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SYNTHESISING RESEARCH FINDINGS – METHODOLOGICAL GUIDELINES FOR CONDUCTING THE CRITICAL INTERPRETIVE SYNTHESIS METHOD**

Abstract. *Critical interpretive synthesis (CIS) integrates prior research into a theoretical framework to generate new hypotheses, theories, models and typologies. It encompasses both quantitative and qualitative data across various disciplines using a critical, reflexive, recursive and dynamic review approach. CIS favours lines of argument for synthesis and acknowledges authorial voices. Nonetheless, it faces criticism for lacking transparency and systematicity. To address these issues, we propose guidelines to enhance transparency and systematicity throughout the process. The article holds implications for research methodology.*
Keywords: *critical interpretive synthesis, synthetic argument, authorial voice, lines of argument, research methods, systematicity, transparency.*

INTRODUCTION

Critical interpretive synthesis (CIS) is an emerging method for conducting qualitative literature reviews. The approach provides a robust platform for generating novel theories and hypotheses by integrating diverse and complex sources and studies (Bales and Gee 2012; Depraeter et al. 2020; Edwards and Kaimal 2016, 32). Even though CIS is primarily employed in health and natural science research, it is also being increasingly adopted in the social sciences[1] (Depraeter et al. 2020, 10–11; Templier and Paré 2017, 4; Bales and Gee 2012, 52). Milić (1965,

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[1] See Schryen (2013), Endres and Weibler (2016), and Urquhart and Yeoman (2010). For example, qualitative comparative analysis has undergone significant development, branching out from traditional dichotomies, which also corresponds to increasing disciplinary diversification beyond political science and sociology towards management research (Rihoux and Lobe 2015, 1040–41).

293) states that sociological synthesis of scientific knowledge about society is one of the constant tasks of sociology. Bibliometric analysis[2] has demonstrated that CIS has been the most frequently used method for synthesising extant knowledge over the years (Perrier et al. 2016, 14). CIS rejects rationalistic approaches to literature review that largely focus on effectiveness, the hierarchy of evidence, and research design; namely, characteristics typical of systematic literature reviews (see Višić 2022). These traditional approaches often overlook other research designs, particularly those of a qualitative nature (Dixon-Woods et al. 2006a, 29–30). Social science research relies on diverse methods, data types, and approaches. It is accordingly often impossible to conduct a strict systematic review in the social sciences. Instead, various methods of non-systematic review are more commonly used. Unlike systematic reviews, non-systematic reviews do not produce a single, definitive quantitative effect size (such as a correlation coefficient between two variables). However, they can achieve many other goals like summarising findings across different thematic areas, generating ideas, or providing context (e.g., public policies) (Malnar and Šinko 2016, 45). CIS was thus developed to respond to the evidence-based movement[3] by integrating literature review techniques and traditional qualitative research methods (Flemming 2010, 202; Jarvis 2020).

CIS stands out for its innovative approach that combines qualitative and quantitative research in a rejection of a predetermined staged approach, preferring an inductive and iterative process. The CIS method is a good choice for integrating existing models and knowledge, while it can also generate new theories, hypotheses, interpretations or models. The method could further add to progress with paradigm development. The synthesis that is produced can encompass multi/inter/trans/disciplinary studies without favouring any single approach. CIS is not guided by a hierarchy or the strength of evidence during quality assessment; instead, the method prioritises the relevance of study topics according to the topic of synthesis, allowing for methodologically 'weak' studies to be included if they contribute to (new) theory development or interpretations. The core of CIS is "lines-of-argument" synthesis, which facilitates the formation of overarching interpretations by analysing a range of study results. CIS acknowledges the potential for various interpretations of the same phenomenon, referred to as different "authorial voices".

[2] It is worth mentioning that bibliometric methods are frequently debated in the social sciences. Social scientists often criticise the evaluation criteria and indicators for discriminating against the social sciences and humanities, particularly for disregarding non-English language use in research in this field (Pečlin and Južnič 2014, 973).

[3] As Pope (2003, 268–69) states, the "evidence-based" movement has all the characteristics of a not entirely successful reform social movement (following Blumer's (1995) typology of social movements). The failure can be attributed to prioritising the formal and rational production of knowledge while disregarding real-life context and conditions (Pope 2003, 269). The world viewed only through "evidence-based" lenses is linear and abstract, whereas the real world is non-linear, contextual, regional and local (Ferlie et al. 1999, 99).

The main objective of this article is to analyse and discuss the CIS method. Our analysis covers the advantages and disadvantages of CIS, with a focus on its transparency and systematic approach, along with recommendations for improving it.

ADVANTAGES

The CIS method enables the synthesis of previous research to form a coherent theoretical framework, fostering the creation of new theories. In their extensive literature review, Straus et al. (2016) and Tricco et al. (2016b) identified two key questions for classifying synthesis methods: 1) Can the synthesis include both qualitative and quantitative studies; and 2) Can the method be used to establish new or support existing theories. According to the original authors, CIS encompasses qualitative and quantitative studies, accommodating different types of research and facilitating unbiased mapping of research areas (Dixon-Woods et al. 2006b; Bales and Gee 2012, 52; Barnett-Page and Thomas 2009; Gough and Thomas 2012, 43–44; Depraetere et al. 2020, 2–5). This is particularly important because it challenges methodological dogmatism in social sciences characterized by the (perceived) "irreconcilability" and separate development of the qualitative and quantitative research approaches[4] (Vidicki and Stojšin 2021). The CIS method permits the integration of multi/inter/transdisciplinary research and combined methods, closing the gap between quantitative and qualitative approaches. Involving authors from various fields helps prevent bias by establishing a system of 'checks and balances' and incorporating diverse perspectives (Dixon-Woods et al. 2006b). Cooperation with foreign scientists and the use of a multidisciplinary team of authors should not be overlooked since they are one model of verifying the reliability and a precondition for high-impact research (Pečlin and Južnič 2014, 975; Krstić 2020, 73–74).

