Research article

Barriers and facilitators to evidence-based library and information practice: An international perspective

Andrew Booth*

School of Health and Related Research (ScHARR), University of Sheffield, Regent Court, 30 Regent Street, SHEFFIELD, S1 4DA, United Kingdom

*Email: A.Booth@sheffield.ac.uk

ABSTRACT

Objective: To describe the barriers encountered when attempting to undertake evidence-based library and information practice (EBLIP).

Design: Qualitative evidence synthesis and thematic synthesis of qualitative data.

Data sources: PubMed MEDLINE, Library Information Science Abstracts (LISA), Library Information Science & Technology Abstracts (LISTA), Evidence Based Library and Information Practice (EBLIP) journal full text, Google Scholar and Google Desktop searches of the author's personal collection of articles and conference proceedings.

Review methods: Thematic synthesis involved line-by-line data extraction of mentions of barriers, obstacles and challenges and development of descriptive and analytical themes.

Results: 55 papers that reported at least one barrier, obstacle or challenge to EBLIP were included. Five major domains, comprising 17 specific themes, were identified as key to barriers for EBLIP: the environment (pace of change, poor access to the evidence base, language and cultural barriers), the evidence (limitations of the evidence base, inappropriate orientation of research), the workplace (lack of time, lack of financial resources, lack of infrastructure, lack of organisational support), the profession (leadership, lack of research culture, professional characteristics, communication difficulties, need for skills/training, need for education, failure to implement) and the paradigm (limitations of EBLIP).

Conclusions: Numerous barriers characterise the challenges posed to EBLIP in day-to-day practice. These have been organised within a generic taxonomy or framework. The author suggests some possible approaches to overcome such barriers. A greater awareness of such barriers and corresponding facilitators may help the international community to further develop the EBLIP paradigm.

Keywords: evidence-based library and information practice, EBLIP, barriers, systematic review, thematic synthesis

BACKGROUND

The evidence-based practice paradigm is doubly important to librarians across all sectors. On the one hand many librarians have developed roles in supporting the evidence-based practice of other professionals, whether health professionals, teachers, managers or social workers. On the other, such involvement has led to a realisation that librarians should model what they teach (Ritchie, 1999) by informing their own day-to-day decision making from the evidence base for their profession. Several hypotheses have been put forward to explain why library and information practitioners are either unwilling or unable to adopt an evidence-based approach (Genoni et al., 2004). In a key critique of the literature Haddow and Klobas (2004) identify eleven gaps in the relationship between research and practice: knowledge, culture, motivation, relevance, immediacy, publication, reading, terminology, activity, education and temporal. However much of this analysis predates the development of evidence-based practice.

   Frequently, surveys of barriers to evidence-based practice, regardless of professional group, focus on the twin constraints of lack of time and lack of technical skills (vanDijk et al., 2010). Clearly, we should not expect the library profession to be any different when faced with such daily pressures. However, an understanding of the challenges faced by Evidence Based Library and Information Practice (EBLIP) can be specifically informed by identification of barriers or constraints that particularly impact upon the profession. This review aims to develop a taxonomy of factors identified in the library literature as providing barriers to EBLIP. It then moves on to consider ways of overcoming such challenges, drawing upon suggestions both from the library literature and from the experience of other professions. In so doing the hope is to help drive forward international strategies to tackle some of the biggest obstacles to the widespread adoption of EBLIP.

METHODS

Thematic synthesis is the methodology of choice for extracting qualitative themes from qualitative data, whether from formally structured research reports or from other contributions to the literature. It allows individual themes to emerge from the data and to be compiled and abstracted at a higher conceptual level (Thomas and Harden, 2008). This method offers sufficient flexibility for examination of qualitative data from the non-empirical literature. This is particularly appropriate where the topic is at an early stage of development, in advance of a significant research front, as is the case with the emerging EBLIP paradigm. This methodology was chosen for two reasons. Firstly, it enabled the analysis of a substantive literature on the development and practice of EBLIP. Secondly, it facilitated the description of barriers and challenges within EBLIP and the development of analytical themes that apply across countries, cultures and diverse library sectors.

Selection criteria and literature search

The author included qualitative data from research studies, commentaries and opinion pieces. It is recognised that barriers to the conduct and utilisation of research are longstanding and therefore a more targeted approach is needed to ensure relevance to the development of the EBLIP movement. For inclusion therefore, an article specifically had to mention evidence-based librarianship, evidence-based practice or EBLIP. It had to particularly address a librarian audience or library context, thereby excluding the role of librarians in supporting the evidence-based practice of other professions.

   Search terms primarily utilised free-text expressions such as barrier*, obstacle*, or challenge*. The term 'issue*' was excluded for practical reasons. Terms relating to the specific context such as 'evidence based', 'evidence' or 'research' were also included. Using a detailed and iterative search strategy, including follow-up of related articles and citations, the author carried out searches in PubMed MEDLINE, LISA and Library, Information Science & Technology Abstracts (LISTA). The entire full-text archive of the open access *Evidence Based Library and Information Practice* journal up to September 2010 was searched. Google Scholar was also searched for electronic theses, reference lists of relevant studies, and reviews. As International Programme Committee chair for the EBLIP International Conference series (1st–5th Conferences, 2001–2009) and co-editor of the first textbook on evidence-based information practice the author has accumulated an extensive collection of published and unpublished documents exploring the development of EBLIP. These were searched full-text using the Google Desktop Search Engine. Searches concentrated on the period 2001–2010 although earlier items are included where specifically relevant.

The author single-handedly screened abstracts and studies were screened then excluded if they did not fit the inclusion criteria. Studies that seemed to include relevant data or information were retrieved and their full text versions analysed and examined for eligibility.

Comprehensiveness of reporting

The rapid timescale within which this synthesis was planned and conducted meant that it was not possible to use two researchers to extract data and to assess the quality of included studies. However such processes are most important where quality assessment is to be used either to exclude poor quality studies or to explain differences in findings. As this review is a conceptual analysis of barriers and makes no attempt to determine the relative importance of particular barriers the use of a single researcher is not so problematic. As is typical for reviews that utilise thematic synthesis, studies were neither excluded nor weighted on the basis of an assessment of quality of reporting.

Synthesis of findings

Quotations from participants and text under the heading 'results' or 'findings' from any research study was entered into a working document. Narrative commentary and opinion from library commentators was also extracted. The aim was to derive as complete and rich a picture of existing barriers as possible within a very short study timeframe (September–November 2010).

Thematic synthesis involves three phases: line-by-line extraction of data from the included papers, development of descriptive themes, and development of analytical themes (Thomas and Harden, 2008). Each study was read several times to ensure that all observations relating to barriers were identified and integrated. The concepts were examined for similarities and differences and then grouped into a taxonomy of themes (Lucas et al., 2007).

