



Navigation Research Landscapes: A Comprehensive Guide to Systematic and Rapid Review Methodologies

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ABSTRACT: Systematic reviews have become a cornerstone methodology for evidence-informed decision-making, offering rigorous and transparent techniques to synthesize primary research findings. This article provides a comprehensive overview of different types of systematic reviews, including traditional systematic literature reviews, systematic mapping studies, meta-analyses, qualitative systematic reviews, rapid reviews, scoping reviews, and integrative reviews. Each review type serves distinct purposes, ranging from in-depth analysis of focused questions to broad mapping of research landscapes and rapid synthesis under time constraints. While traditional SRs emphasize methodological rigor and comprehensive synthesis, alternative approaches such as rapid and scoping reviews address practical needs for timeliness and breadth, albeit with potential methodological trade-offs. Meta-analyses enhance quantitative aggregation of results, and qualitative reviews deepen understanding of complex phenomena. The article also discusses the challenges of inconsistent definitions and standards, especially regarding rapid reviews, and highlights the need for continued methodological development. Moreover, systematic reviews facilitate interdisciplinary integration and provide critical insights into research trends, gaps, and methodological quality. The discussion underscores the importance of transparent, replicable, and well-structured review processes to strengthen the reliability of synthesized evidence, ultimately advancing knowledge across scientific and applied fields.

KEYWORDS: Systematic Review, Rapid Review, Meta-Analysis, Scoping Review, Evidence Synthesis

I. INTRODUCTION

The systematic review is an important technology for the evidence-informed policy and practice movement, which aims to bring research closer to decision-making. This type of review uses rigorous and explicit methods to bring together the

results of primary research in order to provide reliable answers to particular questions. The picture that is presented aims to be distorted neither by biases in the review process nor by biases in the primary research which the review contains. Systematic review methods are well-developed for certain types of research, such as randomized controlled trials (RCTs). Methods for reviewing qualitative research in a systematic way are still emerging, and there is much ongoing development and debate (Thomas and Harden, 2008).

Three broad reasons can be put forward to undertake SRs in design research. First, SRs provide a structured method to help us answer important questions. The first and obvious benefit of SRs is in leveraging the strengths of the method to tackle important design research questions. For instance, there is often a lack of evidence that design methods improve design performance (Blessing and Chakrabarti, 2009).

SRs can help identify and synthesize case studies, summaries all the hypotheses explored and the conclusions reached, and identify blind spots in this exploration. Another example of area of interest is the prevalence and causality of specific problems encountered by designers. On these problems, providing an explicit method for reviews can only reinforce the strength of the findings. This is especially true for aggregative reviews that aim at identifying all evidence on a phenomenon and testing hypotheses (e.g. Does method X improve indicator Y in situation Z?), which differ from configurative reviews that aim at identifying emergent concepts and generating new theory (e.g. What meaning do designers attribute to X? or How do designers do Y?), and for which other methods than the traditional SR have been developed (Gough et al., 2012).

Second, SRs can help us better understand and monitor research practices in our community. By assessing the use of research methods on certain topics, and using explicit frameworks to assess the quality of included studies, SRs provide a way to monitor our research activity. When and how often



do design researchers use interviews, experiments, or simulation to tackle certain types of issues? How do they do it? SRs can provide important insights on the methodological quality of research, and can be used to monitor research trends (Kitchenham et al., 2009).

Third, SRs could help us bridge disciplinary boundaries and reach beyond our research community. Design as an empirical phenomenon is of interest to multiple research communities, who co-exist without always acknowledging each other (McMahon, 2012). As noted by Cash (2018), research on design has also recently been flourishing outside of the 'traditional' design societies and departments, with scholars in psychology, management and other disciplines exploring our research topics. A good SR would include the research products of all these disciplines, whereas traditional literature overviews could focus on certain 'islands' of research known to the authors (a phenomenon sometimes referred to as 'reviewer selection bias's). SRs can be an integrative device in this context.

