CHAPTER 10

The evidence-based model of information literacy research: a critique

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This chapter unravels the multifaceted ways that evidence can be interpreted and used. It takes a position that the questions asked and the answers given are inextricably intertwined in a changing social, historical and political framework, where researchers and the researched are actors in the process.

That evidence is useful goes without saying. However, the evidence-based (EB) model competes with other models, which also use evidence but in different ways. Depending on the model, different questions are asked, different strategies are used, different answers are found and different ways forward are proposed.

The EB model for information literacy (EBIL) is new. *Evidence Based Library and Information Practice* (EBLIP), an open access, peer-reviewed journal, began publication in 2006 and *Evidence-based Practice for Information Professionals: A Handbook* (Booth & Brice), the first book published of its kind, came out in 2004. Speaking of her own approach, Denise Koufogiannakis, one of the co-founders of EBLIP, explains that:

her goal is to improve library services to users. She encourages librarians to find research to support their day-to-day strategies and decisions. Where such evidence does not yet exist, she urges librarians to 'incorporate research into the new services or products they are developing' (Koufogiannakis 2007).

In the context of evidence and decision making, this chapter also looks at those who implement decisions and those who are affected by decisions, as part of an intertwined picture.

Using good evidence to answer questions seems, on the surface, so undeniable that to critique the model seems contrary. However, there is debate about the model that draws in questions of qualitative versus quantitative research, how cultural meaning is produced, what constitutes evidence and the way the paradigm is used politically.

In 2003, Todd pointed to the success of EB models stating that ‘evidence-based practice – the process of carefully documenting – is key to being recognized’ (Todd 2003). But what does recognition mean and who is recognising whom? In an earlier article, Todd’s research into the use of heroin information by a small group of teenage girls illustrated that they ‘were not passive, robot-like processors of information, merely absorbing information indiscriminately ... [but] were active creators of knowledge, manipulating information selectively and creatively to develop revised pictures’ (Todd 1999, p.21). The acknowledgement that the social sciences are engaged with creative actors, who play a part in the outcome of their world environment, is important in understanding evidence. This chapter emphasises the importance of not seeing evidence as a static entity.

The influence of the medical model

The origins of the EB model in information literacy stem from the dominance of the EB medical model. EB medicine (EBM) is mainly attributed to Archie Cochrane, an epidemiologist who argued that different kinds of evidence could be ranked according to the strength of their freedom from bias, the best form of evidence coming from randomised, double-blind, placebo-controlled trials. Cochrane’s premises were that because resources would always be limited they should be used only where they have been shown to be effective (Cochrane 1972). It is important not to take diminishing resources as a given. The Iraq war has consumed disproportional resources, while health, welfare and education have received ongoing reductions.¹ The core concepts of EBM are based in work done in the 1970s and 1980s addressing Cochrane’s accusation that many of the treatments, tests and procedures used in medicine had no evidence to demonstrate their effectiveness, and may in fact be doing more harm than good (Hill 2000, p.1190).

A definition of EBM often cited is:

Evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research (Sackett et al. 2007, p.71).

¹ The striking feature of modern war is its expense. The cost of the war in Iraq is estimated at \$US 2.3 trillion (Stephen 2007). ‘The cost of the Iraq war to Australian taxpayers is approaching \$3 billion and is rising at a faster pace as the conflict has reached its fourth anniversary’ (Davis & Coorey 2007).

From another angle, Hollway (2001) questions the reductive definition of what counts as evidence. Particularly from the 'caring' professions perspective, Hollway wonders whether scientific evidence epitomised in EB practice compromises the helping professions by threatening 'to impose reductive and standardised interventions' (Hollway 2001, p.10).

EBM concepts were taken up by library and information professionals interested in information literacy (IL). However, where EBM is primarily concerned with encouraging practitioners to make more use of the research evidence that is already available, EBIL is more concerned with filling the gap of too little quality research. What it means to be information literate depends on the framework one is using for understanding. The intertwining of what evidence is, whether the EB model is used, and what IL means to the researcher all combine to make the terrain of evidence far more rich and complex than first meets the eye.

Evidence-based librarianship (EBL)

Eldredge (2000a) puts forward a seven-part conceptual framework for EBL outlining that 'EBL seeks to improve library practice by utilizing the best-available evidence combined with a pragmatic perspective developed from working experiences in librarianship' (p.291). His framework acknowledges the distinct body of knowledge that has been accumulated throughout the history of librarianship. Like others, he encourages librarians to collect information and evidence where there are gaps.

