

DOING A SYSTEMATIC REVIEW

A Student's Guide

2nd Edition

Edited by
Angela Boland
Gemma Cherry
Rumona Dickson

 **SAGE**

Los Angeles | London | New Delhi
Singapore | Washington DC | Melbourne



Los Angeles | London | New Delhi
Singapore | Washington DC | Melbourne

SAGE Publications Ltd
1 Oliver's Yard
55 City Road
London EC1Y 1SP

SAGE Publications Inc.
2455 Teller Road
Thousand Oaks, California 91320

SAGE Publications India Pvt Ltd
B 1/1 1 Mohan Cooperative Industrial Area
Mathura Road
New Delhi 110 044

SAGE Publications Asia-Pacific Pte Ltd
3 Church Street
#10-04 Samsung Hub
Singapore 049483

Editor: Mila Steele
Editorial assistant: John Nightingale
Production editor: Victoria Nicholas
Copyeditor: Jen Hinchliffe
Proofreader:
Indexer:
Marketing manager:
Cover design: Shaun Mercier
Typeset by: C&M Digital (P) Ltd, Chennai, India
Printed in the UK

© Angela Boland, M. Gemma Cherry and Rumona Dickson

Chapter 1 © Rumona Dickson, M. Gemma Cherry and Angela Boland	Chapter 8 © Michaela Brown and Marty Richardson
Chapter 2 © Gerlinde Pilkington and Juliet Hounsome	Chapter 9 © M. Gemma Cherry
Chapter 3 © M. Gemma Cherry and Rumona Dickson	Chapter 10 © M. Gemma Cherry and Gerlinde Pilkington
Chapter 4 © Yenal Dunder and Nigel Fleeman	Chapter 11 © M. Gemma Cherry, Helen Smith, Elizabeth Perkins and Angela Boland
Chapter 5 © Yenal Dunder and Nigel Fleeman	Chapter 12 © Angela Boland, Sophie Beale and M. Gemma Cherry
Chapter 6 © Nigel Fleeman and Yenal Dunder	
Chapter 7 © Janette Greenhalgh and Tamara Brown	

First published 2014

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, this publication may be reproduced, stored or transmitted in any form, or by any means, only with the prior permission in writing of the publishers, or in the case of reprographic reproduction, in accordance with the terms of licences issued by the Copyright Licensing Agency. Enquiries concerning reproduction outside those terms should be sent to the publishers.

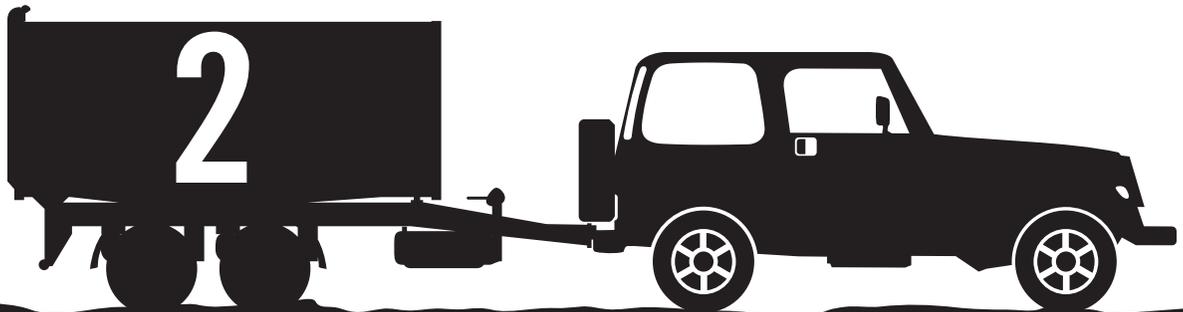
Library of Congress Control Number: 2017936782

British Library Cataloguing in Publication data

A catalogue record for this book is available from
the British Library

ISBN 978-1-4739-6700-7
ISBN 978-1-4739-6701-4 (pbk)

At SAGE we take sustainability seriously. Most of our products are printed in the UK using FSC papers and boards. When we print overseas we ensure sustainable papers are used as measured by the PREPS grading system. We undertake an annual audit to monitor our sustainability.



Planning and Managing My Review

Gerlinde Pilkington and Juliet Hounsome

This chapter will help you to...

