

Research Article

Debating systematic literature reviews (SLR) and their ramifications for IS: A rejoinder to Mike Chiasson, Briony Oates, Ulrike Schultze, and Richard Watson

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Abstract

Systematic Literature Reviews (SLRs) are making their inroads into the IS discipline. By responding to the commentaries this rejoinder contributes to a debate about potential merits, limitations and wider ramifications of SLR for the IS discipline. More specifically we engage with the questions: What is an SLR and can it be conducted partially? How can literature reviews and SLR be improved? What is the view of 'evidence' in SLRs and the evidence-based practice movement and what are potential implications for 'research informing IS practice'? How can the efficiency and effectiveness of literature reviews be improved? Overall we argue for a practice of critique that scrutinizes methodologies such as SLR in the light of values and ends we seek to achieve in the IS discipline.

Keywords: Literature Review; Systematic Literature Review; Literature Searchers; Evidence-Based Practice; critique; Information Systems

Introduction

We would like to express our gratitude to the Editors-in-Chief Leslie Willcocks and Chris Sauer for opening JIT pages to the debate initiated by our article "On being 'systematic' in literature reviews in IS". We are also grateful to four distinguished respondents Mike Chiasson, Briony Oates, Ulrike Schultze, and Richard Watson for engaging in a discourse on systematic literature review (SLR) and literature reviews more generally, a discourse our article hoped to engender. After reading their insightful commentaries we are encouraged to push the debate further and continue moving it from a level of claims and counter claims about the technical merits (or lack of them) of SLR and other methods to a discursive level (to use Habermasian distinction) to examine the implied values and aims, as eloquently argued by Mike Chiasson. The debate at the discursive level is important and timely, as it opens the space for revealing and reflecting upon often hidden assumptions and ideology behind SLR and its practices and also for critically assessing them in the light of values and ends of literature reviews in the IS community. We reiterate here Chiasson's warning that the "wholesale importation of SLR or any methodology and theory, in the absence of discussion about the ends of IS

research free of methodology and theory, [can be seen] as a colonization of the disciplinary lifeworld".

In this rejoinder we build on the broad agreement among all involved that literature reviews are highly important for the IS discipline and that we need to engage in continuing reflection on and improvement of our literature review methods and practices. The commentaries by Chiasson, Oates and Watson show an agreement that SLR is a distinct, highly specific approach to literature review that does not and cannot meet the requirements of a general approach to literature review. Furthermore, we appreciate that our argument that SLR's a priori claims to quality cannot be justified, and that SLRs cannot be considered superior to traditional narrative literature review approaches and methods, is well understood and shared.

We believe that the IS discipline has much to gain by nurturing the genre of literature reviews and that it will be beneficial to the discipline if more literature reviews are published in our outlets as Watson also argued. However, we call attention to Chiasson's point that we should be wary of attempts to use "methodological check lists restricting the ability of the authors to pursue alternative means and ends". The variety of literature review approaches that

are currently used in IS¹ should be increased rather than restricted (Paré et al., 2015). We actually see SLR as a potentially useful literature review method provided its specific nature, limitations and purpose are clearly understood, the conditions for their application are fulfilled, and any claims to quality are justified – as is our obligation when applying any other method.

In the rest of the rejoinder, we will first address a key comprehension issue: What SLR is (and is not) and whether we (in IS) can/should ignore what it means in medicine, health care, education and social sciences and assign it a different meaning. Following that, we revisit the idea of being ‘systematic’ in literature reviews more generally. We then look at the role of SLR to support evidence-based practice and reflect on a call to follow other disciplines and promote evidence-based practice in IS. Finally, we reflect on the concepts of effectiveness and efficiency of literature reviews. We conclude by arguing for a practice of critique that scrutinizes methodologies in the light of values and ends we seek to achieve in the IS discipline..

What SLR is (and is not)

We fully agree with Schultze that it is unfortunate that the adjective ‘systematic’ is usurped by SLR – allowing SLR authors to imply that other literature reviews are not ‘systematic’. The very notion of SLR as we discussed it in our original debate is, according to Schultze, problematic. She argues, “the distinction between systematic and traditional reviews is a false”. Instead, she proposes, we should consider a continuum of literature review practices from ‘Systematic Literature Review’ to ‘Interpretive Literature Review’. The problem here is the understanding of what SLR means. As Oates explains:

“Part of the problem is the constituents of the phrase, ‘systematic literature review’ - they are all commonly-used words but when combined together, for researchers in other disciplines, they mean something quite specific. So far there have not been many SLRs in IS so there is still time to ensure our use of the term is consistent with its use in other disciplines.”

