REFLECTIONS ON PREPARING LIBRARIANS FOR RESEARCH-BASED MANAGEMENT

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As a library administrator who has taught research principles and techniques to a few hundred library school students and practitioners, I have observed that both incoming and established librarians are not drawn to the research process. The process is one of reflective inquiry and in practical applications is accompanied by a mindset that seeks data for making decisions to solve problems. Nearly all struggle, for example, with understanding how to formulate a coherent problem statement, to pose researchable questions or hypotheses, to identify and implement appropriate procedures to gather data, and to interpret the findings to address their study problem. In short, developing a perspective toward systematic data gathering for solving a problem or mastering skills to undertake [or at least critically evaluate] applied research, do not come easily to those who select librarianship as their profession. It has puzzled me why this is so.

My puzzlement led me to think about what librarians do for which education in research methods is relevant. Regardless of their specialty, librarians share a core practice of management. Whether organizing information, allocating resources, or directing projects, librarians address problems or questions to which they apply systematic procedures and judgment that result in change. A large subset of activities with which librarians engage involves making managerial decisions. Management trends highlight gathering and utilizing data as critical elements of best practice. Whether, for example, to gain efficiencies through project management, to understand and improve service quality from the library user's perspective, or to make evidence-based decisions, effective management approaches share the requirement for basic knowledge and skills associated with applied research. Regardless of specific style, established and evolving management approaches share a commitment to what the business world has labeled as "performance management." Its core concept is described as,

> the systematic use of data throughout the enterprise to define and clarify goals, measure performance, increase productivity and improve results. Performance Management rests on the premise that there are efficiency and quality gains to be captured by methodically uncovering and leveraging truths that live in existing systems and current stores of data. (Selcow & Glickman, 2004)

To emphasize the process leading to such performance, I propose using instead the term "research-based" management in the context of relating education of librarians to this important aspect of their practice[1].

And yet, in librarianship, as in other practice oriented disciplines, there is a growing concern that theory and research are not applicable to practice. "As our research methods and techniques have become more sophisticated, they have also become increasingly less useful for solving the practical problems that members of organizations face" (McGuire, 1986, p. 5). The pressures library managers face for greater accountability and evidence of contributions made to institutional mission draw them to seek compelling ways to "tell their story" and frame convincing arguments for fiscal and political

[1] Numerous terms appear in the literature that relate to a managerial orientation that focuses on actively identifying, retrieving, or creating data to use in practicing management. "Research-based" management appears in the literature of some health science professions such as nursing and doctors in management, where it is distinguished from "evidence-based" management popular in the clinical fields. "Data-driven" and "performance" management appears in the corporate world. A review of the concepts and definitions may help clarify the underlying principles, but is beyond the scope of this paper.

support. The vocabulary for such conversations in institutions which have committed to some form of research-based management includes systematically gathered, analyzed, and effectively applied data that address local situations. The preparation of professionals who manage library organizations has not traditionally emphasized, if included at all, development of understanding the relevance of research to practice, skills to conduct problem-focused or applied research, or analytical practice to interpret and utilize data in managerial decision making.

The convergence of growing cultural expectations for improvement and accountability, with increasing managerial approaches and methods to apply data to improve organizations and their performance poses a number of questions about how librarianship engages with these transformative trends. This presentation is an essay in which I will share my exploration of issues relating to the preparation of librarians for their engagement with research-based management, organized around three questions. Do librarians value research-based management? Do library leaders and managers need to be trained to practice research-based management? What are barriers to learning and applying research methodologies to library practice? My exploration is based on a review of literature as well as reflections from teaching in different educational programs. The presentation will conclude with suggestions for a proposed research agenda to explore this topic more systematically. I also very much welcome exchange about the assumptions, observations, and insights presented here since most of these are limited to the perspective of an American, while the move for greater evidence of accountability in academic culture, at least, goes far beyond the United States. According to Hernon (2004) outcomes assessment and performance measures have been integrated into practices at least in United Kingdom, Sweden, Australia, New Zealand, and Hong Kong.

Do librarians value research-based management?

