

Editorial: evidence based information work

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One of the most compelling trends in professional and occupational practice over recent decades has been the growing influence of evidence-based practice. With its origins in medicine, evidence-based practice has expanded out to a wide range of professional and occupational field, from law to information management. And for good reason. Over recent decades there has emerged growing evidence that contrary to expectation and regardless of professional pride, experts are worse at predicting outcomes and evaluating optimal decisions than they think they are. Expert opinion is often out-performed by the judgements of non-experts *when* those judgements are based on a disinterested and rigorous evaluation of the best available evidence. This editorial explores the role of evidence-based practice in commercial information and knowledge management work, and questions whether it is really the panacea that it appears to be. It will first look at why expert opinion has such a poor record, before addressing whether evidence-based practice is the solution.

Many people are aware of the Dunning-Kruger effect – the tendency for people with a low level of expertise, knowledge or ability to over-estimate their ability or understanding by comparison with people of greater expertise (Dunning, 2011). Perhaps the most obvious example of this in recent years has been the tendency for non-experts to express strong but mistaken opinion about the causes, course and remedy of the Covid 19 pandemic, overestimating their ability to understand the issue, and underestimating the complexity of the issue itself. We are all susceptible to this kind of thinking and the Dunning-Kruger effect is not a reflection of individual's innate intellectual ability, but merely their relative ignorance about specific issues or practices. Dunning has observed that "in perhaps the cruellest irony, the one thing people are most likely to be ignorant of is the extent of their own ignorance—where it starts, where it ends, and all the space it fills in-between" (2011: 250). No matter how expert we are in certain fields, we will still tend to over-estimate our expertise in areas with which we are less familiar.

It is an interesting and lesser-known corollary of this that experts tend to *underestimate* their ability or understanding by comparison with non-experts. That is not to say that they fail to recognise their expertise, but that they do not give sufficient importance to that expertise. As we become more proficient in a topic, we become more careful about the limits of our knowledge, and more reticent about the opinions we form on the basis of it. On the face of it the Dunning-Kruger effect seems to support the argument for the importance of professional expertise; not only are professional experts better placed than others to understand a particular set of issues, but also less likely to overestimate their insight and expertise. But this is not quite the whole story because while all things being equal expert opinion is generally better informed than that of non-experts, expert opinion does not out-perform rigorous and impartial evaluation of available evidence by non-experts. This implies that the evidential basis on which we form opinions and make decisions is often as important than our prior knowledge or experience.

This relative unreliable nature of expert opinion has become more widely understood in recent years because of two popular books. Surowiecki's *The Wisdom of Crowds* published in 2004 explored the fact that in some circumstances the aggregate opinion of a large number of individuals not only out-performs the opinion of any single individual within that group, but also of experts. The basic assumption behind this is that all other things being equal, any estimation involves a combination of information and error, and that if opinions are aggregated the information in those opinions will tend to be reinforced while the error will cancel itself out. There are multiple studies to show this effect; ask 100 people to guess the number of sweets in a jar and the average answer will invariably be more

accurate than any individual answer. Each individual brings information to the task in terms of their knowledge, and perception, but introduces error on the basis of their own overestimation or underestimation. Because the information for each individual is derived from the same source material, but the error is essentially random in this case, one will be reinforced through aggregation and the other reduced. Of course the wisdom of crowds also described the functioning of the market, and of democracy, and both highlight the fundamental limitation of this approach. We know that markets and democratic systems do not always function well. Sometimes all things are not equal, and error becomes systematic. An inflated market driven by over-optimistic assumptions will lead to a market crash because many people are making similar erroneous judgements, and therefore error is not randomly distributed. Nevertheless the fact that aggregated opinions often outperform individual opinions suggests something important about the role of expertise.

The second popular book influencing the perception of expert opinion has been Tetlock and Gardner's *Superforecasting: the art and science of prediction* published in 2015, and based on Tetlock's *Good Judgement Project*. Tetlock argues in that work that expert opinion is frequently out-performed by well-informed non-experts, but only when those non-experts apply rigorous and systematic approaches to evaluating the available evidence. The superforecasting model became controversial in the UK from its association with Dominic Cummings, and the attempt to establish principles of governance based on the idea. Cummings controversially used his personal blog to call for "weirdos and misfits with odd skills" to apply for new jobs within No 10 as a part of this desire to develop forecasting models (Cummings, 2020). It might also be an explanation for Michael Gove's comment in 2016 that "the people in this country have had enough of experts" (cited by Portes, 2017). But the implication of superforecasting is not really that our faith in expertise is misplaced, but rather than expertise by itself is not enough.

Both *The Wisdom of Crowds* and *Superforecasting* highlight how trust in expertise can sometimes be misplaced, particularly where that trust replaces a thorough consideration of the available evidence. This is where evidence-based practice comes in, described by Barends et al as based in the assumption that "good-quality decisions should be based on a combination of critical thinking and the best available evidence" (2014). It is intuitively obvious that when our practice is well founded on empirical evidence, rather than rooted in more intangible and often outdated professional experience, the outcomes of that practice will be improved. Evidence Based Practice therefore seems to provide a solution for the unreliability of expert opinion along.

Evidence-based practice has its origins in medicine, where the term was introduced in the 1990s, but where the basic principles go back a few decades further. Medicine remains the clearest example of where evidence-based approaches work and significantly improve outcomes, with strong evidence of the significance of robust evaluation on professional practice. One key methodology used to support this is systematic review as a means of evaluating the best evidence around a particular issue. A systematic review is a synthetic analysis of prior research studies that seeks to draw conclusions about the best available evidence on the basis of the findings of those studies and their reliability.

