

Elizabeth Yates: Guided Research 9411

Getting integrated: a “subversive activity” at McMaster University’s Health Sciences Library

For: Jennifer Noon
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Introduction

Information literacy is defined as a set of skills enabling individuals to recognize the need for information, and to find, evaluate and effectively use the required information (Association of College and Research Libraries, 2000). It applies to all disciplines and educational settings and also forms the basis for lifelong learning. Promoting information literacy is a central pursuit for librarians, whose “fundamental objective is one of educational empowerment. True librarianship ... must also take the responsibility of instructing people how to find, access and retrieve information for themselves.” (Robertson, 2005, p. 85).

The integration of information literacy teaching practices within libraries serving universities and colleges has been a growing trend for more than a decade, documented in numerous reports in the professional and research literature (McGuinness, 2007; Raspa and Ward, 2000). There are a wide range of partnerships between academic librarians and teaching faculty surrounding information literacy. Librarians may be invited into a one-hour class for a “one-shot” session to provide a compressed overview of library resources and research skills. In other settings, a heightened focus on teaching students how to find, evaluate and use high-quality information has created a specialty role in librarianship: the liaison librarian. This portfolio generally involves supporting specific academic programs, such as English or Business. Liaison librarians build relationships with faculty and achieve a formal role in teaching information literacy skills to students. Liaison librarianship has been shown to facilitate communication with clients, raise the profile of the library on campus, and improve information literacy skills in students and faculty. (Cook, 2000).

More recently, the liaison role has been strengthened to include intensive teaching duties such as co-planning curriculum and courses and designing and evaluating assignments. This form of collaboration – which focuses on helping students develop strong critical thinking abilities in addition to information retrieval skills – is known as embedded librarianship. (Dewey, 2004).

While successful and unsuccessful liaison undertakings have been extensively documented in LIS literature, less has been written about the specific experiences of academic libraries serving health sciences faculties. These librarians support the training of future doctors, nurses, physiotherapists and other health-care workers. Their responsibilities include equipping future professionals to with the “skills needed to access, manage, and use library and information resources effectively.” (Schwartz, 2009). To be information literate in health disciplines, these students must be able to:

Recognize a health information need; identify likely information sources and use them to retrieve relevant information; assess the quality of the information and its applicability to a specific situation; and analyze, understand, and use the information to make good health decisions. (Medical Library Association, 2003).

The Health Sciences Library at McMaster University in Hamilton, ON, presents an exemplar opportunity of the unique challenges and rewards of building relationships with health sciences faculty members to support the education of health professionals such as doctors and nurses. The library has a tradition of liaison librarianship dating back more than a decade, a notable distinction. And McMaster is the birthplace of problem-based learning in medical education, which focuses on small-group, self-directed lifelong learning. This focus, along with the concepts of Evidence-Based Practice (Sackett et al, 1996) has placed unique demands and expectations on both faculty and liaison librarians.

McMaster University’s Faculty of Health Sciences

The Health Sciences Library at McMaster is funded by, and reports directly to, the Dean of the Faculty of Health Sciences. McMaster is the only Canadian university that combines, in one Faculty, schools of medicine, nursing, and rehabilitation sciences, and the programs of midwifery, bachelor of health sciences, and physician assistant as well as postgraduate health sciences education. In 2011, student enrolment was 5,000; were 770 full-time faculty and 1,800 part-time, many of them practising clinicians.

Evidence-Based Practice in Canada

McMaster’s health sciences programs stress the importance of Evidence-Based Practice (EBP): “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.” (Sackett et al, 1996). The ability to find, critically appraise, and use appropriate information – i.e., information literacy – is an essential foundation of evidence-based practice. (Jacobs, 2003). Students are required to identify and use appropriate databases, texts, websites, search tools and other sources of information relevant to clinical decision making, and to assess the validity of any findings before applying them in clinical practice.

Evidence-Based Practice implies that practitioners are skilled in asking clinical questions, retrieving relevant information, appraising research studies, and assimilating the research information into their interventions. Practitioners with these skills not only apply interventions based on “gold standard” evidence but also provide consumers and other professionals with research-based information. (Powell & Case-Smith, 2010, p. 365)

Each professional program within the Faculty of Health Sciences incorporates information literacy – under varying names – as a credential required for licensing exams and/or clinical practice. For example, the Medical Council of Canada, (2009) which licenses doctors in Canada, stipulates that, “as scholars, physicians demonstrate a lifelong commitment to reflective learning, as well as to the dissemination, application, and translation of medical

knowledge.” This includes retrieving and critically appraising appropriate information and integrating it into clinical practice.

In Ontario, the College of Nurses (2008) outlines expectations for newly licensed nurses: they must “realize the importance of identifying what they know and do not know, what their learning gaps are and know how and where to access available resources.” As well, nurses must be able to find research and other evidence and incorporate it into client care, and use critical inquiry to guide their clinical decisions. Midwives, meanwhile, must be able to critically appraise research and incorporate relevant findings into their care (Canadian Midwifery Regulators’ Consortium, 2008). This skill is also specified in the Essential Competencies of Physiotherapists in Canada (2004), which states physiotherapists must understand and use research results and professional literature in their practice. And the ability to think critically – to use evidence-based knowledge, and synthesize and analyze information – is one of seven essential competencies required for licensing as an occupational therapist. (College of Occupational Therapists of Ontario, 2003).

Research indicates that students acquire health-care oriented information literacy skills most effectively when they are integrated into the curriculum. (Leasure, 2009). Timing is also critical: if this teaching begins early in the program and is implemented iteratively, students are more likely to competently search resources during their clinical training. (Powell & Case-Smith, 2010; Shurtz, 2009). There is also evidence that students who acquire library skills early in their medical education become stronger independent, lifelong learners. (Earl et al., 1996). Librarians, who are aware of appropriate resources and are experts in searching for and evaluating information, are well-positioned to educate students in these areas. However, accrediting agencies which stress the importance of information literacy skills for medical students and other health-care professionals may “not recognize the roles and contributions of health sciences librarians” in providing this training. (Schwartz, 2009).

Problem-Based Learning

Problem-based learning (PBL) has been defined by Howard Barrows – who pioneered this approach at McMaster in 1969 – as “the learning that results from the process of working toward the understanding or resolution of a problem.” (Barrows & Tamblyn, 1980). In this method, small groups of learners are presented with a problem, usually a clinical case, and must use prior knowledge, problem-solving, research and critical thinking to collaboratively resolve the issue. Problem-based learning groups have tutorial leaders or facilitators who provide guidance and feedback – acting as a “guide on the side” – rather than teachers who adopt the “sage on the stage” model to impart expert knowledge in formal lectures. McMaster’s medical school founded this self-directed style, which has since spread to medical schools worldwide.

Because of the independent learning required by problem-based curricula, students make intensive use of library resources, such as journals, databases, and texts. And there is also a higher uptake of librarian services such as instructional sessions and consultations. (Miller,

2001). Problem-based learning allows librarians to teach students to use critical thinking and a systematic approach – including selecting and evaluating information resources – to solve problems. (Cheney, 2004). PBL also offers the potential for librarians to become group tutors. This full immersion into the curriculum fosters close links between librarians/libraries and the programs they support. These relationships can promote greater mutual respect between librarians and faculty members in what has been termed an “significant breakthrough.” (Eldredge, 2004). Librarians can enhance their understanding of how students use information and how they think about information seeking. Serving as facilitators also supports the status of librarians as faculty (Miller, 2001) and as key players in the academic mission of their institutions (Schilling et al, 1995):

The increased involvement of librarians in planning and implementing curricula broadens their role as educators. Rather than acting as a supplemental, peripheral resource in the educational process, the library is positioned as an active, full participant in medical education and lifelong learning. (p. 7)

Librarians

While embedded librarianship may be associated with librarians working in settings outside the library – for example, holding office hours within a faculty department – it is more than a geographic concept. The core rationale of embedded librarianship is integration and visible and ongoing collaboration. The librarian’s role is profoundly changed from that of a “support” to a vital partner:

In academic settings, embedded librarians are in collaborative learning environments. They are on research teams. They are in academic departments. They are co-instructors in the classroom ... They play a major leadership role in pushing an academic co-creator model for scholarship and scholarly communication. (Kesselman, 2009, p. 387).

Arp et al (2008) describe “collaborative interactions in which the role for librarians is as a partner in the classroom and part of an integrated process.” (p. 18). This is exemplified by partnerships between librarians and faculty which result in integrating information literacy into all elements of curriculum planning, teaching and learning. At its highest level, both library and university administrators recognize the importance of information literacy and have set institution-wide objectives in their strategic planning documents.

Dewey (2004) notes the need for multidimensional collaborations between librarians and faculty, including partnerships in research and teaching relevant information literacy initiatives into curricula, and research consultations. Lippincott (2002) describes learning communities, in which librarians are faculty partners and joint instructors who contribute to classes opportunistically throughout a course.

McMaster’s Health Sciences Library has six liaison librarians who support programming across the Faculty. They collaborate with academic and clinical faculty and participate, to varying degrees, in teaching, curriculum planning, collection development and research support. To a large extent, they meet the characteristics of being “embedded”. However, this term – because of its military connotations – is avoided: Instead, their liaison and teaching work is referred to as integration.

