperative, MLA is focused on "creating a culture of research" whereby librarians can increase their participation in the "continuum of research activities" available to them within their respective institutions[8]. These activities include designing and conducting applied research studies; establishing research collaborations with external partners; participating in research grants; becoming members of clinical research teams and multidisciplinary research teams; and developing integral roles in collecting, analyzing, and evaluating data for decision making.

An essential step in fostering a culture of research is providing professional development opportunities for acquiring the research skill sets and competencies needed. To facilitate this training, MLA has received grant funding to create the MLA Research Training Institute which will offer educational programs designed to foster librarian integration in research. Institute programming will feature training in research design, research mentoring, and one year of post—research support for participants who will plan and conduct an individually—designed research project of their own[9].

MLA is also seeking to recognize organizations for their efforts in providing institutional support to further expand the integration of librarians in research initiatives. MLA has established a new award, the Research Advancement in Health Sciences Librarianship Award, which will be given for the first time at the annual conference in May 2018. Recipients of the award must demonstrate organizational and financial support of librarians’ research activities and engagement in institutional research initiatives, such as
research grants, data management, systematic reviews, and surveys and other assessments[10].

Conclusion


Libraries must become a center for research and development, fueling bold experimentation and new answers to the grand challenges facing research libraries and scholarly communication . . . The success of our vision . . . will be realized through the creative ways in which scholars and global users exploit our resources, tools, services, spaces, and expertise to accelerate science and knowledge in the service of solving the world’s greatest challenges[12].

Research is the next frontier for library engagement. Many of the core services and academic contributions of libraries lend themselves to research opportunities for librarian informationists; understanding users and user behaviors; promoting resources and services; building collections and tools; ensuring preservation and ubiquitous access; collaborating with faculty, researchers, students, staff, and colleagues from around the world; and fostering inquiry, discovery, and innovation. Not only do librarian informationists have an opportunity to increase production and publication of library-focused research, but by demonstrating their research expertise, there is the opportunity to expand research partnerships and collaborations with health sciences faculty and researchers within the broader academic enterprise. In this conceptualization of libraries of the future, librarian informationists are not passive bystanders; they have active, non—traditional roles to play in becoming partners in research and furthering research integration into health sciences disciplines. The emphasis on building research competencies and expanding research engagement, combined with the knowledge resources and innovative services provided by the library, will make the library a continuously relevant space for exploring and addressing creative solutions to important issues, both on a local and global scale.

References


[12] ibid, p. 19. [Accepted;2017–12–31]
医学图书馆的研究整合

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[摘要] 介绍了关于学型性医学图书馆创新倡议的案例研究。该倡议描述了新图书馆研究计划实施之后的所有相关计划和事务。为了顺应医学图书馆发展的新趋势，通过提高图书馆员的研究技能，以促进其在医学领域的扩展研究整合，密歇根大学Taubman医学图书馆建立了一个专家研究计划。这项新计划是图书馆未来战略规划的一部分，聚焦3个主要目标：扩大图书馆的研究组合，建立图书馆员的研究技能和能力以及提高图书馆的研究可视性。重点介绍了5个图书馆项目，从而阐明图书馆员所从事的与图书馆员、科研人员、临床医生以及学生等不同人群的不同类型的研究合作。

[关键词] 学型性医学图书馆；合作；医学图书馆员；信息学家；图书馆管理；图书馆研究整合；图书馆战略规划；组织案例研究；组织创新；图书馆员角色

研究是医学图书馆当前实践活动的一个重要组成部分，本文以密歇根大学Taubman医学图书馆(University of Michigan Taubman Health Sciences Library)正在进行的一些创新活动为例，向同行介绍医学图书规划和从事研究活动所面临的机会。从更广义的角度讲，医学图书馆研究使命的一部分，其目的是为了加强图书馆的研究能力和推动研究文化的发展。