RESULTS

The search yielded 217 citations. Of these, 150 were ineligible after review of the title and abstract (Fig. 1). Of the remaining 67 studies, 12 were excluded because they did not include a focus on EBLIP and/or mention of a barrier. 55 studies were included in the review (Table 1). The included studies were carried out in the United States, Canada, United Kingdom, Australia, New Zealand, Iran, Korea and the Caribbean.
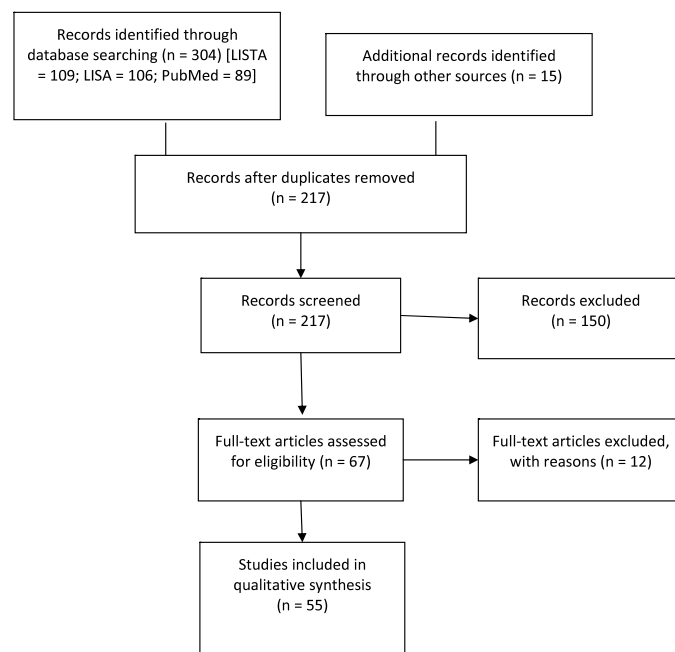

Figure. 1 PRISMA flow diagram.

Table 1.   Barriers to EBLIP identified from the literature.

LACK OF TIME (Koufogiannakis and Crumley, 2006; Bexon, 2007; Booth and Eldredge, 2010; Lerdal, 2006; Pretty, 2007)
- Lack of time due to management responsibilities (McNicol, 2004)
- Lack of time due to staff size (Bexon, 2007; Fisher and Robertson, 2007)
- Lack of time due to workload (Fisher and Robertson, 2007; Pretty, 2007)
- Lack of time due to time spent finding evidence for others (Fisher and Robertson, 2007)
- Lack of time to conduct research (Dalrymple, 2010)
- Lack of time to look for research (Cotter and Lewis, 2006)
- Lack of time to analyse/evaluate research (Fisher and Robertson, 2007)
- Lack of time to use research findings (Turner, 2002b)

LACK OF FINANCIAL RESOURCES
- Limited availability of research funding (Koufogiannakis and Crumley, 2006; Dalrymple, 2010)
- Need for economic resources (Booth and Eldredge, 2010)

LACK OF INFRASTRUCTURE (Booth and Brice, 2007)
- Need for tools/products to help practitioners to apply research findings (Booth and Brice, 2007; Todd, 2009; Clyde, 2006)
  - Need for database of library-related research (Turner, 2002a, b)
  - Need for evidence-based abstract journals (Turner, 2002a, b)
  - Need for systematic reviews (Turner, 2002a, b)
  - Need for practice guidelines (Turner, 2002a, b)
- Need for qualified personnel (Booth and Eldredge, 2010)
- Need for improved staffing levels to facilitate undertaking of practice-based research (Turner, 2002a, b)
- Need for improved staffing levels to facilitate more frequent application of research results in the workplace (Turner, 2002a, b; Booth and Eldredge, 2010)
- Need to develop routine data systems (Dalrymple, 2010)

LACK OF ORGANISATIONAL SUPPORT
- Lack of management support (Cotter and Lewis, 2006; Bexon, 2007; Booth and Eldredge, 2010)
- Managers/decision-makers not interested in research (Russell, 2008)
- Managers/decision-makers not willing to design data collection (Russell, 2008)
- Lack of support from the workplace (Crumley and Koufogiannakis, 2002)
- Constraints on existing roles (Booth and Eldredge, 2010)
- Lack of incentives from leadership for conducting research (Dalrymple, 2010)
- Lack of workplace reinforcement for analysing/evaluating research (Fisher and Robertson, 2007)

LIMITATIONS OF EVIDENCE BASE
  DATA
- Need to accumulate local shared data (Todd, 2008)

PRIMARY RESEARCH
- Small quantity of evidence base (Booth and Brice, 2004; Brice et al., 2005; Marshall, 2003; Lerdal, 2006; Pretty, 2007)
  - Paucity of LIS studies in management and education (Cotter and Lewis, 2006)
- Diffuse nature of evidence (Winning, 2004; Eldredge, 2004) (esp. management and education Cotter and Lewis, 2006)
- Poor quality of evidence base (Booth, 2006a; Booth and Brice, 2004; Brice and Booth, 2005; Dalrymple, 2010; Lerdal, 2006; Pretty, 2007)
  - Comparatively few experimental studies (Booth, 2006a)
    - Need for randomised controlled trials (Todd, 2009)
  - High proportion of descriptive studies (Turner, 2002a, b)
  - Shortage of valid useful evidence (Bayley and McKibbon, 2006)
- Need to determine where research is needed (Plutchak, 2005)
- Predominance of traditional hierarchy of evidence (Crumley and Koufogiannakis, 2002)
- Lack of data on cost-effectiveness (Bexon et al., 2003)

SECONDARY RESEARCH/SYNTHESIS
- Most research not rooted in existing literature (Plutchak, 2005)
- Lack of a "body of evidence" (Plutchak, 2005)
- Need for more syntheses/systematic reviews (Brettle, 2009)
- Need for ongoing review and evaluation of research in education/librarianship/allied fields (Todd, 2008)
- Need for more useful syntheses/systematic reviews (Booth, 2006a)
  - Precise reviews answering tightly focused questions (Booth, 2006a)
  - Broad reviews containing dissimilar studies (Booth, 2006a)
  - Reviews offer little pragmatic guidance for practice (Booth, 2006a)
  - Not enough information from which to draw conclusions (Turner, 2002a, b)
- Different approaches to similar topics (Plutchak, 2005)

POOR ACCESS TO EVIDENCE BASE (Koufogiannakis and Crumley, 2006; Cotter and Lewis, 2006; Dalrymple, 2010; Lerdal, 2006; Todd, 2008)
- Poor availability of evidence (Dalrymple, 2010)

Table 1 (*continued*)

- Lack of access to library databases (Cotter et al., 2006)
  - Cost of access to databases (Eldredge, 2000)
- Membership only access to key research (Todd, 2009)
- Poor quality indexing (Lerdal, 2006)

