




The art of crafting a systematic literature review in entrepreneurship research

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Published online: 1 February 2020
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Abstract

Systematic literature reviews are an increasingly used review methodology to synthesize the existing body of literature in a field. However, editors complain about a high number of desk rejections because of a lack in quality. Poorly developed review articles are not published because of a perceived lack of contribution to the field. Our article supports authors of standalone papers and graduate students in the Entrepreneurship domain to write contribution-focused systematic reviews e.g. by providing a concrete guideline. Our article analyzes the strengths and weaknesses of a systematic literature review and how they can be overcome. Furthermore, we provide a combined list of highly ranked journals in the Entrepreneurship domain as a basis for quality appraisal. Finally, this article builds a scenario for the future of the systematic literature review methodology and shows how technological improvements have changed this methodology and what can be achieved in the future.

Keywords Systematic literature review · Structured literature review · Entrepreneurship · Journal rankings · State-of-the-art

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Introduction

The *systematic* (also known as “structured”) *literature review* (SLR) entered management research as a promising methodology for reviewing previous literature to bring the field closer together (Tranfield et al. 2003). High quality SLRs support better decisions for policy-makers and entrepreneurs and help researchers to synthesize the literature under review. Due to the rapidly growing popularity of this methodology within the overall management domain, the SLR received more attention, and initial papers created rules and suggestions on how to conduct such review articles in the field. The SLR became increasingly popular, almost even replacing traditional reviews for individual review papers in management (Jones and Gatrell 2014). The main advantages of an SLR are transparency in data collection and synthesis that results in a higher level of objectivity and reproducibility (Tranfield et al. 2003).

When talking about *traditional* literature reviews, we basically mean non-structured, –systematic or –transparent reviews with a higher level of subjectivity in data-collection and data-interpretation. Systematic reviews are also not novel. The first examples emerged at the end of the nineteenth century when the term *systematic review* was used for nearly every review article (Petticrew and Roberts 2006). These reviews changed a lot over time. If, for example, we compare the situation Hart (1998) describes with today, we see major differences. This is most evident in the increased availability of literature in general, especially online databases (such as EBSCO, Scopus, ABI/Inform etc.) allowing researchers to conduct quicker and much more transparent review processes than was possible in the final years of the last century. However, while Hart mainly regards the SLR as one method of giving an overview on the topic e.g. within a larger research project, they have also established themselves as a standalone methodology by itself to create evidence in a topic. In 1998, Hart criticized a lot of the review articles published at that time for their lack in quality, and we often face the same problem today; for example, in traditional *Research Methods* courses at universities, the SLR does not receive the same attention as statistical methods, meaning that a significant cohort of the research community is more dedicated to subjectively summarizing the extant literature in their field than synthesizing it in a systematic manner.

With this article, we focus on the SLR in Entrepreneurship research – more specifically its delimitations, the state-of-the-art, its limitations and outlook for this methodology. We also provide advice which is best practice. Our article addresses researchers/scholars, Ph.D. candidates and graduate students – especially in the Entrepreneurship domain, as it specifically includes the field specifications in the discussion. Our aim is to discuss potential further developments based on the SLR in order to overcome the main limitations of the methodology by comparing it with other relevant review methods and setting it in the context of the Entrepreneurship domain.

With this contribution to Entrepreneurship research, we aim to further support the importance of the synthesis of previous works and help to consolidate the existing body of literature in a certain field. SLRs offer the possibility of combining existing literature and create solid definitions and foundations for further research. This study supports the strengthening of SLRs as a methodology in Entrepreneurship. In science, there are several reasons to write a literature review. One of these is for the literature review to set a beginning for a dissertation and detect research gaps and questions that can be answered by the dissertation. Last, but not least, our article aims to provide (particularly

young) scholars in Entrepreneurship (and related areas) at all academic levels with a specific guideline to carry out their literature reviews in Entrepreneurship.

The need for reviewing the literature

In research, there are different aims and situations in which scholars write a literature review. Typically, the aim of literature reviews is to summarize and integrate the existing knowledge about a topic (Rowley and Slack 2004). The situations where literature reviews are written and used are independent from the authors that deal with the topic. In broad terms, there are three main situations for writing a literature review (Knopf 2006; Okoli 2015):

1. A standalone review article of the literature for a specific topic.
2. An introduction to an empirical paper and foundation for hypotheses.
3. The first stage of a bigger research project (e.g. a dissertation).

For this article, we mainly concentrate on the first of these, the *standalone SLR* (Okoli 2015). However, for a dissertation (especially at doctoral level), we believe that an SLR is more useful than a traditional literature review. SLRs are a specific methodology that allow for the creation of a whole article based on reviewing the literature without collecting empirical data. They try to answer a research question, usually about the status quo of a field of research. In empirical articles, on the other hand, a literature review does not need to answer a research question on its own; instead, it provides a short overview of the topic and helps to derive the main hypotheses of the paper. Therefore, a traditional literature review might in some cases be more suitable for empirical articles, where the main focus is not the literature review itself.

We can differentiate two different streams of literature reviews: traditional (subjective) and structured reviews (see Table 1). Unlike SLRs, traditional literature reviews do not follow a reproducible and transparent methodology.