In clinical medicine, these research methods are intended to establish causal relationships while minimizing systematic or human biases. Until recently, health sciences librarianship has been largely influenced by research designs developed in the social, behavioral, and management sciences. Theoretical approaches developed in humanities disciplines, such as history or philosophy, have also influenced the field. EBL now seeks to adapt rigorously tested research designs from the health sciences, particularly clinical medicine (Eldredge 2000a).

Clyde (2005) in a paper delivered to IFLA in 2005 expands on one of the EBL threads explaining that evaluating research goes beyond research questions and/or hypotheses, descriptions of methodology and discussions of results. Her research touches on the value-laden nature of evaluation procedures. Investigating article-ranking, she identifies that 'value perceptions' are important. One group says empirical research is most important, another stressed factors external to the research itself. Yet another stressed the ethical issues and the value of the research

to the profession, while a fourth group was most interested in whether research was set within the context of the literature. She concluded that there are problems with evaluating the quality of research because quality means different things to different people. This is a rather inconvenient finding for those who believe citations and or impact factors are reliable and meaningful. It is outside the scope of this paper to talk about the world phenomenon of government control and demand on universities for utilising questionable, and perhaps irrelevant, research frameworks (that are tied in many ways to an EB ideology).

A recent stock-taking report on EBL stressed 'that, as evidence-based practitioners, we have learned not to conflate increased inputs and outputs with increased impact' (Booth & Brice 2007, p.90). EB practice in librarianship is still largely focused on health; in fact in 2006 only 9 per cent of *LISA (Library and Information Science Abstracts)* citations, containing the words 'evidence-based', fell outside health librarianship. They hope that the use of evidence will become so widespread that there will no longer be a need for international organisations and journals to promote its use (Booth & Brice 2007, p.102).

Beneath the surface

Kirsty Williamson, in her introductory chapter to this book, gives an overview of positivist and interpretivist approaches, attempting to unravel some of the meanings of the philosophical and methodological concepts underpinning evidence. Her overview indicates the rich variety of ways of undertaking research, each starting from different premises and ending with different results.

This chapter acknowledges that evidence in the form of sense-experience must be the basis of understanding processes of becoming information literate. However, evidence cannot always be taken at face value; to give a simple example, it does not appear that the earth is moving yet it is. Collecting evidence should combine the systematic record of what is directly observable with the discovery of underlying causes. Evidence within the empiricist theoretical account is a restricted method of thought, which views the world as a collection of facts. It is wrong to emphasise observation at the expense of theory, and to treat evidential concepts and theories only as convenient mechanisms for relating isolated facts rather than as a way to illuminate the whole picture. An example is a study of 1,097 nurses across the US, researching whether they have the skills to engage in clinical decision making. Even though they have access to the internet, the nurses mainly get their information from colleagues or peers. This finding causes the authors to conclude that the nurses do not value or understand research (Pravikoff, et al.

2005). A fundamental understanding about learning as a social phenomenon is missed by this EB study.

Marx noted that 'all science would be superfluous if the outward appearance and the essence of things directly coincided' (Marx & Engels 1967, p.817). It is important not to unquestioningly adopt the language and the premises of EB without asking underlying questions about its philosophical, social and historical roots. For example, Forrest (2007) says 'As library and information professionals involved in teaching and learning, we need to ensure that our teaching methods and actions follow "best practice" and are "evidence-based"' (p.222). She does not say why.

The Evidence-based Medicine Working Group (1992) defined EB medicine as a new paradigm for clinical practice. Even though some have called EBM a paradigm, the debate and argument about its veracity put into doubt its paradigmatic status.

Statistics and neutrality

EB models often use statistical methods to test hypotheses (Hjorland 2005). In many of the EB articles there are only correlations between variables, with no questions about causes. A dialectical model of information/data-evidence-cause is more multi-faceted. Take Jones's (2007) example:

In real life, creativity and innovation overlap, with a profound and complex interaction, in which cause and effect are inextricably linked: touch a cause, and it changes the effect, which then changes the cause, and so on.

EBM and EBL embody faith in neutral observations and deductions. Is there real space for traditions which emphasise cultural influence, class interests and the theory-laden nature of knowledge in the model? Government representatives in the UK argue that statistically-based, experimental research is to be preferred by EB practitioners since it is less biased by the interests of the researcher. However, experimental researchers, even those looking through a microscope are very capable of making mistakes or finding what they want to find. Statisticians well know that statistics can be used to 'prove' almost anything.

What EB is demanding is that all professional decisions are based on documented evidence. This demand sounds reasonable, even common sense. The question has, however, been asked: If evidence-based medicine is a new trend within medicine, 'what on earth was medicine based on before?' (Worrall 2002, p.S316).

