

Applying a Systematic Literature Review Process in a Grounded Theory Investigation

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Abstract: This paper offers a critique of the application of a systematic literature review (SLR) process during a grounded theory (GT) investigation. The place of the literature review (LR) within GT has long been discussed, contested, and frequently misunderstood. One of GT's hallmarks is its inductive nature, allowing salient concepts to 'arise' rather than being deduced. Hence, there are differing perspectives on the role of the LR concerning enabling or constraining this inductive process. However, scant guidance is available on conducting LRs for GT studies. Wolfswinkel, Furtmueller and Wilderom (2011) offer a five-stage GT method for reviewing literature. This paper will provide insights into the advantages and disadvantages of their method. Though grounded in theoretical principles surrounding the LR's purpose in GT, this paper gives practical guidance on operationalising this five-stage SLR process. This is done by demonstrating the application of their stages in a doctoral dissertation. A contemporaneous research audit trail was used to document each stage, reflect on challenges, and justify deviations from the original five stages. Excerpts from the audit trail will be used to illustrate how the process was applied. Based on the findings from applying these stages, tentative advancements to the model will be offered so that other researchers will have more detailed guidance on how a SLR may be conducted within GT studies.

Keywords: Grounded theory, Systematic literature review, Audit trail, Middle leadership in education, Theory development

1. Introduction

The subject matter of this paper is an outline of the SLR process used by the author for a doctoral dissertation related to educational leadership. This process resulted from the need for a literature review method compatible with the GT approach that underpinned the research. A lack of definitive guidance on conducting LRs for GT studies was identified. The position of the LR within GT has been a subject of debate among grounded theorists (Yu and Smith, 2021). Additionally, scholars' understanding of the LR as a concept more generally has been described as poor, often offering summary rather than knowledge development (Boote and Beile, 2005; Snyder, 2023). Thus, a guide for rigorously reviewing literature that encourages theory development is needed. Wolfswinkel, Furtmueller and Wilderom (2011) provide such a guide. The advantage of their method is the detailed stepwise approach offered. They emphasise that 'one size does not fit all' and encourage well-intentioned deviation from their stages. The objective of this paper is to illustrate how the author applied and adapted their five-stage LR method. The paper is structured to allow for the demonstration and discussion of how each stage was applied using the dissertation LR as an example or case study. The illustration of each stage is enhanced by extracts from a research audit trail (Carcary, 2009; Carcary, 2020), making decision-making processes transparent and illuminating the method's benefits and challenges.

2. Background

2.1 Misapprehensions Surrounding the LR

As far back as 2005, Boote and Beile highlighted the general weakness of dissertation LRs, referring to this as the 'dirty secret' known by dissertation committees. They also described inadequate LRs submitted to journals for publication. This problem persists today as Snyder (2023) bemoans the frequency at which authors submit LRs that contain merely descriptive summaries. Webster and Watson (2002) share a similar concern, describing the lack of awareness regarding the LR's structure and format amongst many information systems scholars, which they surmise is not exceptional in other fields. However, Boote and Beille (2005) note that this is not the fault of students, but an inevitability stemming from a lack of institutional guidance and published works. Though some textbooks may provide the steps for completing a LR, these can be simplistic and vague and, therefore, belie the complexity of the LR process in reality.

It is accepted that a LR is a critical step in any academic endeavour. What a good LR entails is framed in marginally different ways by authors, but the essence is summarised here. It involves examining past literature and situating it within a broader scholarly and historical context, not simply reporting on the claims made but critically examining them. It should not cease at the point of summarising and synthesising. Instead, it should be future-facing, pinpointing questions for further inquiry and suggesting future research directions. It can do this by identifying and highlighting knowledge gaps, clarifying what is known and unknown about a topic as

well as uncovering key dilemmas and conflicting findings (Boote and Beile, 2005; Palmatier, Houston and Hurland, 2018; Rowe, 2014; Webster and Watson, 2002).

2.2 Positioning the LR Within GT

The LR's purpose within a GT study differs from studies with other approaches at their core (Creswell and Creswell, 2018). In other studies, a line can be drawn relatively clearly from LR to research questions, data collection instruments and results. This is comparatively less so in GT, as the study should be guided by what emerges from the data rather than existing concepts from the LR. The place of the LR in GT has been disputed and poorly understood (Charmaz, 2014). Some grounded theorists believe that reviewing literature before data collection hinders theory generation (Glaser and Strauss, 1967), while others believe a lack of familiarity with the literature is neither desirable nor possible (Charmaz, 2014).

