Abstract

Introduction

Within the health sciences, the twin methods of systematic reviews and meta-analyses have helped to spearhead the evidence-based medicine (EBM) movement. Within this paradigm, the process of reviewing literature is formalised in a number of ways. Firstly, through how the question is defined; secondly, through the definition of search terms; thirdly, through the process through and criteria by which papers are reviewed; fourthly, through the analysis and more importantly synthesis of the results.

Within the first stage of this process, the definition of the question, something like the PICOS (Population, Intervention, Comparator, Outcome and Study Design) format is used to define, structure and refine the question. For example, the question “Do statins work?” becomes refined into a question such as “compared with placebo or usual care [C], what is the effect of prescribing statins [I] on rates of either all-cause mortality, or fatal or non-fatal cardiovascular disease (CSV) events [O] in patients with a past history of CVD [P]?” (Taylor et al., 2013).

In this paper, we argue that when conducting a literature review in the social sciences, or indeed for many tasks within the health sciences, it is important to understand the trade-offs involved in adopting the systematic review paradigm, and to think carefully about whether a literature review which follows this paradigm is likely to be appropriate. We argue that there are broadly two different aims in reviewing literature, and that each of these aims should be guided by a different paradigm.

We begin with two assertions: firstly, that the aim of any review is to become more informed about something; and secondly, that a literature review should be considered more efficient if it provides more information per unit of time invested. From this it follows that the efficiency of the review process depends fundamentally on kind of information being sought; it also depends more subtly on the people doing the reviewing. We argue two things: firstly, that conducting a literature review is, like many things, an example of investing one thing, time, in order to get something else, information. Secondly, that there are at least two qualitatively different kinds of information: information-as-confirmation/disconfirmation; and information-as-surprise. We argue that the systematic review framework seeks information-as-confirmation/disconfirmation, but that many literature reviews in the social sciences seek to achieve information-as-surprise. We discuss some of the differences between these forms of information below, and propose and describe an approach to literature review which we think is well suited to information-as-surprise.

The two forms of information fit within the broader framework of abductive reasoning suggested by the logician and pragmatist philosopher Charles Sanders Peirce, and can perhaps be seen as providing a corollary to Bayesian theory. Within both approaches a distinction is made between observation and belief. Within the Bayesian framework the world is a stream of empirical evidence (observation), and the belief an individual holds in a particular hypothesis changes in response to this stream of evidence, such that a belief that is consistent with the stream of evidence increases, and a belief inconsistent with the evidence decreases.

What is often missing within the highly formalised and algebraic discussions of Bayesian theory is how the choice set of beliefs is formed. Our central contention in this paper is that when a researcher’s choice set has been expanded, i.e. the number of possible beliefs being considered when attempting to make sense of evidence, then they have become more informed. This is an example of information-as-surprise. We suggest that a primary benefit of many literature reviews should be to surprise.

If we see information as surprise then there are some important implications. Firstly, we cannot be surprised as strongly by the same thing twice. The first time we observe something that based on our beliefs seems highly implausible, we are very surprised. The second time, we are somewhat less surprised, as our beliefs have changed in response to the prior evidence. The third time, we are less surprised still. However, we still remain surprised if the choice set of possible beliefs simply does not include something that helps to explain or predict what we have observed. By helping us to include a new element in the choice set, a new framework to consider, a literature review can help us to be better prepared to understand social phenomena.

Methods

Results

Discussion