PROFESSIONAL CHARACTERISTICS
- Lack of self efficacy (Booth, 2006a)
- Lack of confidence in using statistics and data analysis (Todd, 2009)
- Inability to handle uncertainty (Booth, 2006a)
- Lack of initiative to formulate question, undertake search and access journal (Dalrymple, 2010)
- Limited subset of librarians with inclination to develop understanding of research methods (Turner, 2002a, b)
- Practitioners look for ideas they can implement quickly and easily (Fisher and Robertson, 2007)
- Practitioners do not take time to evaluate effectiveness of new ideas (Fisher and Robertson, 2007; Booth, 2007)

NEED FOR SKILLS/TRAINING (Booth and Brice, 2007; Booth and Eldredge, 2010)
- Difficulties encountering statistics in literature (Booth, 2009a)
- Lack of knowledge and skills in conducting research (Booth and Eldredge, 2010; Dalrymple, 2010)
  - Lack of skills in research design (Brice and Booth, 2005)
- Need for skills in evaluation (McNicol, 2005)
- Need for skills in evidence-based practice (McNicol, 2005; Booth and Brice, 2007)
  - Need for skills in critical appraisal (Booth and Brice, 2003; Brice and Booth, 2005; Cotter et al., 2006; Fisher and Robertson, 2007; Pretty, 2007)
- Need for skills in time management (Stern, 2008)
- Need for skills in critical thinking (Stern, 2008)
- Need for skills in evidence-based decision making (Stern, 2008)
- Need for skills in statistics and data analysis (Todd, 2009)
- Need for skills in service quality improvement (Stern, 2008)
- Need for skills in Interest based problem solving (Stern, 2008)
- Need for communication skills (Stern, 2008)
- Need for skills in maintaining a teamwork orientation (Stern, 2008)
- Need for skills in understanding organization's mission and priorities (Stern, 2008)

NEED FOR EDUCATION (Brice et al., 2004)
- Need to lobby educational institutions to increase research and appraisal skills teaching in the curriculum (Brice et al., 2004).
- Need to roll out educational interventions (e.g. appraisal workshops) (Brice et al., 2004).
- Need for continuing development of e-learning and distance based courses (Brice et al., 2004).

INAPPROPRIATE ORIENTATION OF RESEARCH
- Different academic/practitioner research agendas (Booth, 2001; Cotter and Lewis, 2006; McNicol, 2004)
- Different academic/practitioner timescales (McNicol, 2004)
- Low level of information exchange between practitioner/academic journals Schlögl and Stock (2008)
- Few relevant, answerable questions satisfactorily explored/resolved (Booth and Brice, 2007)
- Need to develop/adapt research methodologies from other disciplines (Turner, 2002a, b)
- No strong tradition for RCTs (Todd, 2009)
- Perceived lack of relevance (Haddow and Klobas, 2004)
  - Lack of focus on practical problems to solve (Booth, 2001; McNicol, 2004)
  - Researchers do not answer questions practitioners ask (Booth, 2006b; Fisher and Robertson, 2007)
  - Research needs to be practice based (Turner, 2002a, b)
  - Research needs to be directly applicable to work environments (Turner, 2002a, b; Bayley and McKibbon, 2006; Lerdal, 2006)
  - Need to "sell" academic research to practitioners (Weller and Haider, 2007)
- Paucity of studies with transferable results (Brice and Booth, 2005)
- Academic research viewed with scepticism by practitioners (McNicol, 2004)
- Research by individuals, not teams, leading to disparate activity with little sharing (Genoni et al., 2004)

LACK OF RESEARCH CULTURE (Booth and Brice, 2007)
- Need for a Paradigm shift (Booth, 2003)
- Different understandings of what constitutes research (McNicol, 2005).
- Absence of culture of inquiry (Dalrymple, 2010)
- Need for creation of research culture (Grefsheim et al., 2008; Special Libraries Association, 2001)
- Need for new generation of practitioners, familiar with design/interpretation of LIS research (Booth and Brice, 2007)
- Need for corrective or remedial education for generations with little/no formal research training (Booth and Brice, 2007)
- Need for stronger links between service development and evaluation (McNicol, 2005)

Table 1 (*continued*)

- Emphasis on anecdote and experience (Brice et al., 2005; Brice and Booth, 2005; Fisher and Robertson, 2007)
- Reluctance to give weight to research findings (Brice and Booth, 2005)
- Reliance on best practice in similar libraries (Turner, 2002a, b)
- Reliance on advice from personal enquiries to expert colleagues (Turner, 2002a, b)
- Preference for Personal/Professional networking & Listservs (Turner, 2002a, b)
- Tendency towards anecdotal/practical, rather than conceptual/visionary (Booth and Brice, 2007; Koufogiannakis and Crumley, 2006),
- Research-practice gap (Weller and Haider, 2007)
- Emphasis on practice rather than theory (Booth, 2009b; Fisher and Robertson, 2007)
- Need to realise benefits of sharing and accumulating locally generated evidence (Todd, 2008)
- Need to build widespread commitment to EBLIP within profession (Todd, 2008)
- Lack of experience with research (Koufogiannakis and Crumley, 2006)
- Need to value research in practice (Todd, 2008)

COMMUNICATION DIFFICULTIES
- Need forvibrant, open, community discussion forum (Booth and Brice, 2007)
- Time taken to communicate research findings to practitioners (Bexon et al., 2003)
- Need to build research credibility (Todd, 2009)
- Research findings not being widely disseminated (McNicol, 2004)
- 'Communication chasm' between academics and practitioners (Turner, 2002a, b)
- Lack of clarity with respect to implications of research in practice (Kim, 2005; Lerdal, 2006)
- Inability to demonstrate relevance to practice (Kim, 2005)
- Problems in diffusion and adoption of innovations (Dalrymple, 2010)

FAILURE TO IMPLEMENT
- Failure of practitioners to implement findings of research (Booth, 2001; McKechnie et al., 2008)
- Need for 'depth and spread' of EBLIP (Booth and Brice, 2007)
  - Need to spread EBL(IP) beyond health librarianship (Bayley and McKibbon, 2006)
  - Need to mainstream evidence-based practice (Todd, 2008)
- Reluctance to face possibility that evidence may find against current services (Todd, 2009)
- Inability to generalise from specific case studies/apply general studies to local settings (Fisher and Robertson, 2007; Koufogiannakis and Crumley, 2002)
- Apparent effectiveness of existing practice (Pretty, 2007)
- Need to simplify application of research (Todd, 2009)
- Need to devise strategies for applying evidence (Dalrymple, 2010)

PACE OF CHANGE
- Dynamic and rapidly changing context (Turner, 2002a, b)
- Information overload (Lerdal, 2006)

LIMITATIONS OF EBLIP
- Continued lack of understanding of what EBLIP is/how it can improve librarianship (Pretty, 2007)
- EBLIP not sufficiently responsive to reality that local contexts can trump even most rigorous evidence (Banks, 2008)
- EBLIP cannot answer value-laden questions (Banks, 2008)
- EBLIP can stifle innovation (Banks, 2008)
- EBLIP not dominant model for problem-solving (Booth and Eldredge, 2010)

