Exploring the Literature for a Doctoral Review through the Process of Questioning

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ABSTRACT

A doctoral literature review in the field of research in management and strategy may often be a source of significant concern for researchers. Such concerns are raised in relation to the exploration of the literature, with the view of engaging in the process of formulating the research problem and refining the questioning. So far, this process has remained explored in insufficient depth. Thus, we make a methodological proposition based on its exploration from the initial questioning – which guides doctoral researchers through the literature – all the way to the definitive research question. We argue that the refining process is iterative and involves expansion and contraction of the literature being explored. We then propose to operationalise principles from Grounded Theory (GT), notably abduction, coding, and theoretical saturation to analyse the literature and to articulate the passage from expansion to contraction through the different iterations of the process. In so doing, we introduce two distinctive intermediate elements in this process: (1) relative empirical saturation (ES_R) to mark the condition for timing the start of the contraction; and (2) relative theoretical saturation (TS_R) to mark the end of a full iteration.

Keywords: Empirical saturation; grounded theory; literature review; research question; theoretical saturation.

[1] The authors are PhD candidates in the field of strategy and strategic project management, which is reflected in the illustrative case used throughout the paper.

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"If I had a problem and my life depended on it, I would spend the first 55 minutes determining the proper question to ask, for once I know the proper question; I could solve the problem in less than 5 minutes."

A. Einstein (1879 – 1955)

INTRODUCTION

Exploring the literature is often tricky and daunting for doctoral researchers who are at the early stages of a long process of learning how to conduct research in management and strategy. The sheer volume of information and knowledge they must assimilate during the research process is of a large scope. In addition to other philosophical, methodological and empirical concerns, doctoral researchers find themselves struggling with the process of conducting a literature review for two main reasons. First, some might find it frustrating not being able to access some of the published material considered relevant to their main research theme. Second, others spend a lot of effort attempting to cover all aspects of the research theme, not knowing where to draw the boundary.

The literature review occupies a central role within the doctoral research process. The doctoral researcher uses an initial questioning which may emerge from a variety of sources. Intuition of the researcher, orientation from the research supervisor, serendipity, topical interest, or research constraints are examples of such sources. These may also be considered as influences which are susceptible of modifying the questioning and therefore the review process. They may also assist the researcher in navigating through the research landscape.

This initial questioning rarely remains the same. It evolves and gets refined as the process progresses and the research problem is formulated. In fact, compared to the breadth and vastness of the available material on subjects which form the backbone of research training, there are few references available to doctoral researchers to assist them in engaging with the literature to fine tune their questioning. Our contention is that drawing on past work, in

particular drawing on recommendations made in research methods textbooks (Hart, 2010; Saunders et al, 2009; Creswell, 2009) and journal papers (Webster and Watson, 2002; Boell, S. K. and Cecez–Kecmanovic, D, 2010), provides interesting insights. Such recommendations concern issues related to conducting and writing literature reviews for research in general. However, we observe a significant lack related to how the literature exploration assists in formulating research problems and fine tuning the research questioning. Nonetheless, this provides us with the opportunity to explore the process issue in significantly more depth. This leads us to make an alternative methodological proposition.

We aim to target our methodological proposition at a particular population of doctoral researchers in the academic fields of management and strategy. Here, we consider the process of formulating the research problem and refining the questioning through the literature exploration. Specifically, we address researchers who decide to conduct a literature review at the outset of their qualitative investigation with the view of developing a theoretical framework. Throughout this paper, we use an illustrative example from a hypothetical doctoral researcher of the name of William Tappert. Our primary goal is to develop an answer to the following specific question: *In a qualitative type of a doctoral study, how can researchers explore the literature to formulate the research problem and fine tune their questioning?*

We propose that such questions can be answered by engaging with the literature in an exploratory fashion, through an interactive process which involves the use of some principles from grounded theory (GT), namely, abduction, coding, and theoretical saturation, and we introduce empirical saturations. Furthermore, we recognise that the doctoral researcher develops a set of skills such as critical thinking[2] and academic writing. Such skills co-evolve with the research questioning through the literature exploration and present the potential to facilitate problem formulation which, in our view, is regarded as one of the main outcomes of the literature exploration process addressed in this article. Following Creswell's typology of literature usage (Creswell, 2009), we consider that the literature review is used to frame the

[2] The doctoral researcher engages with the literature with an a priori knowledge and a set of initial skills. Urquhart and Fernandez, (2006) concur that it is impossible not to be influenced by the background knowledge one has, thus discrediting the myth of the researcher as a blank slate.

research problem and we assume that some literature is available and accessible to the researcher. Concurrently, we reiterate that our focus is on the process of refining the questioning through the literature exploration and not writing the final review per se.

Based on prior work, the next section addresses definitional issues of the literature review. This section will be concluded with an outline of the proposed interactive process and will be followed by a brief discussion on the aims of a literature review. In the section that follows, using the illustrative case to emphasize its usefulness, we introduce problem formulation and its relevant components, notably exploration of the literature, positioning of the problem, its empirical anchoring and evolution of the questioning. The subsequent section introduces GT and its associated principles. This will be followed by a development and description of the iterative process through which the final research question is produced. The last section opens the debate on the value of using GT by treating the literature as an empirical field. Finally, a conclusion ends the article with some final thoughts.

ILLUSTRATIVE EXAMPLE

We draw on an inspiration from Klein and Kozlowski (2000) to illustrate the importance of the literature review process by using a hypothetical doctoral researcher of the name of William Tappert. He seeks to explore the literature on his topic of interest with a view of refining his questioning. We will examine William Tappert's 'research' throughout this paper, referring recurrently to the challenges and difficulties which he faces in shifting focus and formulating his research problem. Each of the illustrative boxes which will be presented in subsequent sections reflects examples of his undertakings. We hope that the use of this illustrative example provides this article with a unifying and practical focus.

We provide additional background about William Tappert's doctoral literature review challenge. William Tappert has long been interested in the extent to which projects succeed. He often tried to identify predictors of success by applying a set of heuristic techniques. William has recently been in charge of coordinating a complex technology innovation project, in the form of a transnational partnership. He decided that it would be a great opportunity for him to use it as a real empirical case for a long overdue PhD research program. So William Tappert asked himself a fundamental question: Why is coordination not having the expected positive impact on project success? Especially since all projects involve goal decomposition upstream and integration / assembly downstream.