The traditional literature review

The majority of literature reviews in management research are not systematic by nature, i.e. they follow a narrative rather than a transparent methodology (Briner and Denyer 2012). They are thus often regarded to be “unscientific” because of their use of unrepresentative samples and unsystematic procedures (Mulrow 1994; Oakley 2002). Traditional literature reviews often do not evaluate the quality of articles nor do they follow any specific rules. They are often used in introductions to empirical papers or conference presentations to support the hypotheses the author has developed. Therefore, the authors are often less interested in showing previous studies which are contradictory to their intended hypotheses, and create a bias by omitting them. In “cumulative” (article-based) Ph.D. dissertations, traditional reviews are usually used to tie the topic together and create a “bracker” around the individual papers.

Because of the lack of systematization and transparency, traditional reviews are more likely to be biased by the subjectivity of the author (Hodgkinson and Ford 2014; Mulrow 1994). The difference between traditional and systematic reviews mostly lies

in the methods of data collection and possibilities of replication. Traditional reviews do not follow a strict rule of how studies are collected and therefore it is highly possible that the study selection is driven by the subjectivity of the author. The same issue is criticized when it comes to quality control of the studies. In both cases, the driving factor that takes the final decision is the authors themselves (Tranfield et al. 2003).

Nevertheless, traditional literature reviews have several advantages. One of the most important reasons for writing one is that it is written more easily than an SLR. Traditional reviews are driven by the intuition and the experience of the authors, but they are also subjectively influenced by them. Thanks to advances in electronic databases, SLRs today can be conducted quicker and more transparently than was previously possible. Previously, even if researchers created a transparent process, their ability to search for keywords to uncover contributions from other fields was limited. Thus, subjective literature reviews were important early on and therefore have a long tradition in science. Hart (1998) gives a useful overview on literature reviews. In her article, the author outlines what constitutes a good literature review, which from today's perspective, differs significantly from an SLR. However, this overview does not separate subjective reviews from SLRs.

The systematic literature review

Origin and development of systematic literature reviews

An SLR is a form of research that deals with existing publications and follows a systematic methodology for synthesizing data that is already published (Tranfield et al. 2003). An SLR follows a pre-defined process to analyze literature in a reproducible manner. Besides its transparent methodology, SLRs rank literature by its quality. SLRs tend to follow a research question and aim to answer it in the best way. They reach a conclusion and exhibit knowledge about a specific topic in research. SLRs have their own limitations and contrary to traditional literature reviews, they admit to these limitations and transparently list them (Frank and Hatak 2014). As the transparent process allows a reproducible methodology and all necessary literature is integrated, this is a sound basis to draw conclusions and create evidence.

Based on the descriptions above we define a SLR as follows:

“An SLR is a review of an existing body of literature that follows a transparent and reproducible methodology in searching, assessing its quality and synthesizing it, with a high level of objectivity.”

Systematic reviews are not new per se, however they have changed dramatically in the recent years. At the end of the nineteenth century, the term “systematic review” was used for almost every review article. With the rise of *meta-analysis* as a more advanced (statistical) review methodology, the field was elevated to a new standard. Policy-makers identified the potential of systematic reviews for evidence-based decision making (Petticrew and Roberts 2006). The evidence-based approach has been adapted from the field of medicine, which suffered from a major increase in the body of literature so that existing studies e.g. on one treatment had to be aligned to derive evidence, and has generally led to an increase in the value of systematic reviews (Ohlsson 1994). Based on a broad investigation of the similarities and differences of

medicine and management, Tranfield et al. (2003) developed a first overview to support the rise of systematic reviews in management research. The publication of this article can be regarded as the tipping point for SLR in management.

With regard to evidence-based decision-making, systematic reviews are considered to be a powerful form of research. Tranfield et al. (2006) refer to a table of the hierarchy of evidence in health care which shows that systematic reviews are considered the highest standard of evidence. Individual studies can show different results for the same or similar issues; however, a systematic review provides an overview of all these individual studies. Petticrew and Roberts (2006) compare an individual study with an individual answer in a quantitative study. Only the sum of more than one answer can help to overcome biases and create a reliable answer on the hypotheses. For SLRs, this is the same, resulting in a high level of confidence in the review article when it comes to answering questions or hypotheses.

There are also differences among SLRs themselves. A SLR can significantly vary in quality which is dependent on the authors. Later in this article, we analyze common mistakes an author can make in his SLR. Further differences occur in the chosen topic. Based on the amount of literature which is available to conduct a review article, the author must find a balance between width and depth. Another important factor is the heterogeneity an author allows within the search process (Frank and Hatak 2014).

First steps for a systematic literature review

Before beginning an SLR, the author always has to ask if and why a SLR is needed or if a traditional review is adequate (Pittaway et al. 2014). If the author sees a

Table 1 Comparison between systematic and traditional review

	Systematic Literature Review	Traditional Literature Review
Identification for the need for a review article	SLRs only make sense if there is a need for one.	Traditional reviews are part of nearly every publication.
Development of a review protocol	Essential for the objectivity of an SLR	Not common for traditional reviews
Identification of research	Structured, replicable and transparent process	Subjective process
Evaluating studies	Transparent protocol of eliminated studies, objective process of elimination	The author takes the literature that helps to support their hypotheses
Conducting data extraction	Driven by a general protocol	Driven by the intuition of the authors
Conducting data synthesis	Concept driven; central part of an SLR	Not necessary; resembles a summary of existing literature
Reasons for a SLR	Standalone paper, creates evidence and answer a research question	To set a literature foundation for an upcoming empirical project, as individual paper (formerly)
Labor costs /Time	Very time consuming	Less consuming than an SLR

requirements for an SLR, a research question needs to be specified (Briner and Denyer 2012). The research question is one of the general differences among traditional literature reviews and SLRs. The evidence the SLR aims to create is highly connected to the research question specified at the very beginning. Often-times, the main research question of a SLR is to synthesize what we know and what we do not know about a research question, hypotheses, applied methods or topics (Briner and Denyer 2012), i.e. to offer a state-of-the-art overview of the research in a current field, which identifies research gaps and potentially even already develops an own research model which might then be used as a basis for further (empirical) research. As a “good practice examples”, we would recommend e.g. the SLR about entrepreneurial intentions by Liñán and Fayolle (2015) or the one about innovation in family firms by Calabrò et al. (2019).