- Plan and make appropriate use of the resources available to you
- Co-ordinate your research activities
- Feel confident managing all aspects of the systematic review from start to finish
- Write your thesis document and submit your thesis on time

Introduction

This chapter focuses on how you can co-ordinate your review activities, and suggests how you can employ the resources at your disposal to maximize the chances that the review will progress smoothly. We start by helping you to consider the key resources available to you before you start your review. We then discuss hints and tips for successful time and resource management that you can use as your review progresses. Some of the points considered in this chapter will also be addressed in other chapters, but we feel it's necessary to highlight their importance in this chapter too.

Help: Where do I start?

Welcome to the world of systematic reviewing. You may be feeling both apprehensive and excited, and you may have many questions regarding the research process and be wondering what lies ahead. Be assured that you are not alone! This chapter has been designed to help by offering you advice on how to successfully manage each stage of your research project.

Don't just think of the review process as one distinct entity; break it down into bite-sized chunks – macromanaging the whole journey and micromanaging the individual stops along the way. Planning ahead and thinking about each stage at the outset can help save time later. Organization and planning are the key factors to successfully completing a systematic review, so take a deep breath, get out your pen and paper (or keyboard, tablet, laptop or smartphone) and get started. Put a plan in place now for the research activities you need to undertake. However, be aware that plans don't always go as intended, and as a researcher you need to learn to be pragmatic and flexible, and to adjust your timetable as necessary.

The first thing that you need to think about is the submission deadline for your thesis. As a student, it is likely that you will be working to a tight time schedule. Think about when your thesis is due to be submitted and plan backwards from then. Whether you are looking at months or weeks, you will find that the review process will expand to fill the time that you have available.

The next thing that we recommend that you do is to write a review protocol (a summary of the methods that you are planning to follow during the review process). Students often worry about how to do this, but don't panic. We discuss this further in Chapter 3, and, in addition, most of the chapters in this book contain a list of points to consider when writing your review protocol. Their aim is to provide you with key information that you can use to guide the development of your review protocol.

Writing a review protocol makes you think about the overall review process and therefore allows realistic goals to be set at the start of the project. It is likely that only you and your supervisor will ever read your protocol, unless you choose to register it online (more about this in Chapter 10), so you don't need to worry too much about structure or style; your supervisor will prefer you to concentrate on the content. You don't have to write a protocol, but we encourage you to do so! Take a look at our website for examples of published protocols that we've used to guide our systematic reviews (INSERT WEBSITE ADDRESS HERE).

You also need to consider the potential scale of your review. You probably won't know this yet, but hopefully you will have a better idea once you have completed your scoping searches and formulated a protocol (see Chapters 3 and 4). The results of your scoping searches should give you an idea of the volume and type of relevant studies available. If your review is likely to include a small number of studies (i.e. fewer than five), then spending time setting up systems and learning how to use new software may not be time well spent. However, if you are likely to include more than five studies in your review, then the use of, for example, **bibliographic software** may save you time and effort in the long run. The design of your included studies also affects how you manage your review. For example, quantitative and qualitative studies are likely to require different analysis packages. Having a clear idea, from the outset, of the direction of your review allows you plenty of time to investigate the available data management and analysis options.

If we liken the systematic review process to a journey, planning the route is essential. You need to know how long you have to reach your destination (when do you submit?), what type of route you are going to take (qualitative/quantitative?) and what to pack for your journey (what resources?). The rest of this chapter focuses on how you can co-ordinate your activities. We suggest how you can use the resources at your disposal to ensure that your review continues moving forward without too many disruptions.

What types of resources are available?

Time

As a student you will be very aware that your project has a deadline – an often inflexible one that is set by your academic institution. Careful planning, efficient project management and realistic expectations of what is achievable will enable you to make the most of your time. You will make life much easier for yourself if you overestimate, rather than underestimate, the time it takes to complete key tasks.

People

During the review process other people (e.g. supervisor, peers and/or family) may be available to contribute to review activities. These activities include cross-checking your extracted data and quality assessment exercise, or proofreading text. More importantly, don't forget to call on the help of other reviewers, **information specialists** and/or statisticians if you need them – they can help you to choose the most effective review methods, search for evidence, locate references and analyze your data appropriately. Throughout the book, we highlight areas where we feel your review may benefit from the help of others. A word of warning though: you need to speak to your supervisor to find out how much of a contribution from others is allowed, as some academic courses demand that every piece of work that you produce is entirely your own. In our view, having somebody to assist you with, for example, study selection does not violate this principle any more than asking your supervisor for guidance. However, you must check before asking others for help with your review.