LANGUAGE/CULTURAL BARRIERS (NON-ENGLISH SPEAKING) (Eldredge, 2000; Booth and Eldredge, 2010)
- Lack of "readable" research (Kim, 2005)
- Large amount of literature published in English (Thailand/Malaysia) (Cotter and Spencer, 2007)
- Lack of literature in local languages (Gavgani, 2009)
- Need for familiarity with English Language literature (Booth and Eldredge, 2010)
- Need for greater depth of professional experience (Booth and Eldredge, 2010)

LEADERSHIP (Booth and Brice, 2004)
- Lack of international strategic foresight in rotation of international conferences/distribution of EBLIP infrastructures/initiatives (Booth and Brice, 2007)
- Need for coordinated attempt to develop a climate for EBLIP (Booth, 2003)

Comprehensiveness of reporting of included papers

The completeness of reporting was variable across the studies, with most papers mentioning isolated barriers within a limited context. Five papers specifically addressed barriers as the main focus of the contribution (Booth and Brice, 2007; Brice et al., 2005; Gavgani, 2009; Genoni et al., 2004; Pretty, 2007). A further item (a conference presentation of a dissertation by Turner, 2002b) sought to achieve a ranking for principal barriers and thus constituted the main empirical research study.

Synthesis

Seventeen themes were identified as barriers to EBLIP. Table 1 lists these themes together with subthemes and identification of studies that reported or discussed each theme.

FINDINGS

Seventeen themes that emerged from this synthesis of primary studies (pace of change, poor access to evidence base, language/cultural barriers; limitations of evidence base, inappropriate orientation of research, lack of research culture; lack of time; lack of financial resources, lack of infrastructure, lack of organisational support; leadership, professional characteristics, communication difficulties, need for skills/training, need for education, failure to implement; limitations of EBLIP) were relevant as barriers to EBLIP (Table 1). Subsequently these themes were grouped within five overarching top-level characteristics (Table 3; Fig. 2).

DISCUSSION

Having developed probably the most extensive taxonomy to date of barriers in the literature to Evidence Based Library and Information Practice, possibly even within Evidence-Based Practice within general, it is informative to examine the only empirical research study to cover this topic. Having asked information professionals for their reasons for not consulting the research Turner (2002b) compiled the following ranking in Table 2.

The study by Turner (2002b) confirms a widespread perception that 'time constraints' are the most significant factor in relation to EBLIP. However, the above taxonomy enhances our understanding of this problem as it highlights that this overarching reason (lack of time) comprises two strands – 'why the time is lacking' and 'what the time is needed for'. Reasons why time is felt to be lacking include; management responsibilities, workload, a small staff size (special libraries) and time spent finding evidence for others. Reasons why the time is needed include time needed to do research. Of course not all definitions of evidence-based library and information practice require the practitioner to engage in research (the definition by Crumley and Koufogiannakis (2002) being an exception). For this reason, time to look for research (acquire), to analyse/evaluate research (appraise) and to use research (apply) are probably more germane in the context of this review. This finding clearly emphasises the value of asking 'Time for what?' when attempting to diagnose problems in implementing EBLIP at a local level.

The second factor identified from the research study embodies two of the domains in our taxonomy namely a culture that favours other types of evidence over research (lack of research culture) and a perceived lack of relevance of research (inappropriate orientation of research). This particular explanation holds out some hope for the EBLIP movement in that, if the volume and quality of the supply of research can be increased, the existing channels of conferences, meetings, and professional networking may be harnessed to disseminate research evidence. This represents what one might call a 'fortification' model, i.e. improving the quality of what is already in existence, as opposed to a 'substitution' model, i.e. trying to change the way that the profession communicates, and may therefore constitute a more readily realisable goal.

The third reason similarly addresses the domain of inappropriate orientation of research together with the addition of the extra consideration of limitations of the evidence base ('practical workplace problems not addressed'). In this case, it is difficult to establish the degree to which this represents a problem with the research actually being conducted or commissioned, the communication of the research's intent or results to the practitioner or indeed with the perceptions or preconceptions that

Table 2.   Ranked reasons for not consulting the research (from Turner (2002b)).

Rank	Reason
1	Time constraints
2	Conferences, meetings, and professional networking provide sufficient knowledge sharing opportunities with colleagues and researchers
3	The research does not address practical problems in the workplace
4	Problems with physical availability (e.g. resource constraints affect my library's budget for obtaining professional literature)
5	The research is presented in a way that is difficult to understand and apply
6	Problems with intellectual availability (e.g. poor bibliographic control of research findings)

the practitioner has of the work that is being conducted. Indeed, there is reason to suspect that all of these factors contribute to the complex situation. This evokes the stereotypical problems associated with technical support where the hardware people blame the software, the software people blame the hardware when all along the actual problem lies at the interface!

In this connection, it should be acknowledged that much of the literature on barriers to EBLIP originates from the research community who, not unexpectedly, problematize practitioners to the extent that they are not using research studies. A smaller body of literature issues forth from the practitioner community suggesting that researchers may not be writing the research studies that practitioners need and want to read. The existence of this form of publication bias, which may be likened to one group raising their voices to be heard in a room at the expense of a less vocal group, should not be misinterpreted as indicating that one end of the supply chain is necessarily more problematic than the other. Indeed, some of the other factors already explored in this analysis, such as lack of time, encapsulate implicit judgements about whether the activity (in this case, reading research papers) is worth a practitioner spending their time on.

Further insight is provided by the next factor identified by the empirical research study namely the physical availability of research. In the thematic analysis we see under the heading 'poor access to evidence base' that the evidence itself may not be available (the so-called issue of universal accessibility of information), perhaps because access to research is behind membership or subscription controls. There is a particular irony that the same problems with which librarians have

Table 3. Relationship of top level characteristics and themes for barriers to EBLIP.

| Environment	Evidence	Workplace	Profession	Paradigm
Pace of Change	Limitations of Evidence Base	Lack of Time	Leadership	Limitations of EBLIP
Poor Access to Evidence Base	Inappropriate Orientation of Research	Lack of Financial resources	Lack of Research Culture	
Language/Cultural Barriers		Lack of Infrastructure	Professional Characteristics	
		Lack of Organisational Support	Communication Difficulties	
			Need for Skills /Training	
			Need for Education	
			Failure to Implement	
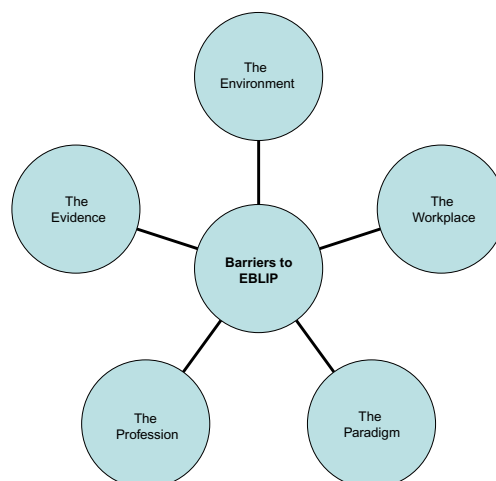
Figure. 2 Top level characteristics of barriers to EBLIP.

been contending on behalf of their users are those that pose such a challenge to their own evidence-based practice.