With information and its use as fundamental to librarianship, one might imagine that the discipline would be among the first to embrace a systematic approach to gather, analyze and utilize data for making decisions. It is not clear that librarians commonly embrace the approach in practice, in part because there does not appear to be a standard or widely accepted vocabulary about research processes used to manage library activities and organizations. Literature either grounded in the setting of libraries, or potentially read by library managerial leaders distinguishes a few decision-making processes that rely on data. These include various research-based practices, with concepts such as evidence-based management, performance measures, outcomes assessment, total quality management [TQM] and service quality improvement framing the approaches taken. Although it is beyond the scope of this essay to compare these managerial processes and approaches, a brief discussion of three approaches may illustrate the richness of interest in grounding management practice in research processes. An emerging challenge may be to articulate a set of principles and definitions about the relationships of research processes, resulting data, and their use for management, and to do so in terms that are harmonious with the practices and theories of librarianship.

Evidence-based has been compared to research-based practice, for example. According to White, the former seeks a hierarchy of evidence from already conducted research with randomized control trials being considered the best form of evidence and anecdotes falling to the bottom of the list (as cited in Young, 2002). As Law (2006) points out, "the evidence-based approach to practice is taught in medical schools, and has become the 'gold standard' for integrating research into practice in a consistent way in the health sciences." (p.5) Evidence-based librarianship [EBL], based on characteristics developed for clinical practice in medicine, came to the foreground this decade. The approach "formulates a clearly defined, answerable question, searches for the best-available evidence, and evaluates the gathered evidence for its usefulness and validity for answering the initial question" (Eldredge, 2000, pp. 290-291). Though first appearing in health librarianship, the principles of EBL soon spread to academic libraries interested for example in making decisions about serial cancellations (Gallagher, Bauer, & Dollar, 2005). In 2006 even a new peer-reviewed journal, entitled *Evidence Based Library and Information Practice*, appeared with articles describing how the

approach can help create performance measures and improve outcomes assessment in both academic and public libraries.

Research-based practice on the other hand, requires a problem definition which in turn drives the selection of methodology to gather data following principles of quantitative or qualitative research. In itself, neither approach is sufficient to generate answers to specific problems that managers face. The manger can only use evidence or research findings as a source of information, and must also apply experience, knowledge, common sense judgment, and interpretation to such data to make good decisions for local applications. The understanding of the process of using evidence in decision making is not fully developed. As Young (2002) observes, even though the term "evidence-based" practice has become fairly widely accepted, its application to management is at what he describes to be an "embryonic stage" (p. 147).

Another major movement in which librarians have shown interest in research findings and data gathering methods is service quality improvement. SQI is a desire that managers work toward achieving, through application of quality-assessment principles. The Gap Model of Service, developed by Parasuraman, Berry, and Zeithmal (1985), offers a theoretical model and the foundation for a series of instruments used to measure factors managers can affect to improve the quality of service. The gap between customer expectations for excellence and their perceptions of service delivered by a specific provider became a widely accepted definition of service quality, and the instrument these marketing researchers developed to measure this gap is the SERVQUAL, a survey questionnaire. Noted to be the most popular tool used in the business sector to measure customer perceptions of service quality, its application in libraries first appeared in Canadian public libraries (Hebert, 1994) followed by use in academic and special libraries in the US and elsewhere (Nitecki, 1995, 2001). Interpretation of findings from the use of the questionnaire requires a basic understanding of descriptive statistics. Researchers interested in confirming the insights about the measurements as applied to libraries, also used factor analysis and explored graphic depictions of service quality dimensions. Other researchers felt that the SERVQUAL instrument generated inconsistent findings when applied to libraries and so seeking an alternative instrument, Texas A&M, in conjunction with the Association of Research Libraries [ARL] developed the LibQUAL+ which has been used in a variety of worldwide settings, with over a million estimated respondents. The presentation of results to libraries used discussion of statistics and graphs new to most librarians. The ARL sponsored workshops which aimed to interpret data and gain a basic level of understanding of and comfort with statistical data. Perhaps coincidental or causal, but the popularity of this tool and ARL's launching of other "new measures" offer evidence that librarians have a growing interest for data useful in making decisions that improve libraries. (ARL website)

Do library leaders and managers need to be trained to practice research-based management?

