Evidence Based Library and Information Practice

Commentary

Systematic Reviews and Evidence Based Library and Information Practice

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Introduction

One of the key tools of evidence based practice for practitioners and policy makers are systematic reviews. "Rigorous summaries of all the research evidence relating to a specific question…often addressing the effectiveness of an intervention" that employ "a rigorous methodology for searching, research, retrieval, appraisal, data extraction, synthesis, and interpretation" (Ciliska, Cullum, and Marks 135). They present a comprehensive summary of research based knowledge that can aid both practitioners and policy makers in decision making. Following a systematic approach to both the search and synthesis of the included research, reduces the risk of bias and random errors inherent in a standard literature review process (Droogan and Song 16). When undertaking a systematic review, details of all elements of the search, appraisal, and synthesis process are documented and reported to ensure transparency. This enables readers to assess the quality of the review process and to determine the extent to which it has been rigorously conducted and is free from bias.

Systematic reviews and library and information professionals

The systematic review industry has offered information professionals an opportunity to play a significant supportive role within evidence based practice, demonstrate their traditional skills of finding and managing information, and highlight their skills as expert searchers (Beverley, Booth, and Bath 66). Furthermore, librarians who are involved in the production of systematic reviews, particularly in healthcare, have demonstrated their ability as evidence based library and information practitioners by evaluating aspects of their expert searching practice in order to provide an evidence based for searching within systematic reviews (Boynton et al.; McKibbon, Wilczynski and Haynes; Sampson and McGowan; Sampson,

McGowan et al.; Sampson, Zhang et al.; Sampson, Barrowman et al.; Zhang, Sampson, and McGowan).

But what about systematic reviews as a tool to help library and information practitioners make decisions about their practice? Systematic reviews can help us make sense of our research base, implement and justify services, and ensure that individual practitioners do not have to collect and analyse primary studies for every decision made (McKibbon 205-207). However, systematic reviews in library and information science are relatively uncommon. A recent paper located seven reviews published in library and information science journals between 1996-2006 (Ankem). Although this is not likely to be the exact number of existing systematic reviews in the domain, it provides an interesting comparison to the 5000+ systematic reviews that have been undertaken in health and social care (Centre for Reviews and Dissemination, CRD Databases http://www.crd.york.ac.uk/crdweb/).

Papers discussing librarians' involvement in systematic reviews tend to focus on the searching elements (Falzon and Booth; McGowan and Sampson; Scherrer and Dorsch; Harris), although some discuss a wider role for librarians (Beverley, Booth, and Bath; Swinkels, Briddon, and Hall). In my own experience, becoming involved as a team member and providing literature searches for systematic reviews gave me the confidence to undertake systematic reviews of my own practice (Brettle "Information Skills Training: A Systematic Review of the Literature; Brettle "Evaluating Information Skills Training in Health Libraries: A Systematic Review"). This in turn provided me with the knowledge and skills to become more fully integrated within review teams conducting systematic reviews at the boundaries of health and social care (Brettle, Hill, and Jenkins; Dugdill et al.; Hill and Brettle). This involved critical appraisal, review management, data synthesis, report writing, and providing mentorship throughout the process to subject

specialists who have limited experience of conducting systematic reviews.

McKibbon outlines the importance of systematic reviews for librarians and provides a step by step guide to their production (McKibbon "Systematic reviews"). Furthermore, in the same article, McKibbon notes a range of reasons for undertaking systematic reviews including summarising the volume of information available, integrating information in areas where there is little information available, resolving discrepancies between studies with conflicting results, planning for new research, and providing teaching materials. However, systematic reviews have most commonly been used to address questions of effectiveness, although they can be relevant to any area where it is important to identify research trends or determine the overall balance of evidence in relation to a particular question (Macdonald). They can also incorporate a range of research designs (both quantitative and qualitative), although these may present methodological and practical challenges in finding and synthesising literature for their inclusion (Mays, Pope, and Popay).

Given that librarians already play a significant role in finding information for systematic reviews, and, according to the required competencies of our professional bodies (Hunter and Wake; Medical Library Association), require the skills to carry out the appraisal and synthesis parts of systematic reviews, why are more systematic reviews not undertaken by librarians to answer questions related to their own practice? Furthermore, why do the majority of librarians focus on the traditional searching elements of the review process rather than the critical appraisal?

Barriers to conducting systematic reviews

Time
Undoubtedly systematic reviews take time; McKibbon (McKibbon "Systematic reviews") estimates 600 hours for a narrowly focussed

review. This time factor is a serious issue for evidence based library and information practice, and is not a feasible way forward for everyday practitioners who wish to answer a pressing question in their own environment. A debate about the time involved and the need for systematic reviews to advance EBLIP would perhaps be useful in raising the issue up the agenda of organisations who may provide funds for library related systematic reviews.

Putting the issue of time to one side, there are methodological issues that also need to be faced if more systematic reviews are to be undertaken in EBLIP. These are outlined below and arose during the production of two systematic reviews in evidence based library and information practice (Brettle "Information Skills Training: A Systematic Review of the Literature; Brettle "Evaluating Information Skills Training in Health Libraries: A Systematic Review").