Challenges

Numerous studies document the misperceptions, miscommunications and misalignments dividing academic faculty and librarians. The relationship between the two entities is fraught with power imbalances, gender inequalities, academic hierarchies and other barriers to communication and collaboration. (Julien & Pecoskie, 2009). Some faculty perceive information professionals as support staff, not equals; and they may place little value on information literacy instruction. (Badke, 2008). Even when librarians have faculty status, they are not considered equals (Ivey, 2004) and many feel they do not get the respect they deserve (Julien & Given, 2002). Various studies report that between 55 to 85 per cent of faculty do not use librarians to provide instruction. (Manuel et al, 2005). When librarians are called upon, they have little control over how faculty involve them – and information literacy – in the curriculum. While librarians may be included in individual courses (Arp et al, 2008), they are not widely recognized as contributing an integral role in course planning and teaching (Lindstrom & Shonrock, 2006). “The fact is, and the vast literature confirms it, effective collaboration is simply not the norm.” (Badke, 2005, p. 68).

In a health sciences faculty, these challenges are exacerbated by additional barriers to outreach. Medical students’ schedules are so full it is hard to insert any instruction sessions. Clinical faculty juggling teaching duties on top of patient caseloads are difficult to reach and establish ongoing relationships to mentor information literacy. Other challenges include as high-achieving incoming students who think they know everything already; and faculty who may overestimate the information literacy abilities of their students or underestimate the important of strong research skills. (Lowe & Stone, 2010). A study of nursing faculty in Indiana and Florida (Schulte & Sherwill-Navarro, 2009) found that few faculty members saw librarians as partners in either the educational process or research pursuits.

While there is no shortage of reports on the difficulties in building information literacy partnerships with faculty, less attention has been paid to the underpinnings of success. Why and how do some faculty and librarians foster positive collaborations? What are some best practices for successful information literacy? Manuel et al (2005) used this positive stance in a study of 21 “pro-information literacy” faculty at New Mexico State University. Their findings indicated that faculty value librarians and information literacy instruction because:

- students need better research skills
- librarians are valued as experts in information resources

- sessions were tailored to a course

Ivey (2003) also focused on successful partnerships with faculty. She found the following behaviours were essential for successful collaboration:

- a shared, understood goal
- mutual respect, tolerance and trust
- competence for the task at hand by each partner
- ongoing communication

And Kesselman (2009) outlined the characteristics associated with successful embedded librarianship, including:

- Excellent interpersonal skills
- High degree of creativity and flexibility
- Ability to work effectively as a team member and independently
- Aptitude for innovation
- Strong service ethic

These reports provide helpful guidance for the general population of academic librarians. However, none of these studies have focused on the specific situation of librarians working with faculty in an academic health sciences library, within a culture of problem-based learning and Evidence-Based Practice. This study will attempt to answer the question: What are the specific behaviours and beliefs of librarians and faculty members which have resulted in successful information literacy integration within the Faculty of Health Sciences at McMaster University? This research will identify behaviours which could exemplify best practices in health sciences information literacy and also highlight less successful efforts as “lessons learned.”

Methods

A case study was used to gain an in-depth understanding of an issue – information literacy practices – within a specific environment: McMaster University’s Health Sciences Library. A case study examines a local situation and can produce common themes which may be generalized to other settings, such as medical and academic libraries. Semi-structured interviews obtained detailed accounts from participants involved in information literacy instruction in the Faculty of Health Sciences. Interview questions were based on issues and gaps highlighted in LIS literature. A set of questions (See Appendix A) was used as a guide, but additional questions arose during interviews as further information or clarification was required.

Sampling relied on inviting liaison librarians, who are the author’s co-workers at the Health Sciences Library, to participate in the study. Each librarian was asked to suggest a faculty member, with whom they collaborate most successfully, to be interviewed. The author conducted in-person, one-on-one interviews with six librarians and five faculty members between February 2011 and June 2012. Each participant consented to be named in published reports; the traditional practice of guaranteeing anonymity was bypassed because this case study of a specific location would reveal identifying details about interviewees. Using names also increased the validity of results. Participants were given a Letter of Information and Consent which explained the purpose and method of the study and outlined their rights to withdraw at any point or to withhold use of their name.

Interviews lasted between 40 minutes and two hours. Each interview was audiotaped and then transcribed by the author. Transcriptions were analyzed with open coding, which produced a wide range of categories across both participant groups. These categories were then compared, first within each group and then across both groups. Further analysis distilled these categories into a set of major themes regarding information literacy instruction and collaborative partnerships.

Analysis

Information literacy, evidence-based practice and problem-based learning

Within most of McMaster’s Health Sciences’ programs, the principles of information literacy are conveyed by emphasizing the merits of information which is “evidence-based” and/or “evidence-informed” for learning and decision-making. This focus has multiple names, including evidence-based medicine (or nursing), evidence-based practice, evidence-based decision-making or evidence-informed decision-making – but the underlying concept is the same. Evidence-based Practice is:

... a process of care that takes the patient and his or her preferences and actions, the clinical setting including the resources available, and current and applicable scientific evidence, and knits the three together using the clinical expertise and training of the health-care providers. (McKibbon & Bayley, 2004).

Evidence-Based Practice involves the following steps:

1. Construct a relevant, answerable question from a clinical case.
2. Plan and carry out a search of the literature for the best external evidence.
3. Critically appraise the literature for validity and applicability.
4. Apply the evidence to your clinical practice.
5. Evaluate your performance. (McMaster University Health Sciences Library, n.d.)

The process is similar to the Information Literacy Competency Standards for Higher Education (ACRL, 2000), developed by the Association of College and Research Libraries and establish the benchmarks for instructional programs in North American academic libraries. According to the standards, the information literate student:

1. Determines the nature and extent of the information needed.
2. Accesses needed information effectively and efficiently.
3. Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
4. Uses information effectively to accomplish a specific purpose.
5. Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

As taught in the Faculty of Health Sciences, evidence-based practice (EBP) expands the evaluative aspect of information literacy to include extensive scrutiny of the design and methodology of research studies. As well, EBP includes using not only the best available scientific evidence, but also consulting peers and other experts and considering patient preferences when making decisions about clinical care.

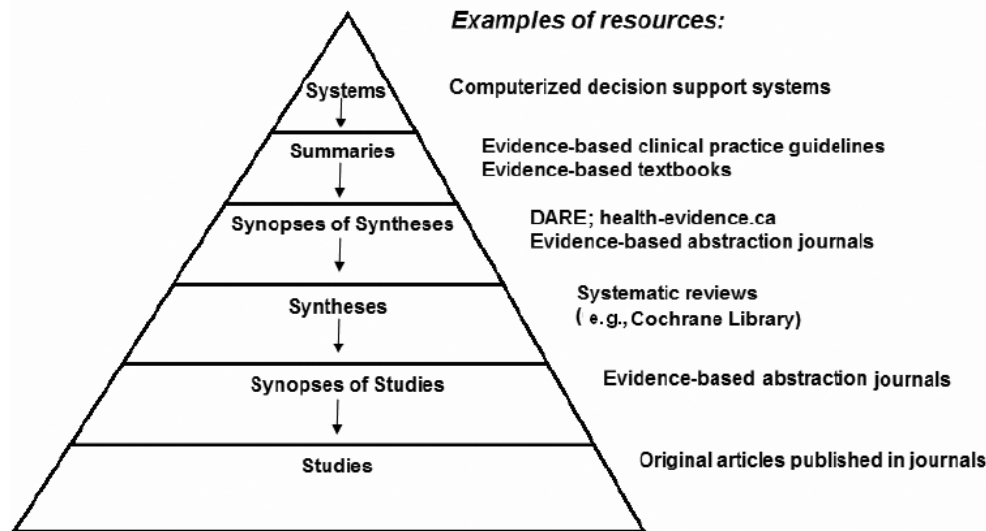
Librarians supporting the Schools of Nursing, Medicine and Rehabilitation Science do not distinguish between the phrases information literacy and EBP. “In my own work, I use information literacy and evidence-based practice interchangeably ... it’s semantics,” said Laura Banfield, the liaison librarian who supports nursing, midwifery, and global health programs. This view is echoed by faculty members including Patricia Strachan, Assistant Professor in the School of Nursing, who defines information literacy as “asking questions, finding appropriate resources and critically appraising and applying information.” Information literacy as evidence-based practice falls within the realm of lifelong learning incorporated in the School of Medicine.

Within a stream called Professional Competencies – which focuses on non-clinical subjects such as communication skills, ethics, and teamwork – medical students learn about evidence-based medicine and research approaches which roughly map to the ACRL definition of information literacy. According to Dr. Karen Trollope-Kumar, a faculty member in the Department of Family Medicine and co-director of the Professional Competencies curriculum, students and doctors must: “... have an ability to look up kind of information we need, when we need it, on a topic ... Be very comfortable with library resources, and understand how to do efficient searches for EBM.”

The need for these skills is documented by the Association of American Medical Colleges (n.d.):

To support health care, life-long learning, education, research and management, medical students should be able, at the time of graduation, to utilize biomedical information for: formulating problems; arriving at strategies for solutions; collecting, critiquing and analyzing information; taking action based on findings; and communicating and documenting these processes and the results.

Librarians explain these concepts to students in nursing, midwifery, medicine, occupational therapy, physical therapy and rehabilitation science within the hierarchy of preprocessed evidence – commonly referred to as the 6S Pyramid (DiCenso, Bayley & Haynes, 2009):



This diagram illustrates the organization of health-care evidence: the highest level of distilled, critically appraised information – electronic systems which match patients with individualized information – tops the pyramid; at its lowest level are journal articles reporting single studies. Students in the clinical professions are taught to evaluate and use the highest possible level of synthesized evidence to guide their practice.