The basis to write a SLR is the availability of sufficient literature on the subject to justify a synthesis (Hodgkinson and Ford 2015). A literature review on a very narrow niche with only a very limited amount of papers can only very rarely provide new insights or theories. Alternatively, in research areas with a broad range of literature which is fragmented and based on inconsistent terminologies, a systematic review can help to consolidate the topic in the sense of a “status quo of current research”. In other words: When a research field is rather new in itself, and mostly case studies or qualitative research is present, and only very few quantitative research, then all identified sources should be analyzed – whereas when there is already a sufficient amount of quantitative research being published (i.e. when the research field in itself has already evolved from theory development to theory testing), previous qualitative research might be excluded from the literature review.

Another reason to conduct an SLR is the lack of a rugged theoretical design, as a good and carefully developed SLR have the ability to create new insights in form of a new theoretical construct (Pittaway et al. 2014).

By contrast, an SLR should not be conducted if it is not the right methodology to answer the research question. In research areas where good SLRs are published recently, there might also be a lack of further knowledge that can be synthesized. Exceptionally, an SLR can be a useful tool if the existing review lacks a good synthesis or if groundbreaking progress has been made in the interim period. SLRs should also be avoided if the research question that should be answered is not detailed enough or if it sets the wrong focus (Petticrew and Roberts 2006).

Contributions of systematic literature reviews

In Entrepreneurship, as a still comparatively young discipline (Ferreira et al. 2019), sub-research fields developed quickly in the last decades (Pittaway et al. 2014). Therefore, many papers are published from authors with different backgrounds using slightly different terminologies for the same research object or same terminologies for different objects. Therefore, within a certain research field, authors with diverse backgrounds see constructs, theories and so on with their own eyes, which results in a scattered field. SLRs can help to overcome this issue by synthesizing the field and creating a common language. On this foundation, an SLR can increase awareness within the field and show current perspectives (Frank and Hatak 2014) even from different disciplines and backgrounds (Pittaway et al. 2014).

When conducting an SLR, the author gains an overview of the most important literature on the topic. On this basis, the author has the opportunity to create a map of all the knowledge that was gathered in the field (Armitage and Keeble-Allen 2008; Frank and Hatak 2014). As the process of collecting literature is standardized by the author on basis of hit keywords, he can also discover publications from other disciplines. This knowledge map and the broad view from different disciplines help to give a holistic view and provide the foundation to synthesize the research field across the disciplines (Pittaway et al. 2014). The creation of a knowledge map can also help the author and other researchers to set a personal research focus and define a niche that enables the development of new research (Tranfield et al. 2003). Furthermore, the knowledge map can show growing research trends and directions of the field.

Besides the positive effects of the knowledge map outlined above, it can help to further develop a theory. A broad overview on a specific topic with the influence of different disciplines can help researchers to devise new theories. This result can be one of the main aims of an SLR (Pittaway et al. 2014). The creation of new theoretical constructs may lead to new directions in the research area and support the overall discussion (Frank and Hatak 2014).

The period since the late 1990s has seen more and more evidence-based movements arise. Their objective is to take decisions based on evidence from science. SLRs and meta-analyses are the primary evidence producers in other disciplines too. Systematic reviews are largely seen as strong evidence (Table 2), as they are less vulnerable to error and bias (Tranfield et al. 2003). Briner and Denyer (2012) summarize that systematic reviews are important as they create evidence to support decisions in research and practice. This linkage from research to practice is a reason why SLRs are used for research funding requests (Frank and Hatak 2014).

A survey among scientists in America showed that 0.3% falsify their data (Martinson et al. 2005). Therefore, the process of systematically reviewing a bulk of literature constitutes an important quality test for published articles. While peer reviews basically check the article, but not the data itself, they do not have the ability to check for manipulation. A systematic review might thus help to uncover manipulation or at least criticize individual studies. So, if the author deals with several studies that all show the same results but there is a study that shows significantly different results, suspicion may be raised and the study can be investigated in more detail (Rousseau et al. 2008). The author should check how the authors try to justify their results.

SLRs and (statistical) meta-analyses are generally supposed to constitute the highest possible evidence. However, within Entrepreneurship as a social science, the

Table 2 Hierarchy of evidence in medicine (Davies and Nutley 1999)

I-1	Systematic review and meta-analysis of two or more double blind randomized controlled trials,
I-2	One or more large double-blind randomized controlled trials,
II-1	One or more well-conducted cohort studies,
II-2	One or more well-conducted case-control studies,
II-3	A dramatic uncontrolled experiment,
III-1	Expert committee sitting in review; peer leader opinion,
IV	Personal experience.

elimination of a bias is not expected to be possible and therefore accepted. So no final evidence is possible (Denyer and Tranfield 2006). The authors themselves remain a limitation. Although, the transparent process tries to minimize the subjective influence, the authors' bias remains. Basically, authors are never completely objective when they review the literature.