What evidence should be included?
Systematic reviews which follow a medical model of effectiveness, frequently include controlled studies to provide high quality evidence on "what works". However, this type of evidence is frequently lacking in the library literature as was found in Brettle ("Information Skills Training: A Systematic Review of the Literature"). An alternative approach is to include a range of evidence which "gains insight into the complexity of interventions and perspectives of users" (Long et al. 22). This could include quantitative and qualitative research studies using a range of designs; and although this approach may not provide definitive answers to questions of effectiveness (according to a medical model of what constitutes good evidence), it does provide a summary of the evidence which exists, a baseline from which to move forward and highlights where and what research is needed. All factors which are useful to practising librarians. It has been argued that evidence based library and information practice should be based on a "core-centred" or all encompassing model of research evidence, rather than a

hierarchical one (Crumley and Koufogiannakis 68). Using this model, it is appropriate for systematic reviews in the library domain to take a wide view of relevant evidence and include a variety of designs appropriate to the topic or review question at hand.

Assessing study quality
A related issue to deciding which studies to include is determining the quality of studies selected for inclusion in the review. Methodologies such as randomised controlled trials are viewed as "good quality evidence" because of the ability of their design to reduce bias in the study, assuring that the effects of the intervention are due the intervention alone. However, this does not automatically mean that the study has been well conducted. Furthermore, some questions or situations are not suited to such study designs and would more appropriately be addressed by using, for example, a qualitative approach. A range of critical appraisal tools exist that provide a means of extracting detailed information and a means of judging the quality and relevance of a study. These may be library specific (Booth and Brice; Glynn; Koufogiannakis, Booth and Brettle) or adapted from other disciplines such as healthcare, but do not offer a definitive answer regarding the quality of a study. How does a reviewer decide which studies to include in the review – all those which fit the inclusion criteria, or just those above a certain quality threshold? If so, how is this threshold determined? One approach is to limit the review to controlled study designs as in a review by Garg and Turtle, but this runs the risk of including a very limited number of studies and reach limited conclusions, which may not relate to practice. Weightman and Williamson included a range of designs and developed what they named a "crude measure of quality," based on established research methodology and only included those which were above this quality threshold. This approach should ensure that the conclusions were based on the best quality evidence available, providing their definition of a "good quality study" was reliable. But what

does make a good library study? It would be useful for further work to establish some kind of consensus. By examining the quality of library studies, it may be possible to highlight issues of weak study design that can be addressed by future research, and thus long term improve the overall quality of library related research.

Searching issues

Handbooks and guidance on systematic review production stress the need for comprehensive searching to locate relevant studies (Centre for Reviews and Dissemination; Higgins and Green). Information specialists have conducted a wide range of studies in relation to searching health care resources to improve the comprehensiveness and accuracy of searching (McKibbon, Wilczynski, and Haynes; Sampson, McGowan et al.). Within social care systematic reviews, a number of studies have confirmed the need to search widely and use a variety of resources to ensure comprehensive coverage (Brettle and Long; Golder, Mason, and Spilsbury; McNally and Alborz). The library literature parallels that of social care with studies crossing a range of domains such as library literature, education and management. Thus it is likely that a range of databases need to be searched in order to obtain comprehensive coverage, but work needs to be undertaken to quantify this and provide guidance for searchers of the library related literature. This would provide evidence and tools to underpin evidence based library and information practice, and redress the balance of librarians conducting research into effective searching of resources relevant to the practice of other professions, but not that of their own!

A systematic review to address these issues

These issues related to systematic review methodology are not limited to library and information practice. Similar issues have been found by the author in reviews that cross the boundaries of health and social care and much could be learned for library related systematic reviews by examining the methodological

literature in these fields. What may be more problematic for librarians is the time involved and the skills needed to conduct systematic reviews. All these issues are currently being faced by a group of UK librarians who are undertaking a systematic review related to clinical librarianship (The North West Clinical Librarian Systematic Review Group). The group has come together (and successfully obtained a small amount of funding) to conduct a review which seeks to answer a question facing their practice – that of how to evaluate their service. UK NHS library policy guidelines have recommended that libraries evaluate the impact of their library services and that clinical librarian (CL) services be implemented in all acute hospitals (Hill). Evidence to date has been inconclusive about the effectiveness of CL services (Wagner and Byrd; Winning and Beverley), but rigorous evaluations of CL services will be needed to demonstrate their value over time. Given the various models of service provision, there is unlikely to be a "one model fits all" approach to evaluating CL services, therefore the review will examine these issues and provide guidance for future evaluations.

The group comprises seven (mainly) clinical librarians from the North West region of the UK and myself as a facilitator and researcher who specialises in the conduct of systematic reviews. At the first meeting of the group, the majority of members suggested that their involvement in the project was a practical opportunity for them to gain research and critical appraisal skills as well as insight into the complete systematic review process that they often support. Furthermore, operating as a group is a "safe environment" and provides confidence and support for those members who are less familiar with research methods. In order to provide insight into the process of library related systematic reviews the group are maintaining reflective diaries of the highs and lows of involvement in the project and a record of the time spent on the review. It is hoped that publications arising from these can be used to

advance systematic reviews in librarianship by providing guidance for other librarians who wish to conduct systematic reviews.

Conclusion

Systematic reviews are an important means of summarising evidence and are useful for librarians who are seeking to find evidence for their practise. Furthermore, they provide an opportunity for librarians to demonstrate and develop their skills in expert searching and critical appraisal. However, there are a limited number of reviews in existence in library and information practice – possibly due to the practical and methodological challenges involved in conducting them. As a profession which is seeking to demonstrate their value and improve their evidence base, it is important that we seek to overcome these challenges, progress research in this area, and provide a sound evidence base for library and information practice.

Note

The clinical librarian systematic review mentioned in this commentary is seeking to identify effective methods of evaluating clinical librarian services from the published and grey literature. If you have (or are aware of) any grey literature reports which involve the evaluation of a CL service, please get in touch with the author of this article.

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