WHAT IS A LITERATURE REVIEW?

We begin our examination with the most basic question of all: what is a literature review? We identify a host of definitions which attempted to define what a literature review is and is not. These, point to the fact that a literature review is many things, a landscape with considerable landmarks such as key authors and theoretical movements. It is also an entry point and participation to a community of discourse (Huff, 1999). It informs the reader on the assessment of the discourse including the research positioning within the community, and, to a certain extent who the researcher is. The most notable of these definitions are summarised in table 1. Thus, we identify three fundamental characteristics: the first (Hart, 2010) focuses on the *administrative procedure* of doing a literature review with the intention of eventually writing it. Hart's definition raises a number of important issues in relation to the skills required and the process of conducting such a review, which seem to be a given. Specifically how the doctoral researcher engages with the literature is often implied but not explicitly described; the second (Creswell, 2009) extends Hart's definition, suggesting that: "*the literature exploration provides frameworks for thinking about topics,*" nonetheless this definition follows a similar instrumental and normative trend as Hart's; the third (Dumez, 2011; Babbie, 2008) fits a dialectical approach by identifying "*what is known* and *what is unknown"* about a given research topic, thus emphasising the tension between the two.

Although such definitions appear to be instructionally practical, we find them unsatisfactory since they do not inform on the process of reviewing the literature through problem formulation as an obligatory point of passage, apart from a mere suggestion linked to expansion and contraction (Hart, 1998; Dumez, 2011). The definitions we summarised in table 1 heighten the need to focus specifically on a specific type of a literature review, i.e. the doctoral review. Such focus means disregarding past recommendations and definitions related to writing review articles (Webster and Watson, 2002), systematic reviews (Cooper, 1998; Buchanan and Bryman, 2010; Wolfswinkel et al., 2013), and reviews for quantitative type of studies.

Author	Definition
Hart (2010)	*"A literature review is the selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed"*
Dumez (2011)	*"A process of collection and analysis of what has been written around a specific* ***question.*** *A literature review aims at identifying the tension between what is known and what is unknown about a given phenomenon."*
Cresswell (2009)	*"A literature review means locating and summarizing the studies about a topic. Often these are research studies (since you are conducting a research study), but they may also include conceptual articles or thought pieces that provide frameworks for thinking about topics."*
Babbie (2008)	*"A review of the literature is the way we learn about what is already known and not known"*
Onwuengbuzie et al (2010)	*"A literature review is an interpretation of a selection of published and/or unpublished documents…that optimally involves summarization, analysis, evaluation, and synthesis of the documents."*

Table 1. Summary of alternative definitions of a literature review

Based on the shortcomings of the aforementioned definitions in exploring the process of a literature review, we propose that: '*a literature review is the outcome of a dynamic interaction between the doctoral researcher and a body of published / unpublished literature (knowledge) on a specified topic. It enables the researcher to adequately formulate the research problem and refine the questioning.*' (see Figure 1). Therefore, we propose to explore this interactive process in more depth (marked by the question mark on Figure 1).

Hart (2010), Buchanan and Bryman (2010), Dumez, (2011, 2013) described a rather generic administrative procedure. Though Hart (2010) produced an entire book on doing a literature review, we testify to its normative prescriptive procedures. Thus, we maintain that, for Hart, the researcher is not really taken into account almost to the extent that all researchers are considered equal to conduct and write, quite successfully, their literature review if the suggested recommendations are rigorously followed. The authors posit that the difficulty of conducting a doctoral literature review lies in the ability to both start and end a process – which is yet to be known – starting with an initial questioning, an empirical observation, a

topical interest, or an orientation from the research supervisor, thus providing an entry point to a seemingly infinite body of literature. Concurrently, the authors acknowledge that this interactive process involves an exploration of the depth and breadth of the literature as two fundamental dimensions. Such dimensions are explored in an iterative process (Combs et al, 2010) through which the research questioning is honed progressively, thus engaging the researcher dynamically with the literature.

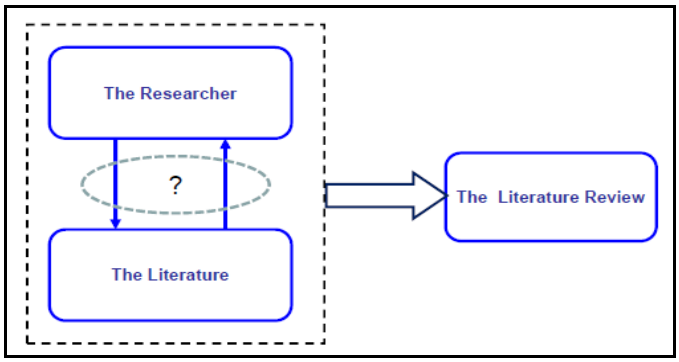

Figure 1. The literature review as an interactive process

WHAT ARE THE AIMS OF A LITERATURE REVIEW?

The literature review occupies a defining role in the research process. It aims primarily at identifying and analysing elements of the literature which of relevance to the topic at hand. The initial questioning may represent the first guiding signpost and provides some indication as to the originality of the research being undertaken. One of the aims of a literature review is positioning the research in the wider body of existing scholarship and contextualising or refining the research questioning (Hart, 2010). In practice, this should enable the researcher to develop clearer ideas about the research problem formulation, and eventually the research strategy (methodology).

Starting and ending the literature review process presents a number of important advantages for a doctoral researcher. It shows, essentially, that the researcher has covered the depth and breadth of the issues in terms of theory and methodology addressed in the literature (Hart, 2010; Dumez, 2011). As such, the literature review also demonstrates to the research supervisor that the researcher has acquired sufficient understanding of the proposed research topic. This understanding is supposed to provide a unique vantage point on the problem to be

studied and consequently substantial knowledge on issues which are directly related to it. It should also demonstrate the ability of the researcher to satisfy academic requirements, while at the same time showing that a discriminatory ability to judge good quality work has been developed. As a result, the literature review should support the pertinence and originality of the doctoral *research problem* which is used subsequently to justify the methodology. Given the aforementioned aims of the literature review process, we address only one of its outcomes, i.e. problem formulation. This is because methodology is usually addressed after problem formulation and therefore goes beyond the scope of this paper.