1 管理与组织结构

Taubman医学图书馆(以下简称“Taubman图书馆”)是密歇根大学图书馆体系的一部分。从组织结构上讲，它由大学学术创新副教务长和图书馆馆长报告其工作。Taubman图书馆主要面向校园内各个健康科学学院(医学院、护理学院、口腔学院、公共卫生学院、运动学院、药学院)的读者，附属医院及相关的医疗系统员工提供各种服务。Taubman图书馆由22个正式员工构成3个行政与服务机构：行政管理机构、学术与临床事务管理机构、研究与信息学机构。

1.1 行政管理机构

由主任和大学图书馆副馆长、副主任、1名行政助理、1名馆藏专家和1名信息学专家馆员构成。行政管理机构负责图书馆领导、承担管理和预算以及馆藏建设的任务；两名信息学专家馆员则承担图书馆和学术机构之间的教学技术与安排各种活动的任务。

1.2 学术与临床事务管理机构

由1名副馆长、7名信息学馆员和1名媒体开发人员构成，其任务是将图书馆与各医学学院和各学术与临床部门整合为一体，与教职员工一起从事课程开发和教学活动，循证临床决策，和学生一起商讨其项目及作业，建立教师和学生与图书馆服务和资源之间的联系渠道。

1.3 研究与信息学机构

由1名副馆长和6名信息学馆员组成，其任务是将图书馆与卫生科学研究、实验室及企业整合为一体，与科研人员在研究、拨款建议和中标项目等方面进行合作伙伴，一起商讨新资源和新工具的开发，就研究活动相关的新技术提出建议，推动新的数据库管理服务。各部门的主要职责和功能详见表1。

2 战略规划

图书馆领导团队除定期检查和评估图书馆的业务和服务外，还要举行年会，讨论可能出现的新方向与创新发展的机会，确定优先项目和目标，并以此作为下一年度战略规划的一部分。
### 表 1 行政管理机构、学术与临床事务管理机构、研究与信息学服务机构的重要职责和功能

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<td>实验室动物医学</td>
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<td>计划与目标</td>
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<td>临床与转诊科学</td>
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<td>临床信息资源</td>
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<tr>
<td>图书馆，学院和大学的各种项目</td>
<td>教学技术与媒体开发</td>
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<td>系统综述与实践指南</td>
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将传统医学图书馆的信息资源、信息服务，合作学习空间与多学科合作整合为一体的新模式，是 Taubman 图书馆的一场重大革新。这项革新的任务的完成，虽然使该馆的物理空间比过去小了，但比过去更注重一体化的任务与课程服务。传统的印刷资源空间为了适应不断增加的数字化要求，已转变为创建新性技术的新空间，传统的图书馆服务重点已转变为提供定制的信息服务，并促进图书馆与学术和临床机构加强合作共赢。改革后的图书馆是一个更加灵活、更富有合作氛围的自主学习空间，并且在推动图书馆信息学专家与课程一体化的进程中实现其越来越大的作用[1]。

Taubman 图书馆制定了其自身发展的长期目标。随着革新计划的完成，迎来了为其继续发展制定新战略规划的最佳时机。在召开一系列会议讨论图书馆未来发展的新趋势和面临的新问题之后，我们一致认为提高我馆在研究中的重要作用已成为一个新的话题。图书馆使命声明将研究作为其工作的一个重要组成部分(图书馆的使命是成为一个非常有价值的合作伙伴，将自身完全整合到大学的各项目中，在教学、研究、患者管理和社区扩展等各方面中的知识管理中充当领导角色)。不过，对如何提高图书馆在研究团队中的作用，目前尚未采取统一行动。为了推广图书馆未来参加更多的研究活动，已为其发展制定了一项新规划，即 EXPERT 研究项目规划。

3 EXPERT 研究项目规划

EXPERT 是 EXPanding Our Expertise & Research Portfolio (拓展我们专业知识和研究的价值)的缩略词，为实现扩展我们专业知识和研究价值的研究项目规划和让图书馆信息学专家参加规划制定的全过程，我们召开了全体员工会议，并宣布了图书馆的新的研究规划和帮助设计该规划条款的机会。以下 3 个问题纳入了讨论和规划制定的全过程，即：