The next factor from the research study relates to the way in which research is presented with consequences for its ability to be effectively understood and applied. In the taxonomy this may embrace three considerations, the inappropriate orientation of research, communication difficulties, and the need for skills. This reveals a further ambiguity in the way the research report categorises its factors. One potential application of this taxonomy might be a more discriminative approach to identifying barriers, perhaps even the development of a purpose-specific tool for investigating local barriers.

Finally in the ranking comes a factor relating to what the research study calls '"intellectual availability'. This particular phrasing is not particularly helpful as it can be misconstrued as implying problems in the comprehension of the research. In fact, the example given is 'poor bibliographic control of research findings'. In the taxonomy this relates again to poor access to evidence base. To the longstanding issue of universal accessibility of information can be added the problem of universal bibliographical control, due to problems with accessing bibliographic databases. Clearly it is not possible to apply the evidence if you are unable to determine that the evidence exists.

Towards a model of EBLIP utilisation?

Once a thematic analysis has identified a taxonomy of barriers or factors it is often possible to further group top level factors into a prototypic 'model'. Five top level characteristics seem to explain all the factors. These are the environment (that is characteristics that lie out of the direct influence of professionals and their managers), the evidence (characteristics of the research outputs), the workplace (the characteristics of the local workplace environment), the profession (the shared characteristics of library and information professionals as a collective group) and the paradigm (characteristics of the evidence-based practice model) (Table 3; Fig. 2).

How Barriers might be overcome

Librarianship has long been preoccupied with the research practice gap. This rapid review and thematic synthesis has revealed that, although many of the barriers receive almost perennial attention, there is a degree of complexity that has not hitherto been completely captured. The most commonly mentioned barrier, namely lack of time, in fact subsumes several different, more specific, factors. Similarly, lack of skills as reflected by probably the most extensive itemisation in the taxonomy, groups together a need for technical skills relating to the evidence-based practice process with a lack of more generic skills that act as barriers to adoption and implementation. For ease of comparison Table 4 records the suggested solutions for improving the relationship between research and practice from the Turner (2002b) study.

Environment

Against a backdrop of rapid social, economic, political and technological change it is challenging to seek to implement new ways of working. At the same time, these factors are combining to offer the prospect that one persistent barrier, namely poor access to the evidence base, may ultimately be resolved. The open access movement, exemplified by the key journal *Evidence Based Library and Information Practice* (and indeed by the new journal within which this review is being published), is itself the result of a combination of both technological facilitators and social pressures. While

Table 4. Ranked actions for improving the relationship between research and practice (from Turner, 2002b).

Rank	Action
1	Encourage research productions that include practical guidelines for applying the results in the workplace
2	Contribute and have access to columns in library/information newsletters or listservs that identify, index and summarise recent research projects
3	Encourage staff to attend and/or present papers at conferences and professional meetings
4	Encourage staff to become better consumers and producers of research by enrolling in courses that develop their research skills
5	Encourage the intended users of a research study to participate in the research process

bibliographic databases typically remain jealously guarded as a source of ongoing income at least one useful database. *Library, Information Science& Technology Abstracts* (LISTA), offers the EBLIP practitioner a ready source of bibliographical control.

Clearly, making research studies, abstracts or evidence digests more widely available would improve awareness of research findings:

> "Participants in the study felt use would be higher if practical implications were included in the research reports and if summaries of findings were included in professional media (Turner, 2002b)" (Reported in McKechnie et al., 2008).

Indeed Haddow and Klobas (2004) report that only this strategy, including research reports in practitioner publications, has been shown to be effective in closing the research-practice gap. They argue that further research is needed in order to identify the most promising mechanisms by which to bridge the gaps between research and practice.

Language and cultural barriers receive occasional mention as an additional complication for non-English countries that face the challenges encountered within the English-speaking world. Clearly, abstracts and digests also need to be available as translations in the languages of non-English speaking practitioners and in both local and international journals (Gavgani, 2009).

However, we must be careful not to stereotype the challenges across an extremely heterogeneous grouping of countries. This can be illustrated with reference to a study from Iran where an insufficient amount of research evidence in Farsi language does not act as a barrier, with Iranian medical librarians continuing to search until they find suitable evidence in any language (Gavgani, 2009). Indeed, just over half of the respondents (52.4%) agreed with the statement, "It does not matter in which language the relevant evidence or information has been published, but it is important to find the evidence" (Gavgani, 2009). However, it must be acknowledged that this extended quest may have implications with regard to the additional time this would take.

Evidence

Many authors comment on the limitations of the evidence base for library and information practice (Booth and Brice, 2004; Brice et al., 2005; Marshall, 2003; Lerdal, 2006; Pretty, 2007). While this deficiency undoubtedly provides an impediment to the classic evidence-based practice process, it is important to keep this issue in perspective. One learning point from evidence-based practice is to be naturally suspicious of relative measures, preferring to concentrate on absolute values. How much is the perception of the poor quantity and quality of the evidence base shaped by an unfavourable *relative* comparison with the field of biomedical research? We must acknowledge that randomised controlled trials in medicine number into the hundreds of thousands compared with library and information science which encounters great difficulty achieving twenty such studies. However, this leads to recognition that a best available evidence approach may be more suited to our profession than pursuit of the very highest quality studies. Librarians must be prepared to exploit fully other kinds of research, including qualitative research, to inform their day-to-day decision making. Such a best available evidence approach is encapsulated in the description; "finding *usable* research for *practical* situations" (Bayley and McKibbon, 2006). Similarly, Booth and Brice (2004) remark that this apparent lack of research in the library literature does not necessarily impede the progress of evidence-based practice:

> "a practitioner will usually find some item of research that may be used to address a specific focused question"

Perhaps more emphasis should be placed not on the type of research but more on the research approach. Several commentators suggested ways of strengthening academic practitioner collaboration:

> "Several practitioners commented that they benefited from working with academic researchers as such collaboration helped to give their research 'academic standing' and meant that it carried more weight in the research field. It was believed that involving academic researchers would ensure more rigorous academic standards and mean that the work done was more likely to benefit professional practice. Conversely, working with practitioners and involving working library and information services gave greater credibility to the academic research within the practitioner community" (McNicol, 2004).