The SLR methodology has received increased attention in Entrepreneurship research in recent years. Database searches on the keywords “Entrepreneurship” and “Systematic Review” typically yield hundreds of publications. Hence, there is an extensive and growing list of high quality SLRs in Entrepreneurship. The best practice is to check review articles published in journals with a high ranking (see Table 3) and journals that specialized on review articles.

About the entrepreneurship research domain

Research on Entrepreneurship is still getting more and popular today, and the domain has grown significantly in recent years. The sophistication of the research domain established new sub-fields. Family business management, entrepreneurial behavior, small business management, female entrepreneurship, technology entrepreneurship or social entrepreneurship – just to mention a few – emerged as their own sub-fields. In the coming chapter, we provide a broad overview of the specific top journal outlets of this Entrepreneurship research domains, and list all Entrepreneurship journals ranked in the three major academic journal rankings *VHB Jourqual (JQ) 3* (Germany) from 2015, the *Academic Journal Guide/ABS* (UK) from 2018 and the *JCR Impact Factors* (IF) by Clarivate Analytics from 2018.

Some journals are ranked in different sub-categories within the rankings. For example, the *Journal of Technology Transfer* is part of the “Entrepreneurship” section in JQ3, while it is part of the section “Innovation” in the ABS. If a journal is mentioned in the section of Entrepreneurship in at least one of the rankings, it is inserted into the table.

The three journal rankings follow different methodologies. Bouncken et al. (2015) created a transformation table to compare the rankings (Table 4), which we have adapted accordingly to account for the increase in the Impact Factors over the recent years. The quality criteria of the journals can be used for quality appraisal, as well as for limiting down the number of publications if the search strings result in too many publications by the application of a “quality threshold” (e.g. of only including a publication in a target journal which is rated “C” or equivalent in at least one of the three rankings).

In the last few years, more and more journals started to specifically publish review articles. For example, the *International Journal of Management Reviews*, the *Academy of Management Review* and *Management Review Quarterly* specifically focused on review articles, whereas some other journals (such as the e.g. the *Review of Managerial Science*) have their own categories for review articles (as opposed to “regular articles” – in the submission system). Some journals, such as the *Journal of Management* or the *Journal of Business Research*, have published distinct review issues which deal with literature review articles only. SLRs in general and journals focused on review articles in particular, usually generate above average citation counts with these issues.

Table 3 Top Entrepreneurship Journals based on VHB, ABS and JCR (as of 2020)

No.	Journal	VHB JQ3	ABS	JCR IF
1	Journal of Business Venturing	A	4	6.333
2	Entrepreneurship: Theory and Practice	A	4	6.193
3	Strategic Entrepreneurship Journal	A	4	2.956
4	Family Business Review	B	3	6.188
5	Small Business Economics	B	3	3.555
6	Journal of Small Business Management	B	3	3.120
7	Entrepreneurship & Regional Development	B	3	2.928
8	Journal of Technology Transfer	B	2	4.037
9	Industry & Innovation	B	2	3.157
10	International Journal of Innovation Management	B	2	–
11	International Journal of Entrepreneurial Venturing	B	1	–
12	International Entrepreneurship and Management Journal	B/C	1	2.537
13	Technovation	C	3	5.250
14	International Small Business Journal	C	3	3.706
15	International Journal of Entrepreneurial Behavior & Research	C	2	3.225
16	Journal of Family Business Strategy	C	2	2.605
17	Creativity and Innovation Management	C	2	2.015
18	International Journal of Entrepreneurship and Innovation	C	2	–
19	International Journal of Entrepreneurship and Small Business	C	2	–
20	International Journal of Innovation and Technology Management	C	2	–
21	International Journal of Entrepreneurship and Innovation	C	2	–
22	Venture Capital: An International Journal of Entrepreneurial Finance	C	2	–
23	International Journal of Entrepreneurship and Innovation Management	C	1	–
24	Journal of Enterprising Culture	C	1	–
25	International Journal of Globalisation and Small Business	C	1	–
26	Journal of Entrepreneurship	C	1	–
27	Journal of International Entrepreneurship	C	1	–
28	Journal of Small Business and Entrepreneurship	C	1	–
29	Journal of Developmental Entrepreneurship	C	–	–
30	Journal of Entrepreneurial Finance and Business Ventures	C	–	–
31	Journal of Entrepreneurship Education	C	–	–
32	Journal of Family Business Management	C	–	–
33	Frontiers of Entrepreneurship Research	C	–	–
35	Journal of Research in Marketing and Entrepreneurship	C	–	–
36	Journal of Small Business Strategy	C	–	–
37	Zeitschrift für KMU und Entrepreneurship	C	–	–
38	Entrepreneurship Research Journal	–	2	1.625
39	Journal of Small Business and Enterprise Development	–	2	–
40	International Review of Entrepreneurship	–	2	–
41	Journal of Social Entrepreneurship	–	2	–

Table 4 Conversion table of leading academic journal rankings (based on Bouncken et al. 2015; amended/updated)

VHB JQ3	ABS	JCR IF
A+	4*	≥5.0
A	4*	≥3.5
B	3*	≥2.5
C	2*	≥1.5
D	1*	≥0

The process of writing a systematic literature review in entrepreneurship

Several authors presented a model for the different stages of an SLR (Briner and Denyer 2012; Frank and Hatak 2014; Jones and Gatrell 2014; Okoli 2015; Pittaway et al. 2014; Tranfield et al. 2004; Tranfield et al. 2003). While Tranfield et al. (2003) separate five stages in 10 steps, Frank and Hatak (2014) split them into six steps. Okoli (2015) explains four steps and Pittaway et al. (2014) uses three steps for an SLR. The main steps for all descriptions are always the same, namely: *Planning the review*, *Conducting the review* and *Reporting of the findings*. Some authors pay particular attention to the creation process, while others give more importance to reporting the results. We follow the three main steps and divide conducting the review into the identification and the synthesis of literature to underline the importance of these two steps in the process (Table 5).