- 我们如何扩大图书馆的研究范围？
- 我们需要什么技能才能获得成功？
- 怎样才能提升我们在校园甚至更广泛的医学图书馆联盟中的研究地位？

3.1 扩大图书馆的研究领域

规划的第一部分讨论了如何增加图书馆的研究项目和提升其价值，图书馆信息学专家反复强调要抓住从事正式与非正式研究的机会，并就这些研究机会提出了以下建议：举办会议、建立临床研究诊室、成立期刊俱乐部和写作小组。有倾向表明要将研究活动纳入到个人工作量中，并提出目前所进行的哪些活动可以被特定的以研究为焦点的活动取代；还有建议提出将讨论研究工作融入到现有的会议当中以提高工作效率，将重点放在关注诸如国立卫生研究院和国立卫生研究基金会提供基金资助的机会和意向。

3.2 加强研究技术和提升研究能力

为了增加图书馆的活动和扩大图书馆的研究合作范围，规划的第 2 部分讨论了专业发展方向，确定了具体研发技术与研究能力规划的制定。规划确定了以下 6 个技术发展领域。

- 方法学；统计学方法的知识，包括定量方法、定性方法与综合方法。
- 数据；数据处理技能的知识，包括数据搜集、数据分析与注释、文本挖掘和发展趋势预测。
- 调查技术；调查构建和设计技术的知识。
工具和软件；通晓研究工具和软件。

写作：阐述有较高价值的研究问题，形成研究假设，并写出高水平摘要。

学科专业化，精通具体学科领域与分支学科的研究，了解大学具体学科专业领域的专家。

3.3 提高图书馆研究的知名度

为了在研究合作中形成合作伙伴关系，规划的第3部分讨论了提高图书馆在研究合作中建立合作伙伴关系的知名度问题，并就这个问题提出了将图书馆研究项目置于图书馆网站上的建议，包括图书馆应担负的以下6项任务。

研究方案；制定图书馆信息学工作者个人的研究计划与合作研究项目计划，以实现研究方向与准备实施的新项目的共享。

研究出版物；创建出版物网页，以促进图书馆信息学工作者在期刊上发表文章。

研究影响；持续展示优秀期刊文献的产出方法学。

数字成就；与密歇根大学出版社一起创办图书馆研究创新性开放存取和同行评议的期刊。

学科专业学术会议；出席医学领域学术会议和医学图书馆学术会议。

年度健康大事记；介绍校园发生的大事，如年度卫生专业日渐丰富的学术成就以及其他卫生科学学院的年度“杰出研究”等。

4 研究合作大事记（Research Synergy Event）

研究合作大事记介绍了 Taubman 图书馆与密歇根大学医学院一个基础医学系（健康科学系）之间的合作计划。该系下设3个处；学习与知识系统处、专业教育处和临床模拟实验室。Taubman 图书馆与该系员工在过去整合课程和其他项目中已有个人之间的合作经历，研究合作大事记是各合作小组在一起举行的仪式，其目的之一是让大家相互了解，目的之二是共享新的研究方向与研究项目以及正在开发的研究技术与工具信息，目的之三是进行基于共同研究兴趣的专业对话和抓住在未来研究项目中一起工作的可能机会。

研究合作大事记成立了专门的计划委员会，其成员来自 Taubman 图书馆与健康科学系。研究合作大事记计划委员会负责计划的制定，计划内容的开发与设计、计划的宣传和技术准备并确定了研究合作大事记的5个主要目标，旨在向信息学馆员与卫生科学系教师推广和提供构建信息网络的机会。

