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Being evidence based in library and information practice
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Chapter 9 - Academic Libraries
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Academic librarianship is well suited to evidence based library and information practice (EBLIP). In this chapter, we provide some context as to why this is the case – the rapidly changing role of academic libraries and librarians, as well as higher education institutions more generally. The knowledge base of evidence is described, both in terms of the types of research available and the size and scope of the available evidence. The knowledge base in academic librarianship is growing quickly, due to research on developing issues in higher education and academic libraries, as well as an increased focus on assessment and evaluation programs for continuous improvement and demonstrating value. We discuss the types of evidence sources available for academic librarians to draw on beyond the traditional journal article and conference presentation, and examine how librarians are creating evidence, in some cases by collaborating with those who work outside of libraries. Methods used by academic librarians for finding and using evidence to inform decision making are presented, along with considerations regarding organisational climate, or readiness for evidence based practice. Finally, we conclude with examples from the academic library sector of successfully applying the principles of EBLIP for informing changes to practice and transforming organisational processes.

The Changing Landscape and Growing Body of Evidence

The role of academic libraries and the practice of academic librarianship have been transformed in recent years by dramatic changes in both higher education and scholarly publishing. Print has transitioned increasingly to electronic and librarians have been vigilant in ensuring seamless access to online resources as well as encouraging their integration into discovery layers and learning management systems. In anticipation of emerging publication models and platforms with new licensing requirements, highly skilled experts in acquisition, discovery, and access are required. At the same time, conversations about learning management system features, including customisation and personalisation, have advanced student and researcher engagement with library resources in order to improve learning outcomes. Physical library facilities have also changed, increasingly employing participatory design methodologies with campus stakeholders, with a focus on users’ needs. All of these changes have both drawn from and contributed to a growing body of research, making academic librarianship the ideal setting for evidence based library and information practice.

Changes in the way students and faculty members use information resources (e.g., Tenopir, King, Christian, & Volentine, 2015), and the reality that these users “expect more … [and are] demanding better libraries for today’s complex world” (Lankes, 2012) places pressure on academic librarians to keep up with current needs and anticipate future needs. Accelerated demands are in part due to changing research practices within academic disciplines, as reported by Long & Schonfeld (2013) and Rutner & Schonfeld.
(2012). Studies of academics in both the United Kingdom (Housewright, Schonfeld, & Wulfson, 2013) and the United States (Schonfeld & Housewright, 2013) reveal consistent trends that scholars increasingly use online resources but value traditional formats as well. They also note changing patterns in information searching practices, digital content adoption, and open access acceptance. In a similar fashion, surveys of students reveal disciplinary differences that produce wide variation in their perceptions, including the importance of searching, evaluation, processing, and communication-dissemination (Pinto & Sales, 2015). In order to ensure library relevance in the digital age, librarians should aspire “to enhance scholarly productivity, to empower learners, and to participate in the entire lifecycle of the research, teaching, and learning process” (Jaguszewski & Williams, 2013, p. 1). Growing acceptance of this ambitious mandate is reflected in association publications, research organisations, professional discourse, and library literature, as highlighted below.

In recent years, services have emerged in academic libraries in areas such as data curation, researcher profiles, digital scholarship, scholarly publishing, creative expression, impact measures, web development, government funding mandates (Kenney, 2014, p. 3), and digital humanities (Hartsell-Gundy, Braunstein, & Golomb, 2015). Research data management services are increasingly mentioned in both conferences and the literature (Rambo, 2015; Tenopir, Birch, & Allard, 2012). The domain of academic librarianship can therefore be seen as expanding to incorporate new roles, and the research evidence, along with skills for producing local evidence, emerging along with it (Passonneau & Erickson, 2014).