Following the typology established by Paré et al. (2014), the CIS method is designed to critically re/assess previous studies. The evaluation of study quality in CIS, along with the procedures for conducting it, is deemed unnecessary (see Table 1, light grey highlight).

[4] And in a way seeing quantitative research methods and approach as a superior to qualitative. A more nuanced position advocates mix-methodology and argues there is no methodologically substantive difference between these two approaches, but rather differences in style and technique (Brymann 1988; King, Keohane and Verba 1994; Vidicki and Stojšin 2021; Ignjatović 2020).

Table 1. TYPOLOGY OF LITERATURE REVIEW TYPES WITH THE COLUMN IN WHICH CIS IS CLASSIFIED SHOWN IN LAST ROW LIGHT GREY (added by the authors)

Overarching goal	Theoretical review types	Scope of questions	Search strategy	Primary sources	Explicit study selection	Quality assessment	Methods for synthesising/ analysing findings
Summarisation of prior knowledge	Narrative review	Broad	Usually selective	Conceptual and empirical	No	No	Narrative summary
	Descriptive review	Broad	Representative	Empirical	Yes	No	Content analysis/ Frequency analysis
	Scoping review	Broad	Comprehensive	Conceptual and empirical	Yes	Not essential	Content or thematic analysis
Data aggregation or integration	Meta-analysis	Narrow	Comprehensive	Empirical (quantitative only)	Yes	Yes	Statistical methods (meta-analysis techniques)
	Qualitative systematic review	Narrow	Comprehensive	Empirical (quantitative only)	Yes	Yes	Narrative synthesis
	Umbrella review	Narrow	Comprehensive	Systematic reviews	Yes	Yes	Narrative synthesis
Explanation building	Theoretical review	Broad	Comprehensive	Conceptual and empirical	Yes	No	Content analysis or interpretive methods
	Realist review	Narrow	Iterative and purposive	Conceptual and empirical	Yes	Yes	Mixed-methods
Critical assessment of extant literature	Critical review / Critical interpretative synthesis	Broad	Selective and representative	Conceptual and empirical	Yes or No	Not essential	Content analysis or critical interpretive methods / lines-of-argument synthesis

Source: adapted from Paré et al. (2014).

CIS reviews studies on a given topic and points out any shortcomings, weaknesses, contradictions or inconsistencies. Central attention is paid to methodological shortcomings, research questions, and hypotheses. Yet, the method is not limited to identifying or describing flaws in current studies; instead, it "questions the fundamental assumption of existing studies" and offers new "conceptual solutions" (Alvesson and Sandberg 2011, 251–52; Grant and Booth 2009, 93). A quality literature review should present, analyse and synthesise data from various sources. If done correctly, the CIS should result in the combining of existing models or the creation of a new one (Kirkevold 1997, 981; Paré et al. 2014, 7; Grant and Booth 2009, 93–97). In contrast to literature review types that aim to integrate data for evidence-based decisions (see Table 1, third row (data aggregation

or integration) in light grey highlight, critical review studies do not involve comparison. CIS does not focus on finding the answer to the question of *what works* and instead focuses on answering *how something works*. Consequently, there is a stronger emphasis on flexibility, which could lead to the formation of new hypotheses, theory development, and typologies (Dixon-Woods et al. 2006a; Dixon-Woods et al. 2006b, 3; Tricco et al. 2016b, 5). CIS does not conform to the strict requirement of the staged approach (i.e., a systematic literature review, see Višić 2022; Malnar and Šinko 2016, 43–46), which involves the formulation of a research question, searching, selecting, extracting data, and synthesising (Dixon-Woods et al. 2006b, 9). Instead, CIS allows for a more flexible, dynamic, interactive, iterative and recursive approach to synthesis. While the quality assessment of included studies is important for synthesis, CIS prioritises the criticism of the analysed material to generate new theoretical assumptions. The adoption of a formalised technique for data extraction may hence prove constraining and cumbersome (Dixon-Woods et al. 2006b, 9). The CIS method offers the advantage of identifying and questioning existing knowledge, revealing problems/discrepancies, and suggesting areas for future research (Kirkevold 1997, 981; Paré et al. 2014, 7; Templier and Paré 2017, 4; Grant and Booth 2009, 93–97; Rowe 2014; Schultze 2015).

DISADVANTAGES AND CHALLENGES

The flexibility of the CIS method is simultaneously one of its biggest drawbacks. Unlike other synthesis methods, such as a systematic literature review, CIS lacks systematicity and structure. CIS' literature search strategy is selective, representative and rarely comprehensive (such as applying predefined inclusion and exclusion criteria of relevant studies). Highly structured methods stress transparency, replicability, and quality control throughout the process, defining explicit inclusion and exclusion criteria for studies being considered. The strategy used for the literature search rarely includes an explanation regarding the quality of selected studies. This is particularly observable with qualitative research since there is no hierarchical order among various research designs. As a result, subjectivity and the lack of transparency are among the main objections to the CIS method (Kirkevold 1997, 981; Paré et al. 2014, 7; Grant and Booth 2009, 93–97; Dixon-Woods et al. 2006a; Dixon-Woods et al. 2006b, 4) The original authors acknowledged these potential shortcomings and suggested formalising the method in line with the staged approach (Dixon-Woods et al. 2006b, 9).

The argument against the lack of criteria for assessing the quality of (selected) studies is only partly valid. While CIS may not have specified and established parameters for assessing study quality, this does not imply that the method completely neglects quality assessment. CIS is a qualitative method in which research depends on the researcher's assessment. Similar to participatory action research, the researcher is not simply a data collector and analyst but also collects, forms, verifies and synthesises data. Rather than having a vantage point, the researcher

acts as a connecting link, presenting a potential synthesis (Močnik 2014, 349–51). This means that information should be provided regarding the researcher's traits that may be a source of potential bias or errors (Ignjatović 2020, 50). The emphasis on the researcher and their unique interpretation (or researcher's input in the analysis: Rihoux and Lobe 2015, 1043) is a hallmark of the CIS method, meaning that implied subjectivity is not considered problematic because the method acknowledges different interpretations of the same phenomenon, also known as different "authorial voices":

> *[o]ne of the distinguishing features of CIS is its acknowledgment of the authorial voice: it does not claim to be a set of techniques that aims for a 'reproducible' synthesis; instead, it recognizes the interpretive work required to produce an account of disparate forms of evidence and is explicit about this. It recognizes that alternative accounts of the same evidence might be possible using different authorial voices while emphasizing that all accounts should be grounded in the evidence, verifiable and plausible, and that reflexivity will be a paramount requirement* (Dixon-Woods et al. 2006a, 39).