More participative models for involvement of library and information service staff in the research process have been seen as a way of overcoming negative attitudes to research and of communicating the benefits of research to practitioners (McNicol, 2004). This collaboration should extend backwards to the point of formulation of the research question (Koufogiannakis and Crumley, 2002; Cotter and Lewis, 2006) with practitioners supplying the 'burning question' and with academics then providing appropriate methods for diagnosis and investigation of a possible resolution:

> "One interviewee thought that collaborative projects could be thought of as a way of disseminating research deeper into the practitioner community. Joint working helped to show that research can have a practical meaning and made applied outcomes more likely, either immediately or in the future" (McNicol, 2004).

Workplace

As previously mentioned the complaint of lack of time masks a range of competing demands and different understandings of where in the evidence-based practice process such input needs to be targeted. Given the apparent inflexibility of this constraint it is perhaps surprising to see EBLIP commentators tackling this barrier head on. For example Todd (2008) identifies the more important underlying issue:

> "How do we address the perception that most librarians don't have enough time for EBP? Time is consistently presented as the key barrier to implementing evidence-based practice….But EBP is not about scrambling to find additional time. It's about establishing priorities and making choices based on your beliefs about the importance of …libraries and learning".

This echoes an earlier diagnosis by Booth and Brice (2004) who argued that when people say they don't have time or their workload is too heavy what they typically mean is that an issue is not high enough on the practitioner's list of priorities. However the tension between the competing horizons of short-term deliverables and longer-term professional development must be acknowledged. Pretty (2007) positively sees the resolution of this issue in the integration of EBLIP into daily practice without, it seems, fully recognising the Catch-22 nature of her pronouncement:

> "Once EBLIP is implemented, once the paradigm shift is complete, the barrier of time will not be an issue any more because it will be the nature of our practice, not another task we try to add on at the end of the week"

Perhaps one possible approach to the enduring barrier of lack of time is to make more strategic use of the concept of the 'opportunity cost'. It is true that 'any form of service evaluation takes time' but it is sobering to reflect that "the alternative is to run the risk of wasting valuable time by persevering with some intervention that the evidence might demonstrate to be ineffective" (Booth and Brice, 2004, p. 9).

Profession

At a strategic level we could question whether the profession is equipped with the workforce required to meet the challenge of implementing EBLIP. In other words, are there sufficient numbers of practitioner-researchers (that is practitioners who have undergone sufficiently rigorous research training and who consequently are equipped to undertake well formulated and well-conceived studies)? Certainly, it would not serve the wider interests of the profession merely to advocate the development of the practitioner-researcher role per se if this signifies someone who has neither sufficient time or skills to contribute to the solution rather than simply to add to the problem (i.e. of poorly-conducted research). Conversely, are there sufficient numbers of researchers with a strong grounding in practice who are equipped to generate research which will be seen to be relevant, timely and useful? The increasing 'professionalisation' of academic research, with the associated need to develop a career profile of research and publication, may implicitly being limiting the flow of mid-career practitioners into academia. Perhaps additional mechanisms, other than having had experience in the practitioner setting that is to be researched, need to be developed to meet this particular requirement for relevance.

EBLIP commentators seem to be particularly harsh in their assessments of the limitations of the profession. Perhaps a more measured assessment can be made with reference to the work of Donald Schön, as Turner (2002b) reminds us. In an environment where librarians "continually face dynamic situations that are neither clearly defined nor static" (Schön, 1983, p. 14) practice-based knowledge, often tacit and largely anecdotal, is more suited to quick assimilation into the workplace. In comparison, evidence from research is seen as more theoretical and static. As a profession, library practitioners have merely adapted to the external information environment, developing ways of knowledge absorption which are most efficient if not effective. This is seen in the way that practitioners privilege 'conferences, meetings, and professional networking'. Clearly, a major challenge is to make the assimilation of previously considered indigestible research knowledge as easy as that of observable 'fast food' knowledge from practice.

Journal clubs have been advanced as one possible route for the consideration of research within the context of practice. More generally it is the need to integrate such mechanisms into existing ways of working (e.g. as a component of existing meetings rather than as an adjunct) that has been highlighted:

"Many suggestions for driving developments forward in the short- or medium-term carry the underlying themes of integration and embedding in mainstream activities.. To have EBLIP conferences and courses is good, to embed EBLIP themes and approaches within established forums is better. To have an EBLIP journal is again important, but to have EBLIP articles within every LIS journal is even more so. To have EBLIP modules within LIS courses is significant, but to have an EBLIP approach within every module should be the aspiration" (Booth and Brice, 2007).

The variety of skills required to undertake both the technical process of EBLIP and subsequent implementation attests to the value of a team approach. This was particularly emphasised by participants at an EBLIP conference in the Caribbean where added differences in levels of English language skills could be added to vastly differing levels of research skills and of management experience (Booth and Eldredge, 2010). However, there is increasing recognition that a team-based approach to EBLIP is the only viable way of advancing the paradigm within librarianship, whatever the context (Booth, 2009c).

Paradigm

It is appropriate to reflect on the extent to which EBLIP is part of the problem or part of the solution. Many barriers identified above are by no means novel or unique to the era of evidence-based practice. Evidence-based practice may be considered a pragmatic approach to bridging the research-practice gap (McKechnie et al., 2008):

> "It has been suggested that the emergence of evidence-based librarianship with its emphasis on research informed practice, may encourage more librarians to read library and information science research reports" (Booth, 2003; Clyde, 2006).

However, perhaps the main contribution of the movement to date has been to increase awareness of what needs to be done – Muir Gray talks about the value of the paradigm as not just a stimulant but also as an irritant (Banajee, 2010)!

There remains an ongoing need for more success stories so that practitioners can realise the value of the evidence-based approach, particularly when ranged against more established alternatives for library decision making and planning:

> "They need examples of other libraries' experiences, and would welcome more publications (and presentations at conferences) that supplement or complement existing library literature on the topic, both broad philosophical essays and more specific, more practical pieces that can be immediately useful" (Russell, 2008).

In addition resources such as the EBLIP toolkit (Cotter and Lewis, 2006) at http://eblip.net.au and theEBL Public Librariessite at http://ebltoolkit.pbworks.com can "help librarians and information professionals get a better sense of what EBLIP looks like in action, and overcome whatever barriers they might face in the implementation of EBLIP in their own libraries" (Pretty, 2007).

Knowledge Translation - the new EBLIP?

Many of the barriers identified above are now beginning to be addressed by the newly prominent field of knowledge translation (Davis et al., 2003; Graham et al., 2006), or knowledge exchange (the process by which researchers and decision makers share expertise and knowledge for a specific purpose) as it is now, more appropriately, being labelled (Bowen and Martens, 2005). Such challenges typically relate to both transferability of lessons between professions and their application within a specific profession. Clearly, the library and information profession must look closely at what is to be learned from this field and the academic discipline inhabited by 'implementation science':

> "To implement change management, we need to look beyond evidence summaries to examine potential users, their problems, and their organizations. As Booth states, we need to 'look more widely at evidence that examines the process by which we achieve quality improvement and change strategies more generally'" (Dalrymple, 2010).