Of note, Yu and Smith (2021) offer a two-step LR process to resolve this issue. They propose conducting a pre-LR prior to data collection. This allows the study to be situated within a scholarly and historical context, enabling the researcher to critically examine claims, summarise, synthesise, identify gaps, and highlight areas for exploration. Additionally, and crucially for grounded theorists, it makes the researcher theoretically sensitive. A second LR takes place post-data collection and analysis. At this point, the main categories from the data analysis are sought out in existing research, beyond the limits of what was searched in the pre-LR, in a more deductive process. In this way, theory development is not limited to existing concepts from the initial LR but remains open.

2.3 The SLR Process

Rowe (2014) describes how the quality of a review can depend on its systematicity, particularly if it is to have an explanatory rather than a descriptive purpose. The ability to explain requires viewing existing concepts related to a topic at play. Systematically approaching the review assists with this. SLRs differ from traditional ones because they aim to identify all studies that address a specific question, their methodology has been developed to minimise bias, and they are protocol-driven and rigorously conducted (Nightingale, 2009). Snyder (2023) warns that collecting literature should not be the researchers' sole focus; a solid plan for meaningful analysis is also crucial. A SLR should allow the reader to make sense of the accumulated knowledge on a topic by synthesising and presenting it to them (Webster and Watson, 2002). Rowe (2014) explains synthesising as summarising numerous research findings using a novel interpretation. GT is a way of interpreting this information in a novel way; it is concept-centric and can provide the basis for how the information will be presented to a reader.

Wolfswinkel, Furtmueller and Wilderom's (2011) article elaborates on this type of review, outlining an explicit protocol, stages to progress through, and instructions on analysing, interpreting, and presenting the information gathered. Their method clarifies the commonly misapprehended LR process, satisfies the criteria for systematicity and is congruent with a GT approach.

3. Methodological Proposal

3.1 Case Study Overview

The research referenced throughout the methodological proposal is a doctoral dissertation concerned with middle leadership in Irish Primary Schools. There are over 3,000 mainstream primary schools in Ireland. Children may be enrolled from age four and attend for eight years. The leadership structure of a typical primary school consists of the principal, deputy principal and a number of assistant principals. Assistant principals are full-time teachers, whereas the others may have an administrative (non-teaching) role depending on school size. Assistant principals can be considered middle leaders (MLs). The concept of middle leadership is under-researched and under-theorised (De Nobile, 2018). The dissertation seeks to examine, understand, and then explain how their role is enacted and conceptualised.

The remainder of this section will explore each stage of Wolfswinkel, Furtmueller and Wilderom's (2011) method. First, each stage is summarised from their original paper; following this, how the researcher implemented each stage will be illustrated using excerpts from the research audit trial. Deviations from the original stages, rationales for decisions and reflections regarding each stage are commented on.

3.2 Stage 1: Define

3.2.1 Stage 1: Summary

Four steps are used to identify the most suitable literature: determining inclusion/exclusion criteria (subject to revisions), identifying fields, formulating search terms that reflect the chosen topic and selecting suitable databases. A logbook should be started to record all search terms and operators, reflect how the search was conducted, and make it replicable.

3.2.2 Stage 1: audit trail

Table 1: Define stage

Timeframe: The last 15 years. <i>Later Revised to 10.</i>
Field: Primary Education. <i>Later revised to Education.</i>
Search Terms: middle leadership in schools, middle leaders, middle leadership in education, <i>middle management in schools, teacher leaders, school leadership and management, teacher leadership. Terms in italics were later removed</i>
Databases: Education Source, ERIC, Google Scholar, JSTOR, Sage, Science Direct, Scopus, Taylor and Francis

3.2.3 Stage 1: Comments on its application:

The application of this stage was iterative from the outset. The initial search criteria were revised after the first attempt at Stage 2 (detailed in section 3.3.2). No deviation occurred from the original stage, but upon reflection, selecting a focus question and adding this to the 'define' stage is recommended. This is not necessarily the study's overall research question but broader and relates to what, ideally, the researcher wishes to uncover in the existing literature. In this example, '*How is middle leadership organised and conceptualised in educational settings?*' This assists in focusing the search at this early stage. A research audit trail (Carcary, 2009; Carcary, 2020) was used in place of the suggested logbook.

3.3 Stage 2: Search

3.3.1 Stage 2: Summary

The decisions made in Stage 1 are actioned, and the search is carried out. This can be time-consuming and episodic and may necessitate revising search terms, selecting synonyms and/or adjusting the scope. These can call for a return to Stage 1, which must be documented.