There has been a long standing debate about the necessity for librarians to have research knowledge and skills. Some associate the contribution of research, both development of a body of theory and an interest to build the knowledge domain through contributed research, as a prerequisite for defining a profession, and thus important for librarianship. Law (2006) compares arguments that on one hand based on Gorman's study, library and information science research is of "pretty poor quality" compared to that of other disciplines (as cited in Law, 2006)., but on the other hand, Koufogiannakis, Slater & Crumley (2004) provide empirical evidence to the contrary. However, Powell, Baker & Mika (2002) found "that 58.6% of LIS practitioners stated that their LIS programs did not adequately prepare them to conduct research, and 36.9% said that their LIS programs did not adequately prepare them to read and understand research-based publications." (p.61)

Others argue that research skills, particularly knowledge of statistics, are essential for managers to perform well. Within an exploration of evidence-based librarianship, Booth and Brice (2003) contend that an understanding of statistics, including inferential statistics, is a prerequisite for "critical appraisal" of evidence useful to decision making. Others agree that familiarity with descriptive

statistics is inadequate for pursuing an understanding of the relationships between and among variables and dimensions relevant to determining areas for improvement for example (Shi & Levy, 2005). Furthermore, Dilevko (2007) observes "that information professionals who wanted to critically appraise published research were disadvantaged by their lack of statistical knowledge. . . . [and that] all information professionals should have at least some knowledge of inferential statistics if they want to practice EBL at a high level." (p. 213)

Within management, viewed as a relatively new discipline itself, Ford et al. (2003) notes a similar concern over the role of research in practice and its importance to establishing the profession:

> There is still work in the development of theory, and the development of research agendas at the macro level. While this is essential to the establishment of the field, it is not necessarily useful for the practicing manager who is trying to make an implementation decision. Researchers themselves may argue that "their efforts should not be directed toward the mundane day-to-day events in a manager's life, but instead should be used to address long-term management challenges. (p. 46)

As Law (2006) further discussed, this assumes that there are two distinct categories of research and that day-to-day challenges in management practice do not have any relationship to larger questions or long term implications, a dramatic over-simplification of work in this area.

An alternative is that managers and leaders rely on others to determine the need for data, gather them, and present them for use in the decision making process. To some degree this is not a bad idea, given that many managers do not have time to engage in necessary research activities even if they were well trained to do so. Relying on experts to prepare evidence for decision making may be an effective and efficient delegation of resource in some organizations. However, without some level of understanding of the nature of the research process and the limitations of data gathered, a manager is ill equipped to effectively judge what evidence is presented and how to use it in making policy or changing practice. Davies observes that without grounding in research and use of best evidence, decision making becomes opinion-based policy making and follows an idiosyncratic approach that depends on "the selective use of for example, evidence [e.g. on single studies irrespective of quality] or on the untested view of individuals or groups, often inspired by ideological standpoints, prejudices or speculative conjecture." (as cited by Law (2006), p. 1)

What are barriers to learning and applying research methodologies to library practice?

Students preparing to become librarians, or other learners already established as practitioners, do not generally embrace applied research methods as a topic they easily and enthusiastically try to master. A number of reasons are suggested in the literature and through observation of efforts to influence a positive attitude to such study. The following is a composite list of obstacles students in librarianship may face in learning and applying research methodologies to library practice; they are grouped by what relates to the student's perspective, what contributes to the environment for teaching students in library and information science, and what added factors affect those in the practice who seek further professional growth.

Student receptivity and perspective:

- Students have statistical anxiety. Few coming to library and information science programs have developed quantitative analysis or familiarity with statistical concepts. Most students come with education or training in humanities and have not been exposed to the research orientations of social science or sciences.
- Students perceive that practitioners are not skilled to evaluate research results, so there is absence of a role model to motivate students to study the topic.
- Students and practitioners associate data gathering techniques such as focus group interviews and surveys as research, giving little attention to the full research process, beginning most importantly with identifying the problem for which data are needed and the specific questions to be researched.
- They do not see relevance of research findings to practice or how they could be used in managerial decision making.

The teaching environment:

- There is competition for courses in an already rich curriculum [e.g. growing selection or requirement for courses in technology, information studies, communications]
- Teaching statistics has low prestige within the library and information science curriculum.
- Faculty opinion advocate that easy-to-use statistical software packages are a good substitute for learning about and understanding statistics, particularly inferential statistics and statistical concepts.
- As schools compete for students, requiring a statistics course does not cater to consumer demands.

Relevance of research to practice [key barrier for practitioners continued learning]:

- Imprecise definitions are common, as observed for example in confusion between "service quality" and "satisfaction."
- Rewards and incentives are lacking to motivate change among library managers.
- Decisions in practice need to be made in a timely manner, not allowing time for lengthy process of accessing research; by the time data can be gathered, situation changes and decision must be made.
- Practitioners are not oriented to theory construction through research, but focus more on the findings; they are willing to expect generalizations and accept bias.
- Practitioners are not exposed to research published in academic journals or presented at conferences, so research appears irrelevant.
- The presentation of research uses language hard to understand by practitioners.