PROBLEM FORMULATION

Problem formulation is considered as an important aspect of the research process. It enables the researcher to anchor the problem empirically. This will have direct implications on theory building and research design. The literature review process should lead to formulating a research problem by building arguments, challenging assumptions and identifying areas which require further examination (Van de Ven, 2007). Problem formulation should also enable the researcher to delineate the research boundaries of the study (see Table 2). Specifying such boundaries means defining concepts, specifying delimitations in time and space and subsequently building awareness about the limitations of the study. All such activities are carried out by exploring the literature, situating the problem, and anchoring it empirically.

Use of the literature	**Criteria**	**Examples of suitable strategy types**
The literature is used to frame the problem in the introduction of the study	There must be some literature available	Typically literature reviews are used in all qualitative studies, regardless of type
The literature is presented in the study at the end; it becomes a basis for comparing and contrasting findings of the qualitative study	This approach is the most suitable for the inductive process of qualitative research. The literature does not guide and direct the study but becomes an aid once patterns and categories have been identified	This approach is used in all types of qualitative designs, but it is most popular with GT, where one contrasts and compares a theory with other theories found in the literature

Table 2. Using literature in a qualitative study (Adapted from Creswell, 2009)

EXPLORING THE LITERATURE

Before starting to explore the literature, the doctoral researcher often has an indication as to the topic of interest, or the initial questioning. It may also be the case that the researcher has made an observation through a professional experience. Exploration of the literature may also be initiated by an extension of earlier work such as a Master's degree dissertation, or an academic orientation from a doctoral research supervisor.

At the outset of the research process, it is important to recognise that the initial enquiry (initial research questioning) is likely to change along the process. For example, a researcher with a background in human resource management or organisational behaviour might express an interest in strategic human resources. Thus defining the area of research in relatively broad terms would present insufficient specificity in this early phase with regards to the initial enquiry. The next step is to explore the literature in this general field in more detail. Initially, the doctoral researcher needs to review a large scope of references including textbooks, academic papers, television broadcasts, video recordings, professional magazines and newspapers (Hart, 2010). At this stage, the researcher should bear in mind that relevant literature should be critically evaluated and not just reported. This is because it is the critical evaluation of the work of other academics that often leads to a questioning which is worth studying (Saunders et al., 2009). Furthermore, more emphasis should be placed on fundamental sources or foundational publications pertaining to the field of interest. However, as the focus on a viable research problem starts to take shape, more emphasis should be placed on peer reviewed articles, unless the research topic is new and the literature is scarce.

One of the most significant recommendations for exploring the literature was made by Alvesson and Sandberg (2011). The authors suggest that the traditional way of exploring the literature has been predominantly the '*gap spotting*' approach referred. Indeed, while exploring the literature, researchers would identify gaps and then attempt to fill them by formulating suitable research questions. However, Alvesson & Sandberg suggest that problematising the literature by challenging its underlying assumptions can be more productive. In fact, the authors go as far as proposing a methodology which dialectically interrogates the literature and its theoretical underpinnings to identify, articulate and challenge different types of assumptions that underlie it. If this is achieved, they suggest, formulating research questions on that basis may enable the development of more interesting theories.

Similar conclusions in relation to challenging assumptions were also drawn by Dubin (1978) and Whetten (1989). These authors suggest that using grounded theory in reviewing publications might lead to a challenge of the underlying assumption of existing theories.

EXAMPLE 1.1: Exploring the literature

So William Tappert's questioning shifted to coordination of complex projects. He identified some literature which he thought pertinent at this stage. Academic articles, professional articles from APM Projects, the voice of project management and books (e.g. L'Epopée Logan; L'Auto qui n'éxistait pas) were mobilised for that purpose. The literature comprises documents related to the concept of coordination that William broadly investigated and thoroughly examined. These documents included not only the management literature such as information systems management, innovation management, project management, technology management, but extend beyond. It included complexity and systems, industrial systems, and production modes.

William Tappert followed the recommendations of Alvesson & Sandberg (2011) and explored the various literature domains bearing in mind the specifics of the assumptions of the theories that underpin them. Consequently, he identified that although the seminal works in coordination in permanent organisations were useful, they are used unquestionably in temporary organisations (TO) such as projects without much attention being paid to the characteristics of the latter. Thus William Tappert became interested in how coordination is achieved in TOs, thus altering his questioning.

SITUATING THE PROBLEM

Problem formulation starts by situating the problem in time and in space. When and how a problem is situated largely determines how it is approached in order to be solved. For example, labelling a situation an organisational development problem means that it will be approached from a different perspective than if it is viewed as an organisational effectiveness problem, or even a resource problem. Therefore, when situating the research problem, the doctoral researcher is required to be particularly attentive to the perspectives that will take foreground and background in situating the problem area (Van de Ven, 2007). The focus and time span, the level and scope of the problem, as well as the context (Abbott, 2004) are all dimensions which have implications on problem formulation. For example, it is common in studies of projects to put project managers in the foreground and the funding authorities or other stakeholders in the background. In this case, the situations lived by project managers would be the focus of the study. Conversely, the concerns of project individuals would be considered as background or context of the project manager's problem area. Therefore,

identifying who is in the background and the foreground has a bearing on problem formulation.

The next step would be to consider that a research problem occurs at a given level, meaning that it may be observed or identified at individual, group, organisational, industry, or a sector level of analysis. In addition, events and factors which are thought to have a bearing, contribute or are a consequence of the problem are likely to be found at different levels of analysis. As for problem scope, it relates to how broad, how deep, even how long the problem should be studied and these are important questions to consider. In practice, exploration of the literature should enable the researcher to become more familiar with the problem area and should lead to a decreased problem scope.

ANCHORING THE PROBLEM EMPIRICALLY

Situating a problem area and obtaining related information represent two intersecting steps in problem formulation, while anchoring the research problem empirically should lead to an appreciation of the multiple dimensions and manifestations of its solution space (Van de Ven, 2007). Situating a problem entails an exploratory study into the context and the things that are known about the problem area. The purpose is to build familiarity in order to be able to answer basic questions such as: who, what, where, when, why and how the problem exists. Therefore, anchoring the problem empirically requires specific and general answers to these questions through descriptions of the problem. Here, specific answers provide details about specific problems. General answers are important since they show that the problem is not unique; instead it may be an instance of a much larger problem (Van de Ven, 2007).