3.3.2 Stage 2: Comments on its application

Revisions were made to the timeframe and search terms. The original time frame of fifteen years and the broad nature of the search terms resulted in an unmanageable number of texts. The timeframe was reduced to ten years with the intent that later backward citation tracking would alert the researcher to any seminal works outside this timeframe. Wolfswinkel, Furmueller and Wilderom (2011) do not refer to reading publications until later in their stages. However, from experience, reading SLRs related to the topic of interest, where these exist, can assist in refining search criteria. In the case of this project, DeNobile's (2021) LR quantitatively showed the decline in the use of the term middle management, the predominance of middle leadership and teacher leadership, and how those terms were becoming interchangeable. This resulted in dropping dated and unnecessary search terms. Additionally, the first search retrieved studies related to post-primary, mixed (primary and post-primary), and third-level studies. Studies relating to primary education were rare, so the field was adjusted to education more generally. The rationale being that attempting a LR solely on primary education would lack conceptual depth, given the dearth of relevant studies.

3.3.3 Stages 2 and 3: Audit trail

Table 2: Search and select details

Database	Search Terms and Filters Used	Retrieved	Relevant
Education Source	Middle leadership in schools, 2011-2022 academic journals, articles, English.	82	33
ERIC	Middle leadership in schools, 2011-2022, journals, conference proceedings	391	120
Google Scholar	Middle leadership in schools, 2011-2022, articles	>1,000	208

Database	Search Terms and Filters Used	Retrieved	Relevant
Sage	Middle leadership in schools, abstract, education, 2011-2022	45	2
Science Direct	Middle leadership in schools, 2011-2022	12	3
Scopus	Middle leadership in schools, 2011-2022 educational journals	51	9
Taylor and Francis	Middle leadership in schools, 2011-2022, abstract	183	24
		Total	399
		Without duplicates	145
		Post abstract review	85
		Post full-text review	53

3.4 Stage 3: Select

3.4.1 Stage 3: Summary

This is the point at which texts are actually selected. It is recommended first to filter out doubles and then set aside texts that do not fit the review's criteria. This is done by reading titles, abstracts or more of the texts. Forward and backward tracking should take place at this stage. This 'corpus' of papers should represent the best available knowledge of a specified topic.

3.4.2 Stage 3: Audit trail

'The original 399 articles were filtered for doubles and reduced to 145. The abstracts/introductory sections of this 145 were examined, and a further number were removed from the review corpus due to the following: article quality, research referred to was a dissertation/thesis, title no longer accessible, irrelevant content, language other than English, duplicates not previously found. This resulted in 85 readings. Next, the sample was refined based on the full text. 32 were set aside during this stage as they were irrelevant to the guiding question, leaving 53 articles to use as a "corpus".'

Wolfswinkel et al. recommend doing backwards and forward citations at this point, i.e. after full texts have been reviewed, as doing so any earlier could result in tracking from articles that ultimately are not selected.

*This is where my review process deviates from theirs. They advocate entering the analysis phase only after backwards and forward citation tracking, which are two further literature (or data) collection processes. However, in GT it is not acceptable to gather all data and only at that stage begin the analysis. Data collection and analysis are not separate sequential steps but should be conducted concurrently so that analysis guides further data collection. I propose to analyse the data from what I consider the first data collection, i.e., those 53 articles resulting from the **select** stage. This analysis can then later be used to guide backwards and forward citation tracking. This will narrow the focus of the tracking and should result in selecting only the most relevant texts to add to the corpus.'*

3.4.3 Stage 3: Comments on its application

In practice, the search and select stages are strongly interrelated. There is an element of pre-selection in the search stage as titles and abstracts are scanned; some are determined to be irrelevant and set aside even then. At the search stage, a method of gathering and storing the literature that passes this pre-selection is required so that they can be further screened later, which is not expressly articulated by Wolfswinkel Furtmueller and Wilderom (2011). In this project, EndNote™ was used to collect and store texts in a folder (Literature Search 1) for later review. The 'find duplicates' feature filtered out doubles (399 to 145). This folder was worked through by reading the abstracts/introductions (145 to 85). These 85 texts were printed, and the full text was reviewed in hard copy. Texts that passed the full-text review (53) were stored in a new folder on EndNote™ (Refined Literature Search 1). Rather than deleting texts that did not pass this screening process, these were stored in case something seemingly irrelevant became important later and to demonstrate transparency. Reviewing the full texts commences the analysis stage. Relevant sections are highlighted, and notes/memos are made on hard copies, which may later find their way into codes.