Insights from three approaches to teaching librarians research methods and developing their skills to apply them in practice.

Preparation of the profession to master research methods and skills needed to apply them to practice may occur at different career stages. Master's degree level training is offered through course work that is either a requirement or elective in the curriculum. PhD degree education typically requires mastery of research methods, though less likely with an emphasis toward applicability to management. Professional training through continued education is offered for practitioners already established in the field. I have participated in several programs aimed to develop an understanding and skills related to applied research and targeted for librarians at these different career stages. Reflections from first hand experience as well as participating in the design of the lessons and teaching strategies are offered here as insights to continue the conversation and perhaps help frame future areas for study. A brief description of each of the educational programs will clarify the context for these remarks.

Master's level programs:

As Law (2006) notes, "it is not clear whether library managers have been trained in research-grounded practice. Further research into the curricula of library management courses, for example, would determine the extent to which the use of original research is encouraged to either support learning or to support practice." (p.10) A few studies have examined accredited graduate library programs and there is not a common requirement to have research methods as part of the student's preparation. Schrader notes that all programs in Canada have a mandatory methods course (as cited by Law, 2006, p.10). In Japan, a survey of academic librarians were asked to rank 52 categories for their degree of necessity in library education; research methods and statistics placed fourth from the bottom both times that the survey was administered in 1989 and 2004. (Nagata et al. 2006) In the United States, there are 52 accredited library and information science programs and a research methods course was not required by 20 [or 38.5%] in 2001 and then 22 [40.7%] in 2003; of the 24 top-ranked programs only half required master level students to take research methods in 2001, dropping to10 [41.7%] by 2003 (O'Connor & Park, 2001, p. 105).

One program that has a mandatory requirement for research methods in the master's level curriculum is that given from the University of Rhode Island, U.S.A. At least between 2001 and 2006, the required courses were taught by adjunct faculty, each given fairly wide leeway in how to approach the content. I, for example, used the theme of measuring service quality improvement for illustration of the stages of the research process. The participatory assignments given the students included review of published literature for identification of key components of a research design and methodology, as well as a group presentation to identify a scenario whereby a team responds to some initiative that benefits from an applied research design. The principles of research methods were introduced and through an imagined problem and role play, opportunity was created to simulate applying them to practical library settings. The results were consistently impressive and somewhat surprising. Students were very uncomfortable and a bit anxious when beginning the group activity. However, by contributing individually through their own developed expertise in some aspect of the problem resolution, nearly all gained confidence, demonstrated knowledge of major principles, and engaged in critiquing their peers toward added understanding of application of these principles to different imagined settings, such as museum library boards, school library collaborations between teachers and media specialists, or academic library planning committees.

I had a somewhat different experience of teaching evaluation methods as a form of applied research to students at the master's level in fall 2008 when I co-taught [with Toni Olshen, York University, Toronto, Canada] a five part segment about use and users of digital libraries to 20 students representing 16 countries as part of the DILL program in Parma Italy. Funded by the European Union, students were all fluent in English and most already were working in a library, some with professional education and some with academic credentials in different disciplines. Students had completed the prior year a course in research methods but welcomed the review of the five steps of an evaluation. This served as an outline for exploring background information, practical applications, and discussion of readings; all were very well received according to student course evaluations. Repetition of key points and rich illustration of real projects where research methods were used to obtain data used in managing libraries were among the key success factors to raising interest in use of research for improving library services and operations.

PhD level preparation:

Peter Hernon and Candy Schwartz, professors in the Graduate School of Library and Information Science at Simmons College [Boston, MA, USA] have developed a PhD program focusing on managerial leadership in the information professions. The program is designed for mid-career library managers interested in developing their leadership abilities and knowledge, as well as skills and mindset to contribute to research and scholarship. Currently in its third year, the program recognizes that, "research and scholarship, at the heart of any doctoral program, also pose the greatest challenges for this particular program, developed for practitioners." (Hernon & Schwartz, 2008, p.1) Upon entry, students consistently have been unaware of research as a process of reflective inquiry, and their familiarity with leadership is practical rather than theoretically based. Comments throughout the students' studies as well as from program assessors bring attention to the challenge to execute the underlying intention of the program to have "a constant and consistent focus on advancing research and theory, while applying the insights gained to practice." (Hernon & Schwartz, 2008, p.2) Professors of practice who are practitioners teaching in the program, reinforce the practical benefits of the program's emphasis on research, noting "that understanding what research is and how to conduct a research study are critical at a time when libraries must demonstrate accountability and continually seek to improve the quality of their services." (Hernon & Schwartz, 2008, p.2)