However, the researcher's self-reflection should be addressed. Opinions and expectations change and develop during the research process. Researchers should therefore write a "reflection statement" before the study begins and after it has been completed to increase transparency and systematicity. In a "reflection statement", the researcher should state their initial position, followed by a statement on how or if this may have influenced their decision-making. After the study, the researcher should briefly comment on whether their initial positions may have influenced the review or changed during the review (Glenton et al. 2020, 20–21). CIS is an interpretive research method sensitive to context. As such, it neither generalises findings nor uses statistical sampling (Ignjatović 2020, 50; Bales and Gee 2012, 52). Instead, sampling is purposive because "the focus in interpretive synthesis is on the development of concepts and theory rather than on an exhaustive summary of all data" (Dixon-Woods et al. 2006b, 3).

The CIS method partly refutes the incorrect perception that qualitative methods are easy to conduct, that specialists from different disciplines can apply them, and that agents with subpar education in methodology can apply them. Research conducted by Tricco et al. (2016a, 4) suggests that academic background is essential for successfully implementing the CIS method. This is because CIS requires extensive experience in research (essential for critical evaluation) and industry (needed to implement guidelines and programmes). Due to these requirements, the CIS method might prove challenging for younger or less experienced researchers.

In the previous section, we addressed the objection to the quality assessment criteria against the backdrop of qualitative methodology (where the emphasis is on the researcher and context, and the focus on in-depth understanding). Nevertheless, improving transparency and systematicity is required because similar

"flexible" methods (i.e., meta-ethnography, see Višić 2023; or qualitative comparative analysis, see Rihoux and Lobe 2015) have already undergone improvements based on these criteria (Campbell et al. 2019; Dixon-Woods et al. 2005; Whittemore and Knafl 2005). Paré et al. (2016) state that systematicity and transparency are criteria common to all review methods. The flexibility of both criteria allows them to be applied easily across different research paradigms. Systematicity refers to the propensity to an organised, orderly and methodical approach to synthesis that uses proper methods to search, screen, evaluate, analyse and interpret data to answer the review question. Transparency refers to the completeness of the synthesis and whether all relevant design and application aspects have been clearly reported (Paré et al. 2016, 4–5). Systematicity should be understood within a particular context or approach due to its flexibility. Hence, instead of a rigid concept, systematicity should be viewed as a broad orientation that encompasses methodological procedures, review practices, and a benchmark for assessing qualitative literature reviews. As such, systematicity promotes richness by enabling higher levels of integrating existing theories, and generativity – the creation of new theory; reproducibility (grounding the conclusion in data and allowing readers to determine whether the review used a thorough search for relevant articles); trustworthiness (accounting for both confirming and disconfirming evidence); and utility (the potential for evidence-based informed policy) (Simsek et al. 2021, 3–10). The broad perspective on systematicity is advantageous in the social sciences given the diversity of studies and the limitations of the hierarchy of evidence approach (which prioritises quantitative data and research) to the selection of studies. The low level of transparency and systematicity in CIS raises questions about the credibility of the results (Depraetere et al. 2020). Previous studies have suggested that review methods similar to CIS are insufficiently transparent regarding their search, selection, and quality assessment for selected studies (Templier and Paré 2017). Further, different disciplines apply the same method to identical or similar concepts whose meanings vary among various disciplines, adding to terminological ambivalence (Gough 2013; Gough, Thomas and Oliver 2012; Kastner et al. 2012; Straus et al. 2016). Moreover, the diverse application of CIS revealed that transparency and systematicity levels are suboptimal (Depraetere et al. 2020, 11). Methodologists have consequently agreed that CIS and similar review methods should aim to be more transparent and systematic. They have also agreed that each synthesis step should be more thoroughly documented[5] (Dixon-Woods et al. 2005; Tricco et al. 2006b; Depraetere et al. 2020; Templier and Paré 2017). The following section addresses these concerns

[5] However, in qualitative research one should avoid falling into trap of the "gold standard" of randomised controlled trials and epidemiological research (Ignjatović 2020, 45). While it is necessary to increase levels of transparency and systematicity in CIS, one should remember that in the social sciences one often encounters non-randomised samples or research designs (Davies et al. 2014, 4), and that the application of such a sample or design in social research can also hold significant ethical implications (Baunach 1980, 438; Jamison 2019, 2–3).

and offers guidelines that may improve transparency and systematicity in the quality assessment and selection of studies.

SYNTHETIC ARGUMENT

CIS was developed using a combination of meta-ethnography (Noblit and Hare 1988; Višić 2023), grounded theory (Glaser and Strauss [1967] 2006) and meta-narrative (Greenhalgh et al. 2005) methods, incorporating features from all three (Dixon-Woods et al. 2006b; Barnett-Page and Thomas 2009; Gough, Thomas and Oliver 2012, 43–44). The CIS method does, however, differ from other methods by: 1) rejecting the staged approach in favour of a critical, reflective, recursive and dynamic approach; 2) choosing "lines-of-argument" as the preferred method of synthesis; and 3) allowing for the acceptance of different "authorial voices". Like with meta-ethnography, CIS uses lines-of-argument synthesis that closely follows Schutz's (1962) order of construct. Yet, by proposing a "synthetic construct", the method rejects differentiation between the first, second and third orders of the construct. The outcome of CIS is therefore a *synthesising argument* that integrates evidence from all studies included to form a coherent theoretical framework comprising networks of constructs and their mutual relations. Synthesising arguments allows for a synthetic construct, transforming existing evidence into a new conceptual framework. For that reason, synthetic constructs are based on evidence and integrate various interpretations of a phenomenon into a unified whole (Dixon-Woods et al. 2006b, 5–6). The precision of the synthesis is contingent upon the comprehensiveness and significance of its analytically determined components. Similarly, the accuracy of the scientific explanation relies not only on the correctness of the overarching principles it encompasses but also on the feasibility of accurately reconstructing the event being explained (Milić 1965, 471).