3.5 Stage 4: Analyse

3.5.1 Stage 4: Summary

This stage reflects the 'heart of the literature reviewing effort', where the 'key principles of GT are most expressly applied'. They propose beginning the analysis by choosing a random paper and highlighting relevant findings/insights. Each highlighted piece of text becomes a relevant excerpt. While reading each study, the researcher engages in the intertwined process of open, axial, and selective coding.

- Open coding: The analytical process of generating higher abstraction level type categories from sets of concepts. Repeated reading of excerpts causes concepts that capture parts of the data to appear. The process begins with the first paper but can be revised following new insights from further reading. Thus, quickly revisiting papers is essential as codes, categories and properties are (re)developed.
- Axial coding: Further developing categories and identifying interrelations between them and their subcategories.
- Selective coding: Identifying and developing the relations between the main categories. A main category is either the subject of the review or directly concerns the specific research questions. It is mainly here that the researcher theorises and tries to develop a single reasoning to explain phenomena.

The researcher should conduct comparative analysis, continually comparing and linking categorisations. Analysis continues until theoretical saturation occurs. The coding process and the origin of each excerpt should be documented.

3.5.2 Stage 4: Audit trail

'To manage this large amount of data, the 'excerpts' from the selected papers were typed into tables in Microsoft Word for ease of review. As all excerpts are collected and typed into tables, analysis using open coding begins as I re-read excerpt after excerpt, during which process more concepts start to appear. The aim is to identify a set of categories or a bird's eye view of the findings/ideas in each piece of literature (Wolfswinkel et al., 2011). A separate column is inserted next to the excerpts where codes are recorded. Axial coding is used to identify the interrelations between categories and their subcategories. Selective coding takes place to integrate/refine the categories that are identified. The analytical coding steps are performed in an intertwined fashion, going back and forth between articles, rather than a step-by-step process where open coding was followed by axial and completed using selective.

The code list part of these tables (the column 'coding') was printed and reviewed to create tentative categories. Mind mapping software was used with the central category in the middle and sub-codes/categories surrounding it. In this way, possible or preliminary categories began to emerge. These mind maps were then used to elevate these ideas into broader categories from which the narrative for the LR was eventually drawn.

The preliminary results of this analysis will guide the selection and analysis of further texts during backwards and forward citation tracking.'

3.5.3 Stage 4: Comments on its application

Wolfswinkel, Furtmueller and Wilderom (2011) do not detail how excerpts should be organised, only that it should be done in such a way that they can be easily returned to. As instructed, each article was read and highlighted, but this occurred towards the end of the select stage before their formal analysis stage. In addition to describing how the excerpts were managed in 3.5.2, an example is given in Figure 1. The excerpts were read, re-read and coded, i.e., labelled to capture their contents. Memos were produced to pose questions to push analysis forward, help elevate codes into more abstract concepts and compare excerpts. Storing the large number of codes, excerpts, and memos in one document allows information to be compared quickly using the search feature. This process could be significantly shortened with programmes such as NVivo if a researcher had the requisite training. However, reading hard copies, highlighting excerpts, and typing excerpts, though time-consuming, assists with analysis by encouraging repeated reading and familiarity with texts. Mind mapping programmes allow codes/concepts to be dragged around a central category, moved up or down hierarchically, revised, and collapsed easily (Figure 2). These mind maps assisted with axial coding and were used to create narrative memos explaining the ideas that the maps represent (3.5.4).