Planning the review

A good systematic review can be conducted to be published as an individual (standalone) paper and should be considered that way. However, it can further be part of a larger research project (e.g. a cumulative dissertation), where it is not only a published paper, but more importantly, a useful overview to show the importance of the main topic and to help identify further white spots the dissertation can search answers for. In both cases, it is important that the literature review is executed in a professional manner. Thus, the planning of the review article is of significant importance.

Table 5 Process for SLR in Entrepreneurship (adapted from Tranfield et al. 2003, 2004)

Stage 1: Planning the review
- Identify the need
- Develop protocol
Stage 2: Identifying and evaluating studies
Stage 3: Extracting and synthesizing data
- Conducting data extraction
- Conducting data synthesis
Stage 4: Disseminate the review findings

Identify the need

In a first step, authors must identify if there is a need for an SLR. Therefore, they must become familiar with the literature. Check if there is already an SLR covering the topic being published or if this is the first of its kind. To do so, we suggest starting with literature searches on Google Scholar or potential databases that cover most of the Entrepreneurship literature. If there already is an SLR you must decide if different questions can be asked that can be answered with new research or if the existing research has been carried out badly. Both situations allow the author to think about writing new research. To answer the questions, the author has to be familiar with the methodology of SLR. This paper provides a first step to support you. The following list provides some topics and benefits SLRs deal with in general (Palmatier et al. 2018). The list is neither extensive but not exhaustive. If the literature allows further contributions, the authors should take advantage of this.

- Create clear definitions by considering defining approaches of several authors from different perspectives,
- synthesize the existing literature and highlight important issues,
- point out irregular or special results,
- assess methodologies and results,
- take advantage of existing research to develop frameworks
- Highlight research gaps and potentially fruitful research directions

An SLR is basically created around a research question that it tries to answer. Independent of the purpose of the SLR, there is a general aim, hypothesis or question it addresses. This issue is built around the question of what we are looking for with the review article (Briner and Denyer 2012). There are different strategies, and in more mature fields, an SLR can handle very specific questions and be used for review articles that are strongly focused on depth than breadth to deal with specific types of research (qualitative, quantitative, case studies) only. The research question is a central part of the SLR and motivates the topic (Fisch and Block 2018). Most review articles in Entrepreneurship cover wide topics and provide a synthesis of general topics. They provide useful information for further contributions on the topic; however, we further want to encourage authors to conduct literature reviews that deal with the topic in an in-depth manner. They could help to cover and overcome the often-occurring definition problem in Entrepreneurship.

Develop a review protocol

To ensure a transparent and high-quality process, authors have to create a review protocol at the beginning (Tranfield et al. 2003). The protocol is the basis for the ongoing research. It contains the whole process and therefore supports the methodology of the review article. The protocol outlines the parameters for the data search. This comprehensive protocol deals with the search strings, the databases, the criteria for including or excluding literature, quality criteria and so on (Pittaway et al. 2014). There are several worthy articles and books that deal with the topic of a review protocol. It is essential that you do not consider a review protocol to be set in stone, but rather that every change should be mentioned and protocolled.

Several authors encourage the writers of a literature review to search for all available literature, as books, conference papers and grey literature (Briner and Denyer 2012). However, for Entrepreneurship literature reviews, we would encourage authors to conduct their search mainly via online databases and for journal articles only (as the most “valuable” sources in research), as this search strategy helps to create a more transparent process that can be applied globally. There is an ongoing discussion today is about the use of *grey literature* (such as working papers, conference proceedings etc.) in systematic literature reviews, but we would advise against including those. Peer reviewed journal articles are checked through the academic process, while other literature is mostly unchecked (Podsakoff et al. 2005), which makes these supposedly “stronger” and thus more widely accepted as higher quality source (acknowledging the potential inherent publication bias, as without any question good research can also be published in other sources of publication as a journal). In research, we already see several systematic reviews that follow the process of including peer-reviewed articles only (e.g. Bouncken et al. 2015; Jones et al. 2011). For Entrepreneurship, following the vast majority of previous research in the field, we suggest concentrating on the main databases: ABI Inform/ProQuest, EBSCO/ Business Source Premier, JSTOR, MENDELEY, ScienceDirect, Scopus, SpringerLink, and Web of Science. Authors should use more than one database to cover most articles (Bramer et al. 2017). While Google Scholar can help to find full texts of papers and discover grey literature (Haddaway, 2015), and although it can also serve as an additional basis for cross-checks, it is not reproducible as the algorithm shows results for the author based on the prior searches and interactions (Gusenbauer and Haddaway 2019) and lists too many non-academic sources, and should therefore not be used for a systematic literature review.

Based on the keyword strings that are created for the review protocol, the author searches the databases. After a first search, a cross read through some articles helps to identify missing keywords for the search strings. Especially in Entrepreneurship, there is often more than one keyword for the same topic. For example, “Corporate Entrepreneurship” and “Intrapreneurship” deal with more or less the same topic, but they are completely different keywords. Thus, the author has to be careful to find all the necessary literature. To identify more keywords, consultations with experts in the topic are useful. Furthermore, educational literature helps to uncover synonyms. Another important question the author must answer is where to search. ‘Only in Title’ or ‘in Title and abstract’ or even ‘in the text’. This decision can be a challenge, but is very important and should always be considered with the question of whether the scientists is writing a literature review in breadth or depth.