Limitations

The short timeframe within which this review has been conducted has inevitably meant that some articles that identify barriers to EBLIP in passim have been excluded from this analysis. Arguably, this is not a major limitation if a point known as theoretical saturation has been achieved, i.e. when further articles are no longer adding additional factors (Grant and Booth, 2009). Certainly the last few articles analysed for the taxonomy yielded little in the way of unique barriers.

Systematic reviews typically utilise more than one reviewer in order to minimise the possibility of bias (Ram, 2002). Where possible the wording of the original sources has been used to reduce the chance of subjective personal interpretation. However, it has to be recognised that there may be overlap between top-level categories and that barriers may inhabit more than one place in the taxonomy. A step known as 'reciprocal translation' (i.e. where a reviewer considers that two authors use different expressions to refer to the same phenomenon or, indeed, where authors use the same expression to refer to different phenomena) is necessarily a subjective process and is limited by minimal detail of the context (Noblit and Hare, 1988). However, this reviewer has chosen to err on the side of caution rather than succumbing to the temptation to over-aggregate and thus to oversimplify. For example lack of time was not recorded as a single barrier but was unpacked to reveal multiple associated barriers.

Finally, it should be acknowledged that the literature on barriers to EBLIP is predominantly opinion-based with few examples of empirical investigations. Furthermore, a limited number of commentators command a disproportionate amount of column space (with this reviewer figuring with several contributions). Certain commentators choose to focus on their preferred preoccupations so, for example, Booth and Brice target the poor evidence base, the lack of leadership and strategic coordination and a shortage of critical appraisal skills. It is therefore important to resist the tendency to employ 'vote counting' because important barriers may only figure once while less important barriers may be more easily observable and therefore receive more consideration. Although particular barriers may acquire a life of their own by being highlighted by one commentator and then perpetuated by subsequent citations, it is important to establish that this review is valid as an analysis of perceived barriers. This taxonomy does require future validation against actual barriers in a variety of contexts and, indeed, may provide a framework for the consistent and systematic investigation of such constraints.

CONCLUSION

This rapid review and thematic synthesis represents probably the most complete examination of the EBLIP literature to date for the identification of barriers and constraints. Many included articles originate from countries that have pioneered the development of the movement, as represented by the international conference circuit, namely the United Kingdom, Canada, Australia and the United States. Nevertheless, other contributions capture practitioner experience from, for example, Iran and the Caribbean. It is to be hoped that a systematic classification of these barriers will encourage future developments in all countries, both individually and working in concert. As EBLIP enters its second decade it is timely to prioritise such barriers by importance and to tackle those that will be most readily overcome.

BIOGRAPHICAL NOTE

Andrew Booth is Reader in Evidence Based Information Practice at the School of Health and Related Research (ScHARR), University of Sheffield, UK. Andrew Booth has been working in evidence-based practice for over fifteen years and co-ordinates a module on Systematic Reviews and Critical Appraisal for the School's internationally-recognised Masters in Public Health. Since 2001 Andrew has been a leading international figure in Evidence Based Library and Information Practice and he has established himself as the most prolific writer within the paradigm. Andrew has served on the Programme Committee of the first six EBLIP Conferences and he is also on the Editorial Board of the *Evidence Based Library and Information Practice* open access journal.

References

Banajee, A, (2010). Evidence 2010-Transforming healthcare. Morning thoughts.
   trusttheevidence.net/ami-banerjee/evidence-2010-transforming-healthcare-morning-thoughts/101101117.
Banks M. Friendly skepticism about evidence based library and information practice. Evidence Based Library and
   Information Practice. 2008;3(3 Sep.) [Online].
Bayley L and McKibbon A. Evidence-based librarianship: A personal perspective from the medical/nursing realm. Library
   Hi Tech. 2006;24(3), 317–323.
Bexon, N, (2007). EAHIL Workshop. *Is Evidence Based Librarianship just an attractive theory, or can practicing librarians
   make it work in real life?* Implementation of quality systems and certification of biomedical libraries Palermo, June
   23–25, 2005.
Bexon N, Booth A and Brice A. Using research in practice. Health Information and Libraries Journal.
   2003;20(4), 240–243.
Booth A. Clear and present questions: Formulating questions for evidence based practice. Library Hi Tech.
   2006b;24(3), 355–368.
Booth A. Research column: Turning research priorities into answerable questions. Health Information and Libraries
   Journal. 2001;18(2), 130–132.
Booth A. Bridging the research-practice gap? The role of evidence based librarianship. The New Review of Information
   and Library Research. 2003;9(1), 3–23.
Booth A. The unteachable in pursuit of the unreadable? Evidence Based Library and Information Practice.
   2006a;1(2), 5 [Online].
Booth A. Blogs, wikis and podcasts: The. 'evaluation bypass' in action? Health Information and Libraries Journal.
   2007;24:298–302.
Booth A. A bridge too far? Stepping stones for evidence based practicein an academic context. New Review of Academic
   Librarianship. 2009a;15(1), 3–34.
Booth A. Eleven steps to EBLIP service. Health Information and Libraries Journal. 2009b;26(1), 81–84.
Booth A. EBLIP five-point-zero: Towards a collaborative model of evidence-based practice. Health Information and
   Libraries Journal. 2009c;26(4), 341–344.
Booth A and Brice A. Clear-cut?: Facilitating health librarians to use information research in practice. Health Information
   and Libraries Journal. 2003;20(Suppl 1), 45–52.
Booth A and Brice A. Prediction is difficult, especially the future: A progress report. Evidence Based Library and
   Information Practice. 2007;2(1), 89–106 [Online].
Booth A and Eldredge J. A voyage of discovery: Identifying barriers to EBLIP in the caribbean. Evidence Based Library and
   Information Practice. 2010;5(3), 27 [Online].
Booth A and Brice A (Eds), Evidence-based Practice for Information Professionals: A Handbook. 2004; Facet Publishing,
   London.
Bowen S, Martens P and the need to know team. Demystifying knowledge translation: learning from the community.
   Journal of Health Services Research & Policy. 2005;10(4), 203–211.
Brettle A. Systematic reviews and evidence based library and information practice. Evidence Based Library and
   Information Practice. 2009;4(3), 8 [Online].
Brice, A and Booth, A, (2005). *Fusion or confusion?: Challenges in applying critical appraisal methods to the health
   library literature*. EAHIL Workshop Implementation of Quality Systems and Certification of Biomedical Libraries
   Palermo, June 23–25, 2005.
Brice, A, Booth, A and Bexon, N, *Evidence based librarianship: A case study in the social sciences.* Libraries - A Voyage of
   Discovery, World Library and Information Congress: Seventy-First IFLA General Conference and Council, 14–18 Aug.
   2005, Oslo, Norway. http://www.ifla.org/IV/ifla71/Programme.htm.
Clyde LA. The basis for evidence-based practice: Evaluating the research evidence. New Library World.
   2006;107(1224/1225), 180–192.
Cotter, L and Spencer, A, (2007). Library Connect (Bangkok, Thailand. 1 August 2007- Kuala Lumpur, Malaysia. 2 August
   2007). www.elsevier.com/framework_librarians/Docs/2007LisaCotterPresentation.pdf.
Cotter L, Harije L, Lewis S and Tonnison I. Adding SPICE to a library intranet site: A recipe to enhance usability. Evidence
   Based Library and Information Practice. 2006;1(3), 15 [Online].
Cotter L and Lewis S. Libraries using evidence – eblip.net.au. Evidence Based Library and Information Practice.
   2006;1(3), 98–100. ejournals.library.ualberta.ca/index.php/EBLIP/.
Crumley E and Koufogiannakis D. Developing evidence based librarianship: Practical steps for implementation. Health
   Information and Libraries Journal. 2002;19(2), 61–70.
Dalrymple P. Applying evidence in practice: What we can learn from healthcare. Evidence Based Library and Information
   Practice. 2010;5(3), 17 [Online].