Tools

We assume that, as a student, you are using a computer and have Internet access. We also assume that you are using a word-processing package to write up the different stages of your review. There is an array of tools available to help you manage your research. These include software packages that can assist with data management, data storage and structured thesis template examples. The companion website has resources to help you decide which is the most appropriate software and gives guidance on cost (some are free!) and compatibility.

In particular, think about the advantages and disadvantages of using a bibliographic software package to manage your studies (e.g. EndNote or RefWorks). Be creative. Look for technology that can help you conduct your review, chat to other students about the tools that they have used, or will be using, and listen to your supervisor's advice. Also, check what resources are available to you via your institution as they are likely to be free (or discounted) and may come with additional support that explains how to use the software/application appropriately.

Managing your time and co-ordinating activities

Figure 2.1 lists all of the individual steps in the systematic review process that are discussed throughout this book, which hopefully will soon become familiar to you. It can be used as a checklist of the different stages that you will inevitably go through when completing your review. You can use it as you make plans to start your journey, building in some scheduled stops before arriving on time at your final destination.

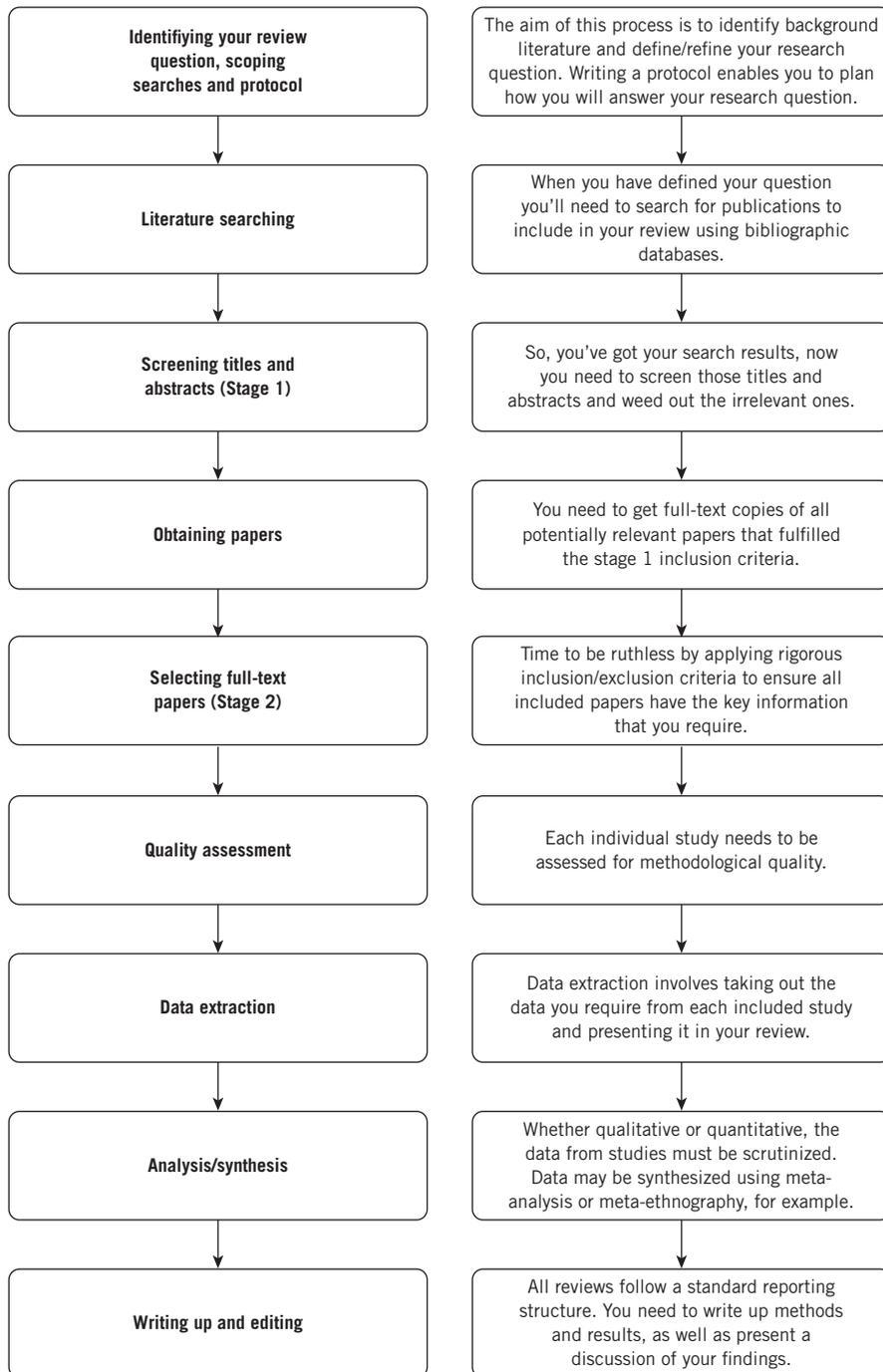


FIGURE 2.1 Key steps in the systematic review process

Time is probably the most crucial resource you have so it's a good idea to plan now for what lies ahead. You need to make sure you meet your timelines, whether self-imposed or supervisor-driven. Start by managing your review project as you mean to go on. Be calm, organized and efficient. Unfortunately, we can't tell you how much time to allocate to the individual stages of your review. In our experience, data extraction almost always takes more time than you anticipate, and almost everyone underestimates how long it takes to reflect on their results and write up the discussion. Furthermore, systematic reviews of qualitative evidence tend to be more iterative than those of quantitative evidence, and so the processes of extracting and synthesizing data may be more time-consuming. Having said that, each review (and reviewer) is different and, with so many unforeseeable factors at play, the best advice we can give you is that, inevitably, some deadlines will be missed. Just make sure that you know your final submission deadline and that you meet it!

When it comes to systematic reviewing, you will never find that you have spare time on your hands – even if you might want (need) some. While some tasks may seem tedious (or perhaps you may just put off doing a task because you don't think you have time to complete it before you have to go out), you can always find a different task to be getting on with. You'll soon learn that you can start a task and then put it on hold while you make progress with another task. As you get on with your review you will be working on distinct, yet overlapping, activities. You might find that while some tasks are ongoing (such as waiting for the arrival of the full-text papers that you have ordered) you can get on with something else (such as reading the papers that you already have).