Identifying and evaluating studies

The identification of studies for the review article is based on the topics handled previously. As already mentioned, we encourage Entrepreneurship authors to concentrate on electronic databases and peer reviewed journal articles only. This approach helps to ensure the highest standards of transparency. By contrast, there are authors that do not believe that a critical appraisal of a topic is possible with published journal articles only, and because of a publication bias, grey literature is needed (Briner and Denyer 2012). However, traditional reviews are criticized for subjective literature selection and quality appraisal (Denyer and Tranfield 2006). The use of grey literature

would open the SLR to this criticism. Petticrew and Roberts (2006) justify the search of grey literature, as in 2006 there existed cases where only a third of the literature finally used could be found in electronic databases. This should be reconsidered today as the availability of literature in electronic databases has increased dramatically. Furthermore, their process of searching for literature is highly complicated and difficult to be set into a transparent methodology. Through their encouragement of adding grey literature, they open the sciences to non-scientific publications. Even if the quality of these publications is evaluated by the authors themselves, it at least provides a more subjective filter than trusting into the academic processes from the beginning on where a double-blind review system is used to ensure high quality. So, we rather disagree with that view, and encourage authors to trust the journal reviewers and editors as this process is more objective than the exclusion on the literature reviewer's opinion.

Authors should not rate the publications by themselves as they can trust in the three main journal rankings available. For Entrepreneurship we suggest to only include literature that is published at least on level "C" of the VHB rating or equivalent (see Table 5). If there is some literature that is very suitable for the literature review but not published in a highly ranked journal, the author can give reason based on the quality of the article to add it into the bulk of reviewable literature. However, these additional publications should be added carefully and evaluated deeply as other journals are likely to have already rejected the article. The combination of the three major journal rankings are a transparent and reliable way of evaluating studies.

After excluding studies that do not meet the quality criteria, the authors must start by reading through the titles of the remaining studies. Often the title alone can reveal whether a study fits the review criteria mentioned in the review protocol or not. After a first read through the titles and this exclusion round, another one can be conducted based on the abstract and the research question the author wants to answer. This is especially relevant for research questions that want to dig deep in a narrow niche the abstract can help to further exclude articles. If a title only search already creates enough literature to allow for a synthesis this will be enough. However, if there needs to be more literature, the search should be expanded to the abstract too. A search in the whole text may be useful to uncover the keyword in papers that are only loosely related to the main topic. Therefore, we suggest not to search whole texts. After excluding all articles that does not provide any useful information to answer the question or do not fit the quality criteria, the data extraction can start.

Extracting and synthesizing data

Conducting data extraction

For an SLR, the data extraction has to be systematic and transparent. Therefore, the author has to describe the data for the extraction in the review protocol and create an extraction sheet at the beginning. As mentioned before, the protocol and the sheet can be adapted if important issue arises during the extraction. However, the change of both tools must be noted. During this process, the author could create a "data extraction bias" by different judgement of the studies (Petticrew and Roberts 2006). To overcome the bias, prevent missing important data and create a higher level of objectivity, more than one author should conduct the data extraction (Rousseau et al. 2008).

The actual data extraction depends on the studies investigated and the research question. Tables are considered a useful support to create an overview and a transparent matrix for the ongoing synthesis (Petticrew and Roberts 2006). The table should contain all the necessary information for the synthesis and every paper reviewed needs to be outlined there. A first step necessary to allow for a concept centric synthesis is the organization of papers by the author. There is no all-embracing rule for this organization as it is dependent on the research question and the nature of the papers being analyzed. The categories that the author wants to sort papers into should be considered in the table. For this section, we would like to mention Newbert (2007) as an example of how to use tables for the data extraction and further on for the synthesis.

Conducting data synthesis

The data synthesis is one of the most important steps in writing an SLR. While an increasing number of SLRs replace traditional reviews in journals, the main reason for rejection is a lack in the quality of the review article. SLRs have to analyze and compare existing literature instead of just summarizing it (Jones and Gatrell 2014). Increasing numbers of papers, constructs and methodologies create a more difficult environment to conduct a professional synthesis of the topic which often leads to more specific and deeper review articles on a limited topic (Palmatier et al. 2018).

To synthesize the data, authors can follow different strategies. For an SLR, it is important to concentrate on concepts and not on authors and their studies. This concept centric writing style should be constituted in the microstructure of the paper (Fisch and Block 2018). An author- centric approach is not suitable for a successful literature review, as this strategy is more likely to end in a summary than a synthesis (Webster and Watson 2002).

For the synthesis of the literature, an objective view of the author is necessary. It is of major importance that the author not only analyses the results of the study but also the methodology to identify problems and make comparisons to other studies results. If not, there is a high probability that the synthesis is biased as results from two studies can be contradicting, based on the quality of the methodology used (Light and Smith 1971; Sutton et al. 2000). The synthesis of the literature review basically depends on the question and the goals of the review article. Practical tips for the implementation of a particularly successful synthesis therefore largely depend on the circumstances. So, we exclusively refer to successful and good SLRs here (e.g. Liñán and Fayolle 2015; Newbert 2007; Pittaway and Cope 2007; Stephan 2018).

