The Rules of Writing Methodological Review

[1]Hikmatova Dildora, [2]Bakhridinova Odina, [3]Juraboyeva Gulmira

[1]Teacher of Academic Lyceum in Karakul
[2,3] Student of Samarkand State Institute of Foreign Languages

Abstract— This article deals with describing the rules of writing methodological review on the top of that some basic ways are presented to implement in writing proses. It is highly recommended that to organize effective review by means of mentioned rules.

Keywords— review, research, rules of review, writing, feedback

1. INTRODUCTION

A methodological systematic review of the literature, including 'grey' literature like reports, doctoral theses and book chapters, was conducted to spot existing guidance and recommended practice in conducting and reporting meta-ethnography from any academic discipline.

2. MAIN PART

Search strategy

We first conducted comprehensive database searches that were followed by expansive searches to spot published and unpublished research in any language. These searches were iterative and evolved because the review progressed because their purpose was to make our knowledge of recommendations and guidance in conducting and reporting meta-ethnography instead of to answer a tightly defined research question.

Literature reviews are in great demand in most scientific fields. Their need stems from the ever-increasing output of scientific publications [1]. For example, compared to 1991, in 2008 three, eight, and forty times more papers were indexed in Web of Science on malaria, obesity, and biodiversity, respectively [2]. Given such mountains of papers, scientists cannot be expected to examine in detail every single new paper relevant to their interests [3]. Thus, it is both advantageous and necessary to rely on regular summaries of the recent literature. Although recognition for scientists mainly comes from primary research, timely literature reviews can lead to new synthetic insights and are often widely read [4]. For such summaries to be useful, however, they need to be compiled in a professional way [5].

When starting from scratch, reviewing the literature can require a titanic amount of work. That is why researchers who have spent their career working on a certain research issue are in a perfect position to review that literature. Some graduate schools are now offering courses in reviewing the literature, given that most research students start their project by producing an overview of what has already been done on their research issue [6]. However, it is likely that most scientists have not thought in detail about how to approach and carry out a literature review.

Reviewing the literature requires the ability to juggle multiple tasks, from finding and evaluating relevant material to synthesizing information from various sources, from critical thinking to paraphrasing, evaluating, and citation skills [7]. In this contribution, I share ten simple rules I learned working on about 25 literature reviews as a PhD and postdoctoral student. Ideas and insights also come from discussions with coauthors and colleagues, as well as feedback from reviewers and editors.

Rule 1: Define a Topic and Audience

How to choose which topic to review? There is such a big amount of issues in contemporary science that you just could spend a lifetime of attending conferences and reading the literature just pondering what to review. On the one hand, if you're taking several years to decide on, several others may have had the identical idea within the meantime. On the opposite hand, only a well-considered topic is probably going to guide to an excellent literature review [8]. The topic must at least be:

i.   interesting to you (ideally, you ought to have come upon a series of recent papers associated with your line of labor that decision for a critical summary),

ii.   a crucial aspect of the sphere (so that a lot of readers are going to be inquisitive about the review and there'll be enough material to write down it), and

iii.   a well-defined issue (otherwise you may potentially include thousands of publications, which might make the review unhelpful).

Ideas for potential reviews may come from papers providing lists of key research questions to be answered [9], but also from serendipitous moments during desultory reading and discussions. In addition to choosing your topic, you should also select a target audience. In many cases, the topic (e.g., web services in computational biology) will automatically define an audience (e.g., computational biologists), but that same topic may also be of interest to neighboring fields (e.g., computer science, biology, etc.).

Rule 2: Search and Re-search the Literature

After having chosen your topic and audience, start by checking the literature and downloading relevant papers. Five pieces of advice here:

i.   keep track of the search items you use (so that your search can be replicated [10]),

ii.   keep a list of papers whose pdfs you cannot access immediately (so as to retrieve them later with alternative strategies),

iii.   use a paper management system (e.g., Mendeley, Papers, Qiqqa, Sente),

iv.   define early in the process some criteria for exclusion of irrelevant papers (these criteria can then be described in the review to help define its scope), and

v.   do not just look for research papers in the area you wish to review, but also seek previous reviews.

i.   discussing in your review the approaches, limitations, and conclusions of past reviews,

ii.   trying to find a new angle that has not been covered adequately in the previous reviews, and

iii.   incorporating new material that has inevitably accumulated since their appearance.

