

Chapter LIV

Critical Systematic Review

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ABSTRACT

This chapter discusses the process of systematic review and the critique of the design of such processes and their research questions and contexts, whether in the natural or social science arenas. This work is part of an on-going research program to develop a process of critical systematic review applicable for addressing issues arising in complex systems, such as those found in health and health-related disciplines. The methodology proposed in this chapter for critical systematic review extends the remit of systematic review, moving beyond extensive literature searching, the application of predetermined inclusion and exclusion criteria to the retrieved literature, quality assessment, evaluation, synthesis, and review of the data, to a process that is self- and process-critical and reflective, and iterative in that critique.

INTRODUCTION

In our zeal to apply methodologies and models, whether in the field of healthcare research or other field of endeavor, failures are sometimes overlooked, or actively avoided. It may be quite some time before the success of a methodology or model undergoes critique, or before it is noticed that the process fails to be successfully applied. Applying rigorous scientific methods including statistical analyses is the usual yardstick for measuring success or failure of the research process. However, the application of deductive scientific process in social systems, where many healthcare

interventions are evaluated, and specifically in problem solving methodologies, is less feasible in that social systems do not stand still, cannot be held stable for the length of experimentation, and any received results are difficult to generalize to even quite similar problem situations.

To address these drawbacks in the investigation of such systems, one means of introducing rigor in the research process and its methodologies and models is to incorporate a process of critical review and critique. This chapter is based on the proposal that critique and self-reflection is necessary in any discipline, and for any evolving model or theory, and it is developed from previous work on the in

the review of management systems and decision making processes (Wilby, 1996a,b,c; 1997; 2005; 2007). These areas of research offer the especially appropriate systemic principles and concepts of feedback and the iterative processes involved in methodological and process evaluation and model development.

SYSTEMATIC REVIEW

Systematic reviews are a recent development in the field of medical research, employing a more rigorous, and usually quantitative, approach to the meta-analysis of primary data. This process of review is now found in many areas of social sciences research including education, psychology, criminology, and sociology. A systematic review addresses the need for additional rigorous investigation where a collection of primary data and studies may offer different conclusions from the same type of intervention, thereby causing uncertainty in decision-making and possible allegations of biased analysis, interpretation and reporting of results.

In Figure 1, it can be seen that the processes of literature review and meta-analysis are an integral part of a systematic review. However these research activities can stand alone or be integral to many other forms of research practices. In a systematic review they are components of the

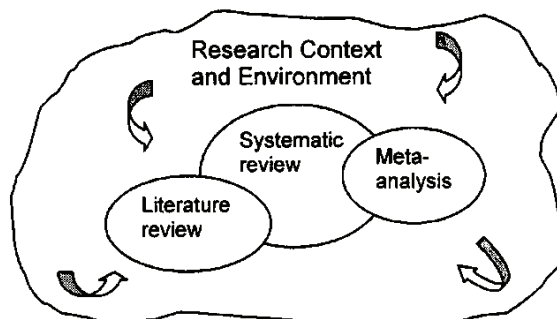
process, along with the other stages of a systematic review described in the next section. Therefore in Figure 1, they are shown as components of the systematic review process, while acknowledging that each of those components could stand alone in other research practice.

Systematic reviews identify, appraise and synthesize research evidence from individual studies and are therefore valuable sources of information. Systematic reviews differ from other types of review in that they follow a strict protocol to ensure that as much of the relevant research base as possible has been considered and that the original studies have been appraised and synthesized in a valid way. These methods minimize the risk of bias and are transparent, thus enabling replication. (Centre for Reviews and Dissemination, 2005)

According to Mulrow (1995) systematic reviews are beneficial for the following reasons:

- Large quantities of information can be reduced to manageable size for decision-making.
- The information generated can help to define further research questions.
- The process of review is efficient and can reduce the need for large new primary studies.
- Reviews can offer a greater generalisability with the increase in data received from many rather than one similar study.
- Reviews can address the consistency of relationships among studies with the same intervention.
- Reviews can highlight inconsistencies in the data and between studies for further discussion.
- Reviews offer a larger sample size and therefore additional sample power.
- Following from an increase in sample size, the review can offer greater precision in estimates of effect.

Figure 1. The systematic review process



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