The analysis begins with a detailed review of selected studies and a reflection on the criteria for selecting them[6], leading to the gradual identification of recurring themes, followed by the generation of themes used to explain the phenomenon, as described in the literature. When performed this way, developing theoretical structures are constantly compared with data from the included studies, determining the categories of analysis and their intertwining relations (Dixon-Woods et al. 2006b, 5–6). The interplay of emerging theory and data should be present during all research stages, not just in the planning and final data processing (Milić 1965, 287). As its name suggests, CIS can also comprehensively criticise the guiding principles of different research traditions and meta-narratives. Still, the original authors emphasised that, as with all qualitative research, complete transparency is impossible because of the creative and interpretive process involved (Dixon-Woods et al. 2006b, 5–6).

[6] Consider Slaček Brlek's (2014, 62) reflective statement as he clarifies his motives for opting for Street Fighter IV.

STEPS AND GUIDELINES FOR INCREASING TRANSPARENCY AND SYSTEMATICITY

This part analyses and discusses the steps in conducting CIS: formulation of the research question, literature search, sampling, selection of studies, and data extraction. For each step, we offer guidelines to increase transparency and systematicity. The steps for conducting CIS correspond with Simsek et al.'s (2021, 5–8) high-level practices in which systematicity in literature reviews is shown: envisioning/formulating the research question, explicating/defining the scope of the literature search, executing/sampling strategy and selection of studies, evaluating/quality assessment, and encoding/data extraction. We find the template for general qualitative syntheses issued in 2020 by the Cochrane Collaboration insightful. The template applies to CIS because it considers the specific features of qualitative research, such as flexibility and openness, while enabling greater transparency and systematicity. Our recommendations also follow good practice.

Formulation of the Research Question/Envisioning

The iterative approach is vital for formulation of the research question. This means that the process requires constant and reflexive 'negotiation' between the researcher and the research object, entailing continuous (re)formulation of the research question during analysis and given new results. Posing a provisional research question at the beginning of a study is therefore permissible because the goal is to create a new theory from data (Dixon-Woods et al. 2006a, 32; Dixon-Woods et al. 2006b, 3). In CIS, as with most qualitative studies, the research question functions more as a compass than an anchor and, occasionally, the precise formulation can only be achieved upon completion of the study (Eakin and Mykhalovskiy 2003, 190). CIS uses an open and exploratory type of research question, allowing for coverage of a wide range of studies. Exploratory questions aim to quickly assess the boundaries, parameters and features of the literature to determine existing knowledge on a topic. The purpose is to rapidly develop comprehension of the fundamental concepts supporting a research field (Simsek et al. 2021, 5). To achieve greater transparency and systematicity, Cochrane recommends that the topics chosen in CIS be thoroughly described and that the relevance of the research question be explained against the existing theoretical background and any potential gaps within it. Outlining the expected outcomes is also encouraged (Glenton et al. 2020, 7–8). Contextual aspects while formulating the research question should be considered as well (Harris et al. 2018, 12).

Literature Search/Explicating

The literature search is also an iterative process (Dixon-Woods et al. 2006a, 32; Dixon-Woods et al. 2006b, 9). The advantages of the "feedback loop" logic are recognised in other approaches as well (see Rihoux and Lobe 2015, 1047). The search should be broad, including electronic databases (it is recommended to

start the search by reviewing domestic and regional databases such as HRČAK, SCIndeks and SICRIS, then searching WoSCC, Scopus, Medline, PubMed, SciELO, EBSCO, ERIH plus, EconLit, CEEOL, ProQuest, and Google Scholar); searching Internet pages, reference chaining[7]; and citation mining[8]; contacting experts[9]; handsearching[10]; and 'grey literature'[11]. The goal is to identify possibly relevant studies that can constitute the sampling frame (Dixon-Woods et al. 2006b, 3; Harris et al. 2018, 9; Booth 2016, 16; Depraetere et al. 2020, 7). Due to the multidisciplinary nature of CIS and possible ambivalence in terminology, searching using dictionary terms (thesaurus), free-text terms, or terms that can have broad meanings is recommended (Dixon-Woods et al. 2006a, 34). To add to transparency and systematicity, it is recommended to create an outline in advance expressing which types of research design are to be included, whether studies using mixed methodology will be included, whether a quality threshold will apply, and to elaborate on whether studies that cannot meet the set quality standards are to be included (Glenton et al. 2020, 9–10; Booth 2016, 12–8). Reviewers must decide whether to include grey literature to ensure completeness and transparency. If the review topic is new, spans multiple scientific fields or has gained significant attention, it may be reasonable to broaden the review's procedural boundaries to include grey literature (Simsek et al. 2021, 6). When planning a literature search, it is necessary to indicate what type of literature will be searched and within which timeframe. Estimates should be based on a preliminary iterative search. Since the goal of CIS is deeper insight and the development of (new) theory, the iterative literature search process should stop once saturation has been reached (Paré et al. 2016, 8).

Sampling and Selection of Studies/Executing

The CIS method aims to generate and develop theory and concepts. Thus, the method does not create an exhaustive review of all data included. For this reason, purposive sampling is used to identify and include relevant studies according to the research question. For the researcher to adequately refine the synthesis before conducting the method, the sample selected should include similar studies from other disciplines. Sampling implies a constant dialectical process conducted simultaneously with developing or generating theory (Dixon-Woods et al. 2006a, 36–38; Dixon-Woods et al. 2006b, 3–4). The sample size

[7] Reference chaining includes browsing cited authors and literature lists to find new potentially relevant studies or works through them.