When searching the literature for pertinent papers and reviews, the usual rules apply:

i.   be thorough,

ii.   use different keywords and database sources (e.g., DBLP, Google Scholar, ISI Proceedings, JSTOR Search, Medline, Scopus, Web of Science), and

iii.   look at who has cited past relevant papers and book chapters.

Rule 3: Take Notes While Reading

If you read the papers first, and only afterwards start writing the review, you'll need a really good memory to recollect who wrote what, and what your impressions and associations were while reading each single paper. My advice is, while reading, to start out writing down interesting pieces of data, insights about a way to organize the review, and thoughts on what to put in writing. This way, by the time you have got read the literature you chose, you may have already got a rough draft of the review.

Of course, this draft will still need much rewriting, restructuring, and rethinking to obtain a text with a coherent argument [11], but you will have avoided the danger posed by staring at a blank document. Be careful when taking notes to use quotation marks if you are provisionally copying verbatim from the literature. It is advisable then to reformulate such quotes with your own words in the final draft. It is important to be careful in noting the references already at this stage, so as to avoid misattributions. Using referencing software from the very beginning of your endeavor will save you time.

Rule 4: Choose the Type of Review You Wish to Write

After having taken notes while reading the literature, you may have a rough idea of the number of fabric available for the review. this is often probably a decent time to come to a decision whether to travel for a mini- or a full review. Some journals are now favoring the publication of rather short reviews specializing in the previous couple of years, with a limit on the amount of

words and citations. A mini-review isn't necessarily a minor review: it should well attract more attention from busy readers, although it'll inevitably simplify some issues and skip some relevant material because of space limitations. A full review will have the advantage of more freedom to hide very well the complexities of a specific scientific development, but may then be left within the pile of the vital papers "to be read" by readers with little time to spare for major monographs.

There is probably a continuum between mini- and full reviews. The same point applies to the dichotomy of descriptive vs. integrative reviews. While descriptive reviews focus on the methodology, findings, and interpretation of each reviewed study, integrative reviews attempt to find common ideas and concepts from the reviewed material [12]. A similar distinction exists between narrative and systematic reviews: while narrative reviews are qualitative, systematic reviews attempt to test a hypothesis based on the published evidence, which is gathered using a predefined protocol to reduce bias [13], [14]. When systematic reviews analyze quantitative results in a quantitative way, they become meta-analyses. The choice between different review types will have to be made on a case-by-case basis, depending not just on the nature of the material found and the preferences of the target journal(s), but also on the time available to write the review and the number of coauthors [15].

Rule 5: Keep the Review Focused, but Make It of Broad Interest

Whether your plan is to write a mini- or a full review, it is good advice to keep it focused 16,17. Including material just for the sake of it can easily lead to reviews that are trying to do too many things at once. The need to keep a review focused can be problematic for interdisciplinary reviews, where the aim is to bridge the gap between fields [18]. If you are writing a review on, for example, how epidemiological approaches are used in modelling the spread of ideas, you may be inclined to include material from both parent fields, epidemiology and the study of cultural diffusion. This may be necessary to some extent, but in this case a focused review would only deal in detail with those studies at the interface between epidemiology and the spread of ideas.

While focus is an important feature of a successful review, this requirement has to be balanced with the need to make the review relevant to a broad audience. This square may be circled by discussing the wider implications of the reviewed topic for other disciplines.

Rule 6: Be Critical and Consistent

Reviewing the literature is not stamp collecting. A good review does not just summarize the literature, but discusses it critically, identifies methodological problems, and points out research gaps [19]. After having read a review of the literature, a reader should have a rough idea of:

i.   the major achievements in the reviewed field,

ii. the main areas of debate, and

iii. the outstanding research questions.

It is challenging to attain a successful review on of these fronts. an answer may be to involve a collection of complementary coauthors: some people are excellent at mapping what has been achieved, some others are superb at identifying dark clouds on the horizon, and a few have instead a knack at predicting where solutions are visiting come from. If your journal club has exactly this kind of team, then you ought to definitely write a review of the literature! additionally to critical thinking, a literature review needs consistency, as an example within the choice of passive vs. active and present vs. past tense.