At the initial stages of a research study, the doctoral researcher is rarely familiar with the problem area to be able to answer the aforementioned basic questions, in particular and in general. Anchoring the problem empirically requires that the researcher is open to and informed by the interpretations of others about the problem area. As Bruner (1986) states: "*Reflection and 'distancing' are crucial aspects of achieving sense of the range of possible stances - a meta-cognitive step of huge import.*" The majority of problems tend to exist in a 'buzzing, blooming and confusing' world (Van de Ven, 2007).

EXAMPLE 1.2: Situating and anchoring the problem
At this stage, William Tappert identified that the characteristics of TOs exhume coordination problems, specifically during the implementation phase. He was aware that given that the TO is spatially distributed, its coordination issues are further heightened since the actors involved in the TO do not share the same context. This led him to further reflect on the level at which coordination issues are most apparent. In fact, he observed that coordination processes and their associated outcomes occur at different levels of the TO, namely at the individual level, such as how the project actors interact with one another to achieve a common task; and how distributed teams also coordinate their efforts, and what problems they face. On an organizational level, the different administrative structures of the partner organizations involved in the TO are required to coordinate their efforts so as to aggregate the required outputs and report to the funding authorities. William Tappert soon understood that the coordination problems inherent to the implementation phase should be studied with a focus on the actors' actions by linking them to the task definitions. Therefore, he undertook a detailed description of the organisation and the task descriptions inherent the goals of the TO. He was aware of his own personal bias, and the different meanings which the actors attribute to their actions.

EVOLUTION OF THE QUESTIONING

Research questions help direct and sharpen the focus of the researcher's thinking in the creation of knowledge. The problem formulation exercise of situating and anchoring the problem empirically provides numerous attempts and opportunities to formulate, reframe and alter the questioning. Typically, in management and strategy, questioning may change considerably during the literature review process. Initial questioning is less definitive and often evolves over the course of the research (Boell & Cecez-Kecmanovic, 2010); it evolves and matures throughout the early part of the research.

Evolution of the research question means that it becomes more contextualised on the subject area and more specific in terms of the problem which it addresses. Thus honing the questioning enables a clearer focus, level and scope of the problem area. Such questioning is grounded to the extent that it directly addresses a critical aspect of the problem as it was observed empirically (through a field study) or described in the literature. In addition, the question is often relevant to a set of assumptions which significantly change the research context, a critical gap, or an anomaly that may require further theory building or theory generation. According to Bruner (1996): "*Good questions are ones that pose dilemmas, subvert obvious or canonical truths, and force incongruities upon our attention*"

The research question, in a definitive sense, is the outcome of a problem formulation process. It is often formulated in a form that merits a scientific investigation. This often leads to a better understanding of the problem, as well as its potential resolution. Questioning[3] may be the outcome of the literature analysis and its critical evaluation, in other words, the literature review process. This is because it identifies specific interrogations from a host of other potential options that might be the focus of an empirical investigation. Furthermore, the research questioning narrows the focus of the study and establishes a practical criterion for assessing the relevance and subsequently the ultimate quality of a research project.

A particular study can be deemed successful to the extent that it answers the question it set out to address. The research question may represent the end of problem formulation, though it may also be altered by other insights and influences. These may range from chance, serendipity, the intuition of the researcher, and newly published research, insights from the empirical field, or an orientation from the research supervisor. There may also be the case that complete or partial immersion in the research field may provide insights which are likely to lead the researcher to review or alter the questioning.

EXAMPLE 1.3: Evolution of the questioning
Informed by the initial exploration of the literature, William Tappert built insight from his critical evaluation of the literature. This enabled him to refine his questioning. Indeed, he explored further literature which helped him identify that project frameworks make an extensive use of various project management (PM) tools and techniques for the purpose of coordination. This is done, he reckons, under the assumption of full pre-given knowledge of the tasks to be implemented. However, in complex contexts, some knowledge is constructed during the implementation phase, which renders the tools and techniques of PM less efficient for coordination. As a result, William Tappert altered his questioning towards coordination requirements and how they are determined during the implementation phase of complex TOs. This reflects the evolution of his questioning from '*How is coordination achieved in TOs?*' to '*what is the role of PM tools in coordination in TOs during the implementation phase?*' to *how can the insufficiencies of PM tools be addressed in the implementation phase?'* to w*hat are the determinants of coordination requirements in a TO?*

[3] We use the term 'questioning' to suggest that whether research starts with an empirical observation, a topical interest, or an initial question, it often involves the progressive elaboration of an implicit question which eventually yields an explicit final research question. Progressive elaboration enables the implicit question to live through the process of problem formulation.

USING GROUNDED THEORY TO ANALYSE THE LITERATURE

Grounded Theory (GT) is a theory construction research method for collecting and analyzing observational data through analytic induction (Strauss and Corbin, 1998). The aim of GT is to derive theory from an analysis of the patterns, themes and categories discovered in the data. Inherent to GT is the systematic coding of the data, which is considered important for achieving validity and reliability of the analysis.

Though the use of GT has traditionally been confined to documentary evidence originating from open-ended interviews, observational notes etc. Here, it is used for the purpose of exploring the literature review process. This exploration entails analyzing and considering as data any published/unpublished articles and other forms of literature that might have been considered relevant. In other words, the literature is the source of data for the doctoral researcher. The explicit iterative nature of GT fits well into our current proposition for exploring the review process. We believe that GT is useful as it enables doctoral researchers to work toward making sense of an amorphous set of literature excerpts (which constitute the data). The analytical processes invoked by GT offer doctoral researchers a sound opportunity to deal with the problems of the literature review process and for theorizing, or building progressively, and in a timely manner, their theoretical frameworks.

The principle of abduction is particularly relevant for this purpose, owing to the researchers' engagement with the different elements previously identified (see Figure 2), in an iterative way. This is achieved by combining induction and deduction. According to Strauss and Corbin (1998), induction has been overemphasised in GT research suggesting that whenever researchers conceptualise data, they are engaging in deduction and that effective grounded theory requires: *"an interplay between induction and deduction (as in all other fields of science)."* Thus, the notion of abduction has been integrated into GT as 'analytic induction,'" (Suddaby, 2006).