Whether we like it or not, systematic literature review or SLR has become a powerful actor who, to use ANT language, mobilized innumerable researchers, journals, practitioners, institutions, libraries, universities, hospitals, technologies, funds and other actors in building and strengthening its standing and extending its dominance. Suffice to mention Cochrane Collaboration and Campbell Collaboration and a few university websites as an illustration (see Table 1). Therefore it is not likely that SLR can be reinvented in IS. After nearly 25 years of SLR history and with millions of results from Google search, Schultze’s proposal for re-inventing SLR faces serious obstacles.

Although we appreciate the motivation behind Schultze’s proposal to interpret SLR as part of the continuum – so that a literature review can be conducted to a degree as SLR or somewhere between SLR and an interpre-

tive literature review – we have to say that this actually is not possible. The reason is that one cannot conduct SLR to a degree, just as one cannot be partially dead. Having been established as a powerful and widely recognized approach to literature review, associated with a distinct methodological package, the concept of SLR cannot be ignored nor can it be easily reconceptualised.

However, there is a lot we can and should do about SLR’s uncritical and unreflective adoption in IS and other social sciences (and learn from critics in the healthcare and other fields). Or, more generally, there is even more we can and should do about advancing literature review approaches and methods, their aims and practices, as suggested by all commentators. We see this JIT debate as a modest, but important and timely contributor to these objectives.

Improving SRLs

We welcome recent attempts to address the limitations of SLR as indicated by Oates. First, we agree that changing the prescribed protocol of SLR to become open to emerging understanding of the investigators, enabling them to further specify search terms is an improvement. Second, we also welcome Oates’ suggestion that SLRs should go beyond database searches and include any relevant resource such as serendipitously identified, unpublished and grey literature (similar to Campbell Collaboration guidelines), which would of course make SLRs non-replicable.

And third, Oates argues that the SLR’s bias towards quantitative and positivist research has recently been addressed by proposals to include qualitative research (Oates et al., 2012). We welcome this and methodological developments such as ‘Meta-Narrative Reviews’ (Wong et al., 2013) seeking to enable better inclusion of qualitative research into literature reviews. These proposals hold a promise that SLRs’ bias towards positivist quantitative research could be at least partially addressed. The question, however, arises in regards to incommensurability among SLR assumptions and those underpinning interpretivist and other non-positivist research. Reminding the reader of the assumptions behind the SLR approach that we discussed in our debate paper, we draw attention to SLR’s aim to identify, extract and summarise evidence as value-free ‘facts’, which is in line with realist ontology of positivism and its representational view of science and research outcomes. As SLR approach posits that the evidence from research sources is extracted but not subjected to interpretation, SLRs claim objectivity, non-bias, and replicability. However, it remains unclear how SLRs are going to ‘extract evidence’ from interpretivist research studies. How could research outcomes derived from interpretive understanding of phenomena in a context be translated into ‘evidence’? How would different theoretical interpretations of a phenomenon be understood as ‘evidence’? Or how could any outcomes from interpretive (and other non-positivist) research be converted into ‘evidence’ without reviewer’s interpretive understanding? These questions pose significant challenges to SLR authors aiming to address SLR’s bias

towards positivist research and broaden their coverage to include non-positivist literature.

Table 1 Examples of recommendations for systematic literature reviews on university websites

University of Strathclyde, Humanities and social science materials

Systematic reviews help us to use primary research to find out what we know and what we do not know about any given topic. This can help inform what we might want to know from further research and how we might undertake this research.” Of particular importance is ‘systematic research synthesis’ that “involves a transformation of the data from the primary studies, and a ‘synthesis’ of the research findings in order to answer the review question, which often involves appraisal of the individual research studies.

Source: <http://www.strath.ac.uk/aer/materials/8systematicreview/unit1/sysreview/>

NUI Galway

In contrast to the traditional or narrative literature review, systematic literature reviews use a more rigorous and well-defined approach to reviewing the literature in a specific subject area. Most research starts with a literature review of some sort. However, unless a literature review is thorough and fair, it is of little scientific value. This is the main rationale for undertaking systematic reviews. A literature review earns the adjective “systematic” if it is based on a clearly formulated question, identifies relevant studies, appraises their quality and summarizes the evidence by use of explicit methodology. A systematic review is a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest. Individual studies contributing to a systematic review are called primary studies; a systematic review is a form of secondary study.

Source:

<http://www.library.nuigalway.ie/media/jameshardimanlibrary/content/documents/support/Guidance%20on%20planning%20a%20systematic%20review.pdf>

Griffith University, School of Environment

The systematic quantitative literature review is a smart and effective method for undertaking literature reviews particularly for research students and others new to a discipline.