HSL librarians report that while some students, notably future physicians, appear unreceptive to “information literacy” classes, a focus on EBP instruction aligns well with the outcome-driven professional programs. Health-care students are motivated to learn evidence-based decision-making because they must – in order to graduate and meet professional accreditation standards. In the Faculty’s major non-professional, program, the Bachelor of Health Sciences degree, the required information fluencies are even more closely aligned with the ACRL standards. Students are expected to formulate research questions, recognize a need for information resources, access appropriate resources and to “make sense of information, synthesize it, integrate it ... and share their findings with their peers,” said BHSc faculty member Margaret Secord, whose multiple roles in the program include co-ordinating curriculum and facilitating (leading) multiple courses. While this program – which culminates in student research projects – does not use a formal rubric to measure information literacy skills, faculty members and the liaison librarian collaborate on expectations for desired outcomes. “We are looking for changes in behavior. We are looking at product outcome and if it is acceptable, the assumption is they have some skills to do that. But the skills may not look the same in every person,” said Jennifer McKinnell, BHSc liaison librarian.

The structure and philosophy of learning at McMaster promote the development of research skills in students and provide many scenarios for the integration of librarians in the teaching and learning environment. In Problem-Based Learning (PBL) – famously pioneered at McMaster – students are presented with a health-care scenario describing a patient

encountering some kind of illness, injury, or psychological crisis. They must then gather the information needed to resolve the problem. Library resources, including librarians, fit in logically as the entities which help students find and apply high-quality information to these scenarios. As Cheney (2004) notes, PBL gives instructors and librarians an opportunity to teach students how to approach a problem systematically to determine what information resources are needed to solve it. PBL “can provide ... the process, a way of thinking and the skills our students need to learn in order to be able to effectively gather and use information.” (p. 496).

Other characteristics of Health Sciences education establish connections between students and librarians. Throughout the Faculty, there is a practice of promoting collaborative relationships by referring to instructors informally as “facilitators”, “preceptors” or “tutors”, instead of the more formal, traditional title of “professor”. Small class sizes – between six and 20 students – also foster intimacy. And problem-based learning facilitates peer learning and classroom discussions, so that librarians can engage with both learners and course tutors. In contrast, the dynamic nature of these discussions mean librarians cannot rely on “canned” lectures and must be able to adjust their teaching “on the fly.” Agility and flexibility on the part of HSL librarians demonstrate their knowledge of curriculum needs and understanding of the culture of the different program areas.

How are librarians integrated?

Medicine

When Andrea McLellan began her role as undergraduate medicine liaison in 2006, her partnership with the program included little more than recommending books and offering library tours. The initial lack of integration was related to the self-directed nature of the medical program: students needing research help would seek it out, often by asking staff at the information desk; librarians were not regularly invited into classes to teach research skills. Over time, her role has expanded to include dedicated lecture time with undergrads a few times a year as well as regular presentations on clinical information tools for post-graduate students. She also offers library orientation sessions each fall to incoming clinical faculty – practising physicians who teach part-time at McMaster. Information literacy instruction for undergraduate medical students and clinical faculty focuses mainly on resources at the top of the 6S hierarchy which provide fast and reliable point-of-care information. Generally, medical students and the physicians who teach in the program tend to prefer “tangible, practical” information. “They have a short attention span for anything that’s theoretical,” McLellan said. “They are not researchers ... They are learning how to practise medicine and to be a good physician, you don’t need to know how to search a database.” Most of McMaster’s clinical faculty are not experts on EBP or information literacy, an experience affirmed at other institutions (Maggio, 2011). The culture of the medical profession seems to assume that librarians will find information for them – as students and practitioners.

Information literacy is integrated more fully into a section of the undergraduate curriculum called Professional Competencies: a broad stream beginning on Day 1 and continuing until third year, when students begin rotating through hands-on clinical clerkships. In “Pro Comp”, as it’s called, students study the non-clinical aspects of medicine, including ethics, communication skills, social and cultural aspects of health, and lifelong learning:

Skills in lifelong learning have been identified by both the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada as requirements for competent practice. In a rapidly changing health care environment, physicians need to be information literate in order to keep up to date and to deliver best practice effectively and efficiently. (McMaster University MD program, n.d.)

The lifelong learning curriculum is co-ordinated by Liz Bayley, Director of the Health Sciences Library. Involved in the medical program since 2001, Bayley has held various roles, including co-tutoring PBL groups. While lifelong learning is promoted by the program, and by official medical institutions, it is a hard sell with students. Accordingly, Bayley has aligned this terminology with Evidence-Based Medicine (EBM). “When you couch it in those terms, the students say ‘Oh, this is *practice*. It’s not another theoretical concept. I need to know this to be a competent practitioner.’ EBM is the approach that resonates with them.” However, while the librarian creates the EBM curriculum, the sessions are taught by “the leading evidence-based gurus in the Faculty.” Students have shown reluctance to accept this information from a librarian and respond better to physicians delivering the same messages. It is difficult to accept this limitation, but Bayley recognizes that clinicians teaching clinicians is a strength of the program. “(The students) don’t want to listen to anyone but a physician.”

While skills such as communication and lifelong learning may be crucial in the development of well-rounded physicians, such topics receive short shrift within the medical program, with its primary emphasis on hands-on clinical skills. Students may resist this more conceptual element of the curriculum, said Trollope-Kumar. However, they soon find these skills are crucial when, for example, they must explain diagnosis or prognosis to a patient. “They realize, ‘Oh my gosh, I really need to understand this in a practical way.’ ” She deliberately encourages the use of non-medical literatures or practices to help students relate to patient needs. Once such example is the development of an innovative “Art Wall”. This helps to establish a patient-centred perspective.

Physician assistant

This two-year program trains students to practise medicine under physician supervision. Bayley plans the evidence-based practice issues for the curriculum, introduces students to library resources, and teaches three sessions on EBP. Students also consult her individually throughout their studies.

Post-graduate medicine

This half-time position provides supports a wide range of post-graduate specialties, including internal medicine, surgery, pediatrics and family medicine. Liaison librarian Jo-Anne Petropoulos provides guest lectures, hands-on workshops and, most frequently, individual consultations. This new position, which Petropoulos began in the fall of 2010, was created to help the library handle a notable increase in demand for help with in-depth research particularly to conduct systematic reviews and meta-analyses. While there are more than 40 post-graduate specialties, she has been targeting several which were suggested by McMaster’s Co-ordinator of Post-Graduate medicine; first-year groups are her major focus. Petropoulos believes post-graduate medical programs see the library’s interventions as valuable. However, the lack of time to fit instructional sessions into an academic schedule that is largely devoted to patient care provides ongoing challenges. The fact she sees steady growth in post-graduate students seeking individual research consultations demonstrates the need for strong information literacy skills within medicine.

Nursing

Nursing was the first program targeted for information literacy integration by the library. Bayley began strengthening relationships with nursing after moving into a new library position of Curriculum Integration Co-ordinator in 1992. Initially, she collaborated with faculty on information management objectives for students and worked with course planners to identify and fill needs for services and resources. In 1997, she began co-tutoring in a Critical Appraisal course and added Nursing Liaison Librarian to her job title. She was appointed to the Nursing Faculty as Assistant Clinical Professor. Bayley filled that role until late 2007. Her successor, School of Nursing Liaison Librarian Laura Banfield, took over in December 2007. Banfield is involved at all levels of the nursing program, which offers several options including: a Bachelor of Science in Nursing; an accelerated BScN; an RPN (registered practical nurse) to BScN degree; and graduate programs including nurse practitioner degrees. The liaison librarian participates in planning both curriculum and courses and in creating and marking assignments. Her involvement includes teaching hands-on sessions in using resources such as databases and teaching an introduction to evidence-based practice; she is also a course tutor and, like Bayley, has been appointed as an Assistant Clinical Professor. Banfield’s role also includes co-ordinating information literacy programming with the libraries at Mohawk College and Conestoga College, which offer the BScN degree in partnership with McMaster. This involvement can be seen to extend beyond integration to representing a truly “embedded” model of information literacy instruction.

Because the program offers so many levels of study, it is critical to adjust teaching according to students’ needs and learning styles. “It’s a bit of a strategic manipulation,” notes Banfield, who is also conscious of needing to ready senior students for practice by ensuring they have both information fluency skills and a familiarity with evidence-based resources. Similar to their peers in medicine, nursing faculty members also receive training from

librarians on how to access and use information resources effectively. “They are the content experts, but (the knowledge) of how to find the information isn’t always there.”

Midwifery

This small, four-year undergraduate program receives one fall library session: an orientation to the library and introduction to database searching. Students and faculty also develop rapport and research savvy during individual consultations with Banfield.

Global health

Banfield offers introductory research sessions in this 12-month graduate program, which opened in the fall of 2010, and, also assists students and faculty with individual consultations.

Occupational therapy

The library has a long history of integrating information literacy training in this two-year graduate program, which culminates in an MSc degree. Liaison librarian Neera Bhatnagar, aligned with the program since 1997, teaches hands-on classes in database searching, and instructs students on the research process, and how to research and write a major scholarly paper. She collaborates with faculty around the creation of dilemmas: patient scenarios which students must solve by finding appropriate information resources. There is also a heavy concentration of individual consultations with Bhatnagar, as students conduct in-depth research on unique topics which may not be widely covered in the literature.

Physiotherapy

This two-year graduate program also leads to an MSc degree. As the liaison librarian since 1997, Bhatnagar’s role is similar to that in the occupational therapy program. But she holds fewer individual consultations because physiotherapy topics are well-documented in clinical literature.

Rehabilitation Science

These research-based programs offer master’s and doctoral level curricula. Individual consultations account for one of the library’s major instructional services; Bhatnagar is also clearly integrated into a core course in which she teaches research and critical appraisal skills.

Master of Health Management

This online interdisciplinary program opened in the fall of 2010 as a joint endeavour between business and health sciences faculties. As its liaison librarian, Bhatnagar has delivered sessions in database searching and offers individual consultations.