	Excerpts	Coding	Memos
Murphy, G. (2020)	<ol style="list-style-type: none"> In the past preparedness to lead linked to experience based on seniority. For a minority this view persists. A major obstacle for teacher leaders seeking informal learning in their schools can include principal support. Aspiring leaders need a deep understanding of policy and the capacity to perform in competency based interviews Unsuccessful candidates may feel rejected, these potentially wounding events may make collaboration challenging. These can be a growth opportunity and lead to powerful conversations. Disparities between remuneration and a lack of consistency in what the roles entail across schools are perceived to especially deter applicants. Principals are responsible for building leadership capacity and the preparation of leaders. 	<p>Linking preparedness with seniority in the past. Expertise-experience duality</p> <p>Importance of principal support</p> <p>Selection based on familiarity with policy and interview performance</p> <p>'wounding events' jeopardising collaboration</p> <p>Failure as growth opportunity</p> <p>Remuneration deterring applicants</p> <p>Lacking consistency in role expectations</p> <p>Expecting principals to build leadership capacity</p>	<ol style="list-style-type: none"> Seniority. What are principals views on the role of seniority in MLs preparedness for the role? How does this play out in ML appointment? How do we differentiate between seniority i.e. years of service and experience i.e. track record of leadership? Similar issue explored in Bufalino (2017) Factors constraining teachers from experiencing leadership. Do principals understand this responsibility? What forms does principal support take? What other factors influence selection? Challenges surrounding appointment. How do principals manage staff disappointment? Does it affect collaboration/relationships? Open competition is avoided in other studies for the threat it poses (Moshel and Berkovich, 2021) Lack of role clarity. Barriers to people seeking ML roles. Are there other barriers to teachers seeking ML roles? Principal's role in building leadership capacity. Do principals see this as their role? In what ways to they do this?

Figure 1: Excerpt management sample

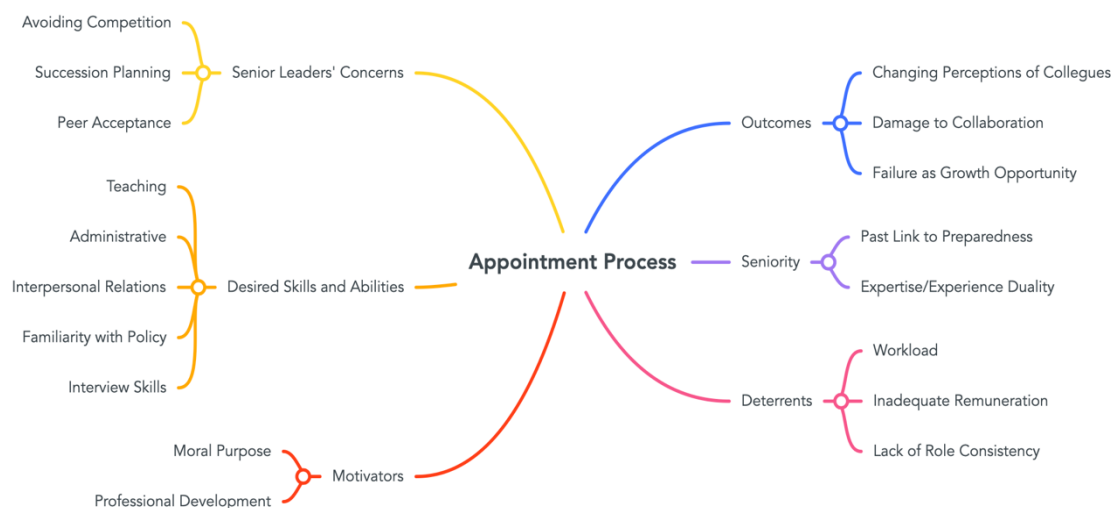


Figure 2: Mind map example

3.5.4 Memo accompanying mind map

'Factors deterring applicants from seeking middle leadership roles include concerns regarding work-life balance, the perceived lack of consistency regarding the role across schools and inadequate remuneration. For some, professional development programs dealing with middle leadership lead to an increased desire for the role. Others are drawn to the role by a moral purpose to improve student outcomes (Elton-Chalcraft, Kendrick and Chapman, 2018; Murphy, 2020). The desirable skills and abilities of a ML vary across studies. Some cite teaching skills as a reason for their appointment, and others report the value of administrative ability (Bryant and Walker, 2022; Carter, 2016; Grootenboer et al., 2021). Familiarity with policy and performance at competency-based interviews were key elsewhere in addition to interpersonal skills (Grootenboer, Edwards-Groves and Rönnerman, 2019; Gurr and Drysdale, 2013; Moshel and Berkovich, 2021; Murphy, 2020). There is also an experience-expertise tension at play. Seniority has been linked to preparedness to lead in some countries, described as selecting for seniority over meritocracy (Bufalino, 2017; Murphy, 2020). When approaching the appointment of middle leaders, senior leaders were concerned with avoiding competition, when possible, succession planning, and selecting leaders easily accepted by staff (Fernandes, 2018; Moshel and Berkovich, 2021). Outcomes of the appointment process is the changing perceptions of colleagues regarding those who are successful and disappointment among unsuccessful staff, which can damage collaborative cultures. However, when managed carefully, these failures can be used as a growth opportunity (Kavanagh, Sexton and Fitzsimons, 2021, Murphy 2020).' Stage 5: present

3.5.5 *Stage 5: Summary*

The analyse stage results in an overview of accumulated facts but can also lead to explanations for findings. Process notes (logbooks, memos) may rise to prominence when representing and structuring this knowledge. They suggest a structure from Creswell (2008), stating the scope, how/why the topic was approached, and presenting one or more specific review questions. The review should offer insight into the definition of key terms. The discussion should bring surprising items to the fore and explain the benefits of using GT to explain emerging concepts' interconnections.