Reliable, quantifiable and reproducible

It bridges the gap between traditional narrative review methods and meta-analysis. Narrative methods that are commonly used in many research theses, rely on the expertise and experience of the author, making them challenging for novices. In contrast, the method we use and recommend involves systematically searching the literature using online database and other sources to find all relevant papers that fit specific criteria (systematically identifying the literature), entering information about each study into a personal database, then compiling tables that summarise the current status of the literature (quantifying the literature). The results are reliable, quantifiable and reproducible.

Source: <http://www.griffith.edu.au/environment-planning-architecture/griffith-school-environment/research/systematic-quantitative-literature-review>

How can literature reviews be more systematic?

Despite the implausibility of the ‘SLR-interpretive literature review’ continuum envisaged by Schultze we see some merits in her proposal. We agree that narrative literature reviews could and should emphasize their systematic nature and clearly demonstrate in what ways both the process and its outcome are systematic (Hart, 1989; Webster and Watson, 2002). We recognize the need to advance not only a systematic way of searching the literature, but also improving systematic reading and investigation of identified sources, engagement with findings and classification of knowledge claims and contributions, using for instance thematic analysis (Bandara et al., 2011); grounded theory (Wolfswinkel et al., 2013); or a hermeneutic framework (Boell and Cecez-Kecmanovic, 2014). Furthermore, the development of an argument regarding the assessment of a body of knowledge relevant for an observed phenomenon has to be clearly systematic and logically derived from the analysis and classification of findings. A systematic ap-

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proach to literature reviews is not something that can be regulated by a set of rules or a protocol; like criticality, originality and inventiveness, it is an emergent complex achievement.

SLR and Evidence-Based Practice

Another critical issue in understanding the concept of SLR is its relation to the evidence-based practice (EBP) movement that we only briefly explained in our original debate and which Oates discussed more extensively in her commentary. We agree with Oates that SLRs were initially proposed and also practiced in medicine, nursing, education, and software engineering as a tool for EBP. In Oates’ words “the SLR conclusions are intended primarily for practitioners and other stakeholders, not fellow researchers, and these conclusions assess the current evidence for the efficacy of possible actions, not the need for more research” (emphasis in the original).

SLRs are, however, applied not only to inform practitioners and decision-makers, but also increasingly used for

research purposes, to assess existing knowledge and to propose and justify new research (Kitchenham et al., 2010, Page, 2008). Hemingway (2015) for instance argues that SLRs are needed to inform research and future research agendas and are requested by research funding agencies and for postgraduate theses. In software engineering, Kitchenham et al. (2010) reported that SLRs – considered a ‘software engineering research methodology’ – are more often aimed at researchers than practitioners. Some universities recommend SLR to their research students and staff, often as a superior approach to literature review (see for instance quotes from NUI Galway, Griffith University and Strathclyde University websites in Table 1). SLRs published in IS that we found and reported in our original debate article are primarily intended for a research audience. It is precisely the increasing adoption and tacit approval of SLRs as a general literature review approach in IS research publications that motivated us to instigate a debate about the adoption and use of SLR in IS.

Oates’ reminder of the primary purpose for SLRs and their relation to EBP deserves an additional comment. Referring to the achievements of evidence-based medicine and healthcare, Oates joins others (Atkins and Louw, 2000) in arguing for faster adoption of EBP and ‘evidence networks’ in the IS industry “to increase potential impact and usefulness of IS research, via SLRs that can inform the decision-making of IS practitioners and also support evidence-based practice”. While it is beyond the initial aim of our debate paper we feel obligated to briefly reflect on this call for adoption of EBP in IS.

EBP is a world-wide movement that is proliferating from medicine and healthcare to other fields, including recently into IS (Edwards et al., 2014). Before we embark on the EBP bandwagon and take a particular path of ‘research informing practice’ advocated by SLR and EBP, we should take a reflective stance and also engage with critical assessments of the achievements and implications of EBP from the disciplines at the forefront of EBP.

Central to evidence-based medicine and SLR is a particular view of evidence as collection of neutral and objective scientific facts. As Murray et al. (2007) tell us:

“They are facts, we are told: they tirelessly speak for themselves! So, on the surface, EBM [Evidence-based medicine] advocates and acolytes will argue that there is an ‘ethics of evidence’, where evidence is no more than a descriptive term. But beneath the surface, evidence is also a normative term for EBM, a term that embodies not just what is supposedly objectively ‘true’ but also what is ‘good’ and demands our dutiful obedience” (p. 516).