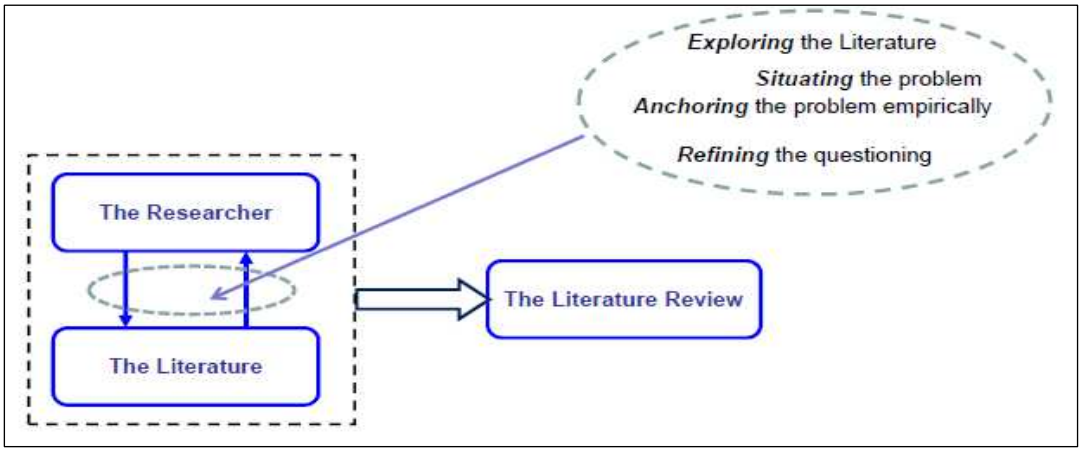

Figure 2. The literature review through the questioning process

ABDUCTION

The Stanford encyclopaedia of philosophy defines abduction as *"the inference to the best explanation."* It is a type of inference that assigns special status to explanatory considerations. Abduction is described in the works of Umberto Eco (1983, cited in Bertilsson, 2004) as a '*detective's method*' in detective stories. Bertilsson puts forward the logic of similarity between scientific investigations and the construction of a detective story based on the pragmatism of Charles Sanders Pierce "*It is the purpose of scientific investigations to critically transform our vague common sense into more precise statements (concepts). In the case of the construction of a good (detective) story, the same 'logic' is at work*", (Bertilsson, 2004). Abduction is used by a researcher in the course of the pursuit of establishing connections between the data or evidence, without being conscious of the potential learning outcomes from the context as well as the nature of the data (Remenyi, 2013). For example, in a qualitative investigation, abduction helps the researcher tune up his reasoning with respect to his data by switching between deduction and induction iteratively. This is achieved in view of drawing the best possible inferences. Here, the researcher engages with the literature having a priori certain ideas and thoughts, in view of identifying relevant and pertinent excerpts which may be theoretical, methodological, or empirical (e.g. concepts, techniques, empirical insights). Then the researcher would use such excerpts as material for further analysis, through which there would be a subsequent reengagement with the literature from a different methodological, empirical or theoretical stance, or with a different focus. This abductive process is characteristic of the manner in which the researcher triggers expansion and contraction of the content used in the pursuit of a better inference.

CODING EXCERPTS OF LITERATURE

Subsequent to the identification of relevant literature, the doctoral researcher starts to read with the purpose of extracting excerpts of literature which will be considered relevant. These excerpts represent not only raw data but verbatim, ideas, topics, memos, or even numerical data. Thus, engaging in coding in its varied forms, i.e. open, axial and selective coding. These are intertwined analytical processes (Strauss and Corbin, 1998). Here, we refer to coding not in the systematic way suggested by GT, but rather as a metaphor. Thus coding involves collecting excerpts of literature according to criteria linked to what the researcher judges useful. In this respect, open coding involves the engagement of the researcher in conceptualizing and articulating aspects of the excerpts which are judged relevant when critically reading some academic work. At this stage, the doctoral researcher addresses the theoretical positions of selected authors by justifying inclusion and exclusion of literature based on a set of criteria. This process of coding may give us an idea on how the researcher frames his field. He may put forward an interpretation of the authors work in question. Such interpretation tells us as much about the researcher as it does about the author's work. This analytical step enables the researcher to build insight. It presents a prerequisite for the identification and construction of concepts based on the literature excerpts. Ultimately, open coding is not only to identify a number of categories of a study's findings with their associated theoretical and methodological insights, but also their properties and dimensions. These will form the foundations for the relations between categories and sub-categories.

The next type of coding is axial coding defined as a set of procedures whereby categories are put together in new ways after open coding, by making connections between categories. This is done by linking codes to contexts, to consequences, to patterns of interactions and to causes (Strauss and Corbin, 1998). Open and axial coding are entangled to the extent that they enable the researcher to define the boundaries of a category (a phenomenon) in terms of the conditions of their emergence. The doctoral researcher engages in theorising or reconceptualising in relation to their research object by developing a reasoning that fits the problem at hand. Reasoning on the process of relating categories to one another may often require combinations of deductive and inductive thinking, in other words abductive thinking (see Example 1.4).

Once the categories have been identified, selective coding is used to refine and integrate them. Here, the subject of the review might be the main category in the literature review, and it may also be related to the research question. Selective coding is the procedure of selecting the core strategy relating it to other categories, identifying and establishing and validating relations between the main categories, and filling in categories that need further refinement. A core category is the central issue or focus around which all other categories are integrated (Strauss and Corbin, 1998).

THEORETICAL SATURATION

The aforementioned analytical coding steps are executed in an interrelated manner by alternating between academic papers, excerpts of literature, concepts, categories and sub-categories. The early emerging results from analysing the selected literature material serve as guidance for further analysis of the remaining material. This is called theoretical saturation, an approach which is thought to increase the likelihood for identifying aspects of the phenomenon under investigation that might require additional data. According to Strauss and Corbin (1998) theoretical saturation is achieved when no more relations, concepts and categories arise. Data (i.e. literature excerpts) saturation is often subject to debate and is thought to be constrained by both practical issues (e.g. the resources and time frame available to the researcher, the field access, etc.), and "*the researcher's experience and expertise*" (Suddaby, 2006).