Peers, friends and/or family are often quite willing to help out with some basic tasks. For example, when screening and applying **inclusion criteria** (Chapter 5), your supervisor or peer could cross-check all or some of your decisions. This helps to ensure you are not dismissing potentially relevant studies. From an editing perspective, your supervisor should take a periodic look at drafts of your work and provide feedback. How this will be done, and when, needs to be negotiated in advance with your supervisor to ensure that you are both aware of when you will send drafts and receive feedback. We all have friends and family who are great at spotting mistakes; you can ask them to read chapters of your work and to do their best to find typing errors or half-written sentences. Just make sure you (and your collaborator(s)) are clear on expectations and timelines before you begin, particularly if you plan to publish your review (more about this in Chapter 10).

Another way to make best use of your time is to make sure that your work, from initial drafting of your protocol to final editing of your thesis, is consistent. Establishing consistency across all aspects of the review process early on can save precious time and effort later. You might wonder why this is important at such an early stage and

perhaps you are thinking, ‘Surely I can go back and change minor things later?’ The short answer to this is that ‘minor’ things can end up as ‘major’ things. It is likely that you will end up spending hours and hours editing sections of text in your document because you didn’t carefully consider consistency (in formatting, data extraction, analysis and so on) at the beginning of your research. We suggest that you consider the following advice as you conduct your review:

- Throughout your project, be consistent with use of terminology. For example, some authors will discuss health status, treatments and patient groups, while other authors will talk about health outcomes, interventions and populations. You need to choose the terms that you want to use and stick with them.
- If your review topic refers to terms or concepts that are interchangeable, it’s often useful to pick the most commonly used/preferred term and stick with it to avoid confusion for the reader; for example, ‘social interactions’ and ‘social relations’ could be interchangeable, but also mean different things in different contexts.
- Think carefully before using abbreviations, but if you have to use an abbreviation then be consistent; for example, if you want to abbreviate the phrase ‘cardiovascular disease’ don’t use both CD and CVD.
- It will save time if you’re consistent with how you spell words or phrases. Think about capitalization and hyphenation; for example, would you use Actor-Network Theory or actor network theory?
- Always list the included studies in your tables in the same way (alphabetically or chronologically) – be consistent throughout your document.

Managing your review: employing the right resources for the job

Now that we’ve discussed time-saving tips and highlighted potential pitfalls, it’s time to consider how other resources can be used to make the review process easier for you to manage.