[8] Citation mining refers to using already found sources to quickly identify more sources on the research topic.

[9] It is essential to consult case experts to gain insights into diverse cultural contexts (Rihoux and Lobe 2015, 1047–048).

[10] Handsearching refers to the search of journals or conference publications that are not indexed in (large) databases or were printed before the Internet era. This especially relates to ethnographic research which is usually published as monographs.

[11] Grey literature includes presentations at conferences, master's, diploma and doctoral theses, and various reports.

is not significant for CIS, as with other qualitative methods. As the review progresses, the sampling process may become more intuitive or be directed by the emerging theory (Dixon-Woods et al. 2006b, 11). To ensure transparency and systematicity, it is advised to write a statement regarding how researchers will agree on which studies to include. This statement should also clarify whether the researchers will collaborate or work individually and how they plan to resolve any disagreements. Including studies written in other languages is also advised and, in the case of including them, it is necessary to state how the researchers will translate them if they do not speak the language. Translation software, such as Google Translate, may be sufficient during the initial assessment (according to the title and abstract) of whether to include/exclude a study; however, such software may become inadequate when a quality and accurate translation becomes essential for the selection and inclusion of a study. CIS aims to identify the variation of concepts, and since the method does not focus on providing an exhaustive sample, large amounts of data may reduce synthesis quality. Given this potential reduction in synthesis quality, it is recommended that researchers state in advance if they expect to encounter a large amount of data. It should be noted that "a large amount of data" is a relative term: i.e., it may encompass a small number of long studies rich in data or a larger, more significant number of studies containing less data. Apart from avoiding the inclusion of large data amounts, tracking the representation of the concept variations is also recommended. Studies that pass the quality threshold or eligibility criteria should be called "eligible studies", and those included in the synthesis through purposive sampling should be called "selected studies" (Glenton et al. 2020, 13–15). Consistency in searching and decision-making regarding the inclusion/exclusion of studies ensures systematicity during the sampling and selection process (Paré et al. 2016, 9).

Quality Assessment/Evaluating

Like with other qualitative methods, CIS does not follow the "hierarchy of evidence" or the "hierarchy of research design" during its quality assessment. The method prefers studies relevant to the topic over those that meet certain methodological standards. Quality criteria cannot be stringently defined due to the diversity of qualitative research designs and methods (Dixon-Woods et al. 2006a, 9). General criteria for selecting studies are adequacy, sensitivity, relevance and robustness (Simsek et al. 2021, 7). The criteria for assessing quality thus vary. For example, reviewers may assess quality using a 10-point scale that considers two bibliometric measures: the journal's 5-year impact factor and the study's annual citation count (Malnar and Šinko 2016, 46). The evaluation and quality control of studies can hence be done by examining the citations and use of these studies by other scientists. This bibliometric approach to quality assessment is systematic and transparent. Other factors like prestigious scientific accolades, editorial board memberships in esteemed journals, international

cooperation, and highly cited papers may also indicate quality (Pečlin and Južnić 2014, 974–75). This means it is recommended to set a low threshold to include a wide range of studies and allow for additional criteria, given the varying quality criteria. The quality assessment comprises two parts: 1) studies having serious (methodological) deficiencies are omitted[12], disregarding those that have a significant theoretical contribution; and 2) the initial inclusion of studies may be reconsidered as their contribution and quality are evaluated during the synthesis process (Dixon-Woods et al. 2006b, 4). Thus, CIS tentatively uses the "signal" and "noise" dichotomy to assess study quality (Edwards et al. 2000, 179–80). "Signal" refers to the assessment of the relevance of the study, while "noise" corresponds to the systematic literature review approach. Therefore, CIS prioritises "signal" over "noise" (Dixon-Woods et al. 2006b, 4). Paré et al. (2016, 10) emphasise that a strict quality assessment in CIS is not as crucial as it is with aggregative syntheses.

Data Extraction/Encoding

Both qualitative and quantitative studies require data extraction, which is identical in each case. Data extraction includes category and subcategory titles while utilising terms from the included studies and a summary of relevant material. However, this type of data extraction cannot be performed on larger documents. Instead, while dealing with such documents, it is acceptable to use a method of less formal summarising, such as underlining or highlighting (Dixon-Woods et al. 2006b, 4). Data follow a three-pronged approach: 1) planning; 2) data identification; and 3) extraction and preparation of the data for synthesis. The level of detail for each part depends on the review method chosen. For example, systematic literature reviews require a precise data extraction plan, whereas narrative reviews do not. This is because in narrative reviews it is assumed that the researcher will recognise relevant data once found. Compared to the extremes of the two examples provided, CIS takes the middle ground and is considered a more balanced option. This is due to the data extraction plan being open and developed during the iterative study search and inclusion process (Paré et al. 2016, 11). A sufficiently flexible plan allows for identifying new aspects and developing concepts relevant to the synthesis (Šadl 2014, 909). Specifying the type of data intended to be extracted from individual studies is recommended so as to achieve greater transparency and systematicity in the data extraction phase. This largely involves providing descriptive information regarding each study's goals, participants and contexts, followed by research design and methods, and concluding with information concerning each study's results (Glenton et al. 2020, 15–16). Having either a predefined or emerging plan during the iterative study search and inclusion process ensures internal and external

[12] An exception can be methodologically deficient studies if they make a significant theoretical contribution (Dixon-Woods et al. 2006b, 9).

reproducibility.[13] The more explicit and comprehensive the plans are, the more efficient and less iterative the data identification and extraction process will be (Paré et al. 2016, 11).