II. Types of Systematic Literature Review

Traditional Systematic Literature Review

SLRs can provide authors with an overview of a research domain in a single paper. This method is considered to be a scientific and highly informative method for systematically collecting, reviewing, and synthesizing research findings on a particular topic to determine what is known –and what is not known—at domain. SLRs allow readers to glean a deep understanding of literature and also help them to identify research gaps in the area. In this way, an SLR may be viewed as a platform for knowledge advancement (Paul and Barari, 2022).

A traditional SLR is a “process for assembling, arranging, and assessing existing literature in a research domain” (Paul et al., 2021). In this process, assembling involves identification (i.e., defining the literature review domain, main question, and source type/quality) and acquisition (i.e., obtaining papers to be included). The scientific steps for an SLR include organization (i.e., specifying the codes and framework) and purification (i.e., specifying the inclusion and exclusion criteria). The final step is setting the future research agenda, based on a gap analysis (Littell et al., 2008).

Following this process helps researchers to meet two main goals: (1) providing a comprehensive picture of what is known in a research domain (i.e.,

defining its scope overview, identifying inconsistencies, and their probable explanation, and developing a framework to summarize previous research); and, (2) providing directions for future research based on what is not known in that research domain (Paul & Criado, 2020).

Traditional SLRs include: domain-based reviews; theory-based reviews, and method-based reviews. Domain-based reviews synthesize studies in the same research domain to extend the body of literature in this domain. Synthesizing diverse perspectives allows authors to describe state-of-the-art knowledge in the research domain and identify useful paths for research (Paul and Barari, 2022).

Systematic Mapping Study (SMS)

When the field of interest is broad and the objective is to have an overview of what is being developed in the research field, it is recommended to apply a particular type of systematic review named systematic mapping study. Systematic mapping studies follow a well-defined protocol as in any systematic review. The main differences between a traditional systematic review and a systematic mapping are their breadth and depth. While a systematic review deeply analyzes a low number of primary studies, in a systematic mapping a wider number of studies are analyzed, but less detailed. Thus, the search terms of a systematic mapping are broader and the results are usually presented through graphs. Systematic mapping studies can be used to get a mapping of the publications about some subject or field and identify areas that require the development of more primary studies and areas in which a narrower systematic literature review would be of great help to the research community (Sinoara et al, 2017).

Meta-Analysis

Meta-analysis is the review method that combines evidence of multiple primary studies by using statistical tools to enhance objectivity and validity of the findings. The design and hypotheses of the studies should be very similar, if not identical. In the meta-analysis approach, each study is synthesized, codified and input in quantitative database. Subsequently, the results are transformed into a common measure to calculate the general dimension of the effect or of the intervention considered (Whittemore and Knafl, 2005). A meta-analysis can tell us several things:

(1) The mean and variance of underlying population effects. For example, the effects in the population of doing CBT on anxious children compared to waiting-list controls. You can also



compute confidence intervals for the population effects.

(2) Variability in effects across studies. Meta-analysis can also be used to estimate the variability between effect sizes across studies (the homogeneity of effect sizes). Some meta-analysts report these statistics as a justification for assuming a particular model for their analysis or to see whether there is variability in effect sizes that moderator variables could explain. However, there is accumulating evidence that effect sizes should be heterogeneous across studies in the vast majority of cases, and significance tests of this variability have low power. Therefore, variability statistics should be reported, regardless of whether moderator variables have been measured, because they tell us something important about the distribution of effect sizes in the meta-analysis, but not as a justification for choosing a particular method.

(3) Moderator variables. If there is variability in effect sizes, and in most cases, there is, this variability can be explored in terms of moderator variables (Field and Gillet, 2010).

Qualitative Systematic Review (QSR)

Qualitative description (QD) is a label used in qualitative research for studies that are descriptive in nature. QD has been identified as important and appropriate for research questions focused on discovering the who, what, and where of events or experiences and on gaining insights from informants regarding a poorly understood phenomenon. Qualitative description is a suitable goal when a straight description of a phenomenon is desired or information is sought to develop and refine questionnaires or interventions (Kim et al, 2016).