In response to this changing landscape, library professionals, often working collaboratively with other academic or industry professionals (Somerville, Schader, & Sack, 2012; Somerville & Conrad, 2013; Somerville & Conrad, 2014), have initiated varied investigations to better understand the information behaviour of various user groups. Studies to explore “how researchers really work” (Foster, 2014b, p. 4) intend to “enable us to design services to fit in the researcher’s workflow, rather than the researcher attempting to understand or fit into ours” (Rambo, 2015, p. 9). This aspiration has produced a considerable body of research on researcher behaviour, using a variety of research methods to provide evidence on research behaviour of doctoral students (JISC & the British Library, 2012), personal learning environments (Caldwell, Bilandzic, & Foth, 2012), and data storage (Swauger & Vision, 2015). These explorations serve as an evidence base for user-centred systems and services in academic libraries.

A complementary line of inquiry has explored practical implications to improve the productivity and workflow of researchers (Favaro & Hoadley, 2014; Conrad & Somerville, 2013; Conrad, Leonard, & Somerville, 2015). Relatedly, given the migration to e-resources in academic libraries and trend of technology adoption throughout higher education (Horizon Report, 2015), library websites have become portals for discovery, access, and fulfilment. The emergence of discovery layer services have prompted studies comparing features and functions of these products (e.g., Asher, Duke, & Wilson, 2012). Other papers reporting local innovations have explored the topic of library website redesign (Deschenes, 2014; Woodfield & Lamond, 2015).

Meanwhile, a holistic critique of researcher experience challenges libraries to “develop a completely different approach to acquiring and licensing digital content, platforms, and services. They simply must move beyond the false choice that sees only the solutions currently available and instead push for a vision that is right for their researchers”
This call for action coincides with the emergence of new conceptions of professional status that reflect a shift from autonomy to one of accountability (Eldredge, 2014). Within librarianship, this takes the form of decisions which reflect users’ actual or potential needs and which are based on evidence, as illustrated in this vignette:

In your role as collection resources development librarian you need to ensure that most of your users’ needs for authoritative information are met most of the time, despite the constraints of a modest budget. You select collection resources using the EBLIP process knowing that you must be held accountable to others’ for your decisions as part of the new professionalism. This transparency converges well with long-standing values of openness held by our profession. When others such as administrators or users request an explanation of your decisions, you can readily point to your EBLIP process that identified a body of applied research evidence found in the peer reviewed literature, past performance of the same types of resources by your user community, interlibrary loan request data on the same or similar titles, likely a cost-benefit analysis, and possibly even cohort or experimental studies. (Eldredge, 2014, n.p.)

In addition, there is a growing body of evidence to inform information literacy education. The published literature covers a wide breadth of topics showing the evolving discourse on information literacy models fortified by evidence-based practice, including topics such as embedded information literacy modules (Kavanagh, 2011), the connection between library instruction and academic success (Bowles-Terry, 2012), evaluation of digital information literacy (Sieberhagen & Cloete, 2012), and the impact of progressive librarian course collaborations (Booth, Lowe, Tagge, & Stone, 2015). Rather than focusing on the quantity of library instruction taking place in universities, as has traditionally been the case, research in this area has become more sophisticated. Instructional effectiveness in the library literature is increasingly measured in relation to educational impact, whether in terms of student retention, learning outcomes, or student performance (Stone, Pattern, & Ramsden, 2012; Soria, Fransen, & Nackerud, 2013; Eng & Stadler, 2015). In addition, there are three systematic reviews on the topic of effectiveness of information literacy instruction, and all conclude that online methods are as effective as face to face instruction (Weightman et al, 2015; Zhang et al, 2007; Koufogiannakis & Wiebe, 2006).

This assessment focus within academic librarianship aligns well with a corresponding trend within higher education. Whether driven by external circumstances, such as higher education accreditation or external program review processes, or by an organisationally inspired desire to improve, library leaders and managers are expected to plan and implement both comprehensive and targeted evaluations of their impact, services, resources, programs, virtual and physical spaces, and partnerships. This is demonstrated in an overview commissioned by the ACRL in the United States, “Value of academic libraries: A comprehensive research review and report” (Oakleaf, 2010). Notable individual studies examine and provide evidence of the library’s value to the grants process (Tenopir, 2010) and to research and researchers in terms of their papers and grants awarded (RIN& RLUK, 2011) or research achievement outputs (Noh, 2012).
Evidence Sources for Practice