CONCLUDING REMARKS

CIS is a qualitative alternative to quantitative literature reviews that uses data aggregation to answer the question *what works*. Conversely, CIS answers the question of *how something works*. The CIS method stresses flexibility and critical orientation, which may lead to new theories, hypotheses, interpretations or models, all of which support the development of various scientific fields and disciplines. CIS rejects the staged approach to synthesis in favour of a critical, reflexive, recursive and dynamic approach, opting for and preferring a "lines-of-argument" synthesis. The method also enables and affirms different "authorial voices". Further, in CIS the researcher is in constant 'dialogue' with existing data, previous theories, and (new) theories formed based on the synthesis. One of this method's main advantages is that the synthesis can include both quantitative and qualitative data or studies. In determining criteria for study selection, priority is placed on topic relevance over rigorous methodology and "strength of evidence". CIS also rejects using the "hierarchy of evidence and research design" as the sole principle for determining study inclusion or exclusion. Flexibility makes CIS suitable for multi/inter/trans/disciplinary types of research. "Lines-of-argument" synthesis makes up the core of CIS and allows for the creation and development of general interpretations based on results from various studies. By adhering to traditional qualitative methodologies, CIS accepts and enables different "authorial voices", i.e., different interpretations of the same phenomenon, which contribute to different theoretical perspectives.

The primary disadvantage of CIS is the lack of transparency and systematicity in each phase. Therefore, we proposed guidelines for increasing transparency and systematicity in each phase (formulation of the research question, literature search, sampling and selection of studies, quality assessment, and data extraction). CIS also requires training and experience, which makes it less suitable for inexperienced researchers to conduct. However, this challenges and refutes the claim that qualitative methods are simple and that anyone, even individuals lacking special training, experience, and necessary education, can apply these methods successfully.

[13] The original authors do not propose that CIS ought to meet the criterion of external reproducibility and note that different conclusions may arise among researchers in the qualitative tradition analysing the same set of studies. However, they point out that it is necessary to ensure internal reproducibility, i.e., that the validity of the results is measured by whether the conclusions are based on evidence, whether the claims are plausible, whether the research provides insight that is consistent with the available evidence, and whether newly created hypotheses can be empirically verified (Dixon-Woods et al. 2006b, 11).

BIBLIOGRAPHY

Alvesson, Mats, and Jörgen Sandberg. 2011. "Generating Research Questions Through Problematization". *The Academy of Management Review* 36 (2): 247–71. https://doi.org/10.5465/AMR.2011.59330882.

Bales, Stephen, and Charlie Gee. 2012. "Critical Interpretive Synthesis for Informing Collection Decisions". *Collection Building* 32 (2): 51–56. https://doi.org/10.1108/01604951311322020.

Barnett-Page, Elaine, and James Thomas. 2009. "Methods for the Synthesis of Qualitative Research: A Critical Review". *BMC Medical Research Methodology* 9 (59): 1–11. https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-9-59.

Baunach, Phyllis Jo. 1980. "Random Assignment in Criminal Justice Research. Some Ethical and Legal Issues". *Criminology* 17 (4): 435–44.

Blumer, Herbert. 1995. "Social Movements" In: *Social Movements: Critiques, Concepts and Case Studies*, Stanford M. Lymann (ed.), 60–83. London: Macmillan.

Booth, Andrew. 2016. "Searching for Qualitative Research for Inclusion in Systematic Reviews: A Structured Methodological Review". *Systematic Reviews* 5 (74): 1–23. https://doi.org/10.1186/s13643-016-0249-x.

Bryman, Alan. 1988. *Quantity and Quality in Social Research*. London & New York: Routledge.

Campbell, Mhairi, Srinivasa Vittal Katikireddi, Amanda Sowden, and Hilary Thomson. 2019. "Lack of Transparency in Reporting Narrative Synthesis of Quantitative Data: A Methodological Assessment of Systematic Reviews". *Journal of Clinical Epidemiology* 105: 1–9. https://doi.org/10.1016/j.jclinepi.2018.08.019.

Depraetere, Joke, Christophe Vandeviver, Ines Keygnaert, and Tom Vander Beken. 2020. "The Critical Interpretive Synthesis: An Assessment of Reporting Practices". *International Journal of Social Research Methodology*: 1–21. https://doi.org/10.1080/13645579.2020.1799637.

Dixon-Woods, Mary, Shona Agarwal, David Jones, Bridget Young, and Alex Sutton. 2005. "Synthesising Qualitative and Quantitative Evidence: A Review of Possible Methods". *Journal of Health Services Research & Policy* 10 (1): 45–53. https://doi.org/10.1177/135581960501000110.

Dixon-Woods, Mary, Sheila Bonas, Andrew Booth, David Jones, Tina Miller, Alex J. Sutton, Rachel Shaw, Jonathan Smith, and Bridget Young. 2006a. "How Can Systematic Reviews Incorporate Qualitative Research? A Critical Perspective". *Qualitative Research* 6 (1): 27–44. https://doi.org/10.1177/1468794106058867.

Dixon-Woods, Mary, Debbie Cavers, Shona Agarwal, Ellen Annandale, Antony Arthur, Janet Harvey, Ron Hsu, Savita Katbamna, Richard Olsen, Lucy Smith, Richard Riley, and Alex Sutton. 2006b. "Conducting a Critical Interpretive Synthesis of the Literature on Access to Healthcare by Vulnerable Groups". *BMC Medical Research Methodology* 6 (35): 1–13. https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-6-35.

Edwards, Jane, and Girija Kaimal. 2016. "Using Meta-Synthesis to Support Application of Qualitative Methods Findings in Practice: A Discussion of Meta-Ethnography, Narrative Synthesis, and Critical Interpretive Synthesis". *The Arts in Psychotherapy* 51: 30–35. https://doi.org/10.1016/j.aip.2016.07.003.

Edwards, Adrian, Glyn Elwyn, Kerry Hood, and Stephen Rollnick. 2000. "Judging the 'Weight of Evidence' in Systematic Reviews: Introducing Rigour into the Qualitative Overview Stage by Assessing Signal and Noise". *Journal of Evaluation in Clinical Practice* 6 (2): 177–84. https://doi.org/10.1046/j.1365-2753.2000.00212.x.

Endres, Sigrid, and Jürgen Weibler. 2016. "Towards a Three-Component Model of Relational

Social Constructionist Leadership: A Systematic Review and Critical Interpretive Synthesis". *International Journal of Management Reviews* 1–23. https://doi.org/10.1111/ijmr.12095.