Qualitative research has an especially valuable role to play in answering questions that are not easily addressed exclusively by experimental methods. There are indeed areas where qualitative research alone is sufficient, or the only possible or desirable means of approaching a research question. It has in recent years won a hard battle for acceptance and credibility in the medical research community (Jones 1995), and perhaps for the first time qualitative and quantitative research are beginning to enjoy the kind of close relationship that is most likely to be productive. However, qualitative and quantitative research are usually only brought into conjunction with each other in the context of single studies, either where a single study has used a multi-method design, where qualitative research is used to refine a research question before tackling it

quantitatively, or where qualitative research is needed to make sense of quantitative findings. The scope for use of qualitative evidence may be greater: full-scale exploitation of qualitative evidence will only occur when all available qualitative evidence from relevant studies is brought more directly into conjunction with the synthesis of other evidence in systematic reviews (Dixon-Woods DPhil et al, 2000).

Rapid Review

A formal definition for a rapid review does not exist. As such, we used the following working definition, 'a rapid review is a type of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a short period of time' (Tricco et al, 2015).

A rapid review (RR) was originally mentioned in the literature in 1997, when Best et al. described the rapid health technology assessment program in the south and west regions of England. Although they did not provide a definition of an RR, they described a service which produces reports within two person months. The key features of the service were to produce reports that were accurate, timely, and accessible to decision makers. More recently, the only consensus around an RR definition is that a formal definition does not exist. Several definitions have been used in publications about RR methods, RR programs, and RRs themselves. In 2016, Kelly et al. performed a modified Delphi consensus approach and came up with a set of statements defining the characteristics of an RR, but did not provide a formal definition or a systematic evaluation of existing definitions (Hamel et al, 2021).

Rapid reviews varied from three weeks to six months; various methods for speeding up the process were employed. Some limited searching by years, databases, language, and sources beyond electronic searches. Several employed one reviewer for title and abstract reviewing, full text review, methodological quality assessment, and/or data extraction phases. Within rapid review studies, accelerating the data extraction process may lead to missing some relevant information. Biases may be introduced due to shortened timeframes for literature searching, article retrieval, and appraisal (Gannan et al, 2010).

Some of the problems with lacking a common definition for RRs are that it makes it difficult:



(i) for researchers (e.g., building search strategies that accurately identify RR) and readers/users of results to identify RRs correctly. This is important as the line may be blurred (both in the conduct and the resulting conclusions) between systematic reviews (SRs) that do not meet a high-quality methodological conduct (e.g., low or critical risk using AMSTAR 2) and RRs that use transparent, measured abbreviated methods;

(ii) to create and set methodological standards and apply consistent constructs (e.g., Preferred Items in Systematic Reviews and Meta-Analysis [PRISMA] for RRs, AMSTAR for RRs); and

(iii) as it results in a heterogeneous set of products under the same name or conversely a homogeneous set of products under different names. The term 'rapid' points toward the speed at which the review is performed and not the abbreviation or omission of steps taken to conduct the review. For this reason, researchers have suggested other terms be used, for example, restricted reviews. To date, 'rapid review' is the term that has been colloquially adopted by the research community and endorsed by various organizations, including Cochrane and the WHO. However, other organizations have chosen other terms, such as rapid evidence assessment by the UK government (Hamel et al, 2021).

Scoping Review

Researchers may conduct scoping reviews instead of systematic reviews where the purpose of the review is to identify knowledge gaps, scope a body of literature, clarify concepts or to investigate research conduct. While useful in their own right, scoping reviews may also be helpful precursors to systematic reviews and can be used to confirm the relevance of inclusion criteria and potential questions. Scoping reviews are a useful tool in the ever-increasing arsenal of evidence synthesis approaches. Although conducted for different purposes compared to systematic reviews, scoping reviews still require rigorous and transparent methods in their conduct to ensure that the results are trustworthy (Munn et al., 2018).