Sources of evidence cited in academic library scholarship reveal considerable variation in what is deemed authoritative, especially given the diversity of circumstances within local contexts. Resources include traditional methods of scholarly communication such as journals and conferences (including published proceedings) as well as pertinent research reports in the field of library and information practice and, more broadly, in related disciplines such as the fields of education, management, and communications. Academic librarians and other professionals working in academic libraries also use other sources of evidence for decision making, such as internal reports, annual reports, institutional statistics, assessment data, usability results, and staff expertise, as well as anecdotal evidence gathered from users through internal feedback mechanisms and social media. Such varied, nuanced, and multi-faceted sources of evidence acknowledge the changing nature of learning, teaching, and research in the contemporary university.

In response to today’s rapidly changing circumstances, library practitioners and other researchers have produced abundant sources of evidence for evidence-based decision making in contemporary academic library workplaces (Turcios, Agarwal, & Watkins, 2014), though the extent these are used is still not well understood. Research syntheses, such as systematic reviews, summarise the quantity and quality of published research on a variety of topics pertinent to librarianship (Koufogiannakis & Brettle, 2015). In characterising the professional information landscape, the Library and Information Research Group (LIRG), a Special Interest Group of the Chartered Institute of Library and Information Professionals (CILIP) in the United Kingdom, conducted a scoping review to map the practitioner literature. Findings noted a “significant portion” of the papers analysed were case reports or qualitative in nature, with a noticeable number of a studies employing bibliometrics (Buckley Woods & Booth, 2014). Across the Atlantic, a study of journal publications authored by faculty from Canadian LIS departments reported that a minority of the 142 research articles published between 2008 and 2012 were co-authored by practitioners (Koufogiannakis, Wilson, & Kloda, 2015), which may influence perceived relevance to library settings and therefore impede “transferring evidence into practice” (Kloda, Koufogiannakis, & Mallan, 2011, n.p.).

A 2008 study found little use of assessment data by large research libraries, noting that many staff members preferred to “rely on their own assumptions and past practices to make decisions” (Hiller, Kyrillidou & Self, 2008, p. 228). In contrast, another study found that directors of three libraries used evidence as part of their decision making, particularly in relation to usage and service quality, and that this practice was also mirrored by staff members at other levels of the organization. In addition to maintaining local data, managers at the institutions studied also sought out supplementary information via surveys, interviews, and informal conversations (Casey, 2011). As the trend for assessment in libraries grows, it can be expected that use of local assessment data to complement published research will grow as well.

A seminal article published in 2000, titled “Academic librarians as practitioner-researchers” (Watson-Boone, 2000), introduced the notion of practitioner-researcher and practice-based problem solving into library discourse (for more on this see Chapter 8). Three years later, a paper titled “Leadership competencies and the importance of research methods and statistical analysis in decision making and research and publication: A study of citation patterns” (Williams & Winston, 2003) corroborated the use
of statistical analysis and analytical abilities by academic librarians and administrators. As further explained in an article on integrating research into practice, “In a rapidly changing world where continuous learning and adapting is an inescapable fact of professional life, research is no longer an exclusive privilege held by the domain of the academy, but is a part of the working world” (Luo, 2011).

It follows that in the 21st Century, research is viewed as essential to organisational effectiveness and work practice – i.e., “from practice to research to practice” (IMLS Focus: Learning in Libraries, 2015, pp. 9-10). This recognition has led to more practitioners consuming and producing research-generated evidence for decision making, action taking, professional development, and current awareness, among other reasons. These varying applications, situated within local circumstances, require “information related skills” (Marcum, 2015, p. 3) which are often best exercised within multi-disciplinary teams. Academic librarians are therefore required to engage in conversations with colleagues inside and outside the library in order to encourage the use of published research, as well as other forms of evidence, into decision making for the institution. Examples of such cross-functional innovations include Warren’s (2015) paper on designing an evidence based intranet, and Browning’s (2015) analysis of e-resource access problems.