Managing your record keeping

Make record keeping a priority! Record keeping is a basic and required step in project management and allows you to keep an up-to-date and accurate account of what you have achieved at different stages of the review. It also helps you to outline and plan future activities. Unfortunately, it is an activity that is all too often neglected during

the review process. Inevitably, the reviewer ends up questioning his/her own actions: Why did I leave out that study? Did I search that **bibliographic database**? How many duplicate references did I have? The best way to avoid such unnecessary stress is to take note of everything you do as you carry out day-to-day review activities. There are many ways to keep records, from paper and pen notes written chronologically to the use of electronic database systems tailored to suit your review. Choose the method that you prefer. From our experience, electronic record keeping is more efficient than the pen and paper method, especially when it comes to searching for information, and it is satisfyingly time-saving if you are dealing with a large number of included studies.

Table 2.1 gives an example of record keeping. Keeping thorough and accurate records in this way allows you to review the decisions you have made, and having the information to hand can help you to defend and justify your decision-making. For example, if you are asked why a specific paper was not included in your review, you can easily check your records and determine whether it was included in your search results and, if it was, the reason for its subsequent exclusion (Chapter 5).

TABLE 2.1 Example of record keeping

Reference	Included at screening?	Obtained paper	Included at selection?	Reason for exclusion
Anderton (2002)	Yes	Electronic	No	Inappropriate population
Apple (2013)	Yes	Paper	Yes	Not applicable
Brent (2002)	Yes	Still to get		
Bryan (2002)	No	Not applicable		
Clyde (2003)	Yes	Paper	Yes	Not applicable

In addition, we suggest that you keep a research activity journal (again, electronic or paper) on a daily or weekly (as appropriate) basis. The purpose of this journal is to allow you to look back and reflect, at regular intervals, on your more general research activities. This will enable you to monitor progress and highlight issues that you might want to return to at a later date. Often, conducting a systematic review is a steep learning curve during which you will be developing and refining many new skills, so it's a good plan to keep track – especially for your CV.

Managing your files (paper or electronic)

The term 'managing files' (electronic and/or paper) relates to systems for storing information, backing up information and keeping files in order so that you are always working on the most up-to-date version of your document.

Storing information

During the review process, organized storage of information is essential. The storage of information is comparable to packing for a journey; you need to have more than enough space in your car as you know that you will be picking up more passengers along the way.

However small you think your project is, you will soon be engulfed in piles of papers, information, data and different versions of reports and tables. Before you even start your review you need to think about how you will keep track and store your electronic and non-electronic data. Clearly ordered information storage systems accompanied by good record keeping and unique labelling of studies will help you to quickly access information as and when required by your review.

When storing files electronically, the use of folders and subfolders can be a considerable help. It is a good idea to set up folders to allow you to save files in a logical manner. An example of how to organize all the information and data you might gather during the review process is shown in Figure 2.2.

This organizational system is by no means exhaustive, and perhaps small reviews might adopt a simpler system. However, note how many of the folders and subfolders match with the key stages of the review process shown in Figure 2.1.

Backing up information

The ideal electronic system has automatic, built-in backup facilities but if this isn't a feature of your computer, make sure you back up your work regularly. You could use a removable memory stick, external hard drive or web-based storage to keep copies – get into good habits early on and it will save you time and effort later in the review. For example, make sure that, on a regular basis, you back up your work to your computer, leave an electronic copy with a friend or colleague, send the latest version to yourself via email as well as backing up to your academic institution's file storage. This might sound a little excessive but you can never have too many backups!

Keeping files in order

You also need to consider version control. You need to make sure that you are always working on the most up-to-date copy of your work, be it **data extraction tables**, report writing or referencing. One way of managing this is to include the date in the name of a file (e.g. introduction_25_nov_2017). It is then important to change the date with each substantive update of your work. As can be seen in Figure 2.3, to avoid confusion, older versions of your files can be moved into an archive folder.