There has been opposition to the EB movement because it is seen as a modern empiricist/positivist movement that is opposed to, for example, more interpretative tendencies (Davies 2003; de Leeuw 2005; Fowler & Lee 2007; Hill 2000; Hjørland 2005; Lipu 2005; Little 2003; Rodwin 2001; Rogers 2004). Evidence is not neutral, it is always ideologically situated. Evidence is shaped by power and in turn shapes those who use it.

Asking questions

Proponents of EB tell us that the first stage in the EB process is to get the question right (Booth 2006; Eldredge 2000b; Van Biervliet 2007). 'Evidence-Based Librarianship begins with the simple act of asking an answerable, practical question' (Eldredge 2000b, p.74). Eldredge gives four examples of questions which are pragmatic and cost-related: the cost of one database versus another, evaluating cost effectiveness of print versus electronic journals, online tutorials effectiveness versus face-to-face teaching, and determining when to weed a collection. To be more precise, he points to the need for questions to have a noun, verb and object as part of their sentence structure. In a recent article, Booth said that EBL 'involves asking answerable questions, finding, critically appraising and then utilising research evidence' (Booth 2004, p.65).

Is there a tendency for the questions that are posed as a starting point for gathering evidence in the EB model to be simplistic rather than simple? Pragmatism allows for this but pragmatism is not a philosophy which challenges or pushes boundaries. How often does the EB project ask questions that do not imply cost-saving endeavours? Are EB practitioners interested in questioning whether increased nurse/patient ratios could be good for hospitals, or that more teachers could be good for schools? Paradigms which construct IL as social and cultural practice imply an embodied interchange and attention to individuals combining collectively with others to make knowledge, not just to receive it or to understand it in isolation.

Davies (2003), Rogers (2004) and de Leeuw (2005) all question the assumptions of the pragmatism of asking questions which assume a western or managerialist bias. Lipu (2005) uses a feminist approach to discuss IL. She talks about Papua New Guinean women and blends IL with sociology, psychology and education to get a greater depth in answers to questions which include 'Who says so and what will it mean for women?'.

In 2005, de Leeuw considered the 125 scientific questions and problems yet to be resolved which the journal *Science* had examined in that year. All the health

questions were political questions, and in de Leeuw's view 'the next stage of the evidence debate will have to address (these) far more astutely' (p.211). Looking at feminism and 'new managerialism', Davies unpacks evidence with a Foucaultian tinge. Not mincing her words she says:

To this end, the language of managerialism cleverly cannibalises the liberal humanist terms in vogue during the period of high modernity that seem, on the face of it, indisputably virtuous and desirable. Take 'literacy', for example. Who can dispute the desirability of every child achieving a minimum standard of literacy and thus achieving not only the potential to be active citizens but also the potential to survive in the new information technology driven world? The means of achieving this may actually be at the expense of the teaching strategies through which critical literacy or any other critical/analytical skills are taught. They also may draw massive resources away from teaching itself and into the bureaucracy that stages and evaluates the testing and other strategies through which the 'new' objectives are to be achieved ... Resistance may well position you as one of those whom the system are supposedly designed to catch out (Davies 2003, p.98).

The importance of context

Undoubtedly there is enormous danger in looking at evidence out of its political and socio-historical context. 'Twenty-five years after AIDS was first identified, programs to fight disease continue to be undermined by conservative ideologies and moralistic approaches', says Joe Amon, director of the HIV/AIDS program at Human Rights Watch (2006). 'Evidence' proves that informing citizens about the transmission of AIDS, and providing condoms, is the best way forward 'in sub-Saharan Africa [where] a majority of young adults lack adequate knowledge of HIV transmission. Yet some governments emphasize 'abstinence-only' approaches'. In fact in some countries condoms are restricted and virginity parades are held (Human Rights Watch 2006). This is an example where AIDS/HIV evidence cannot be fenced away from problems of economic crises, the rich-poor divide, and long standing colonialism.

Asking the 'right' question might involve a process of engagement where some wrong questions eventually lead to some right ones, but where cultural sensitivity and non-paternalism override the initial correctness of the question.

For constructivist theorist Vygotsky, the object of study and the method of study are practical. Here he does not mean pragmatic; he means 'useful'. Practical-critical activity are 'simultaneously prerequisite and product' (Vygotsky 1986,

p.86). The linear cause/effect process involves both looking at cause, looking at effect and then also looking at how they interlink and influence each other. 'Evidence' is always tied to the history of the question asked, how the question is answered and how the answers determine future questions. But questions and answers do not occur separately; they happen interactively and at the same time. Using the AIDS example, a socio-cultural framework would have to ask multiple questions relating not only to the health problem itself, but also to the context and historical political situation surrounding health funding, schooling, food and basic needs. The distribution of wealth and privilege are important considerations for significant answers.