Bachelor of Health Sciences

This four-year program is unique to McMaster, where it was founded in 2000. Its distinctive inquiry-based curriculum focuses on developing self-directed skills including group work, evaluation, and critical thinking within a health sciences framework. Information literacy is strongly embedded in the curriculum. A selection of objectives for the core first-year course, Inquiry, combines elements of ACRL information literacy standards with some steps of evidence-based practice, as outlined in the Course Philosophy and Outline (2010):

- Problem identification: the ability to ask and refine questions
- Problem solving: the ability to determine what needs to be learned in order to answer questions, identify appropriate resources for learning and use them effectively
- Information literacy skills (being conscious of the research process as it takes place):
 - a. Identifying sources of information (in the library collection, on the web, from experts)
 - b. Evaluating information content and context
 - c. Using information appropriately to answer a question
 - d. Reflecting on and evaluating the research process
 - e. Constructing and deconstructing knowledge

Throughout their program, there is an expectation that they meet the overall information literacy outcomes described above. Students build research strategies, are exposed to a variety of information resources ranging from medical databases to grey literature, and must critically appraise and synthesize their research findings.

The Health Sciences librarians have had a central role in the BHSc program since its inception. This directive comes from Assistant Dean Delsworth Harnish, who believes library support is essential for student success. Funding for library services, including a liaison librarian, is included in the program’s budget. Given that positive faculty attitude has been widely correlated with the success of information literacy (e.g. Bury, 2011; Hardesty, 1995; Manuel, 2005), this entrenched commitment is a major factor in the interwoven instructional components in this program. Jennifer McKinnell has had the opportunity to grow along with the program as its liaison librarian since the first class intake. McKinnell is an essential member of the BHSc crew, said faculty member Margaret Secord.

The (built-in) infrastructure ... is key. Because part of the norm is that she is with us – right from the beginning. She has a place, she has a role ... We own her, in the sense that we have the privilege of having her be part of the group ... There’s a sense of belonging, a sense that she is part of our community.

McKinnell’s roles include teaching in the program as a facilitator (instructor) for the core Inquiry course, with her own class and students. She participates in weekly planning meetings for the Inquiry course; gives invited lectures; teaches a “one-shot” large-group

class in critical appraisal; and is a member of administrative program committees. McKinnell also holds individual and small group consultations with students in years three and four who are doing research projects. One of her innovative collaborations with faculty was establishing a team of library mentors who fourth-year students. The mentors have a presence in the BHSc course management system and field questions from students about the program itself as well as basic queries about library services. This initiative provides a valuable resource for students and also enables McKinnell to focus on providing higher-level services.

As McKinnell explains its role succinctly:

We’re not training librarians: these are fourth-year students with knowledge of the program ... who are supposed to help me with some of the first-year confusion, such as ‘How do I get a study room key? How do I renew my books? ...’ and then I can intervene when necessary around library tools.

Collaboration: successes and challenges

The relationships described above demonstrate the varying degrees to which Health Sciences librarians are integrated into Faculty programming. In some cases, such as Global Health and Master of Health Management and numerous post-graduate medical specialties, no true integration exists. Formalized instruction by librarians is primarily on a 1:1 basis by appointment and is somewhat “ad hoc”. Other efforts have been successful because librarians have found “academic champions” (McGuinness, 2007) – interested faculty members who have embraced information literacy and work with librarians within individual courses. As McLellan explains: “Those who will find the training useful, we have built a relationship with. There are 45 programs: we aren’t liaising with all of them.” In some programs, such as the Bachelor of Health Sciences, Nursing and Occupational Therapy, liaison librarians are true partners with faculty: teaching courses, planning curriculum and courses, setting and evaluating assignments. These partnerships between librarians and faculty members meet accepted definitions of collaboration, such as that offered by Raspa and Ward (2000): “Unlike networking and co-ordination, collaboration is a more pervasive, long-term relationship in which participants recognize common goals and objectives, share more tasks, and participate in extensive planning and implementation.” (p. 5).

The ACRL *Characteristics of Programs of Information Literacy that Illustrate Best Practices* (2003) describes successful collaboration as:

- Centred on student learning and the development of lifelong learning skills.
- Engendering communication within the academic community to garner support.
- Fusing IL concepts and disciplinary content.
- Achieving IL outcomes through course content and other learning experiences.
- Involving planning, delivering and assessment of student learning and evaluation and refinement of the program.

Collaboration “is the only true way to achieve true integration with the curriculum,” (Hunt and Birks, 2004). Collaboration fosters the sharing of ideas and expertise; allows partners to understand each others’ subject specialties; and provides opportunities for exposure to varying teaching/learning techniques.

Interviews highlighted several common themes around building successful – and not so successful – collaborations. Librarians, in particular, emphasized the importance of acculturation into academic programs and participating in faculty activities; both liaisons and instructors stressed the effectiveness of continuous reciprocal feedback. A shared view of librarians as valued academic partners was also highly evident. Obstacles cited included communication misfires, a lack of time and problematic approach to undergraduate information literacy within the School of Medicine.

Acculturation

Organizational culture has been defined as:

A pattern of shared basic assumptions invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration that have worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems. (Schein, 1992, p.9).

So how do faculty members “perceive, think and feel”? Hardesty (1995) describes faculty culture as centered on research, content and specialization, while librarians focus on process and management. He states that understanding academic culture – including the skills, responsibilities and behavior of faculty members – will affect how librarians can promote information literacy. Cannon (1994, p. 525) advises librarians to consider the “needs, attitudes and preferences” of faculty while planning IL education. Similarly, Manuel et al (2005) suggest librarians listen to what faculty members say, intuit their values, and incorporate those values when promoting IL. Discipline-specific skills are also important. (Weetman DaCosta, 2010). The successful collaborations at HSL support the implications for practice proposed by Bury (2011, Faculty voices), who studied faculty attitudes towards information literacy. While faculty recognize the importance of IL education, she suggests collaboration must be “sensitive to faculty conceptions and priorities and practices.” The pedagogical foundation of a program, such as PBL, also has an impact: faculty members in PBL programs are more likely to incorporate IL into their courses because it is “an in integral part of the overall program philosophy.” (Leckie & Fullerton, 1999).

Librarian interviewees emphasized the importance of understanding, and fitting into, the culture of the programs they support. Bayley compared this process to ethnographic research.

Each of them has a culture – each of the professions, each of the programs, has a different culture. And you have to find out what the culture is and, as much as possible, acculturate ... You have to do a Margaret Meade and go live among them and find out what their culture is.

This includes respecting the priorities of each program, and to adopt some of their practices. For example, McLellan monitors medical developments by means such as reading the *Canadian Medical Association Journal*. “I keep on top of trends, so I can talk their language -- because they’re not going to talk my language,” said McLellan. This sensitivity applies to interaction at all levels of the program, notes this medical librarian. For example, when working with administrative personnel, she adopts their no-nonsense, task-driven manner. Bayley (and McKibbon, 2004) describe the importance learning to speak as clinicians and how to act in clinical settings when supporting EBP.

When some nursing faculty members asked Banfield to help them with their research, she delved into the subject herself by reading relevant works. She says this investment “pays off” in a deeper understanding of faculty’s interests and motivation; this insight then informs her teaching and collaboration activities within the program. This kind of enthusiastic acculturation is appreciated by faculty such as Strachan, who believes the library “goes to great lengths” to understand the nursing program and the needs of its learners and teachers. Secord also noted that McKinnell has a deep “family-like” understanding of the BHSc culture and how its students – high achievers – can be perceived by outsiders. “Jennifer is aware of the biases that exist ... You always want your students to do OK, but you know sometimes what they’re doing is not OK and you can perfectly understand why someone is having an issue with it.”

Acculturation can also be fostered through personality matching, said Bayley, noting that some characteristics blend better with certain programs. For a large undergrad program such as BHSc, for example, you need someone who is flexible and can “go with the flow”. A graduate program, in contrast, can be well supported by a detail-oriented expert.

Strategizing and Making Connections

Integrating librarians as teaching partners into a jam-packed professional curriculum – much of it taught by practising clinicians – is best tackled with selective strategizing. Bayley was the first HSL librarian to take on a liaison role, with the Faculty of Nursing in 1997. Nursing was a strategic place to launch the liaison program because of its collegial environment and a strong focus on scholarship. Nursing instructors have also been documented as heavy users of library instructional services as compared to other academic programs. (Leckie and Fullerton, 1999.) This suggests a receptive climate for collaborative teaching. And a predominantly female Faculty may also have fostered relationship-building with librarians of the same gender. “Getting integrated was a very subversive activity. You just look for opportunities. It’s like the camel in the tent – you put your nose in,” Bayley said, making a wiggling motion, “then you just take up a little more room, and a little more room, and then things start to change.” A military metaphor is used by Kempcke (2002), who advises

librarians to seek “soft spots” and infiltrate the academy. Once in, defend your turf aggressively, seek out useful leaders and “target those in your way.” (p. 545).

A survey of science and engineering faculty members by Leckie (1999) reported that librarians were considered experts in the research process. Similarly, McMaster’s health science librarians were unanimously viewed as information experts. This was attributed to their openness and flexibility, which were considered crucial characteristics for successful integration into the nursing program.

There is a total open door to accessing them,” said Prof. Strachan. “I think that what’s really important for me is that they are great people to work with. They are experts in their area, but it’s around the relationships that we establish and their interest in the program ... without that, I don’t think it would be successful.

Speaking up and engaging with faculty members, course planners and other program representatives is vital – even if a liaison role is already well established. Though Banfield inherited a strong placement from Bayley, she had to prove herself in the role, partly by building relationships and networking. She believes it is important to be proactive and take opportunities to contribute to Nursing decisions and promote the library’s role.