Ferlie, Ewan, Martin Wood, and Louise Fitzgerald. 1999. "Some Limits to Evidence-Based Medicine: A Case Study from Elective Orthopaedics". *Quality in Health Care* 8: 99–107. https://doi.org/10.1136/qshc.8.2.99.

Flemming, Kate. 2010. "Synthesis of Quantitative and Qualitative Research: An Example Using Critical Interpretive Synthesis". *The Journal of Advanced Nursing* 66 (1): 201–17. https://doi.org/10.1111/j.1365-2648.2009.05173.x.

Glaser, Barney, and Anselm Strauss. 2006. *The Discovery of Grounded Theory. Strategies for Qualitative Research*. New Brunswick and London: Aldine Transaction.

Glenton, Claire, Meghan A. Bohren, Soo Downe, Elisabeth J. Paulsen, and Simon Lewin, on behalf of Effective Practice and Organisation of Care (EPOC). 2020. *EPOC Qualitative Evidence Synthesis: Protocol and Review Template. Version 1.1. EPOC Resources for Review Authors*. Oslo: Norwegian Institute of Public Health.

Gough, David, Sandy Oliver, and James Thomas. 2012. "Introducing Systematic Reviews" In: *An Introduction to Systematic Reviews*, David Gough, Sandy Oliver, and James Thomas (eds.), 1–17. London: Sage.

Gough, David. 2013. "Meta-narrative and Realist Reviews: Guidance, Rules, Publication Standards and Quality Appraisal". *BMC Medicine* 11 (22): 1–4.

Grant, Maria, and Andrew Booth. 2009. "A Typology of Reviews: An Analysis of 14 Review Types and Associated Methodologies". *Health Information and Libraries Journal* 26: 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x.

Greenhalgh, Trisha, Glenn Robert, Fraser Macfarlane, Paul Bate, Olympia Kyriakidou, and Richard Peacock. 2005. "Storylines of Research in Diffusion of Innovation: A Meta-Narrative Approach to Systematic Review". *Social Science & Medicine* 61: 417–30. https://doi.org/10.1016/j.socscimed.2004.12.001.

Harris, Janet, Andrew Booth, Margaret Cargo, Karin Hanbes, Angela Harden, Kate Flemming, Ruth Garside, Tomas Pantoja, James Thomas, and Jane Noyes. 2018. "Cochrane Qualitative and Implementation Methods Group Guidance Series – Paper 6: Methods for Question Formulation, Searching and Protocol Development for Qualitative Evidence Synthesis". *Journal of Clinical Epidemiology* 97: 39–48. https://doi.org/10.1016/j.jclinepi.2017.10.023.

Ignjatović, Suzana. 2020. "Kvalitativna primenjena istraživanja u okviru socijalnih intervencija i programa javne politike sa posebnim osvrtom na fokus grupe". *Sociologija* LXII (1): 42–62. https://doi.org/10.2298/SOC2001042I.

Jamison, Julian. 2019. "The Entry of Randomized Assignment into the Social Sciences". *Journal of Causal Inference* 7 (1): 20170025. https://doi.org/10.1515/jci-2017-0025.

Jarvis, Tamika. 2020. "Defining Public Health Systems: A Critical Interpretive Synthesis." *Health Research Policy and Systems* 18. https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-020-00583-z.

Kastner, Monika, Andrea Tricco, Charlene Soobiah, Erin Lillie, Laure Perrier, Tanya Horsley, Vivian Welch, Elise Cogo, Jesmin Antony, and Sharon Straus. 2012. "What is the Most Appropriate Knowledge Synthesis Method to Conduct a Review? Protocol for a Scoping Review". *BMC Medical Research Methodology* 12: 114. https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-12-114.

King, Gary, Robert Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. New Jersey: Princeton.

Kirkevold, Marit. 1997. "Integrative Nursing Research – An Important Strategy to Further the Development of Nursing Science and Nursing Practice". *Journal of Advanced Nursing* 25: 977–84. https://doi.org/10.1046/j.1365-2648.1997.1997025977.x.

Krstić, Nemanja. 2020. "Refleksivni osvrt na upotrebu metode dubinskog intervjua u istraživanju porodičnih praksi na primeru istraživanja socioekonomskih strategija delanja porodica u Srbij". *Sociologija* LXII (1): 63–82. https://doi.org/10.2298/SOC2001063K.

Malnar, Brina, and Milan Šinko. 2016. "Potencial akademske in javnopolitične izrabe družboslovnih podatkov v Sloveniji: primer evropske družboslovne raziskave". *Teorija in praksa* 53 (posebna številka): 42–63.

Milić, Vojin. 1965. *Sociološki metod*. Beograd: Nolit.

Močnik, Nena. 2014. "Raziskovalec kot aktivist in angažirane metodološke prakse". *Teorija in praksa* 51 (2/3): 348–64.

Noblit, George, and Dwight Hare. 1988. *Meta-Ethnography: Synthesizing Qualitative Studies*. Thousand Oaks: Sage.

Paré, Guy, Marie-Claude Trudel, Mirou Jaana, and Spyros Kitsiou. 2014. "Synthesizing Information Systems Knowledge: A Typology of Literature Reviews". *Information & Management* 52 (2): 183–99. https://doi.org/10.1016/j.im.2014.08.008.

Paré, Guy, Mary Tate, David Johnstone, and Spyros Kitsiou. 2016. "Contextualizing the Twin Concepts of Systematicity and Transparency in Information Systems Literature Reviews". *European Journal of Information Systems* 25 (6): 493–508. http://dx.doi.org/10.1057/s41303-016-0020-3.

Pečlin, Stojan, and Primož Južnič. 2014. "Highly Cited Papers in Slovenia". *Teorija in praksa* 51 (5): 972–83.

Perrier, Laure, David Lightfoot, Ryan Kealey, Sharon Straus, and Andrea Tricco. 2016. "Knowledge Synthesis Research: A Bibliometric Analysis". *Journal of Clinical Epidemiology* 73: 50–57. https://doi.org/10.1016/j.jclinepi.2015.02.019.