Since contemporary evidence based learning initiatives typically require expertise from multiple disciplines, library professionals regularly engage – and publish – with other academic professionals. In this spirit, an especially promising school of thought at the Queensland University of Technology iSchool advances the study of ‘using information to learn’, known as Informed Learning (Bruce, 2008), across a broad range of disciplines and industries. Recent studies explore information experience of web professionals (Sayyad Abdi, Partridge, & Bruce, 2013) and university students (Maybee, 2014; Maybee, Bruce, Lupton, & Rebmann, 2013). Often employing qualitative methods such as phenomenography and grounded theory (Hughes, 2014), a growing network of information experience researchers around the world draw insights from evidence sources that serve to complement research publications, local assessment, evaluation projects, “best practices”, and professional anecdotes as evidence in applied settings.

A groundbreaking study on academic librarians’ conceptions of evidence revealed nine perceived types organised into two broader categories: hard evidence and soft evidence (Koufogiannakis, 2012b). Hard evidence is typically thought of as research evidence in the scientific sense, and takes the form of a publication and “often vetted through an outside body” (p. 10). Five types of hard evidence include: published literature, statistics, local research and evaluation, other documents (such as websites and blogs), and facts. Soft evidence is non-scientific in nature and “focus[es] on experience and accumulated knowledge, opinion, instinct, and what other libraries or librarians do” (p. 11). The four types of soft evidence identified were: input from colleagues, tacit knowledge, feedback from users, and anecdotal evidence. Koufogiannakis’ categorization has been reworked and used as the basis for Chapter 4 (Assemble) of this book. The rich variation in possible data sources offers multi-perspectival viewpoints, in many cases formulated both with and for user constituencies served, including “learning from others about research evidence” (Brettle, 2012, p. 1).

For instance, as the purpose of library space in the university has shifted from being a place to store print collections to flexible environments for individual and collaborative learning, research has focused on uncovering “everything we can learn right now about
the work practices of the people who already use them” (Foster, 2014a, p. 2). Illustrative of this trend are reports on participatory action research (Somerville & Brown-Sica, 2011), and other studies incorporating library users as partners in the research process (Ojennus & Watts, 2016; Tevaniemi, Poutanen, & Lähdemäki, 2015; Yoo-Lee, Lee, & Valez, 2013). These examples illustrate the efficacy of engaging users in the design process as co-creators of their learning spaces.

**Finding and using evidence**

Just as the times call for heightened use of evidence, so too are librarians expressing more sophisticated means of conceptualising and incorporating evidence into professional work. A doctoral study found academic librarians demonstrated the need to evaluate all sources of available evidence before selecting the evidence on which to base their decisions (Koufogiannakis, 2013b). They also employed multiple means to find evidence. Proactive methods for finding evidence include pulling (i.e., searching the literature), creating (e.g., conducting an evaluation study), and reflecting (e.g., drawing on prior experience and knowledge). Passive methods for finding evidence, according to the study, include pushing (e.g., social media feeds) and serendipitous discovery (i.e., accidentally coming across a relevant publication) (Koufogiannakis, 2013b).

The same study also found that academic librarians primarily use evidence in order to convince themselves and others (Koufogiannakis, 2013a). In the first instance, librarians obtain evidence in order to confirm their current way of thinking, or a decision. In the second instance, librarians obtain evidence in order to influence their colleagues and other stakeholders and in order to influence decision making at the organisational level. EBLIP in this context can therefore assist in reaching consensus among various interested parties, as decision making in academic libraries typically involves consultation with both professional and support staff. The ways in which academic librarians actually use evidence is mediated by determinants (Koufogiannakis, 2015) that behave as either enablers to evidence-based practice or as barriers. Factors include the dynamics of the organisation, the amount of time available to the librarian, a librarian’s own personal outlook, as well as their education and training. In an academic setting, librarians can control some of the more intrinsic determinants, such as personal outlook and training. Other determinants, such as organisational dynamics, are less amenable to change in the short term in large institutions such as university libraries.