Targeting new faculty members can be effective: they may be less experienced at course building and finding resources and more likely to welcome assistance from a librarian. Ivey (2003) notes the importance of establishing good working relationships before collaborating on teaching partnerships. Her study of faculty and librarians at the University of Waikato, in New Zealand, identified positive relationships and ongoing communication between teaching partners as essential conditions for collaboration and effective learning programs. And Divay et al (1987) found that faculty members who have interacted with librarians better understand their functions and the usefulness of their expertise.

Targeting the right person can be important. McKinnell, for example, bypasses curriculum assistants because “when you communicate with those folks, the professor will think the librarian must be just like one of those other curriculum support people and you won’t always get that same receptive feedback.” Instead, she purposefully targets program co-ordinators to gain ‘top-down’ support for initiatives. Her role on program committees also provides useful connections and venues for contacting gatekeepers and interested faculty.

The library’s lists of recommended course readings provided by faculty members can also be an “in” or starting point for discussing library services and shared educational objectives. McKinnell noted that contacting a faculty member to suggest new editions or additions to the list may open communication and lead to opportunities for partnerships – or it may remain the library’s sole connection with this person: “but at least they know you are there.” Bhatnagar uses the reading list as a springboard to discuss other issues – such as teaching opportunities – with faculty members; in turn, her emails to faculty regarding readings can trigger them to contact her. “This has allowed me to integrate more into the School (of Rehabilitation Science). I’ve been able to make inroads with the program.”

Recognizing opportunities and being open to requests and new possibilities were qualities cited by both liaison librarians and faculty members as important in building successful collaborations. Bhatnagar makes a point of talking to both students and faculty about their research and studies; these talks can springboard into ideas on how the library can help. Banfield said it can sometimes be difficult to know when it’s appropriate to raise an issue, but “if you can find a diplomatic way to go about it, or can find an appropriate person ... it can be better for me and the students to speak up.”

Librarians say it’s important to offer feedback to faculty members after hearing from their students. If learners are struggling with an assignment, or coming forward with similar questions, liaisons pass this information on to the tutors. Often, this leads to collaboration and troubleshooting to tweak assignments/lessons, which then initiates another cycle of constructive feedback. Faculty members appreciate the library’s student-centred approach, which can sometimes translate into invitations to get more involved with course/curriculum planning. An active feedback loop is a major factor in the success of McKinnell’s liaison role in the BHSc program, said Prof. Secord. McKinnell actively requests comments and acts on suggestions; she welcomes challenges and is eager to co-operatively solve problems.

Raspa and Ward (2000) distinguish between three levels of faculty-librarian connection: networking – an exchange of information for mutual benefit; co-ordination – working together to resolve a common problem; and collaboration – a formalized, structured partnership. The descriptions by Health Sciences faculty and librarians of a continuous feedback loop mirror the bond of listening characterized by the authors as essential to true collaboration:

Collaborators share the give-and-take listening that creates the bond of belonging to a learning community ... In collaboration, I give and take in the flow of conversation. I pull in this or release in that direction as I listen to you. You do the same for me. In that listening, enterprise is possible. We are joined together in a relationship that brings something to life. (p. 2)

This study demonstrates that, while all three levels of connection exist within the Faculty of Health Sciences, true collaboration does exist: in Nursing, for example, Banfield is a course tutor, along with other faculty members; she works with Nursing faculty members to create courses and curriculum and to design and mark assignments.

Interestingly, it appears that, despite the some strong support for librarians and IL within the Faculty of Health Sciences, the onus remains on liaisons to initiate partnerships. This affirms Hardesty’s (1995) conclusion that “the burden, fairly or not, remains on librarians.” (p. 349), a point supported by other researchers (Bruce, 2001; Chiste, Glover and Westwood, 2000; Given and Julien, 2005). McGuinness (2007) adds that librarians generally experience a “power deficit” in relation to faculty and teaching in academic programs.

Community Involvement and Visibility

Involvement with a program and its activities is clearly critical for successful liaison work; as well, participating in Faculty-wide endeavours, such as a student success committee, can help raise the profile of individual librarians and of the library. Librarians can learn about faculty research and teaching and about curriculum through this participation. Being visible in the community may interest faculty members in working with librarians. (Carpan, 2011). Arp et al (2006), note “one never knows when the opportunity for collaboration and integration will present itself.” (p. 21). To succeed, these efforts require a keen understanding of campus governance and politics and call for strategic pursuit of important roles, rather than “waiting to be asked.” (Dewey, 2004).

In the Faculty of Health Sciences, librarians have seized a wide range of opportunities to dig into their programs. Banfield assists the midwifery program by volunteering to help interview prospective students. “I spend one Saturday on campus doing interviews, but during breaks and lunch, that’s an opportunity to talk to the faculty – that might be a bit subversive – but that’s another avenue to me.” Bhatnagar’s contributions have included helping to write a report for the Ontario Council of Graduate Students in pursuit of accreditation for the rehabilitation science program. Most programs offer professional development sessions for faculty: these events can be a prime time to renew existing acquaintances and make new connections with faculty members. Liaison librarians may also build connections by helping faculty members with their own research, or partnering on shared research interests. For example, Banfield works with Olive Wahoush, Assistant Professor in the School of Nursing, on research examining the information literacy habits of newly graduated nurses. Badke (2008) advises that assisting faculty with research can generate positive word-of-mouth. This promotion of the librarian’s expertise and awareness of library services has the potential to adjust the power balance between librarians and academics.

Helping to train faculty is also considered beneficial. Trollope-Kumar noted that physicians who teach in the School of Medicine are too busy caring for patients to polish their computer and research skills. They would benefit from using library e-resources, but may lack the confidence even to acquire login credentials. Person-to-person communication is preferred to using an online tutorial. “They would feel good about knowing where to go to find a live person. I know for myself, I much prefer just knowing who I can go and talk to, versus being told, ‘Just go to this website and follow the instructions.’ Liaisons offer training sessions for faculty. These partnerships enhance the librarians’ role as a resource for the Faculty as a whole. This successful “train-the-trainer” approach affirms the suggestions of other research into faculty-librarian information literacy collaborations. (Bury, 2011; Hunt & Birks, 2004; Leckie & Fullerton, 1999). Incorporating IL into faculty development is a “politically astute” move which can increase awareness of the benefits of collaborating with librarians. (McGuinness, 2007).

Finally, acquiring an academic role as an instructor/professor – such as Banfield’s and Bayley’s status as assistant clinical professor – can be a major milestone, since the librarians

are truly academic peers in the learning environment. This formal academic status also allows these librarians to be “double agents” who can advocate for the library from within their teaching status. Membership in the Health Sciences Education Council provides another advocacy venue for the role of libraries in the Faculty’s educational life.

Marketing

Successful marketing requires knowledge of customer characteristics and needs. For McLellan, this means pitching the benefits of web-based clinical tools, which help physicians quickly assess high-quality information about conditions, diagnosis, treatment and other features. Doctors need easy-to-use, accessible and practical information to inform care for their patients.

I really try to pull them in and get them to use the tools so they see there is a benefit – it’s not time consuming, it’s not a hassle – I sell it as a benefit, benefit, benefit. With information literacy, there is a lot of selling that goes on: there’s a lot of marketing it in sweet ways to get them to put in the time.

McGuinness (2007) and Weetman Da Costa (2010) also stress the importance of selling the benefits of information literacy to faculty, while Ivey (2003) suggests librarians should highlight their academic qualifications during their marketing campaigns. In each of these endeavours, they are advocating and marketing their expertise and interest in collaboration.

Status

All interviewees for this study viewed the library as a valuable educational resource and saw librarians as as experts and respected teachers of an important skill set. The words chosen to describe librarians’ status imply a sense of equality between faculty members and librarians: academic partners, colleagues, team members, and, in the BHSc program, “one of the crew ... Jennifer has credibility as an academic person to support the students’ learning,” said Secord. A librarian is an integral part of the School of Nursing. “We can’t really work effectively without a librarian’s back up,” said Strachan. “They know our program, they come to faculty meetings. We just see them as part of our team. I think we’re incredibly lucky to have them.” This positive view is echoed by Secord, who notes that McKinnell is involved in program-level decision making and troubleshooting. “It’s wonderful knowing that because she is embedded in our program, she understands the philosophy, she understands the personnel, all of that and I find that really helps.”

The organization of the Faculty of Health Sciences contributes to these perceptions. Many instructors are clinicians, such as doctors, nurses, physiotherapists and midwives: unlike traditional scholarly academics, many do not possess doctoral degrees. This may account for their willingness to accept librarians as fellow professionals, on an equal footing. Dr. Rob Whyte, Assistant Dean of Undergraduate Medical Education, noted that doctors and librarians each have a practice: physicians practise the clinical application of information, while the librarians’ practice is how to access and use information. This view supports the vision of librarians as masters of information as a subject; experts in its discovery and proper

use. (Badke, 2005). As information specialists, they are seen as resources for clinical faculty and medical students who don’t have the time for, or interest in, research. “Faculty have been good at recognizing that we do have information expertise,” McLellan said. This view is supported by Trollope-Kumar, who described librarians as “valued colleagues ... experts in their field who I can go to for information.”

The multiple roles of Health Sciences librarians in evidence-based practice also contribute to their status. They support EBP at McMaster through tutoring, training clinicians in resources, participating in systematic reviews of research literature and teaching at yearly EBP workshops which attract more than 100 clinicians from around the world. (McKibbin & Bayley, 2004). This participation has created “increased respect for librarian-based skills in both clinical and educational settings in the health sciences.”

The history and administrative infrastructure of the Health Sciences Library is a major factor in the status of its librarians. Unlike other university libraries, which are accountable to institutional leadership, the Health Sciences Library reports to, and is funded by, the Faculty of Health Sciences. This arrangement was established by its founding director, Beatrix Robinow, when the library was founded 40 years ago. Entrenched support for HSL originates from the Dean’s office and flows down to the program level; this legacy ensures that the library director is part of the senior administration within the Faculty. “I’m on the Education Services committee: I’m right up with the assistant deans of all the programs,” said Bayley. “So when I speak, they actually listen.”