Rule 7: Find a Logical Structure

Sort of a well-baked cake, a decent review contains a number of telling features: it's well worth the reader's time, timely, systematic, well written, focused, and demanding. It also needs a decent structure. With reviews, the same old subdivision of research papers into introduction, methods, results, and discussion doesn't work or isn't used. However, a general introduction of the context and, toward the tip, a recapitulation of the most points covered and take-home messages add up also within the case of reviews. For systematic reviews, there's a trend towards including information about how the literature was searched (database, keywords, time limits) [20].

How can you organize the flow of the main body of the review so that the reader will be drawn into and guided through it? It is generally helpful to draw a conceptual scheme of the review, e.g., with mind-mapping techniques. Such diagrams can help

recognize a logical way to order and link the various sections of a review [21]. This is the case not just at the writing stage, but also for readers if the diagram is included in the review as a figure. A careful selection of diagrams and figures relevant to the reviewed topic can be very helpful to structure the text too [22].

Rule 8: Make Use of Feedback

Reviews of the literature are normally peer-reviewed in the same way as research papers, and rightly so [23]. As a rule, incorporating feedback from reviewers greatly helps improve a review draft. Having read the review with a fresh mind, reviewers may spot inaccuracies, inconsistencies, and ambiguities that had not been noticed by the writers due to rereading the typescript too many times. It is however advisable to reread the draft one more time before submission, as a last-minute correction of typos, leaps, and muddled sentences may enable the reviewers to focus on providing advice on the content rather than the form.

Feedback is significant to writing a decent review, and will be sought from a spread of colleagues, so on obtain a diversity of views on the draft. this might lead in some cases to conflicting views on the merits of the paper, and on the way to improve it, but such a situation is best than the absence of feedback. A diversity of feedback perspectives on a literature review can help identify where the consensus view stands within the landscape of this scientific understanding of a difficulty[24].

Rule 9: Include Your Own Relevant Research, but Be Objective

In many cases, reviewers of the literature will have published studies relevant to the review they are writing. This could create a conflict of interest: how can reviewers report objectively on their own work [25]? Some scientists may be overly enthusiastic about what they have published, and thus risk giving too much importance to their own findings in the review. However, bias could also occur in the other direction: some scientists may be unduly dismissive of their own achievements, so that they will tend to downplay their contribution (if any) to a field when reviewing it.

In general, a review of the literature should neither be a packaging brochure nor an exercise in competitive self-denial. If a reviewer is up to the work of manufacturing a well-organized and methodical review, which flows well and provides a service to the readership, then it should be possible to be objective in reviewing one's own relevant findings. In reviews written by multiple authors, this might be achieved by assigning the review of the results of a coauthor to different coauthors.

Rule 10: Be Up-to-Date, but Do Not Forget Older Studies

Given the progressive acceleration within the publication of scientific papers, today's reviews of the literature need awareness not just of the general direction and achievements of a field of inquiry, but also of the most recent studies, so as to not become out-of-date before they need been published. Ideally, a literature review mustn't identify as a serious research gap a problem that has just been addressed in an exceedingly series of papers in press (the same applies, of course, to older, overlooked studies ("sleeping beauties" [26])). This implies that literature reviewers would had best to stay a watch on electronic lists of papers in press, on condition that it can take months before these appear in scientific databases. Some reviews declare that they need scanned the literature up to a specific point in time, but only if referee may be a rather lengthy process, a full rummage around for newly appeared literature at the revision stage is also worthwhile. Assessing the contribution of papers that have just appeared is especially challenging, because there's little perspective with which to measure their significance and impact on further research and society.

3. CONCLUSION

Inevitably, new papers on the reviewed topic (including independently written literature reviews) will appear from all quarters after the review has been published, so that there may soon be the need for an updated review. But this is the nature of science [27]–[32]. I wish everybody good luck with writing a review of the literature.

4. REFERENCES

[1] Rapple C (2011) The role of the critical review article in alleviating information overload. Annual Reviews White Paper. Available: http://www.annualreviews.org/userimages/ContentEditor/1300384004941/Annual_Reviews_WhitePaper_Web_2011.pdf. Accessed May 2013.