But while medicine has trailblazed the benefits of evidence-based practice, in other professional fields the picture is less clear. Through the late 1990s and 2000s evidence based practice became influential in a wide range of professional and occupational contexts. However this tended to emphasise the rational and evidenced basis of practice, rather than the means to systematically determine the best available evidence. What counts as the best available evidence is not always clear in practice.

In many contexts then evidence-based practice only gestures toward empirical methods, and for good reasons. Many professional and occupational fields are not supported by a significant volume of high

quality large scale statistically significant studies that characterises medicine. That is not to imply that they are not accompanied by research discourses; business, law, accounting and library and information science all have rich academic research traditions that have contributed much to our understanding of these fields and to professional practice. But the research literature of these disciplines is often of a different kind and scale to that which informs evidence based medicine, rooted in social science and professional practice. In information science for example the clearest example of a large scale foundational study is probably Cleverdon's *Cranfield Experiments* of the 1960s (Cleverdon, 1967), which influenced information retrieval design for the next four decades, and out of which emerged key information retrieval concepts such as *recall* and *precision* that continue to resonate. Relatively few studies since, as a proportion of the published literature, have been able to rival this scale and significance. Therefore methodologies like systematic reviews have not had a very obvious role in the development of the field or in professional practice.

As a consequence the application of evidence-based approaches to professional and occupational practice tends towards more flexibility about what constitutes good reasons than in medical, technical or scientific contexts. Writing about evidence-based management for example, Barends et al emphasise a pragmatic focus on the best-available evidence which includes scientific and academic research but in the absence of available studies may also include evidence of a weaker form. They also emphasise the importance of bringing professional expertise and experience to the evaluation of evidence used in decision making, and critical thinking to evaluate the nature of the evidence on which a decision is based. This emphasises of course the extent to which evidence based practice moves away from a evaluative toolkit to emphasise individual critical and professional skills, and a reliance on softer evidence than the empirical scientific studies imagines by proponents of evidence based practice, such as for example data generated through work processes or through experience.

In library and information management, Evidence Based Practice has influenced the profession, although has not had the degree of influence that it has had in some other fields. Eldridge (2006) defines Evidence-Base Librarianship as:

a process for integrating the best available scientifically-generated evidence into making important decisions. EBL seeks to combine the use of the best available research evidence with a pragmatic perspective developed from working experiences in librarianship. EBL actively supports increasing the proportion of more rigorous applied research studies so the results can be available for making informed decisions (Eldridge, 2006).

This again seeks a balance between rigorous research and professional experience and expertise that mitigates for the relative paucity of research data. It is worth emphasising that this is both a sensible and necessary approach to adapting the fundamental principles of evidence based practice to the contingencies of real-world professional discourses. And of course decisions that are based on strong justifications will always be preferable to decisions based on best professional guesses, even if sometimes that is all we have to work with. Nevertheless the application of evidence-based approaches to occupational and professional practices also requires the use of evaluation and judgement. In that subjective professional judgement the ideal of objectivity tarnishes.

The value of evidence based practice in library and information management is therefore not really as a set of evaluative principles and processes that guide our professional roles, but as an assertion about the value of a robust and well-informed approach to the work we do. It is in recognising that while expertise and experience has an important role to play they are not necessarily enough by themselves. It is also an attitude towards the work that we are doing that makes a difference. While the evidential basis of the decision that we make is important, just as important is our ability to reflect on and learn

from our mistakes, and to bring that reflection to bear on subsequent judgements. Zuckerberg's motto of "move fast and break things" (cite) may be naïve in its own way, but also highlights how in fast moving commercial contexts the ability to adapt to changing context and to reflect on our professional practice is often more important than the ability to get things right first time every time. While it is important that the decisions we make are rationally founded and not simply a reflection of ingrained habits, opinions, or beliefs, it is important also that we work effectively to resolve problems, address demands, and develop solutions in time sensitive contexts where and approximate response today is sometimes more critical than an exact response tomorrow. Effective professional practice is a balance between the immediate and the ideal, a balance that adapts to context and need.

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Business Information Review aims to contribute to the evidence base for professional practice in the business information and knowledge management sector, but does not adhere to rigorously scientific principles. We aim to publish not only relevant research and professional papers, but also the research and professional papers needed now rather than tomorrow. March's edition of Business Information Review reflects this balance between currency and relevance that drives our editorial philosophy and that aims to support reflective practice, with a particular focus on data in the workplace.

Our first research paper is entitled *Analyzing the interaction of the challenges of Big Data usage in a Cloud Computing environment*. The paper aims to identify and prioritize the challenges of big data in the cloud computing environment, it argues that "Cloud computing plays a key role for Big Data; not only because it provides infrastructure and tools, but also because it is a business model that Big Data analytics can follow." Our second paper also looks at the role of data in the workplace. Entitled *Dangerous data: analytics and information behaviour in the commercial world*, it explores the ways in which more data can sometime lead to worse outcomes.

Our third research article explores the application of netography to understanding online communities. Netography is a methodical tool originating in ethnography and anthropology that seeks to map out the experiences and practices of online communities. The paper, entitled, *Netography and instagram community: An empirical study*, explores the uses of netography, and the analytical tools available to develop similar approaches. Our final paper for March 2023 is an opinion article, *Time for strategic knowledge management* that explores an inter-knowledge approach to achieving growth.

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