The hidden politics of ‘evidence’ in SLR and ‘evidence-based medicine’ implies an ideology of normalized judgement and practice (evidence is not only ‘true’ but also ‘good’ and thus demands obedience). As Goldenberg (2006) warns “[t]he appeal to the authority of evidence that characterises evidence-based practices does not increase objectivity but rather obscures the subjective elements that inescapably enter all forms of human inquiry” (cited in Preprint of: Boell, Sebastian K; & Cecez-Kecmanovic, Dubravka (2015) Debating systematic literature reviews (SLR) and their ramifications for IS: a rejoinder to Mike Chiasson, Briony Oates, Ulrike Schultze, and Richard Watson. 30(2), 188-193 The definitive publisher-authenticated version is available at: <http://dx.doi.org/10.1057/jit.2015.15>

Murray et al., 2007, p. 514). By promoting a context-free and disembodied notion of knowledge that is unreflectively imposed as ‘best practice’, SLRs and EBP ideology undermine the tacit and embodied knowledge of practitioners.

While portrayed as neutral and objective ways of summarizing extant knowledge and informing practice, EBP and SLR are critiqued for covertly imposing a particular regime of truth and a dominant discourse that silence other perspectives and views (Holmes et al. 2008; Morrell, 2008). This is, for instance, substantiated in the field of nursing where evidence based nursing produces and sustains a particular view of ‘good nursing’ that “oversimplifies the complexities of clinical nursing care” and “is in fact compromising the development of nursing knowledge” (Holmes et al., 2006:111; Holmes et al., 2008).

Closer to home, evidence-based management is becoming increasingly influential with authors arguing that stocks of codified and systematically collected knowledge are key to informing practice (Morrell, 2008). Similar to healthcare, the critique points to overlooking ‘situated judgment’ and ‘concerns with ethics’ that are central to management but not amenable to codification (Morrell, 2008).

We, therefore, suggest that before evidence-based practice is promoted in IS, researchers and practitioners need to engage in a broader debate on how research can inform practice and what would be the aims. In particular we have to keep in mind that there is no neutral and value-free evidence and in order to meaningfully inform practice and policy any evidence needs to be interpreted and made sense of by relevant stakeholders within a particular context. This requires an understanding of evidence in a much wider sense than commonly perceived by SLR, as evidence is based on certain assumptions about what is considered as valid, important and ethical within a particular social setting. Actors will differ in their underlying assumptions and therefore in what they consider to be ‘evidence’ for them (Greenhalgh and Russell, 2005; Mahone, 1989). This underlines the fact that argument development is central when engaging with earlier research in order to understand and contrast different points of view and their underlying assumptions. There is no such thing as value free evidence that ‘speaks for itself’.

The efficiency and effectiveness of literature reviews and literature searches

Watson rightly pointed out the importance of efficiency and effectiveness when conducting literature reviews. We agree with him that SLR are “on the efficiency side of the ledger” and that it is important to consider how the efficiency of conducting literature reviews in IS can be improved.

As Watson indicated, to be effective, literature reviews need to engage in a synthesis of the literature that reveals both breadth and depth of relevant knowledge and assesses critical contributions and weaknesses. Instead of merely summarizing findings from published works, this requires analysing how different topics are addressed by earlier re-

search across a body of literature. In our debate we focus on effectiveness as we believe that if literature reviews do not meet the goal of 'synthesis', it will not matter how efficient the technique is that is used for preparing them.

Regarding the efficiency of SLRs we like to look more closely at the literature identification process as it is commonly advocated in SLRs. SLRs in particular emphasize the importance of repeatable database searches. Of course we agree with Oates that literature searches are not a key distinguishing element of SLR. However, as we demonstrated in our debate, SLRs are often understood as tied to the reporting of repeatable database searches. Here SLRs commonly employ search strategies aiming at high recall at the expense of precision. That is, literature searches used by SLRs commonly lead to huge results sets, requiring the assessment of thousands of results in order to identify a few relevant articles among them. Authors of SLRs report that they spend dozens of hours on this, while not reading any paper beyond its title or abstract. From this it becomes evident that SLR cannot even be regarded as efficient in identifying relevant literature.

It is surprising that SLRs are not taking advantage of techniques such as successive fractions, building blocks or citation pearl grow (discussed in detail in appendix A by Boell and Cecez-Kecmanovic, 2014) for making the searching and identification of literature more efficient. This is probably because these techniques encourage the researcher to engage interactively with the literature during the search process, which is not allowed by the 'rigorous' and repeatable search procedure prescribed by SLR. However, if we aim to increase the efficiency of literature reviews (and as part of it the literature identification process), not adopting the broad range of productive search strategies is hindering our objective.