EMPIRICAL SATURATION

The literature analysis continues up to the point that all papers and excerpts are read, analysed and potentially connected, and theoretical saturation is reached, and i.e. no more new relations are identified. Empirical saturation is also necessary since we have considered the literature as empirical data. Achieving empirical saturation means that no relevant literature is identified. In fact, in terms of timing, empirical saturation marks the start of the narrowing or contraction part of the process (see Figure 3) at any given iteration. It will then be followed by an abductive analysis and coding of the literature which would result in a more fine tuned questioning and theoretical saturation. Thus, empirical saturation is antecedent to theoretical saturation and both are expected to mark the timing of the contraction, and the termination of

a single iteration, respectively. The end of one iteration eventually leads to an improved questioning which can be ultimately used to reengage with the literature, thus initialising yet another iteration.

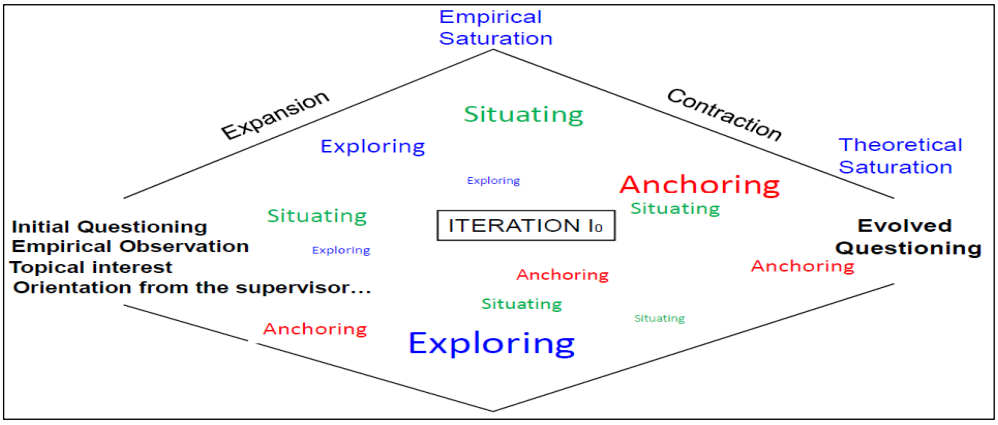

Figure 3. Outline of a single iteration in the proposed literature exploration process

THE QUESTIONING PROCESS

Initial questioning, empirical observation, topical interest, orientation from the research supervisor, etc. mark the start of the literature exploration process. For example, initial questioning permits the selection of an area of study in which relevant literature is identified and the search expanded. Once this literature is read and critically evaluated, it enables the researcher to narrow down the breadth of the literature, while exploring its depth. It is at this stage that GT principles are most useful, particularly empirical saturation (see Figure 3) which creates the enabling conditions for timing the contraction of the process, therefore enabling the researcher to explore its depth. Indeed, contraction in this iteration (I_0) marks the beginning of the passage to further analysis –without the use of additional literature material – in view of refining the questioning (see Figure 3).

We illustrate the elements of problem formulation (*exploring the literature, situating the problem, anchoring it empirically and refining the questioning*) in Figure 3 randomly to highlight that they are not performed in any given order. In fact, establishing the research boundaries through situating and anchoring the problem empirically is not a structured

process. It reflects a mental '*bubbling*' process involving abductive and critical thinking[4], argument building, moments of reflection, etc. Such bubbling involves a dynamic interaction of the elements of the literature exploration process shown in Figure 3. Situating the research problem, anchoring it empirically while exploring the literature are therefore represented in different colours and sizes. This is done with the view of specifically reflecting part of the bubbling effect inherent to the process. This leads to a more evolved research questioning at the end of the iteration. During this process, the researcher is expected to justify the inclusion and exclusion of the literature after having critically examined the state of the field.

EXAMPLE 1.4: Using principles from GT

The previous assumptions underlying the literature excerpts in the aforementioned management areas explored by William Tappert (see Example 1.1) specifically; full pre-given knowledge for the tasks to be executed, permanency and co-location enabled him to reengage with the literature differently. Indeed, he determined that these assumptions (which have been transposed from classical organization studies) do not hold given that the specific TO in which he is interested is temporary, spatially distributed and constructs knowledge during implementation. This insight made him reengage with the literature, more precisely by looking into published material on coordination in TOs, their technological task and the uncertainties associated with their goals and methods.

Through abduction, by performing open coding, the concept of coordination as well as its properties and dimensions were made visible i.e. full knowledge for the tasks to be executed, permanency and co-location. These were used to identify the inappropriateness of the assumptions in the classical organization literature when transposed to the literature on TOs. They were ultimately used to reconnect with the literature by identifying specific studies on TOs.

Open coding based on coordination insights enabled William Tappert to identify aspects, dimensions and properties of coordination which are specific to TOs. These include, temporariness, variation according of the dynamics of the implementation phase, emergence, and typologies of different coordination mechanisms. Concurrently, these insights enabled him to develop relations with the aforementioned properties of TOs through axial coding. William Tappert identified that there is an interactive relationship between the complexity of TOs and their 'coordination requirements.'

[4] We recognise that the researcher develops more skills while exploring the literature. One of the most significant is critical thinking which is defined by Cottrell, (2005) as *'a complex process of deliberation which involves a wide range of skills and attitudes.'* Including identifying positions, arguments, and conclusions; evaluating evidence for alternative viewpoints; weighing up opposing arguments; identifying underlying assumptions; recognising theoretical standpoints; reflecting on issues in a structured way; assessing the validity of arguments based on evidence. For example, applying critical thinking skills upon reading excerpts of literature involves looking at issues related to identifying theoretical perspectives; categorising information; and using an approach to take notes when reading. Thus critical thinking goes hand in hand with the requirements of GT suggesting a delicate balance between the creativity of the data and that of the researcher. In fact, this often requires a bold choice between the two (Wolfswinkel et al., 2013).

William dived back into the literature and investigated the concept of complexity to understand the different meanings in various literature domains, its potential influence on TOs performance and how such influence can be mitigated. Here, open, selective and axial coding were at full play since he was constantly engaged in a mental process analogous to a bubbling process. Such activities involve reading, thinking, excerpting and extracting concepts and trying to establish relations between them. Then, William Tappert had a flash of insight (thought of to be the outcome of abduction) which suggested that the characteristics of TOs can indeed be used to breakdown the overall complexity of a TO into three distinctive concepts: 'technological uncertainty', 'structural complexity' and 'uncertainty of goals and methods,' while analyzing the literature excerpts. Furthermore, William used some findings from literature to identify that coordination mediates the relationship between complexity and performance of TOs, thus articulating the relationship between the two.