These comments affirm HSL’s role as a teaching library, involved in advancing the university’s academic mission; in this model, librarians are experts who make significant contributions to teaching, research and service within their institution. (Cook, 2000). Manuel et al (2005) also found faculty members valued librarians’ expertise in information. These attitudes counter other studies which have shown faculty view librarians as the “Rodney Dangerfields of the academic world” (Badke, 2005) – where they are seen as less educated (Wilson, 1979); of lesser status (Cook, 1981; Divay et al, 1987; Oberg et al, 1990); and on par with support staff (Divay et al, 1987; Given & Julien, 2005; Oberg et al, 1990).

However, the positive view of HSL librarians is not universal. At times, they have been viewed as “rigid, stuck, and not flexible”, said Secord, particularly regarding access to library resources and space for study and group work. Failure to understand students’ perspectives and needs was another criticism. Whyte believes the library:

... could play a bigger role in EBM and in research partnerships between faculty and students, other than just being the place where that happens, other than being the place where you might get a search today or yesterday or tomorrow. So I think in that way, students maybe don’t have the robust appreciation of what they could offer.

Time and Timing

Time was the main factor cited by librarians when asked how they would improve their information literacy practice. There was clear consensus that the librarians would appreciate more time to reflect upon and develop their existing roles, and to contemplate a broader, long-term picture. Questions such as, “What happens to Health Sciences students after they leave McMaster?”; “Are the library’s efforts really preparing them to function as evidence-informed decision makers when they are in a health-care facility, treating patients?”, were discussed. Through these questions, librarians show a commitment to the “big picture” of academic and clinical outcomes and realize that, therefore, reflective practices would be beneficial for their role. This view is vividly articulated by Heidi Jacobs in her seminal paper, *Information literacy and reflective pedagogical practice* (2008). Jacobs describes the need for librarians to engage with the theory and practice of information literacy to create a “reflective praxis” – a continuous refinement of student-centred teaching and learning focused both on what happens in the classroom and the pedagogies behind these activities.

Instructional time can also be scarce at McMaster. The School of Medicine poses a notable challenge in this respect. Students’ schedules are so full that there is little time to insert sessions on “non-essentials” such as research skills: “We have the shortest medical curriculum in Canada and it’s just jam-packed. They’re just trying to keep their noses above water and if you ask them to do anything that involves going to the library, finding articles, or preparing something original, for most of them it is too much,” said Trollope-Kumar. Even in the School of Rehabilitation Sciences, where information literacy is engrained throughout the curriculum, Bhatnagar finds it difficult to schedule library instruction due to students’ clinical placements outside McMaster. “I try to maximize my in-face time with them, but it is crucial for me to have online tutorials to point them to (as well).”

Insufficient time for information literacy is a widespread phenomenon. Evidence for this concern exists both in the literature and in the accounts generously provided in this study by the librarians themselves. For example, examinations of faculty culture (e.g. Bury 2011; Hardesty 1995), and attitudes of librarians (Ivey, 2003): Librarians who are energetic, innovative and build successful teaching partnerships can be “swamped by their own popularity and success.” This raises the concern of maintaining scalability in IL instruction.

Scheduling library interventions can be a dilemma. Students in the Faculty of Health Sciences are generally high-achievers, and may be so technologically adept that they feel “they know it all,” said Secord; consequently, they resist attempts to introduce them to searching skills and critical appraisal. “That’s that’s always been a tricky line for us and I don’t think we’ve found a solution yet. We feel they need the exposure; they feel the exposure isn’t relevant. ... But if they don’t know that they don’t know, that’s where it gets tricky at times.” The same challenge exists in the medical program, said Assistant Dean Whyte. Medical students may not realize the importance of EBM until they begin doing research, or are out on their first clinical rotation and it becomes evident to them that their supervisor places a high value on EBM. “If you are not ready to learn something, you’re not ready to learn it.”

On a higher level, the library would benefit from more employee time: With just six liaison librarians and more than 40 programs, “we don’t have a lot of liaisons considering the enterprise we’re supporting,” said Bayley. The present staffing complement means full integration is possible only in a selection of programs. Librarians are stretched to offer the breadth of programming already discussed. “I need help” was a candid comment by one librarian. While the Faculty of Health Sciences keeps expanding its program offerings, each of which require library support, there has not been additional funding to support staffing needs. Liaison librarians concur it is impossible to keep up with the demand for instructional services, which often comes “in waves” from students all seeking help simultaneously. A trend towards more online education is particularly problematic, because the university does not have the infrastructure in place to support the needs of distance students. “It seems like a simple thing – how to get resources to a student in Timbucktoo? But no one wants to pay for it,” said Bhatnagar. Accordingly, while she markets her services to established on-campus programs, she is reluctant to take a larger role in newer distance education offerings: “I’m already generating enough. I couldn’t handle the workload. The Faculty of Health Sciences is growing by leaps and bounds and we can’t keep up. So how do you continue to offer a good level of service with no staff?”

Gaps

While effective communication has been a boon to the liaison program, communication breakdowns can cause major problems. One such gap created negative consequences for both students and the liaison librarian for the new Master of Health Management program, which opened in the fall of 2010. Bhatnagar successfully taught an introductory session on library skills and resources, but was later swamped by students requesting individual consultations. They all needed help on a second-term assignment; however, no faculty members had advised the librarian about this looming need. “I didn’t mind the first few, but it started to avalanche and happened at the same time as (students in other programs needed help). I had all these people coming at me in this one week.” Because it was impossible to help everyone, some students “didn’t get the formal literacy training they needed.” In an attempt to troubleshoot proactively, she contacted the program coordinator to discuss the assignment and its timing, to minimize the chance of future problems.

Negative experiences with IL sessions are a common result of poor communication (Manuel et al, 2005). Alternately, effective discussion before a teaching session promotes success, as experienced by Petropoulos with the Clinical Investigator program. She communicated extensively with the head of the program and was thus able to tailor her presentation to student needs.

That was successful because he was willing to give me the time. He was very responsive to emails and to follow up. And I had enough time to plan. ... I did get a letter back saying I got a good review from them, so I guess that touched on their needs.

Clearly, partnerships which are established well ahead of assignments are more likely to achieve outcomes aligned with learning objectives.

Within the medical program, a lack of regarding appropriate student assignments has created problems for all stakeholders. Some faculty members ask students to conduct systematic reviews and meta-analyses when they have not received any training in these intensive research projects. Seeking help, these students head to the library, where librarians must grapple with the huge gap students are facing.

Internal communication can also be an issue. HSL librarians do not formally meet to discuss teaching information literacy, share best practices or standardize their approaches. “It has become challenging because we’re a team and we’re supposed to get together but it doesn’t always work,” said Bayley. “There is no head of liaison here: if so, that person could control it a bit.” Relying on a tried-and-true skill set is another potential weakness which could be curbed by opportunities to share more with other liaisons.

Information literacy: a bigger picture

Interviews with librarians and educators seem to indicate that the biggest gaps in information literacy occur in the medical programs, where there are significant attitudinal and time barriers. Even the PBL style of teaching – which should foster opportunities for information literacy integration – has become less opportune. Whyte believes that problem-based learning medical curriculum has lost its original emphasis on self-directed learning and is now driven by outcomes:

People come to the tutorial, read through the problem, but they know by the end there’s a set of objectives they have to get through. So they get the objectives and then tend to go to resources they always go to – or to the resources that all their friends go to. It’s not entirely bad, but I do wonder if there are too many lost opportunities for people to really figure out, ‘How do I find information and how do I use it?’

In the Professional Competency domain, meanwhile, students are given a list of readings – so they skip the first step of becoming information literate: recognizing a need for information. In general, information literacy can be a hard sell for students who “are here to save lives,” said Trollope-Kumar.

Solutions

These situations may improve in future, judging by comments from Whyte. As he heads into his second year as assistant dean, his priorities include exploring the state of problem-based learning, lifelong learning and information literacy within the program. He would like to see a coherent plan around how the medical program – faculty, administrators, students and librarians – approaches information literacy. This need for a higher-level approach to information literacy has also been documented in studies at other universities. (Bury, 2011).

A “top-down” approach to may be the best route to integrate IL in academia. (McGuinness, 2007). Curzon (2004) states:

The information literacy program should be introduced as an enterprise-wide solution to an enterprise-wide problem. To catch the attention of academics and academic administrators, information literacy must be part of the academic effort rather than just a toolbox of skills that students learn in order to use the library. (p. 35).

Ivey (2003) also suggests that libraries should work with “schools of study” to develop information literacy policies which include a definition and teaching guidelines. This entrenchment could help ensure that IL programs receive adequate time and staff resources. Given the varying degrees of integration across the Faculty of Health Sciences, this process could be helpful at McMaster.

Whyte also believes the current focus on evidence-based medicine is too narrow; he would like the medical program to adopt a broader, inquiry-oriented view of high-quality information and how to use it. The lack of an over-arching strategy has restricted the “big picture”, so that students are not open to diverse sources and different forms of knowledge. For example, a focus on quantitative, synthesized data appears to diminish interest in qualitative research, which examines questions from a societal perspective. Rethinking the merits of such knowledge bases allows for the potential of a report from a patient advocacy group or government agency to be just as valuable to a clinician as the results of a randomized controlled trial.