Power, privilege and bureaucratic control

Power as a central concern in EB models and particularly EBM is taken up by many writers:

Thus EBM, from being a 'solution' to the problem of indeterminacy (and therefore a professionalizing strategy) gives what are essentially 'political' decisions an illusion of objectivity while shifting the indeterminacy into the policy arena (Armstrong 2007, p.82).

and

EBM is not simply a new way of doing medical research or clinical work ... EBM has operated in the problem space of professionalism, indeterminacy and medical dangers. It has functioned at the interface between professionalizing strategies (the promise of effective medicine) and the new dangers from medical intervention (the promise of safe medicine). And, by increasing the precision by which uncertainty is known, it has moved the problem of indeterminacy into a new arena of power (Armstrong 2007, p.83).

EBM has changed the balance of power to give bureaucratic control over doctors and patients. Yet as Rodwin (2001, p.441) points out: 'Policy making, by its nature, requires making choices that are not value free or reducible to technical issues over which there is little controversy. It is not possible to purge issues of value, or politics from public policy.' Lupton (2002) pleads with us to utilise the most complex of the IL standards, faces or facets: information wisdom. Like others quoted, she recognises that wisdom involves using knowledge in a reflective way, acknowledging personal values for the benefits of others.

In the case of EBIL, an important consideration is what IL is. Information literacy is understood variously as a teaching method, process, concept, behaviour

or framework. To superimpose a structured EB model on the many interpretations of IL is problematic. Most important, if the EB model is primarily constructed for digestible results for policy makers the wisdom facet will be undermined.

Lloyd (2007) and Fowler and Lee (2007) explore discursive analysis and break the linear nexus of cause-effect questioning. These studies look at evidence and IL as more than a development of skills. Lloyd describes IL as acknowledging the person as embodied, bringing physical and emotional sensations together as sources of information passed to them from their 'community of practice'. In her investigation of how firefighters gain information literacy, Lloyd gives an example of a method which goes beyond the uni-linear. She shows how 'participants' beliefs, values and ideologies and information accessed through sensory, experiential or social domains is unpredictable until experienced' (Lloyd 2007, p.197). Fowler and Lee use discursive analysis by looking at one case study, a woman learning to breastfeed her first baby. They examine the complex and contradictory dynamics of this mother's knowing and learning, situated in relation to formal knowledge about breastfeeding, in order to explore and elaborate an argument for more complex cultural and relational understandings of knowing and learning than that offered by the statistical EB model. Fowler and Lee acknowledge that the 'conceptualization of learning is often unnecessarily narrow, valuing knowledge gained from formal education settings as more important than informal learning gained from experience' (Fowler & Lee 2007, p.190).

Lloyd (2005; 2007) and Davies (2003) both in their own way point to 'authentic' practice. Davies says that 'the first and necessary step in counteracting the force of any discourse is to recognise its constitutive power, its capacity to become hegemonic'. Lloyd draws attention to learning as a complex process where the 'learning environment may be considered informal or unstructured, and where learning is constituted through collective practices and focused on the development of collective competence as opposed to individual competence.' Lloyd talks about the experience of firefighters becoming 'enculturalised' and suggests that evidence interpretation 'may be facilitated through access to authentic practices in the context of supportive communities who share a common discourse that focuses on the central meanings of practice and profession' (Lloyd 2005).

Conclusion

Steven Rose, neurologist, humanist, anti-war activist and director of the Brain and Behavior Research group, spent a lifetime in neurobiology only to have his work used to develop 'sonic booms' high-powered millimetre microwaves which affect

pain receptors in the skin, causing intense unbearable burning sensations (Rose 2005). Like Robert Oppenheimer before him (one of the developers of the atomic bomb), Rose has been caught in the nexus between evidence, research and use.

There is no argument that evidence is important. However, if IL seriously includes the reflective element and the critical element, then how evidence is used must be a priority in our theory building.

In conclusion, some of the problems with the EB model are that despite all the fervency with which the idea of evidence-based policy is being advocated it is not really new but has its antecedents in many other philosophical movements. If the EB movement is a fashion, the encouragement it gives to IL practitioners to start looking and enquiring should be endorsed, but its ideological component must not be ignored. In this 'risk society' where fear is constantly manufactured, the management of evidence is as important as evidence itself. The strangle-hold of the EB model as it tightens on information literacy may close off dynamic ways of knowing rather than open them up, unless we demand that evidence is seen in a complex, caring way. By all means let us all enquire and gather evidence, but let us also understand that 'evidence' is much more than it seems.

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