[2] Pautasso M (2010) Worsening file-drawer problem in the abstracts of natural, medical and social science databases. Scientometrics 85: 193–202

[3] Erren TC, Cullen P, Erren M (2009) How to surf today's information tsunami: on the craft of effective reading. Med Hypotheses 73: 278–279

[4] Hampton SE, Parker JN (2011) Collaboration and productivity in scientific synthesis. Bioscience 61: 900–910

[5] Ketcham CM, Crawford JM (2007) The impact of review articles. Lab Invest 87: 1174–1185

[6] Boote DN, Beile P (2005) Scholars before researchers: on the centrality of the dissertation literature review in research preparation. Educ Res 34: 3–15

[7] Budgen D, Brereton P (2006) Performing systematic literature reviews in software engineering. Proc 28th Int Conf Software Engineering, ACM New York, NY, USA, pp. 1051–1052. doi:https://doi.org/10.1145/1134285.1134500.

[8] Maier HR (2013) What constitutes a good literature review and why does its quality matter? Environ Model Softw 43: 3–4

[9] Sutherland WJ, Fleishman E, Mascia MB, Pretty J, Rudd MA (2011) Methods for collaboratively identifying research priorities and emerging issues in science and policy. Methods Ecol Evol 2: 238–247

[10] Maggio LA, Tannery NH, Kanter SL (2011) Reproducibility of literature search reporting in medical education reviews. Acad Med 86: 1049–1054

[11] Torraco RJ (2005) Writing integrative literature reviews: guidelines and examples. Human Res Develop Rev 4: 356–367

[12] Khoo CSG, Na JC, Jaidka K (2011) Analysis of the macro-level discourse structure of literature reviews. Online Info Rev 35: 255–271

[13] Rosenfeld RM (1996) How to systematically review the medical literature. Otolaryngol Head Neck Surg 115: 53–63

[14] Cook DA, West CP (2012) Conducting systematic reviews in medical education: a stepwise approach. Med Educ 46: 943–952

[15] Dijkers M (2009) The Task Force on Systematic Reviews and Guidelines (2009) The value of "traditional" reviews in the era of systematic reviewing. Am J Phys Med Rehabil 88: 423–430

[16] Eco U (1977) Come si fa una tesi di laurea. Milan: Bompiani.

[17] Hart C (1998) Doing a literature review: releasing the social science research imagination. London: SAGE.

[18] Wagner CS, Roessner JD, Bobb K, Klein JT, Boyack KW, et al. (2011) Approaches to understanding and measuring interdisciplinary scientific research (IDR): a review of the literature. J Informetr 5: 14–26

[19] Carnwell R, Daly W (2001) Strategies for the construction of a critical review of the literature. Nurse Educ Pract 1: 57–63

[20] Roberts PD, Stewart GB, Pullin AS (2006) Are review articles a reliable source of evidence to support conservation and environmental management? A comparison with medicine. Biol Conserv 132: 409–423

[21] Ridley D (2008) The literature review: a step-by-step guide for students. London: SAGE.

[22] Kelleher C, Wagener T (2011) Ten guidelines for effective data visualization in scientific publications. Environ Model Softw 26: 822–827

[23] Oxman AD, Guyatt GH (1988) Guidelines for reading literature reviews. CMAJ 138: 697–703.

[24] May RM (2011) Science as organized scepticism. Philos Trans A Math Phys Eng Sci 369: 4685–4689

[25] Logan DW, Sandal M, Gardner PP, Manske M, Bateman A (2010) Ten simple rules for editing Wikipedia. PLoS Comput Biol 6: e1000941

[26] van Raan AFJ (2004) Sleeping beauties in science. Scientometrics 59: 467–472

[27] Rosenberg D (2003) Early modern information overload. J Hist Ideas 64: 1–9

[28] Bastian H, Glasziou P, Chalmers I (2010) Seventy-five trials and eleven systematic reviews a day: how will we ever keep up? PLoS Med 7: e1000326

[29] Bertamini M, Munafò MR (2012) Bite-size science and its undesired side effects. Perspect Psychol Sci 7: 67–71

[30] Pautasso M (2012) Publication growth in biological sub-fields: patterns, predictability and sustainability. Sustainability 4: 3234–3247

[31] Michels C, Schmoch U (2013) Impact of bibliometric studies on the publication behaviour of authors. Scientometrics

[32] Tsafnat G, Dunn A, Glasziou P, Coiera E (2013) The automation of systematic reviews. BMJ 346: f139

[33] Pautasso M, Döring TF, Garbelotto M, Pellis L, Jeger MJ (2012) Impacts of climate change on plant diseases - opinions and trends. Eur J Plant Pathol 133: 295–313