3.5.6 *Stage 5: Comments on its application*

Presentation and analysis coalesce in this project. The analysis stage resulted in a series of mind maps and memos explicating the categories and subcategories from the literature. Forward and backwards citation tracking can then supplement or bolster these. In this project, the traditional LR chapter is not completed until after data collection, when a further LR occurs. This pre-LR's purpose is to cause the researcher to become theoretically sensitive and discover gaps, stopping short of theory generation, which should happen later. What follows is a list of the main categories that were uncovered:

- Defining the ML.
- ML Position.
- Expectations of the ML Role.
- Actions and Qualities of Successful MLs.
- The Principal's Role in Relation to Middle Leadership.
- Challenges and Constraints of the ML Role.

Each was the result of the combination of multiple mind maps and memos. From each mind map, a narrative was drawn that attempted to draw all the minor codes or ideas together, first in a descriptive and later in an explanatory fashion. The idea is to ask or explain why these codes and categories are relevant, how they affect others, and what might be missing from possible explanations. The complete explanatory argument of the LR from this case study cannot be expounded within the confines of this paper. However, for completeness, a simplified summary is as follows: A working definition of middle leadership was framed, connecting the seemingly separate sections was the role of the principal concerning the ML. They influence how the role is enacted in their contexts; in a hierarchical system such as a school, the role of the ML can be shaped by the principal, who decides what work to delegate (or distribute) and delineates the role. The principal's role in ML development could influence who seeks out formal positions and which qualities and skills are valued and nurtured. Many of the challenges and constraints can also be related to the principal themselves or mitigated by some action on their part. So, to return to the guiding question, how middle leadership is conceptualised is contained within the working definition, the role expectations and qualities and skills of MLs. It is organised in differing ways across and within jurisdictions, which is heavily influenced by the principal.

For research projects completing the LR in one phase, prior to data collection, the mind maps and memos can be used to construct the LR essay or chapter. Samples inserted as an appendix can demonstrate the process and show rigour. Showing the processes behind this type of work may find increasing importance with the proliferation of AI tools in academia.

4. Conclusion

An advantage of Wolfswinkel, Furtmueller and Wilderom's (2011) method is that it provides distinct stages to guide a researcher through the LR. A disadvantage is that in the latter stages, as the process becomes more complex, it lacks detailed explanations of the practicalities involved. These explanatory details, along with illustrative examples, are needed if the method is to be truly instructive to other researchers. Wolfswinkel, Furtmueller and Wilderom (2011) state that although many reviewers have adopted a similar approach to theirs, none have articulated a guide. This article demonstrates the application of this guide using examples from a real research project to outline how it can be adopted and adapted to serve a researcher's specific purposes. The following tentative advancements were offered, which have theoretical, methodological, and practical implications for future research.

- Adding a focus question to the define stage and utilising existing SLRs to refine search terms and expedite the search process.
- Changing when backward/forward citation tracking is applied to align the method more closely with GT.

- Regarding the latter stages, this paper illustrates how to organise literature and excerpts for ease of comparison and analysis and provides guidance on conducting coding, moving from codes to categories, and presenting categories using real research examples.
- Though the original authors refer to the iterative nature of the model, this paper endeavours to show more clearly how each stage overlaps and informs the next by detailing how one stage often begins before the conclusion of the previous one.
- Wolfswinkel, Furtmueller and Wilderom aim to enable more thorough and transparent reviews; utilising a research audit trail, as demonstrated here, significantly furthers this aim.

Wolfswinkel, Furtmueller, and Wilderom (2011) refer to their article as the groundwork and welcome further analytical refinement to achieve better and more transparent reviews; this article offers some refinement to their method. A limitation of this paper is that it only refers to how one researcher applied this method to one research project in a single field, so the results may be subjective with limited generalisability. Advancement to the work in this paper could come from other researchers in disparate fields taking the information and example offered, applying, and adapting it for their own research and then contributing even more detail and advice on how such reviews can be conducted and presented.

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