Having co-taught both the required Research Methods and Evaluation courses, I observe that the practitioners engaged with this course of study face major challenges in mastering this portion of the curriculum. I informally asked some of the students why they find this particularly difficult, and responses have included several observations: that research is a foreign concept to them, that the association with statistics is frightening, and that even the word "research" has a meaning limited to bibliographic search and retrieval. Conversations with the other teacher of these courses raised the

insight that the challenge may be more to develop a research mindset or perspective on problem solving than to master data gathering techniques. Another observation is the difficulty students have with framing a researchable question. As these students are well motivated and successful managers, voluntarily inclined to learn about applied research, their learning struggles illustrate in a microcosm the difficulty facing the profession to be prepared to engage in research-based management. The educational process of preparing managers for this approach should begin earlier in their career and with emphasis on the formal inquiry process over data gathering techniques.

Professional development training:

Librarians continue to learn after receiving their degrees through formal professional development programs. One such opportunity was sponsored by the ARL through its Online Lyceum program. As part of this program and collaboratively with Toni Olshen, I designed and facilitated a 6-week online course on Measuring Service Quality in Libraries which was offered ten times between March 2001 and May, 2004. Possibly the first course on the topic offered through the Internet and about service quality assessment directed to librarians in any venue, this course reached each time, approximately 25 librarians primarily from the United States, but also from China, New Zealand and Canada. (Nitecki, 2001) The course content was enhanced by a few multimedia features and also included a packet of written materials sent to participants before it began. A learning environment was created through use of online chats and bulletin boards for exchanges between and among students and course facilitators; opportunities to complete numerous exercises with feedback from facilitators; and content available online all the time and for two weeks after the course concluded to allow students time to read materials at their own pace. An evaluation of the program was reported in 2001 in which the observation was made that "the later group of students were [sic] more aware of service quality principles and more practical in seeking technical skills and applications of insights gained in the course. By comparison, the early students were less familiar with basic concepts." (Nitecki & Olshen, 2002) As more of the participants experienced using the LibQual+ instrument in their libraries, there was an increased interest to learn how to interpret data. Among the conclusions from this experience were the recognition that

> measurement as an act of gathering data is not the difficulty. Rather the introduction of a new set of concepts and language about managing library services challenge most librarians who have taken the course. It is not easy to grasp quickly concepts of service quality, assessment, and fact-based customer-focused management orientation. (Nitecki & Olshen, 2002, p. 243)

This experience in training early adopters in the transformation of libraries gaining a "culture of assessment" reinforces the importance of the work environment for practitioners to learn applied research methods. Clearly understanding and committing to the role of well-gathered data for decision-making are not only strong incentives to learn the skills needed to obtain and interpret such data, they might be prerequisites for such learning to be successful. The change process calls for innovative leaders to understand the methods and build a workplace culture that then might draw others to learn. Preparing these leaders calls for greater emphasis in library school curriculum preparing new professionals, and professional development opportunities aimed at nurturing change agents. Other professional development programs have emerged such as for example, those sponsored by the ARL. Its Service Quality Evaluation Academy, an intense 5-day program presented in the context of the LibQUAL+ program, emphasizes "basic concepts and skills in measurement and data analysis that will be applicable to service quality evaluations in general." (ARL website) In addition, the Association offers the "Effective, Sustainable, and Practical Library Assessment" service through which libraries are guided to build "leadership, a user-centered staff, and a supportive organizational culture to the success of sustainable assessment programs." (ARL website)

Proposing a research agenda

As acknowledged at the outset, this presentation was triggered by puzzlement about observed difficulties to master and adopt an orientation to use research for management in librarianship, when

such an approach appears to be driving advances in how to effectively manage services, performance and organizations in general. The limitation of this essay has been that it is based on an exploratory review of the literature and reflections of personal experiences. One consequence of such an exploration, however, is that a research agenda emerges which identifies several potential questions to systematically explore. Such an agenda may consist of three directions relating to assumptions, existing practices, and improving learning outcomes. The results of pursuing these topics could be useful to both the practice of effective librarianship and to professional education. They could advance the profession's knowledge base and might position librarianship among the leaders of managerial innovations. Librarians have the potential to contribute valuable insight into the ways information can be utilized to improve organizational performance and services and to do so through active participation in the scholarly inquiry of related topics.