Disseminating the review findings

A systematic review like the SLR is located high on the level of evidence hierarchy. While a lot of empirical papers deal with specific situations, the review article combines and synthesizes a lot of these studies and helps to create evidence-informed information. So, we can say individual empirical studies are more likely to be considered in research, but they still need to address the problems the practitioners face. An SLR, on the other hand, is strongly tied to practitioners too as the findings are more general. So, in Entrepreneurship, the target groups of an SLR are the entrepreneurs and or managers and fellow researchers. Bem (1995) further supports this statement by dealing with the

review topic in *Psychological Bulletin*. He states that publications reviewing the literature should be understandable by more than pure experts in the topic, therefore he provides a range of writing techniques that address a broad audience.

General settings

Reviewing team

In research, few articles are single authored today. A strong team increases the value of a paper, as the team can be seen as pre-reviewers. For an SLR, this issue also applies and we encourage authors to team up. Jones and Gatrell (2014) provide a section on how a team could be put together. An opening piece of advice suggests heterogeneity by age, constituted through a balance between more experienced scholars and younger researchers – a combination of Ph.D. graduates and their supervisors for example (Akinci and Sadler-Smith 2012). SLRs are often described to be interdisciplinary as they search for and synthesize literature that is founded in different disciplines. Therefore, the suggestion is also to create interdisciplinary teams to overcome potential bias when not understanding the other disciplines that are included in the SLR (Jones and Gatrell 2014).

Structure of a review

The general structure of a review article is very similar to an empirical article. It starts with an introduction to motivate the topic and deals with its contributions to research and practice (Webster and Watson 2002). The article then deals with the methodology (Denyer and Neely 2004) and the synthesis of the reviewed literature. This is followed by a discussion section and a conclusion (Fisch and Block 2018). However, this structure is not compulsory and can be adapted. In Entrepreneurship SLRs, authors often include an extra chapter after the introduction to give some background information about the theoretical underpinnings of the topic before dealing with the methodology (e.g., Dorn et al. 2016; Hakala 2011; Stephan 2018). Thus, they try to organize the paper very similarly to an empirical paper. This first theoretical background does not need to exist independently to the literature that is used for the systematic review later on. Rather, it can be seen as a short traditional review to motivate the research question of the SLR.

From a microstructure perspective, the organization of the paper within the chapters is more difficult than in empirical papers (Bem 1995). The microstructure can be very diverse among different papers and is always driven by the main research question and the synthesis of the authors.

Number of articles

An SLR is dependent on existing data, i.e. previous research on the topic. We have already dealt with the issue of “when is an SLR suitable”. However, another important question is how many articles a literature review should contain. Authors answered that question quite differently ranging from several hundred articles to a few dozen (Frank and Hatak 2014). At this point, we differentiate between SLRs in immature or mature

research fields. Depending on the maturity, the SLR can be used to follow different aims.

In a less mature field, the number of available articles is limited and more scattered as a lot of research questions remain unanswered. At this point, an SLR can help to establish a new theory on the basis of existing articles (Frank and Hatak 2014). Another reason to conduct an SLR in an immature field is to point out missing data and call for empirical research at the right point of time (Petticrew and Roberts 2006). An early SLR can further provide a better-established definition and understanding of the research field, so researchers can start to work on the field with a general understanding. In immature fields, review articles are less hypothesis or research question driven, and more strongly focused on synthesizing the basic foundations of the field and provide valuable insights. The evidence-based approach is not the focus there.

In a more mature field, the pattern of a literature review can change and is more evidence driven. It follows research questions and tries to answer hypotheses. At this stage, the number of published articles is higher and therefore more topics are investigated. A major question arising at this point is how deep and broad the SLR should be (Fisch and Block 2018).

For both scenarios, immature and mature, it is always important to tie the number of articles to the aim of the SLR. However, in immature fields and for theory creation, a lower number of articles is plausible (Frank and Hatak 2014). A low number of articles can also be justified for an SLR that covers a very specific topic in a mature field.

Furthermore, we want to draw attention to the opposite case of a very high number of articles being available. Although modern technology enables researchers to choose, collect and analyze publications quicker for the synthesis of the articles, a high level of resources is needed, as the quality of an SLR is highly dependent on this step. Claiming an SLR on hundreds of articles is not enough if the important connections among these articles are not identified. The author should limit the topic or be more selective and maintain the quality. We finish our article with a list of concrete tips which might be helpful for conducting your own SLR (see Table 6).

Conclusion

In recent years, SLRs have become more popular in Entrepreneurship literature, and an increasing number of journals started to publish literature reviews as standalone articles. However, one of the main reasons review articles are regularly rejected is the lack of quality of their synthesis. This issue can only be overcome by better guidance of the authors. Our paper shows the main differences of a traditional literature review and an SLR. When reading about systematic reviews, we can see that this methodology has changed a lot in recent years because of technical innovations and software support. Dated publications about the topic are clearly written with a limitation in mind due to software logic. The authors evidently did not trust these databases and their search functions. They also did not have the possibility to download literature to the same extent as can be done today. Therefore, we suggested some steps to be conducted differently today.