一是让卫生科学系的教师与 Taubman 图书馆信息学专家相互了解各自的研究方向；

二是共享目前与未来研究的信息；

三是确定研究合作的可能领域；

四是启动可以助推研究合作、研究咨询与研究发现的对话；

四是增加研究团队获得研究基金资助与外来资助的机会。

Taubman 图书馆的信息学馆员与健康科学系的教师应向大会提交了演示文稿和大会报告论文，50多位卫生科学系的行政管理人员与教师、Taubman 图书馆信息学馆员与博士生出席了这次长达4小时的会议，会上报告的20篇研究合作大事记论文和6篇项目研究论文覆盖了文本挖掘、临床结果反馈干预、全球卫生需求信息评估、人工智能模拟研究，研究可视化，GPS卫生定位，信息素养定位，社区干预研究，卫生相关的自然语言资源设计及其他方面的内容。研究合作大事记获得 Taubman 图书馆和卫生科学系的联合资助。

5 当前开展的 Taubman 图书馆 EXPERT 研究项目

EXPERT 研究项目规划的目的是为了增加 Taubman 图书馆信息学专家参加研究活动和与学校健康科学教师及研究人员合作的机会。下面的5个研究项目是 Taubman 图书馆信息学馆员与健康科学系教师和临床医生一起合作研究及推进密歇根大学和卫生科学学院研究任务完成的最好证佐。Taubman 图书馆信息学馆员的研究技能包括信息需求评估技术、系统综述、研究影响评估，引文分析、研制卫生科学教育的创新性工具。

5.1 研究项目#1一纵向信息需求评估

该项目重点研究护理学院学生的信息需求，其目的是找出学生之间的不同信息需求，确定图书馆干预和与其进行交流的最佳时间，改进选择学习工具与资源的方法并提高其使用率，提高教学实践效果，鼓励图书馆参加护理课程的完善。主导研究的 Taubman 图书馆信息学馆员发现，学生对图书馆在教育与信息资源存取中的作用存在某些错误的看法。从相关和可靠的资源中有效地检索信息是学生面临的一种挑
战，需要强化学生的信息检索技术以帮助他们完成高
级别研究任务。上述发现不但有助于 Taubman 图书
馆信息学馆员提高护理专业学生利用信息资源的能
力，而且有助于他们与卫生科学系的教师和各课程委
员会一起商讨和确定学生欢迎的案例，以便将对学生的
图书馆技能培养尽早整合到课程中[2]。
5.2 研究项目#2—富兰克林探险队；系统综述
该项目是由 1 名 Taubman 图书馆信息学馆员与
口腔学院的 1 名研究人员一起，用系统分析方法与
专业软件，分析关于富兰克林北极探险队的研究文
献。富兰克林北极探险队 1845 年出发，经过威廉王
岛西北通道区域，于 1846 年抵达威廉王岛时，两艘
英国皇家海军军舰被困在该岛的冰层中。由于岛上的
环境恶劣，舰上的船员在苦苦挣扎两年后全部死
亡。在这两年中，他们度日如年，每天渴望冰层融
化，有朝一日能将战舰驶离该岛。关于富兰克林北
极探险队最终的文献综述有助于我们从新的理论上
阐明两艘英国皇家海军军舰船员全部死在威廉王岛
上的真正原因。历史学家和研究人员以前也推测过
寒冬，饥饿，肉毒中毒，铅中毒与结核病是他们的死
亡原因。Taubman 图书馆信息学馆员与口腔学院研
究人员一起构建了描述英国皇家海军军舰船员身体
状况与所患疾病的检索策略词，并用其检索了相关的
医学数据库[3]。他们分析了医学期刊文献中的 1 700
多条引文，得出一个新结论：阿狄森氏病 (Addison’s
disease) 是另外揭开富兰克林北极探险队队员死
亡之谜的重要因素[4]。
5.5 研究项目#5—作者与合作的趋势；引文分析
该项目阐述了合作团队的特点，合作团队的成
员包括 1 名 Taubman 图书馆信息学馆员、密歇根大
学医学院研究执行委员会副主任，密歇根大学医学院
分子与综合生理学系、计算医学生物信息学系和
密歇根数据科学研究院的研究人员。引文分析涵盖
了 10 种精选的临床与基础科学期刊 2000–2015 年
发表的论文评估，并用其作为研究产出的一种评价
手段。引文分析发现，美国在高级别期刊上发表的
优秀临床与基础科学论文的百分比高居首位，但美
国-国际合作研究论文的比例显著高于美国本土研
究论文的比例，美国在作为生物医学研究出版物产出
测度的高级别期刊上发表的美国本土研究论文数
量显著减少。与此同时，中国研究人员在高级别与
中高级别生物医学期刊发表的临床与基础科学论文
的百分比开始稳步上升，这显然与同期中国对研究
与开发的投入增加密不可分[7]。
6 医学图书馆协会的研究计划
对研究技能与研究能力提升的重视，已经超越
Taubman 图书馆成为国家层面上医学图书馆领域的
共识。医学图书馆协会(The Medical Library Association,
MLA) 作为医学图书馆馆员的主要专业组织，制
定了多项研究计划以提升医学图书馆的研究影响力
和凝聚力。
随着研究责任的不断加强，MLA 正致力于“创
建研究文化”，以使更多图书馆员参加其相关单位的
“持续研究活动”[8]。上述活动包括设计和实施应用
研究，与外部合作伙伴建立研究合作关系，参加研究
基金资助的申请，成为临床研究团队与学科研究
团队的成员，提升图书馆员为决策进行数据搜集、分
析与评估的综合能力和作用。
推动研究文化发展的最重要一步是提供获取研
究技能和所需竞争力的专业发展机会。为进行此项培训，MLA 已获得基金资助，用于创建 MLA 研究培训研究所，提供图书馆员合作研究的教育计划。该研究所培训计划包括研究设计、研究指导和一年的研究所后资金支持计划，该资金用于支持培训参与者规划和实施自行设计的研究项目 [9]。