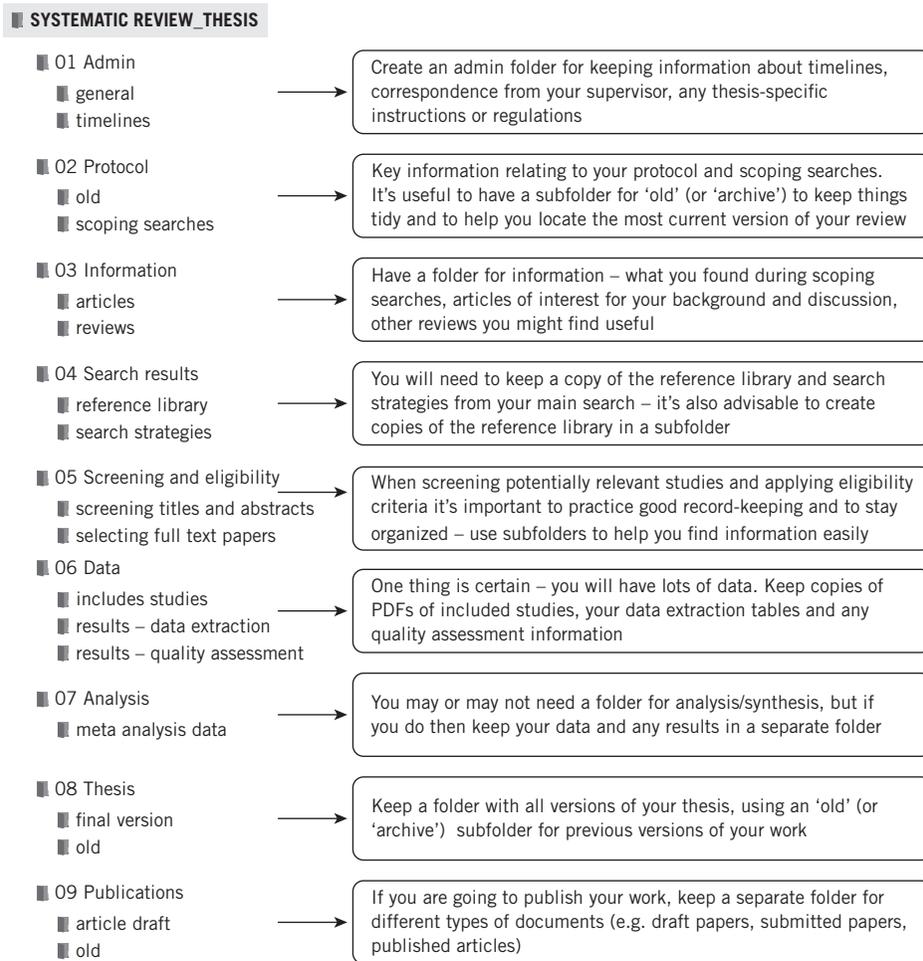


FIGURE 2.2 Useful folder and subfolder headings

Unique labelling of studies used in your thesis (e.g. as part of background information or included studies) should be assigned consistently. For example, use of first author and year of publication (e.g. Brown_2016) is a simple way to identify studies and is easy to remember; if the author has published multiple studies in a single year, include the journal title as well (e.g. Brown_BMJ_2016) or add 'a', 'b', and so on to the year (e.g. Brown_2016a).

Managing your data extraction (Chapter 6)

Planning how you are going to manage your data is critical to the quality of your review; it is important that you are clear about the data you need, how you are going

to use the data and what format the data need to be in. Furthermore, you need to know all of this before you begin to extract data from your included studies.

Not all study authors will report the data that interest you in the same way. You need to try to make the data that you are extracting as uniform as possible so that they can be used as planned when it comes to **data synthesis**. For example, when extracting data on participant characteristics, authors can choose to record age as a mean value (65 years of age), median value (62 years of age) or present a range of ages (58 to 70 years of age). For your review, you should extract data on participant age in such a way that you can compare age across your included studies. Designing and piloting a structured **data extraction form** or data extraction table(s) and thinking carefully about how each required field should be completed (and therefore reported in your thesis) will go a long way to ensuring that the data you extract can be used as you had originally planned (see Chapter 6 for more information). The content of the data extraction form must always be considered in relation to the data tables that you plan to use in your thesis (e.g. participant characteristics, study characteristics and study results tables).

Managing your references

We recommend that students use some form of bibliographic software package to facilitate storage and use of references. If you do not have access to such a program through your academic institution there are several open-access (free) programs available on the Internet.

The main purpose of bibliographic software is to help you to organize, annotate and integrate required references into your work. As a systematic reviewer, this type of software offers you the following benefits:

- automatic download of reference details (titles, abstracts, **keywords**, etc.) from bibliographic databases (e.g. Web of Science, formally known as Web of Knowledge);
- electronic storage of all reference information, including notes, images and PDFs;
- ability to group and organize studies using keywords (e.g. background, included studies, excluded studies);
- the function of adding and formatting in-text citations and bibliographies (e.g. **Harvard** or **Vancouver** referencing style).

Although extremely useful, bibliographic software is not infallible. It is necessary to check that automatically downloaded references have been imported correctly from each bibliographic database. It is also important to check for spelling mistakes and

capitalization, particularly if you have entered references by hand, and that in-text **citations** and bibliographies are formatted correctly. Remember, if you are manually typing references into your reference library, each field (such as ‘journal title’ or ‘authors’) may have to be entered in a specific way.