Challenging assumptions

- To what extent do librarians share a core practice of management?
- In what situations are research-based decisions superior to ones made intuitively and with little or no reliance on appropriately gathered data?
- How prevalent is an aversion to mastering research processes among persons attracted to librarianship?
- Are there common concepts among managerial trends that share a research-based approach? Are there unique applications that warrant formulation of a theoretical framework for library research-based management?

Describing existing practices and conditions

- How often and in what situations do librarians engage in research-based management? What factors foster such practice [e.g. type of library, size of organization, preparation of administrative leadership]?
- How much do librarians value the approach? For what categories of problems do data-driven decisions provide more confidence among managers?
- What impact does research-based management have on the credibility of a library among its institutional leadership? Can cost benefit be attributed to applying research based analysis to managerial decisions?
- Are external government and institutional mandates influential in the adoption of research-based management in libraries? How do these differ across countries?
- To what extent do practitioners have an understanding of the research process?
- What is the level of interest and recognized need to train librarians and particularly managerial leaders in applied research? Do practitioners and academics differ in the priority they give such professional development?

Identifying contributors to improve learning outcomes

There is a body of research investigating the extent to which research methods are taught in library education programs, but none has been identified that explores pedagogical issues related to this portion of the curriculum.

- What approaches to teaching the research inquiry process are most effective for students preparing to be library and information specialists?
- What are the perceived barriers to mastering applied research? What pedagogical strategies overcome these barriers?
- How to assess and monitor progress in students' mastery of the research process for practical application?
- Are there differences in the ways research methods and evaluation courses are taught in different countries? What opportunities for collaborative approaches exit to develop global objectives to incorporate research skills in the profession's certification requirements?

The collaborative participation of practitioners and academicians has potential to be important to the preparation of librarians to embrace research-based management. An understanding of the nature of such collaborations and relationships that effectively contribute to this area of professional

development could inform the educational process, both in the design and implementation of curriculum and specific courses or training tools.

- Are library administrators requiring data and systematic analysis and inquiry in resolving problems and making decisions?
- To what extent do characteristics of library cultures and work environments contribute to the receptivity of research theory and practice among practitioners?
- How do library managerial leaders motivate interest to develop understanding of research for application to management in libraries?

Additional questions are welcome as we open this presentation to discussion at the conference. Are there opportunities and advantages to address any questions across countries and across types of libraries?

Conclusions

The need for accountability and advocating the value of the library challenge its managers to identify and make sound decisions. Effective managerial approaches call for information to inform such decisions. To address specific managerial decisions, useful data often must be framed by appropriate problem questions, systematically and locally gathered, and critically analyzed to produce needed information. This process of inquiry, directed to solving a problem or making a managerial decision, is applied research. Those in positions of managerial leadership, expected to make sound decisions, should expect also to be equipped with a mindset to seek such data and to be fluent in the methods to gather them. The need exists for systematic and continuous preparation of library managers in the research-based component of management. The library and information service professions are recognizing the need, but have not fully embraced the practice of relying on data and evidence to make managerial decisions.

Innovative educational approaches and reflections in the literature identify a desire to share the responsibility for preparing librarians for research-based management. There are several stakeholders in this preparation process and each has important responsibilities. In a discussion of incorporation of Evidence-based Practice into the library school curriculum at Queensland University of Technology in Brisbane, Australia, Hallam and Partridge (2006) itemize these responsibilities in a matrix, which they summarize, in part, as follows:

> Employers have a responsibility to provide an environment that encourages and rewards EBP and to provide access to the resources and training needed to implement EBP within the work context. Professional associations have a responsibility to encourage, enable and reward the development of EBP skills and knowledge within the profession as well as developing and articulating the profession's EBP policies and future directions. (p. 90)

Furthermore, individual professionals have a responsibility to have the motivation to acquire and maintain the knowledge necessary to practice and to undertake research for decisions, and contribute to developing a stronger link between theory and practice. Educators have responsibility to provide courses to develop the required skills and promote degree requirements to emphasize research skills, as well as actively pursue research activities to generate theoretical knowledge (Hallam & Partridge, 2006, p. 90-91). Educators are in a pivotal position to seek opportunities to collaborate with practitioners and associations for conducting research and providing development activities.

In this presentation, I have argued for the applicability of research-based management in library practice including evidence-based and other data-driven decision making processes. Existing barriers to applying research methods can be gradually removed by giving attention to educating both incoming and seasoned professionals. To do so, calls for increasing student receptivity in a more conducive teaching environment and through partnerships with academicians, library administrators and professional organizations.

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