**The climate for being evidence based**

“While finding and appraising the evidence base for information practice carry their own challenges, it is implementation that poses a greater challenge to the evidence-based practice movement” (Booth, 2003, p.13). In other words, simply having evidence is not enough. Librarians also need to consider strategies to diffuse research-generated ideas into organisations for adoption and adaption by individual practitioners (Dalrymple, 2010). Ultimately, in order to make sustainable changes, evidence-based practices must be integrated into day-to-day workflows (Booth, 2009). Such fundamental transformation in workplace culture requires that, over time and with practice, as co-workers design and enact information-focused and evidence-based learning experiences, they learn the way to decision-making and action-taking (Somerville, 2015a).

Amidst considerable variation within academic libraries, some ‘lessons learned’ have emerged about conditions that foster evidence-based practices. The “structure and
function of an organization, including the behaviour of individuals and groups” (Koufogiannakis, 2013b, p. 143) that determine the organisational dynamics, consistently emerge as a factor in organisational barriers and facilitators (Booth, 2011) in evidence-based practice. EBLIP flourishes “when the culture of the organization is generally felt to be positive and one that is open-minded with respect to decision making” (Koufogiannakis, 2013b, p. 143). Positive determinants of effective decision making and evidence use in turn depend on leadership to ensure “the culture of the organization is one which allows open discussion, input, and values the use of evidence in decision-making,” (Koufogiannakis, 2013b, p. 146). Enabling conditions for thought leadership and workplace learning also require enabling internal communication and professional practices that intentionally foster and support collegial inquiry. Then, with intentionality, co-workers can co-create information experiences and organisational knowledge through evidence-based practice. Collective capacity is enlivened, as evidence based activities inform decisions, produce improvements, and sustain relationships (Mirijamdotter, 2010; Somerville & Chatzipanagiotou, 2015; Somerville, 2015b).

Research in recent years has elevated recognition of the importance of organisation-wide conditions for learning:

Understanding that librarians use evidence to convince, allows an entire organization to look more completely at what the pertinent forms of evidence contribute to the decision, to weigh those pieces of evidence, and to make a decision that is more transparent. The use of evidence for convincing illustrates the complexity of decision making, particularly within academic libraries, and points to the fact that evidence sources do not stand alone, and are not enough in and of themselves. The EBLIP process must account for the human interactions and organisational complexity within which decisions are made (Koufogiannakis, 2013a, p. 11).

Local evidence practices and processes vary considerably because “what makes sense in one setting can make a different sense in another” (Davies, Nutley, & Walter, 2008, p. 190). Therefore, organisational decision making and action taking require leadership oversight of interactions between new knowledge and shifting contexts, supported by workplace practices that guide and move collective thinking forward. Over time and with practice, academic librarians and support staff learn, both formally and informally, to engage with evidence, incorporate it into their decision making, and ultimately create evidence (Somerville, 2015b). “Knowledge and understanding are thereby learned through the active function of practice by an individual, within the larger body of practice” (Koufogiannakis, 2013b, p. 166) which can exist within the workplace, where local context is very important, or at a broader level among colleagues at other institutions.

Application of EBLIP Principles in Academic Libraries

As the following examples reveal, rich illustrations from the international academic library literature around the world support the customisation of EBLIP principles and practices to local circumstances. Examples range in scope from project-based initiatives to holistic organisational transformation.

Library redesign
At the Tempere University of Technology in Finland, librarians employed an innovative approach to redesigning facility spaces in 2014 using a collaborative model of decision making and implementation (Tevaniemi, Poutanen, & Lähdemäki, 2015). The aim was to transition library space from an “information commons” to a multi-functional “learning commons”. Their collaborative design process was informed by research on academic library spaces and architectural design principles. In addition, they invited architecture student expertise, library staff expertise, and library user preferences, with these intentions:

“the co-design approach enabled the library staff to collaborate in the university’s teaching process and with the patrons of the library. Although collaborative design can be interpreted in various ways, in this case it was seen as staff and patrons constructing knowledge together with the architects. The idea was that all parties are essential parts of the outcome, rather than commenters on ready-made designs” (p. 6).

Project success was defined as enabling participants to co-create new spaces and evaluate their effectiveness for library users at the Tempere University of Technology. In addition, participants gained new knowledge (or evidence) about the use of the library spaces and experience in redesigning library space on a reduced budget and tight schedule.