In this respect, William explored the literature through a process that led him back and forth into the literature. Throughout this abductive process, he performed open, axial and selective coding marking empirical saturation, followed by a theoretical saturation. The former was reached when no more interesting literature material or excerpts of it were judged to be of significance; while the latter was reached when no new insights and connections between the identified concepts were found. The outcome of this process made it possible for William Tappert to construct his theoretical model which will eventually guide his future empirical research. Concurrently, it also enabled him to formalize a definitive research question.

Following previous developments, an intermediate questioning stage may be used to engage more precisely with the literature. Indeed, this may involve a further literature exploration involving amongst other things, identifying relevant concepts, proposing relationships to connect them, discussing and resolving ambiguities in definitions, hence triggering yet another iteration. The outcome of this iteration is an evolved questioning. External influences such as serendipity, feedback, supervisor's guidance, etc (see Figure 4) may also effect changes in the questioning (EQ).

However, owing to the variation of the number of iterations inherent to the literature exploration process and the evolution of the questioning, intermediate saturations become obvious since they are iteration specific. We therefore refer to them as relative empirical saturation (ES_R) and relative theoretical saturation (), as shown in Figure 4. Here, abduction makes it possible for the researcher to terminate one single iteration while opening the next one (e.g. I_0, I_1 shown in Figure 4) with more theoretical, methodological and empirical focus, but nevertheless a more specialised volume of reading (see Figure 4).

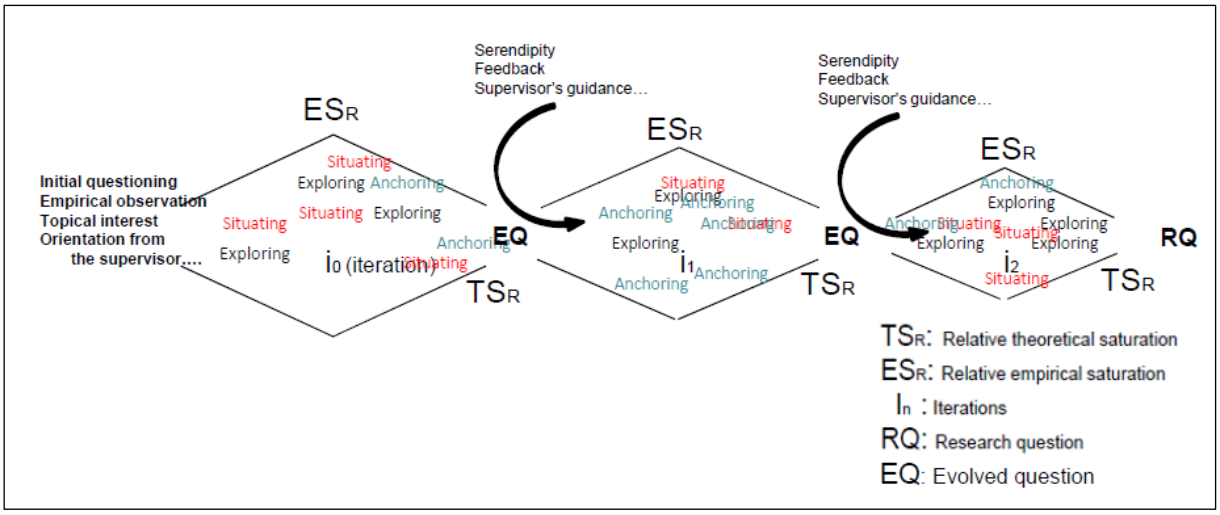

Figure 4. Iterative evolution of the questioning process

The evolved question is injected back into the literature following TS_R, thus triggering another full iteration (I_1) which involves an expansion followed by a contraction but with a smaller amplitude than the previous iteration. Although the amplitude of the iterations tends to decrease towards a more finely tuned process as a general trend (see Figure 4 and Figure 5), certain elements of the problem formulation process may not follow the same pattern. This is to say that, for example, the amplitude of the exploration process may be significantly larger or smaller than the previous iteration. Alternatively, the amplitude of the anchoring element may be either bigger or smaller. In a similar fashion, positioning the research problem may also go through the same process. But overall we have represented the amplitudes of the iterations in a descending pattern to show that as problem formulation progresses and the questioning is honed, the process becomes leaner, thus involving literature material considered fundamental, even seminal in relation to the problem being addressed.

At this stage, it is important to recognise that as this process emerges and the dimensions of breadth and depth are explored, the initial questioning is further refined and the cycle starts again. Thus, the breadth of the relevant literature changes and so does its depth. This is in agreement with Hart (2010) and Dumez (2011) who pointed to a process of expansion and contraction during the literature review process, though such authors did not further specify under what conditions expansion ends and contraction begins. In fact, to our knowledge, the literature has been quite silent in promoting the iterative nature of the literature review process. It made a mere suggestion by pointing to an expansion and a contraction.

According to Hart (2010), the process of exploring a literature review is an art based on a double movement. This movement is practiced several times in the course of the research, i.e. an expansion followed by a contraction to which Hart refers to as '*narrowing*'. Accordingly, the researcher must alternate the periods where the search for references, methods, concepts, theories, hypotheses begins. This is achieved by tapping into literature from different disciplines. Alternative periods involve narrowing the search to refine the questioning. Indeed, the researcher is required to navigate the literature search across multiple disciplines, i.e. sociology, management, strategy, psychology, economics, anthropology, etc. Such navigation helps recognise the diversity of methodologies that have been used in the field, and their advantages and disadvantages. The researcher must be lost in the immensity of the literature, change perspective or get away, but not too far from the topic by taking short cuts (Dumez, 2005). Once the researcher is overwhelmed by the references, a choice must be made as to what should be read and what should be discarded. In this respect, criteria for inclusion and exclusion are likely to be developed either implicitly or explicitly. Then, the researcher summarises those that have been read by excerpting what is relevant, and finally starting to organise the review.

The proposition we have made in the present work draws on a more integrated view of the doctoral literature review process, where exploring the literature process is seen as more integrated and iterative. Therefore, the process and the final product of the literature review can be viewed as inextricably related (Figure 5).