Davis D, Evans M, Jadad A, Perrier L, Rath D, Ryan D, Sibbald G, Straus S, Rappolt S, Wowk M and Zwarenstein M. The case for knowledge translation: Shortening the journey from evidence to effect. BMJ. 2003;327(7405), 33–35.

Eldredge J. How good is the evidence base? Evidence-Based Practice for Information Professionals: A Handbook. 2004;36–48. Chapter 4.

Eldredge JD. Evidence-based librarianship: Searching for the needed EBL evidence. Medical Reference Services Quarterly. 2000;19(3), 1–18.

Fisher B and Robertson D. Evidence-based management as a tool for special libraries. Evidence Based Library and Information Practice. 2007;2(4), 7 [Online].

Gavgani VZ. The perception and practice of evidence based library and information practice among iranian medical librarians. Evidence Based Library and Information Practice. 2009;4(4), 17 [Online].

Genoni P, Haddow G and Ritchie A. Why don't librarians use research? Evidence-Based Practice for Information Professionals: A Handbook. 2004;49–60. Chapter 5.

Graham ID, Logan J, Harrison MB, Straus SE, Tetroe J, Caswell W and Robinson N. Lost in knowledge translation: Time for a map? Journal of Continuing Education in the Health Professions. 2006;26(1), 13–24.

Grant MJ and Booth A. A typology of reviews: An analysis of 14 review types and associated methodologies. Health Information and Libraries Journal. 2009;26(2), 91–108.

Grefsheim SF, Rankin JA, Perry GJ and McKibbon KA. Affirming our commitment to research: The medical library association's research policy statement: The process and findings. Journal of the Medical Library Association. 2008;96(2), 114–120.

Haddow G and Klobas JE. Communication of research to practice: Closing the gap. Library & Information Science Research. 2004;26(1), 29–43.

Kim K. Perceived barriers to research utilization by korean university librarians. Journal of Academic Librarianship. 2005;31(5), 438–448.

Koufogiannakis D and Crumley E. Evidence-based librarianship. Feliciter. 2002;48(3), 112–114.

Koufogiannakis D and Crumley E. Research in librarianship: Issues to consider. Library Hi Tech. 2006;24(3), 324–340.

Lerdal SN. Evidence-based librarianship: Opportunity for law librarians? Law Library Journal. 2006;98(2), 33–60.

Lucas PJ, Baird J, Arai L, Law C and Roberts HM. Worked examples of alternative methods for the synthesis of qualitative and quantitative research in systematic reviews. BMC Medical Research Methodology. 2007;7:4. www.biomedcentral.com/1471-2288/7/4.

Marshall JG. Influencing our professional practice by putting our knowledge to work. Information Outlook. 2003;7(1), 40–44.

McKechnie L, Julien H, Genuis SK and Oliphant T. Communicating research findings to library and information science practitioners: A study of ISIC papers from 1996 to 2000. Information Research. 2008;13(4), paper 375 [Available at http://InformationR.net/ir/13-4/paper375.html].

McNicol, S, (2004). LIS researchers and practitioners: creating a research culture. http://www.lirg.org.uk/lir/ojs/index.php/lir/article/viewFile/134/174.

McNicol S. The importance of evaluation and evidence-based skills to improving service delivery. Library & Information Research (LIR). 2005;29(93), 26–34.

Noblit, GW and Hare, RD, (1988). *Meta-Ethnography: Synthesizing Qualitative Studies*. Newbury Park, California, Sage.

Plutchak TS. Building a body of evidence. Journal of the Medical Library Association. 2005;93(2), 193–195.

Pretty HJ. Barriers to evidence-based library and information practice. Feliciter. 2007;(1), 30–32.

Ram FSF. The art of producing quality evidence-based systematic reviews. Primary Care Respiratory Journal. 2002;11(4), 117–119. www.thepcrj.org/journ/vol11_4/117_119ram.pdf.

Ritchie, A, (1999). Evidence-based Decisionmaking. *Incite Magazine*. December. www.alia.org.au/incite/1999/12/appraisal.html.

Russell K. Evidence-based practice and organizational development in libraries. Library Trends. 2008;56(4), 910–930.

Schlögl C and Stock WG. Practitioners and academics as authors and readers: The case of LIS journals. Journal of Documentation. 2008;64(5), 643–666.

Schön DA. The Reflective Practitioner: How Professionals Think in Action. Temple Smith, London. 1983.

Special Libraries Association,, (2001). *Putting our knowledge to work, a new SLA research statement June 2001: The role of research in special librarianship* [web document]. Alexandria, VA: The Association. www.sla.org/content/resources/research/rsrchstatement.cfm.

Thomas J and Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Medical Research Methodology. 2008;8:45. www.biomedcentral.com/1471-2288/8/45.

Todd R. The evidence-based manifesto for school librarians. School Library Journal. 2008;54(4), 38–43.

Todd R. School librarianship and evidence based practice: Progress, perspectives, and challenges. Evidence Based Library and Information Practice. 2009;4(2) 14 [Online].

Turner KJ. The use of applied library and information studies (LIS) research in New Zealand libraries. Library Review. 2002a;51(5), 230–240.

Turner, KJ, (2002b). Do information professionals use research published in LIS journals? *Proceedings of the 68th IFLA Council and General Conference, August 18–24, 2002, Glasgow*. Retrieved 6 December 2010 from http://archive.ifla.org/IV/ifla68/papers/009-118e.pdf.

vanDijk N, Hooft L and Wieringa-de Waard M. What are the barriers to residents' practicing evidence-based medicine? A Systematic Review. Academic Medicine. 2010;85(7), 1163–1170.

Weller T and Haider J. Where do we go from here? An opinion on the future of LIS as an academic discipline in the UK. Aslib Proceedings. 2007;59.4/5(2007), 475–482.

Winning A. Identifying sources of evidence. Booth A and Brice A(Eds), Evidence Based Practice for Information Professionals: A handbook. 2004; Facet Publishing, London. 71–88.