I think, in that way, that is a part of information literacy: understanding what kind of information is available, what value it brings to answering a certain type of question -- and where would you even find it in the first place? (Whyte)

Discussion

This examination of the relationships between liaison librarians and Health Sciences’ instructors is by no means comprehensive, especially considering that only five out of dozens of faculty members were interviewed. However, as an effort at “evidence-based librarianship” (Bayley & McKibbin, 2006), these interviews provide some data to help assess existing services and resources at HSL. This research could also assist librarians and academics elsewhere to collaborate successfully on information literacy initiatives. Examined together with reports from other LIS research, the themes which emerged in this study could inform a list of best practices.

Best practices

1. Acculturate

Embracing the priorities and practices of each academic culture can help librarians build rapport with faculty members and other key players within a program. These connections can form building blocks for librarians to play major teaching roles, as exemplified in particular by Banfield and McKinnell in their respective programs.

2. Participate

By contributing to activities within a program, and its larger Faculty, librarians can raise their personal profiles and the visibility of the library by demonstrating how its services align with the academic learning environment. Advocacy is a key approach here. Membership on committees, volunteering to interview prospective students, and attending conferences and academic retreats are some useful ways of connecting with faculty members and administrators.

3. Communicate

Faculty members seem to appreciate hearing from librarians regarding student learning, especially if these messages come with a collaborative, troubleshooting approach. Communication about an assignment, for example, could lead to an invitation to collaborate on an improved version. And talking over an issue can de-escalate problems, or prevent them from occurring. Being proactive works!

4. Strategize

Seek out opportunities, whether small or large, to “wiggle your way in” to academic programs. Something as small-scale as a list of readings can provide a window for librarians to promote their skills and services and initiate dialogue with faculty. Stay open-minded and alert to chances for collaboration and communication, both formal – for example, orientation sessions for faculty members – and informal – such as a chat in the hallway or coffee shop.

5. Translate

Espousing library jargon and focusing on library-oriented goals may not resonate with students, or their instructors, particularly those in skills-driven professional programs. Avoid “trying to shove ACRL down somebody’s throat”, cautions Bayley. A librarian who “discusses goals and objectives for the development of the independent lifelong learner ... is simply not speaking the same language nor seeking to achieve the same goal that many members of the faculty value.” (Hardesty,1995). Couching information literacy in relatable terms will likely be more effective (Carpan, 2011). In this study, using the Evidence-Based Practice and Inquiry models was shown to be a successful way of making this transition.

6. Plan

Faculty members and librarians both have full schedules. It is important to develop rapport so that each group understands the culture of their potential collaborator. Sending large groups of students to the library at the same time for individual help will frustrate all involved. Planning and communication is essential for successful student support, and to allow for increasing the scalability of learner-centred information literacy initiatives and collaboration.

7. Reflect

The librarians at McMaster University’s Health Sciences Library present impressive examples of successful integration and embedded approaches to information literacy instruction in a wide variety of programs offered. But each librarian works independently and juggles a large workload on top of liaison duties – for example, Bayley is Director of the library, Bhatnagar is Head of Systems and McKinnell is Head of Public Service. This means they rarely have time for individual reflection and do not meet to share their successes and failures. Finding time for a regular retreat for liaison librarians could foster innovation and promote strategic planning for the future. As Jacobs (2008) notes, reflective praxis is a significant and often overlooked element in establishing creative connections between theory and practice in teaching and learning.

Conclusion

Interviews with six liaison librarians and five faculty members have demonstrated the varying levels of information literacy integration within Health Sciences programs at McMaster University. Perhaps the most intensive partnerships have been forged in the School of Nursing, which has had a library liaison since 1997. Librarians also have a strong presence in the undergraduate Bachelor of Health Sciences program and in all programs in the School of Rehabilitation Science. However, the School of Medicine – one of the largest programs, with 1,400 students in 2010/2011 – lags behind. Generally, there is a resistance to the concepts of information literacy within the program and a reluctance to make room for library instruction. Interestingly, once medical students complete their undergraduate education and move into specialized residency training, they frequently seek research help from the post-graduate liaison librarian. This indicates that medical students do indeed require strong information literacy skills.

The interviews also highlighted a respect for information experts as valued members of the academic team – a concept which is notably positive when compared to other studies of faculty attitudes towards librarians. However, this small sample from a Faculty of 770 full-time and 1,800 part-time instructors is certainly far from representative.

Many elements contribute to the robust integration of information literacy instruction within this Faculty which do have implications for a broader audience of librarians and educators. Adapting to the culture of an academic discipline, communicating proactively, strategically targeting programs and faculty members, getting involved in the academic community and marketing library services will promote building and strengthening teaching and learning partnerships. Successful collaborations are also founded on mutual respect for participants’ schedules and resources. And taking time for reflection on multiple levels – individual, program-wide, across a Faculty – can create a flexible, pedagogically sound information literacy praxis which responds to the needs of all participants. Finally, it is best to focus on the holistic benefits of improved research skills and lifelong learning when promoting information literacy to students and faculty members, instead of proceeding from an LIS-based perspective.

While limited in its scope, this case study presents numerous directions for future research. A wider investigation of attitudes towards information literacy and librarians is warranted within the Faculty of Health Sciences and particularly in the School of Medicine. Each of the themes highlighted here could be explored further to continue building a foundation of evidence-based research into information literacy practice.

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Appendix A

These questions were used to guide the semi-structured interviews:

A) Questions for librarians

1. Describe your current information literacy practices (going from broad overview to specific details).
2. How and when were these roles developed?
3. What has been your most successful strategy for working with faculty on information literacy activities?
4. What strategies have not worked and why?
5. How would you describe the status of FHS librarians within the faculty?
6. Is there anything specific to the HS faculty, or to individual program(s), that you feel significantly affects the efficacy of your information literacy practice?
7. What changes, if any, could make your information literacy practice more effective?

B) Questions for faculty

1. What does the phrase information literacy instruction mean to you?
2. What information literacy abilities do you feel are important for your students to acquire?
3. Describe how you work with FHS librarians to introduce & mentor these information literacy skills.
4. What has been your most successful strategy for working with librarians on information literacy activities?
5. What strategies have not worked and why?
6. How and when were these relationships with FHS librarians developed?
7. How would you describe the status of FHS librarians within the faculty?
8. What changes, if any, could make the information literacy instruction provided by Health Sciences librarians more effective/valuable to you?

Appendix B

Interview participants from the Faculty of Health Sciences at McMaster University:

NAME	RESPONSIBILITIES
Banfield, Laura	Librarian: School of Nursing Liaison / Midwifery Liaison / Global Health Liaison
Bayley, Liz	Library Director; liaison librarian for Professional Competencies stream in Undergraduate Medical program and for Physician Assistant program
Bhatnagar, Neera	Liaison librarian for School of Rehabilitation Science, including Occupational Therapy, Physiotherapy, and Master’s/PhD programs in Rehabilitation Science
Maly, Monica	Assistant Professor, School of Rehabilitation Science
McKinnell, Jennifer	Librarian: Bachelor of Health Sciences Liaison
McLellan, Andrea	Librarian: School of Medicine Liaison
Petropoulos, Jo-Anne	Librarian: Postgraduate Medicine Liaison
Secord, Margaret	BHSc program: Assistant Clinical Professor, Curriculum Co-ordinator, Facilitator for Inquiry course
Strachan, Patricia	Assistant Professor in the School of Nursing
Trollope-Kumar, Dr. Karen	Faculty member in the Department of Family Medicine and co-director of the Professional Competencies curriculum for Undergraduate Medicine
Whyte, Dr. Rob	Assistant Dean of Undergraduate Medical Education

Appendix C

A glossary of educational terms within the Faculty of Health Sciences at McMaster University:

Clinician – a professional who currently practices in a health-care setting. Examples include family physicians, hospital nurses, occupational therapists and physiotherapists working in community clinics. Much of the Health Sciences curriculum at McMaster is taught by clinicians.

Facilitator – a university teacher – usually a professor – who works with a class within the Bachelor of Health Sciences program. Facilitators do not teach; they guide students through the self-directed learning process and identify gaps in knowledge, prompting learners to further discovery.

Preceptor – In the School of Nursing, a preceptor is a professional nurse who guides senior-level students.

Tutor – a health sciences professional with expert subject knowledge who guides students in a problem-based learning setting.

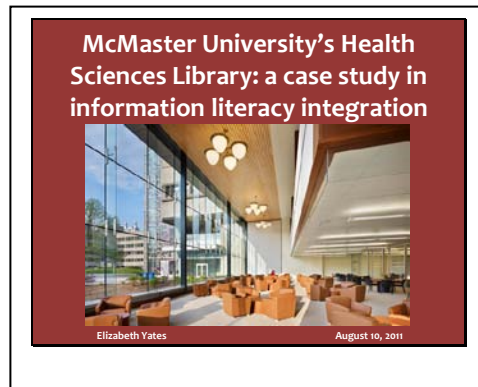
Resident – has graduated from undergraduate medical school, passed the Medical Council of Canada Qualifying Examination and earned the degree of M.D.

An overview of the medical education process at McMaster:

Students enter the three-year undergraduate medicine program after earning a previous undergraduate degree. The first two years are devoted to learning the foundations of medicine. Students then move into clinical clerkships, and participate in supervised patient care. After graduating as M.D.s (see above), most doctors begin training in a residency program focusing on a specialty area. The length of post-graduate training varies by specialty. Residencies are followed by further licensing exams before a physician can legally begin to practice.

Appendix D

Slide 1



Has anyone been on a co-op or going to a co-op next term?
What are you looking forward to?