Pope, Catherine. 2003. "Resisting Evidence: The Study of Evidence-Based Medicine as a Contemporary Social Movement". *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine* 7 (3): 267–82. http://dx.doi.org/10.1177/1363459303007003002.

Rihoux, Benoît, and Bojana Lobe. 2015. "The Case-Orientedness of Qualitative Comparative Analysis (QCA): Glass Half-Empty or Half-Full?". *Teorija in praksa* 52 (6): 1039–55.

Rowe, Frantz. 2014. "What Literature Review is Not: Diversity, Boundaries and Recommendations". *European Journal of Information Systems* 23: 241–55. https://link.springer.com/article/10.1057/ejis.2014.7.

Schryen, Guido. 2013. "Revisiting IS Business Value Research: What We Already Know, What We Still Need to Know, and How We Can Get There". *European Journal of Information Systems* 22: 139–69. http://dx.doi.org/10.1057/ejis.2012.45.

Schultze, Ulrike. 2015. "Skirting SLR's Language Trap: Reframing the 'Systematic' Vs 'Traditional' Literature Review Opposition as a Continuum". *Journal of Information Technology* 30: 180–84. https://doi.org/10.1057/jit.2015.10.

Simsek, Zeki, Brian Fox, and Ciaran Heavy. 2021. "Systematicity in Organizational Research Literature Reviews: A Framework and Assessment". *Organizational Research Methods* 26 (2): 1–30. https://doi.org/10.1177/10944281211008652.

Slaček Brlek, Aleksander Sašo. 2014. "Inside the Mind of the Machine: An Exploratory Study of Street Fighter IV Players". *Teorija in praksa* 51 (1): 59–71.

Straus, Sharon, Monika Kastner, Charlene Soobiah, Jesmin Antony, and Andrea Trixcco. 2016. "Engaging Researchers on Developing, Using and Improving Knowledge Synthesis Methods: Introduction to a Series of Articles Describing the Results of a Scoping Review on Emerging Knowledge Synthesis Methods". *Journal of Clinical Epidemiology* 73, 15–18. https://doi.org/10.1016/j.jclinepi.2016.01.031.

Šadl, Zdenka. 2014. "Perceptions of Stigma: The Case of Paid Domestic Workers in Slovenia". *Teorija in praksa* 51 (5): 904–27.

Templier, Mathieu, and Guy Paré. 2017. "Transparency in Literature Reviews: An Assessment of Reporting Practices Across Review Types and Genres in Top IS Journals". *European Journal of Information Systems* 27 (5): 503–550. http://dx.doi.org/10.1080/0960085X.2017.1398880.

Tricco, Andrea, Jesmin Antony, Charlene Soobiah, Monika Kastner, Heather MacDonald, Elise Cogo, Erin Lillie, Judy Tran, and Sharon Strauss. 2016a. "Knowledge Synthesis Methods for Integrating Qualitative and Quantitative Data: A Scoping Review Reveals Poor Operationalization of the Methodological Steps". *Journal of Clinical Epidemiology* 73: 29-35. https://doi.org/10.1016/j.jclinepi.2015.12.011.

Tricco, Andrea, Charlene Soobiah, Jesmin Antony, Elise Cogo, Heather MacDonald, Erin Lillie, Judy Tran, Jennifer D'Souza, Wing Hui, Laure Perrier, Vivian Welch, Tanya Horsley, Sharon Straus, and Monika Kastner. 2016b. "A Scoping Review Identifies Multiple Emerging Knowledge Synthesis Methods, But Few Studies Operationalize the Method". *Journal of Clinical Epidemiology* 73: 19–28. https://doi.org/10.1016/j.jclinepi.2015.08.030.

Urquhart, Christine, and Alison Yeoman. 2010. "Information Behaviour of Women: Theoretical Perspectives on Gender". *Journal of Documentation* 66 (1): 113–39. https://doi.org/10.1108/00220411011016399.

Vidicki, Vladan, and Stojšin Snežana. 2021. "Prevazilaženje metodološkog dogmatizma u društvenim istraživanjima: triangulacija multimetod i kombinovani metodi". *Sociologija* LXIII (1): 5–25. http://dx.doi.org/10.2298/SOC2101005V.

Višić, Maroje. 2022. "Connecting Puzzle Pieces: Systematic Literature Review Method in the Social Sciences". *Sociologija* 64 (4): 543–62. https://doi.org/10.2298/SOC2204543V.

Višić, Maroje. 2023. "Synthesising (Beyond) Ethnographies – Meta-ethnography Revisited". *Issues in Ethnology and Anthropology* 18: 157–77. https://doi.org/10.21301/eap.v18i1.7.

Whittemore, Robin, and Kathleen Knafl. 2005. "The Integrative Review: Updated Methodology". *Journal of Advanced Nursing* 52 (5): 546–53. https://doi.org/10.1111/j.1365-2648.2005.03621.x.

SINTEZA RAZISKOVALNIH UGOTOVITEV – METODOLOŠKE SMERNICE ZA IZVAJANJE METODE KRITIČNE INTERPRETATIVNE SINTEZE

Povzetek. *Kritična interpretativna sinteza (KIS) združuje predhodne raziskave v teoretični okvir in ustvarja nove hipoteze, teorije, modele in tipologije. Zajema tako kvantitativne kot kvalitativne podatke v različnih disciplinah z uporabo kritičnega, refleksivnega, rekurzivnega in dinamičnega pristopa pregleda. KIS daje prednost argumentom za sintezo in priznava avtorske glasove. Vendar se sooča s kritikami zaradi pomanjkanja preglednosti in sistematičnosti. Za obravnavo teh vprašanj predlagamo smernice za večjo preglednost in sistematičnost v celotnem procesu. Ta dokument ima posledice za raziskovalno metodologijo.*

Ključni pojmi: *kritična interpretativna sinteza, sintetični argument, avtorski glas, argumentacija, raziskovalne metode, sistematičnost, transparentnost.*