**Change management and professional development**

Since 2008 the Royal Melbourne Institute of Technology (RMIT) University Library has produced strategic and evidence based cultural change that enables positive organisational responses to the demands of a changing environment (Leong & Anderson, 2012). An holistic approach to professional development provides training throughout a library employee’s career to produce a unified learning culture at all library sites. This intentional workplace learning encourages cross unit collaboration and interdisciplinary work experiences, fosters leadership skills and group work, and enables technology innovation and knowledge sharing (Leong, 2014). Learning aspirations in the RMIT Library occur within the larger University ‘behavioural capacity framework’ which, since 2011, values resilience, connectedness, commitment to excellence (continuous improvement), innovation, outcomes focus, and open thinking. The alignment of training and education opportunities with the University’s goals and the Library’s goals are ensured through routinely collected evidence, including participants’ reaction, learning, and behaviour feedback. Results are assessed through client surveys that recognise: “Probably the most important strategy for inspiring and motivating an entire organization to move quickly and empathetically toward becoming a learning organization is to link increased learning with increased organizational success” (Marquardt, 2011).

**Informed Systems approach for an evidence-based workplace**

Across the Pacific Ocean in Denver, Colorado, USA, an Informed Systems approach offers an information focused and systems enabled approach for ‘working together’ (Somerville, 2009) in contemporary organisations. With a focus on evidence-based activities to make decisions and take actions, an Informed Systems Leadership Model and Collaborative Evidence-Based Information Process Model guide co-workers as they learn to make informed decisions by identifying the decisions to be made and the
information required for those decisions. This is accomplished through collaborative design and iterative evaluation (Somerville, Rogers, Mirijamdotter, & Partridge, 2007) of workplace systems, relationships, and practices, in development for over a decade (Somerville, 2015b). Over time, increasingly effective and efficient structures and processes for using information to learn further organisational renewal and advance nimble responsiveness (Somerville & Chatzipanagiotou, 2015). Practical outcomes include discovery layer customisation (Somerville, 2013), technical services reorganization (Pan & Howard, 2009), holistic facility co-design (Somerville & Brown-Sica, 2011), and organisational culture revitalisation (Pan & Howard, 2010).

Informed Systems thereby enables and enlivens workplace possibilities. Inclusive participatory design principles create organisational communication, decision-making, and planning systems with associated professional practices that further information exchange to inform ‘action to improve’ (Somerville & Howard, 2010). High-level theory guides processes for intuiting, interpreting, integrating, and institutionalising knowledge within individuals and among groups. An intentional culture of collaborative evidence-based information practice is grounded in workplace processes for collaborative design of organisational elements that ensure sustainable communication and, hence, collective learning through information exchange, reflective dialogue, and knowledge creation for ‘learning in action’ (Somerville, 2015b).

Conclusion: Being Evidence Based in Academic Librarianship

So what does being evidence based mean for today’s academic librarians working in higher education institutions across the world dealing with huge changes in the way information is delivered and used? To remain relevant, libraries must provide services responsive to various users with differing information-seeking needs and behaviour. As illustrated by the vast literature surveyed above, an abundance of resources exist from which to draw in reframing problem domains for ‘learning in action’ (Somerville, 2015b) and, in the spirit of continuous improvement, ‘assessment in action” (American Library Association, 2012). This necessarily requires heightened levels of engagement and learning with and for the users served.

EBLIP ranges from researcher-practitioners conducting studies to better understand their situation to organisational leaders creating conditions for workplace learning and, therein, building capacity. Throughout this continuum, research-to-practice strategies (Wilson, 2010) are required for enabling librarians and support staff who are committed to using evidence for informed decision making. Organisations that adopt evidence-based processes can create transformative results. ‘Using information to learn’ (Bruce, 2008) can “situate research, knowledge, production, and information sharing as ways to engage not simply with isolated bits of information or abstracted ideas, but also with relationships between sources, ideas, and the individuals who create, exchange, and interact with those ideas” (Baer, 2015, n.p.). Academic libraries, located within the academy, are positioned for both the use and production of evidence, and librarians have capitalised on this opportunity which aligns well with the knowledge creation mission of higher education.
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