>>You may also find that, like me, you also end up with a research project

Slide 2

Outcomes

We will discuss:

- Teaching and learning in McMaster University’s Faculty of Health Sciences
- Information literacy and evidence-based practice
- Librarian-faculty collaborations
- Successes and challenges in integrating information literacy @ FHS

Slide 3



McMaster HSL:

-supports Faculty of Health Sciences: main programs Medicine, Nursing, Occupational Therapy, Physiotherapy, Bachelor of Health Sciences

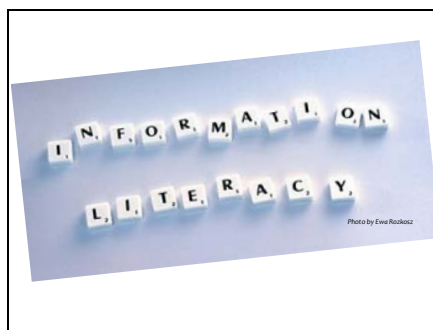
-funded by/reports to FHS, not UL

-staff of 26 full-time, incl. 6 liaisons

>> did a co-op placement @ HSL from Sept. 2010 to April 2011

>> was interested in how librarians are integrated into teaching and learning: they are involved at levels ranging from hands-on workshops to planning and delivering curriculum and courses

Slide 4



-Know from Lynne you have an understanding of IL – anyone care to offer a definition?

-ACRL: Information Literacy is the set of skills needed to find, retrieve, analyze, and use information

-ACRL’s Information Literacy Competency Standards for Higher Education stress the importance of collaboration between teachers/faculty and librarians

-Seeing successful collaboration @ HSL, and being aware of some challenges librarians face in integrating IL

instruction, I wanted to investigate this phenomenon

-My boss, library director Liz Bayley, supported this idea; and I decided to approach Jennifer Noon about doing a guided research project

Slide 5



-because my research involved people, one of the first steps was to apply for consent from Western’s Research Ethics Board. There’s a special committee which deals with student research @ FIMS

-Although it was grueling – culminating in a 23-page proposal – the process is invaluable because it forces you to answer questions which shape your research

Slide 6



Research design:

-case study seemed appropriate: allows for in-depth investigation of a specific environment by exploring views and behaviours of participants

-data can be analyzed to extract themes and highlight best practices and lessons learned

-negatives: subjectivity; results not generalizable; questionable validity bec. participants may not be truthful

Slide 7



Data collection:

- semi-structured interviews
- first with six liaison librarians – then each librarian was asked to recommend a faculty member to participate
- obviously results would be biased, but not a huge concern because this is such an exploratory study; also, would be difficult to recruit faculty otherwise
- ended up with six librarians and four faculty members

Slide 8



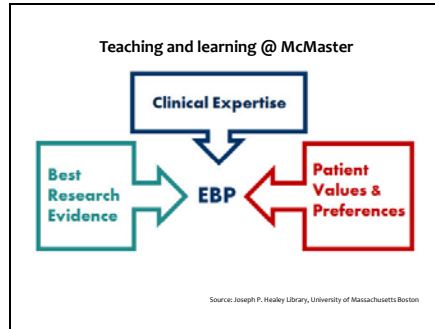
FHS:

Includes schools of medicine, nursing, and rehabilitation sciences, and the programs of midwifery, bachelor of health sciences, physician assistant and postgraduate health sciences education. Student enrolment is 5,000; 770 full-time faculty and 1,800 part-time, many of them practising clinicians.

Two characteristics distinguish programs within the Faculty of Health Sciences:

- 1.-small group, problem-based learning
 - >>students are presented with a problem – e.g. a patient suffering an illness – and must ask questions and find resources which can help resolve the problem
 - >>library fits well in this scenario as source of research help, info resources

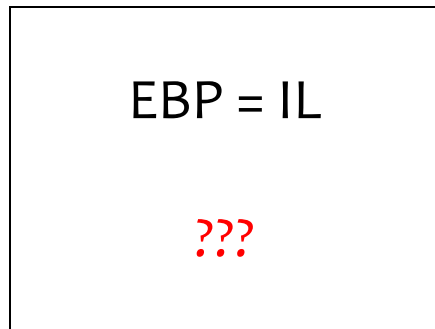
Slide 9



Evidence-based practice:

2.-most FHS programs emphasize the need to base decisions about patient care on three inter-related factors: the best available research evidence; your expertise or that of your peers; and patient preferences

Slide 10



- Like IL, EBP is a mult-step process which focuses on finding, retrieving, analyzing, and using information
- in EBP, there is more emphasis on analyzing research methodology
- Most librarian and faculty interviewees equated EBP with IL
- In the medical program, in particular, IL is a hard sell; however, EBP resonates with med students because it is practice based
- Librarians are well-positioned to deliver EBP training – they are experts in finding and evaluating information to support clinical decision-making

Can anyone define liaison librarian?

Slide 11



>>Generally, it means librarians who have formal partnerships supporting teaching and learning within a specific faculty or program

Embedded librarians:

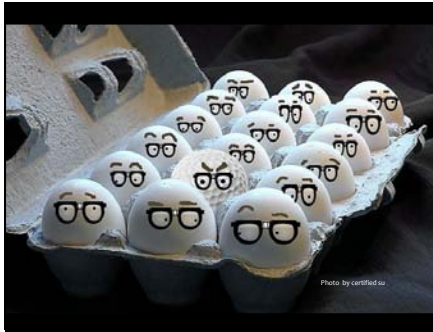
>>Recently, a stronger collaborative role for librarians – including planning curriculum, teaching classes and courses and sometimes evaluating students – has emerged. Usually these interventions focus on information literacy.

@ HSL:

>>Because there is some

discomfort with the word embedded, the library refers to their heightened liaison role as “integration”

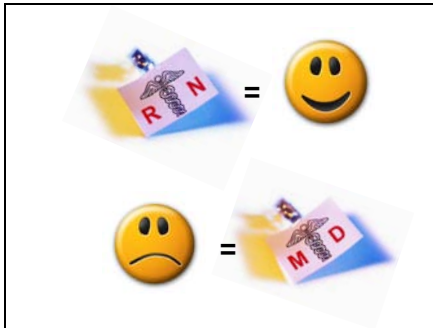
Slide 12



Numerous barriers to integration within academic faculties:

- faculty have different perspectives and priorities than librarians
- librarians aren’t seen as academic equals
- lack of time to “fit in” information literacy training

Slide 13



At HSL, there are varying levels of integration:

- Strongest:
 - nursing – liaison since 1997; librarian involved in planning curriculum and courses; teaches/tutors a class
 - BHSC – liaison part of program since beginning; librarian plans curriculum/courses; facilitates/teaches a class
- Weakest:
 - medicine – resistance to concept of IL
 - too theoretical – and reluctance to make room for library instruction; librarians have some lectures with UG medicine and PG medicine; emphasis

on research consultations with p-g
medicine

Slide 14

Major themes

- Acculturation
- Strategy and subversion
- Making connections
- Involvement
- Status

Analyzing interviews with librarians and
faculty members pulled out some
common themes

Slide 15



Acculturation:

-Both the LIS literature and the
librarians I interviewed the importance
of fitting into the culture of the
programs they support
-For example, the ug medicine librarian
keeps on top of medical trends and
attempts to “talk their language”

Slide 16



Strategy and subversion:

- Liaison program began with nursing in 1997: a good place to start bec. of gender fit, collegial atmosphere, focus on scholarship
- Librarians find whatever windows they can for involvement e.g. working from faculty list of reserved readings, saying yes even to interventions they know aren't optimal
- “wiggle your way in”

Slide 17



Making connections:

- speaking up at every opportunity – don't wait to be asked
- targeting the right people e.g. people responsible for developing curriculum

Slide 18



Getting involved:

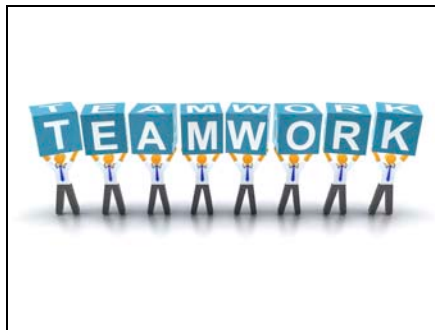
- participating in activities at the program, faculty, or university level can promote successful liaison relationships
 - librarians learn more about faculty members' interests; they become a “known” person
 - librarians can then be more strategic in building relationships
 - faculty may also seek out librarians after meeting them in other settings
- Two useful activities:
- training faculty in e.g. citation management software
 - collaborating on research with faculty

Slide 19

**Marketing:**

- Pitching the benefits of IL can help foster collaboration
- You must be aware of what is important to your “buyers”, though – e.g. in medical program, librarian sells ease-of-use, convenience of information resources

Slide 20

**Status:**

- A lot of LIS literature reports that librarians are viewed as having lower status than faculty
- In contrast, at HSL they seem to be on an equal footing with faculty members – they are viewed as team members, academic partners


Many factors:

- history of library
- most people who teach in health sciences are professionals, not academics
- respect for librarians within EBP

Slide 21

Challenges

- Time
- Miscommunication
- No big picture



Time:

- heavy workload for librarians; no time to reflect on practice
- new programs added without more library staff
- when is the right time to schedule an IL session?

Miscommunication:

- Between faculty and librarians, resulting in lack of appropriate help for students
- no time set aside for librarians to discuss IL practices

Strategic planning:

- in medicine, in particular, there is no overall strategy for IL – resulting in varying expectations for students and a dilution of self-directed learning

Slide 22



Summing up:

- PBL and EBP seem to facilitate librarians integration @ FHS
- Some programs more receptive than others
- Successful integration strategies include speaking up; fitting into the culture of your program; pitching in to help at all levels of the academic community; strategize ways to sell your services and build partnerships

Avoid:

- Too much theory
- Losing sight of the big picture
- Communication breakdowns

Questions?

Slide 23

Some helpful resources:

- Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. Chicago : American Library Association.
- Beck, S. & Manuel, K. (2008). *Practical research methods for librarians and information professionals*. New York: Neal Schuman Publishers Inc.
- Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey Bass.

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