MLA 感谢那些为进一步扩展图书馆员在研究活动中的合作提供赞助的组织。为了鼓励医学图书馆员在研究活动中进行合作，MLA 还设立了新奖项：医学图书馆事业研究进步奖（The Research Advancement-mention Health Sciences Librarianship Award），并在 2018 年 5 月举行的年会上首次颁发。荣获该奖项者必须获得过图书馆员研究活动组织赞助、财政赞助和从事过诸如研究基金申请、数据管理、系统综述、调查与其他评估等研究活动 [10]。

7 结论

2016 年 MIT 图书馆未来的报告中，将研究作为大学图书馆的一种机遇和责任的新契机，并阐述了它的重要性 [11]。

图书馆必须成为研究与发展的中心，要有勇气和热情进行试验，制定应对研究图书馆与学术界面临的重大挑战的新措施。图书馆要通过创新学者和全球用户利用我们的资源、工具、空间与专业知识的方法，实现其愿景，并在应对世界最大挑战的服务中推动科学的发展和知识的更新 [12]。

研究图书馆将进入的下一个前沿领域。图书馆的众多核心服务与学术贡献将使图书馆信息学馆员得到更多研究机会，包括了解用户及其行为，促进资源建设和提高服务质量，加强馆藏建设与开发工具，制定收藏及其随时随地都可存取的措施，与教师、研究人员、学生及全世界的同行合作推动探究、发现与创新。图书馆信息学馆员不但有更多发表图书馆研究论文的机会，而且有扩大其与卫生科学教师和研究人员建立研究合作伙伴关系并进行合作研究的机会。从未来图书馆的概念看，图书馆信息学馆员不是被动的旁观者，而是研究的合作者，并在推动其研究整合到卫生科学学科中发挥更加积极的非传统作用。强调提升研究能力，扩展研究范围，结合知识资源与图书馆提供的创新性服务，将使图书馆成为探索和提出当地及全球重要问题创新性解决方案的可持续性的关联空间。

【参考文献】


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