Improving the efficiency of conducting literature reviews

Regarding Watson's suggestions on how to improve the efficiency of the process of conducting literature reviews, we would like to add two aspects. Both aspects could be implemented through the AIS eLibrary and could help make the literature identification process more efficient, thus also potentially improving effectiveness.

Firstly, indexing and abstracting (I&A) services are important for the identification of relevant earlier research and in other fields influential repositories exist that seek to cover most of the field's relevant literature. For instance, PsychInfo is most likely the starting point for anybody conducting a literature review in Psychology. However, there is currently no dedicated I&A pooling all major journals, conferences and book series that are of interest to IS into a single searchable source. Instead, researchers often have to rely on large, interdisciplinary databases that, due to the breath of their coverage, are bound to lead to low precision searches as they also index thousands of journals besides IS. The AIS eLibrary comes to mind as a resource that should be further developed to fill this gap. In particular

two things are required: On the one hand, AIS eLibrary needs to extend its coverage to include all major literature resources relevant to IS and index them in a timely manner. On the other hand, the AIS eLibrary is currently limited in its search capabilities and will need to be improved in order to allow users the application of powerful search and browsing strategies such as successive fractions, building blocks or citation pearl grow. Possibly selling subscription to the AIS eLibrary for libraries and institutions may help in financing an extension of its coverage, indexing and search capabilities.

The second aspect is related to Watson's suggestion to make use of technological advancements for improving the identification of relevant literature, for instance, by marking a section in a paper as containing a definition of a concept. Instead of using a mark-up language in journals asking authors, reviewers and editors to take on additional responsibilities, we envisage that a crowding approach may help in making Watson's ideas also applicable to already published work and to concepts that may only emerge as relevant in the future. This may be achieved by introducing a shareable 'meta' layer on IS papers through the AIS eLibrary. For instance, the AIS library could enable tagging of papers and sections within papers by readers to indicate concepts, definitions, items, etc. Looking through and creating such tags may even become part of research student training in IS.

Concluding remarks – continuing the practice of critique

SLRs are setting foot into IS research as we speak (debate). SLRs are increasingly appearing in major IS conferences and more recently in IS journals. In these publications, SLR is used as a general literature review approach and standardized method, deemed scientific, rigorous, unbiased and transparent, and thus superior to traditional narrative literature review methods. We initiated this debate with the aim of drawing the attention of the IS community to SLR and the ways it is being imported into IS unreflectively, with tacit acceptance of its assumptions, aims and ideology without a single critical voice or questioning of its implications. This debate shows the necessity of reflecting on and putting to scrutiny methodological importations into IS research, such as SLR, and in particular the importance of preventing the means (methods and techniques) to undermine the end, as clearly articulated by Chiasson.

We therefore call for a broader discussion on literature review values and aims and the ways to achieve them. To what extent do we share and aspire to achieve the aims discussed in the literature on literature reviews, such as to provide a critical assessment and an original perspective on existing knowledge related to a particular phenomenon, to be critical not only in assessing the knowledge claims but also their onto-epistemological assumptions, to be insightful and inspire new thinking about a phenomenon? What methods and techniques can assist us in achieving these aims? How can we improve effectiveness and efficiency and ensure that the efficiency of means does not undermine

our ends? And finally how do we nurture and promote the genre of literature reviews in IS outlets without ‘methodological overdose’?

We hope such a debate will also further a practice of critique at the discursive level that questions often hidden assumptions and ideology behind new methodologies or theories and the ways they impact, contribute to or hinder the values and ends we strive to achieve in the IS discipline. Critical reflections on our research practices, methodologies and theories, we believe, are as important as our research outcomes. We emphasize that the practice of critique argued here does not mean rendering judgements, but instead implies mindful engagement with values, ends, ethical norms and moral concerns. Such a discourse, we hope, will inspire research that is “constitutive of difference, questioning the legitimation and repression of particular aspects of the world” (Fox, 2003, p. 81).

Note

1 While there is no a widely accepted classification of literature reviews, in their recent publication Paré et al. (2015) distinguished 7 types of reviews currently used in IS. Among those theoretical (37%) and narrative reviews (27%) are the most common types of review articles published in IS. Both of these as well as what the authors called ‘descriptive review’ (9%) and ‘critical review’ (5%) fall under what we named ‘traditional narrative literature reviews’, following other literature on literature reviews (e.g. Baumeister and Leary 1997).

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