For the literature search, we strongly believe that authors can trust the major online databases and take the literature from there. We do not foresee a lack of literature by

Table 6 Concrete tips for your SLR

1. Find an area of research of scholarly (and potentially also practical) interest.
2. Undertake an initial short literature search to gain an overview on the topic. Google Scholar can be used for this. Find keywords and synonyms. Actively search for already existing literature reviews.
3. Find questions in the area of research that can be answered with an SLR and define the purpose of your review article: answer questions, map the literature (in case of dissertation project).
4. The review of literature (i.e., of the state-of-the-art of research in your field) leads (as a result) to the research question/empirical model.
5. Create a review and data extraction protocol based on the purpose of your SLR. Excel is a useful tool to do so.
6. Define keywords and search strings. Get feedback on the search strings so you do not miss any synonym or relevant literature.
7. For the SLR, you need to at least try to find EVERY academic source on your topic by using the academic literature databases (such as EBSCO/Business Source Complete, Web of Science, ScienceDirect, ABI--Inform/ProQuest, JSTOR etc.). Always use more than one, if not all to which you have access! Do not use Google Scholar for this step of the process; concentrate on academic journal articles ONLY, since those are the “best” sources because they are *peer reviewed* (by other scholars).
8. Be transparent: Note the date you searched for the literature and record the number of articles you found in each database.
9. If you find a potentially relevant article in your literature search, but to which you do not have access over all used databases in full text, you need to utilize the following possibilities to get this text: [ResearchGate.net](#), contact the corresponding author, check if friends at other institutions might have increased access to databases.
10. Check the quality of the articles found through the journal rankings. As a rule of thumb, everything from “A” to “C” is more than acceptable. Use the journal ranking transformation table in this paper to decide which article should be used or not for the SLR.
11. Read through abstracts to decide if the article can really help to answer the research question.
12. Extract data into your data extraction form. Record changes on the data extraction form. Provide a transparent and objective process.
13. Synthesize the data you extracted in the best way. Concentrate on concepts and not authors. You should not do a pure summary of the content. Keep in mind that this section is the reason for most desk rejections. Use tables and figures to synthesize the data.
14. Depending on the time since the literature search in the databases, the databases should be searched again for new literature before submission.
15. Write your article and submit it to your target journal.
16. Hope for reviewers who know the field and/or method and provide valuable feedback which helps to increase the quality of your article in the revision rounds, so that it can finally get accepted for publication!

only searching online databases in the Entrepreneurship domain. However, it should be clear that a database search cannot be limited to a single database. While in former times, the hard part was to detect and gain access to literature, today it is to define the perfect keywords and strings. Pittaway and Cope (2007) defined 27 keywords and 10 final search strings to discover the literature needed. Furthermore, the ongoing trend of “open access” and the reduction of pay-walls provides easier access to the literature (Jones and Gatrell 2014). In contrast, this overflow of literature increases the importance of perfectly defined database search strings, as otherwise the author is faced with hundreds of potentially irrelevant articles.

One of the major differences among traditional reviews and the SLR is the higher level of objectivity and transparency that the SLR provides. While some authors argue

that the authors should set the quality criteria, we argued to trust into academic processes and the results of the three main journal rankings. The use of the journal rankings to set quality thresholds creates a higher level of objectivity as the deletion of articles is always transparent and not driven by the opinion of the author.

Literature reviews are also a foundation for dissertations and other research proposals (Heath and Tynan 2010). An SLR opens the topic and maps the literature. While an SLR as a standalone paper allows to answer a research question, the main purpose of a SLR for a dissertation is to uncover potential research questions and hypotheses for the further research on this topic. Therefore, they are following two different aims that result in slight differences. However, the basic foundations for both purposes are the same: being systematic and transparent.

A good literature review is generally based on the abilities of the author or the team that conducts the review article. However, technology plays a role of increasing importance today. The Internet and online databases have already helped to create a faster process for SLRs in recent years and allow paper collection to be more transparent. Open access trends further contribute to the possibility of better literature reviews through easier availability. So, compared with early processes of literature reviews, current processes are less time consuming and allow for a higher level of transparency and reproducibility. Furthermore, journal rankings allow authors to set a first quality criterion for the articles gathered and provide the possibility of a transparent article selection and exclusion. However, for the step of data extraction and synthesis, the author is a potential factor for confirmation bias. Furthermore, these are areas where most SLRs suffer from a lack of quality (Jones and Gatrell 2014). Authors do read a lot of papers on a specific topic and can never be sure that they have not overlooked important issues in the papers. Furthermore, the maximum number of papers they can look through is limited by time and financial resources. Today, software can assist to overcome some of the limitations of an SLR. Rauch (2019) showed some examples where software was used to analyze qualitative data (e.g. Kaminski and Hopp 2019; Short et al. 2010; von Bloh et al. 2019). Automated data analysis would lead to several advantages for literature reviews. In particular, this analysis can help to analyze a greater volume of literature in a short period of time. So, the maximum number of articles for an SLR is not capped by the time resources of the research team. Furthermore, computer-based analysis can be more objective than comparable human analysis. To ensure this advantage it is important that transparency is provided. So, authors should use the same algorithms over time, or contribute their source code publicly on GitHub.

The use of algorithms is so far mainly used only to analyze non-academic texts. To our knowledge, systematic reviews in Entrepreneurship that are created with the support of algorithms do not exist yet. Natural Language Processing is needed in order to analyze texts. This analytical technique is used to make natural language processable for computers (Yim et al. 2016). Nevertheless, analytic software-supported SLRs can also result in review articles with a lack of transparency and non-reproducibility. Accumulated research can influence the algorithm, especially if it is interested in falsifying the results. For transparency issues it is important that algorithms that analyzed the literature are available to other researchers too.

Acknowledgments We would like to thank Rodrigo Isidor, Paul Jones, Patrycja Klimas, Thomas Niemand and the two anonymous reviewers for their valuable comments on the paper and its revision.

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