It is worth noting that examiners often check the accuracy of the referencing in a thesis to allow them to form an overall assessment of the student’s attention to detail. Bibliographic software, appropriately used, helps you to make a good impression without having to make too much effort.

Practical applications: choosing the right software

Table 2.2 lists different types of software packages that you might think about using during your systematic review. It gives practical advice on how and when you might use these packages, and further details of specific software options are available from our website (INSERT WEBSITE ADDRESS HERE). Our view of the pros and cons of the different packages will hopefully help you to make an informed choice when it comes to identifying the most appropriate software package(s) for your review. The right tools for the right job make everything go smoothly – why walk to the next town when you can hitch a ride with a friend?

Remember, the Internet can help you to decide which software to use, how to get the best from it, and how it can benefit your project. Search for instructional **blogs**, video tutorials, and ‘how to’ guides. Audio-visual material (with step-by-step software instructions) can be a fantastic help, especially if you learn by watching and doing rather than reading. Ask your supervisor if there are staff or students who are experienced software users within your institution, ask the librarian for help with bibliographic software, and check your institution’s web pages for resources that may be useful. You never know, there may be a free course or workshop that has all the right answers!

Writing your thesis document

You will need to obtain (and follow) a copy of your academic institution’s thesis submission guidelines. Read this document thoroughly, boring as this may be, before you even begin your systematic review. Key things to look for are: required thesis structure and length, and recommended referencing system. What we present here stems from our experiences of building documents that require consistent presentation of text, headings, tables, figures and references. Remember, word-processing packages make it

TABLE 2.2 Software packages available and their pros and cons

Software package	What can I do with it?	Advantages	Disadvantages
Word-processing software	Keep records of: Time management Progress made Search results Reference lists and unique identifiers Which studies are included Create forms for: Inclusion/exclusion Data extraction Quality assessment Writing up and editing Also: Create templates and use pre-set styles	A word-processing package is very useful for all stages of the review, not just writing up. You will be able to look back and reflect on decisions made – justification and accountability are crucial in a viva voce situation.	Compared with spreadsheets and database software, word-processing packages have less functionality when it comes to creating and manipulating tables. Additionally, they are not always the best choice when dealing with complex numeric data – they are more suited to text.
Spreadsheet software	Keep records of: Time management Progress made Reference lists and unique identifiers Which studies are included Create forms for: Inclusion/exclusion Data extraction Quality assessment Manipulation of numerical data Also: Create tables, graphs and charts	Excellent for numerical data and can be used throughout the review process. Better than a word-processing package for creating tables through use of filter and sort tools. Each workbook can contain multiple sheets. Most packages have a function that allows data to be imported and exported (e.g. into a word-processing or statistical package), the same data can then be presented in different formats.	Not so useful if the majority of data is qualitative in nature. Make sure you know the basics before setting something up. Spreadsheets are often misused or data input incorrectly into inconsistently formatted cells. This can alter values and skew results.
Database software	Keep records of: Time management Progress made Search results Reference lists and unique identifiers Which studies are included Create forms for: Inclusion/exclusion Data extraction Quality assessment	Excellent for use in reviews with vast quantities of data. Can be used for everything other than statistical analysis, referencing and writing up your report. Databases are usually intuitive and user-friendly with lots of useful functions. Each database has the capability to store multiple forms and tables that can be interlinked, and this avoids having several documents clogging up your folders.	If you have never used a database before you might find it time-consuming to learn. If you've fewer than five studies included then setting up a database probably isn't worthwhile. A few hours spent learning how to get the best from software is time well spent in a bigger or more complex review.

(Continued)

TABLE 2.2 (Continued)