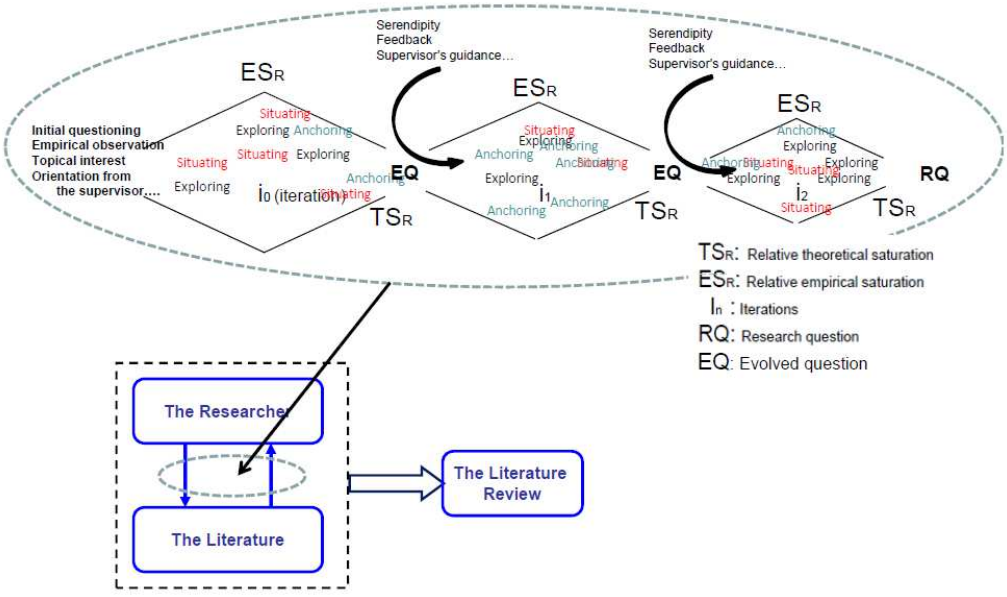

Figure 5. A detailed literature exploration process

CONCLUSION

In this methodological effort, we have explored the process of a doctoral literature review for a qualitative study to show the evolution of the research question. In so doing, we have explicitly emphasised the importance of problem formulation as an obligatory point of passage before a definitive question is produced. This is achieved, we suggest, after a number of iterations. Our focus was on doctoral researchers who have decided to use the literature at the outset of their qualitative research to frame the research problem they wish to address and to develop a theoretical framework. We believe that our methodological proposition to treat excerpts of literature as data using principles from grounded theory stands in fertile ground. We hope that we have been able to show its usefulness. Operationalising grounded theory in this way has led us to introduce the notions of relative empirical saturation (ES_R) and relative theoretical saturation (TS_R). These intermediate elements help create the conditions for the passage from expansion to contraction, and from a full iteration to the next, respectively.

TOWARDS AN OPEN DEBATE ON THE PROCESS OF A LITERATURE REVIEW

The proposed literature review process may enable doctoral researchers to get a firm grip of their literature themes and topics. This can only be achieved, we believe, if the relationship between the researcher and the literature is dynamic, thus involving abduction, coding, theoretical saturation and empirical saturation. We set to explore the process of reviewing the literature by doctoral researchers through questioning within the perspective of making a mere proposition. We hope that such proposition would enable them to overcome some of the difficulties which we have pinned down earlier, especially at the beginning of their doctoral research journey. While we also hope to offer the possibility to progress creatively towards achieving some of the research objectives and, at the same time, appreciate the importance and relevance of the principles borrowed from GT. During this process, doctoral researchers identify existing scholarship, develop supporting arguments for the formulation of their research problem, position their research and define novel research areas within different bodies of knowledge.

The main advantage of using GT resides in the recognition that the literature, taken as empirical data, can be critically analyzed in significantly different ways. The challenge in analyzing a body of published / unpublished literature is to freshly engage, observe and learn

from the multitude of '*empirical cases*' contained therein (Wolfswinkel et al., 2013). Such empirical cases inform on a different set of issues which may be related to the elements of problem formulation we discussed beforehand. We have only done some the woodwork for rethinking how to further analytically and technically refine existing knowledge in the hope to make further progress in our research fields. But, we have not detailed the steps required in the process to leave way for the creativity and imagination of the researcher. We believe that this marks an attempt to move away from the usual normative prescriptive strand. Our methodological proposition points to the added value in operationalising principles from GT. Such proposition treats the literature as an empirical field, therefore a source of data. We believe this may increase the likelihood of providing insights to doctoral researchers while exploring the literature and refining their questioning.

The emphasis we have placed on the process of a literature review through problem formulation leading to a definitive research question –as depicted in the present work– reflects a mere intention to make a proposition. And, in a similar vein, to open a debate with doctoral researchers as well as other research enthusiasts undertaking a qualitative research study. We recognise that research studies of the quantitative type may involve a different set of processes, activities and skills, and this presents one of the limitations of this work. Furthermore, we assert that our suggested proposition is more of a point of departure marking a step in the right direction, than a destination. This does not mean that our proposed strategy would lead to a completed written review, or a perfect review, since such reviews are impossible to achieve (Hart, 2010; Dumez, 2011). However, we agree with Boote and Beile (2005) that establishing criteria for a quality doctoral literature review may be quite productive. Perhaps a possible future development of our current methodological proposition may involve an extension of the process hereby described to a more general literature review.

FINAL THOUGHTS

We wish to end with the following quote: *'If the literature review was a mere issue of technique, then without a doubt, it would be possible to automate a significant portion of its production process. Since this is not the case, it is because other issues, which are otherwise more complex, are at stake'* (Bureau, 2011). We believe this quote sums up, in a significant way, our previous assertions with respect to the exploration of the literature review process by

accounting for the skills of the researcher as important determinants of the outcome of such process, the research question, and their relevance to doctoral research. The debate is therefore open for the academic community at large to experience the proposed methodology so as to appreciate its usefulness or, alternatively to further improve it. Finally, we would like to add that field work may, to a certain extent, alter the literature review and the questioning, thus enabling doctoral researchers to engage in the writing of their literature review chapter. However, this may require yet an additional iteration in the proposed process, an eventuality recognised by William Tappert.

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