Scoping reviews share a number of the same processes as systematic reviews as they both use rigorous and transparent methods to comprehensively identify and analyze all the relevant literature pertaining to a research question (DiCenso et al., 2010). The key differences between the two review methods can be attributed to their differing purposes and aims. First, the purpose of a scoping review is to map the body of literature on a

topic area (Arksey and O'Malley, 2005), whereas the purpose of a systematic review is to sum up the best available research on a specific question. Subsequently, a scoping review seeks to present an overview of a potentially large and diverse body of literature pertaining to a broad topic, whereas a systematic review attempts to collate empirical evidence from a relatively smaller number of studies pertaining to a focused research question (Higgins and Green, 2011).

Second, scoping reviews generally include a greater range of study designs and methodologies than systematic reviews addressing the effectiveness of interventions, which often focus on randomized controlled trials. Third, scoping reviews aim to provide a descriptive overview of the reviewed material without critically appraising individual studies or synthesizing evidence from different studies (Brien et al., 2010). In contrast, systematic reviews aim to provide a synthesis of evidence from studies assessed for risk of bias (Higgins and Green, 2011).

Integrative Review

integrative review is the most comprehensive methodological approach of reviews, and it allows including experimental and non-experimental studies to fully understand the phenomenon analyzed. It also combines data from theoretical and empirical literature, and has a wide range of purposes, such as definition of concepts, review of theories and evidence, and analysis of methodological problems of a particular topic (Whittemore and Knafl, 2005).

Ten integrative reviews fulfilled the inclusion criteria. Findings from the studies were extracted and critically examined according to the five methodological stages. The reviews assessed followed the guidelines of the stated methodology approach to different extents. The stages of literature search, data evaluation and data analysis were fairly poorly formulated and only partially implemented in the studies included in the sample. The other two stages, problem identification and presentation, followed those described in the methodological approach quite well (Hopia et al., 2016).

integrative literature reviews are among the most useful vehicles for advancing knowledge and furthering research in a topic domain. Integrative literature reviews are strongly anchored in a representative description of a field, but add new insights via a critical analysis and synthesis of the field's literature. Based on this definition, we explicate the ways that scholars can (1) define the



‘space’ for an integrative review (i.e., how they can justify and bound an integrative review), and (2) synthesize insights gained from the review to develop a new perspective or point of view on the literature (Elsbach and Knippenberg, 202).

III. Conclusion

Systematic reviews and their various forms, including systematic mapping studies, meta-analyses, rapid reviews, scoping reviews, and integrative reviews, represent critical methodologies for synthesizing knowledge in research. Each method offers distinct strengths and serves different purposes depending on the scope, depth, and goals of the inquiry.

Traditional systematic reviews provide rigorous and comprehensive syntheses aimed at answering focused research questions, whereas systematic mapping studies offer broader overviews of research landscapes. Meta-analyses add quantitative rigor by statistically combining results, while qualitative systematic reviews enrich understanding through descriptive and interpretive insights.

Rapid reviews and scoping reviews, emerging as flexible and timely alternatives, enable quicker evidence synthesis or broader mapping, addressing practical constraints without compromising transparency. Integrative reviews, in contrast, provide a comprehensive approach by combining diverse study designs and theoretical perspectives, thereby facilitating a more holistic understanding of complex phenomena.

Despite their growing importance, challenges such as methodological heterogeneity, resource intensity, and potential biases remain inherent to these review processes. Continued methodological advancements, including the integration of automated tools and enhanced reporting standards, are crucial to improving their efficiency and reliability.

Moreover, systematic reviews serve as a bridge across disciplines, fostering collaboration and knowledge integration. Their application supports evidence-based decision-making in research, policy, and practice, emphasizing their indispensable role in advancing science and addressing complex real-world problems.

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