Software package	What can I do with it?	Advantages	Disadvantages
	Also: Create tables, charts and graphs	Most packages have the function to import/export data (e.g. to word processor, spreadsheet or statistical package), which enables the same data to be presented in different formats and ensures that the data are input accurately.	
Specialist software (e.g. statistical, qualitative)	<p>Conduct statistical analyses</p> <p>Directly extract data into the package</p> <p>Create graphs and charts</p> <p>Code data</p> <p>Prepare data for analysis</p>	Can perform analyses for you and produce graphs, tables and figures.	<p>If you don't know very much about statistics then you might be analyzing your data inappropriately. If you are keen to use a statistical package then we suggest you take some time to look at the different packages available and, in consultation with an expert, decide how you might utilize them.</p> <p>It can take a significant period of time to learn how to use specialist packages.</p>
Reviewing software	Conduct all stages of the review using just one package	There are numerous packages, both free and paid, which cover all aspects of the review process from screening titles and abstracts, data extraction, producing tables and forest plots, to writing up.	As they are designed for generic reviews and have pre-defined functions, they may not allow enough flexibility for certain reviews.
Bibliographic software	<p>Store references</p> <p>De-duplicate multiple references</p> <p>Generate unique identifier for individual studies</p> <p>Use custom fields and grouping feature</p> <p>Insert references in-text and create bibliographies</p> <p>Attach PDFs and images to the correct reference</p>	Most online databases allow you to save citations to a bibliographic software package. Use this software to create bibliographies and insert the correct references into a document – this function can save a significant amount of time. Multiple fields allow for adding notes, grouping and organizing references (i.e. background, included studies, excluded studies).	<p>Software may not be freely available via your institution; however, you can access free/online versions.</p> <p>It can be time-consuming to learn to use. However, the likelihood is that you will spend more time referencing manually.</p> <p>You must check that the word-processing package and bibliographic software that you choose are compatible, otherwise you will not be able to insert in-text citations.</p>

easy for you when it comes to writing up your thesis. Not only do they have set styles for headings, subheadings, regular text and bullet lists, they can even create your table of contents. As you become familiar with the software you will find all sorts of helpful features that will allow you to manage your review efficiently and effectively. Don't forget to make full use of the search facility and the electronic thesaurus. Take time to 'play' around with the programs you have chosen and discover the useful functions they offer.

Write as you go along, or at the very least keep bullet points that you can expand on later. We suggest that you structure your thesis as soon as you can so that you can write the straightforward sections, such as background information or research rationale, long before you start to write up your results. For information, we have included a suggested thesis document structure (Box 2.1). This structure has generic headings that you might find helpful as you plan how to write up your review as a postgraduate thesis, and gives subheading detail for what should be reported in the methods section. It would also be useful to look at other published systematic reviews or theses for inspiration.

Box 2.1

Suggested thesis document structure

- Title page and preface (don't forget to include your name, date and acknowledgements, etc.)
- Glossary and definitions
- Table of contents
- Abstract or summary (a brief synopsis of all included chapters or sections)
- Background
- Research question
- Methods
 - Search strategy
 - Inclusion and exclusion criteria
 - Screening and selection
 - Data extraction and quality assessment
 - Methods of synthesis/analysis
- Results

(Continued)

(Continued)

- Discussion (including principal findings, strengths and limitations, and relevant factors)
- Conclusion
- References
- Appendices

Importantly, it's all an issue of style. Does your institution have a set format for word-processed documents? Will you lose marks if you use the wrong style? For example, you could be asked to write using the Times New Roman typeface with the font size at 11 pts and the spacing set to double, perhaps with a large margin. Does your subject area or institution have preferred styles of writing? Can you use abbreviations? How should you reference? We always recommend starting as you mean to go on by using the correct styles from day one.

As soon as you start to write up your review you will realize that it is extremely important for you to manage your references appropriately. You could find yourself writing text such as 'Three studies were set in Japan' or '16 studies used valid outcome measures'. You need to make sure that the reader can identify the studies to which you refer. To do this you need to add references to your text. In this book we have not always included references when using illustrative or suggested text. However, you must! You need to plan ahead and think about how to make your review easy to read. Take, for example, the sentence: 'Three studies were set in Japan.' Using Vancouver formatting, this sentence would look like this: 'Three studies^{1,2,6} were set in Japan.' Using Harvard formatting, the same sentence would look like this: 'Three studies (Brown 1999; Smith 2000; Jones 2012) were set in Japan.' Some reference formats are more conducive than others to the reporting of systematic reviews. However, you must follow the reporting guidelines set by your institution. Referencing is made easier with bibliographic software because it allows for the formatting of in-text references and bibliographies in a variety of predefined styles at the touch of a button. This comes in handy if you want to publish your review in a peer-reviewed journal that requires a different referencing style (see Chapter 10).

Also, as we mention in Chapter 7, don't forget that you can use a systematic review quality assessment checklist on your own review. Using a checklist is a win-win situation. You can identify areas where you think your thesis is weak (and you can make changes before submission) or, more likely, you can reassure yourself that you have done a good job.

Final thoughts

So, now you have a better idea about how to make use of your time and how to co-ordinate your research activities, using the appropriate resources for each job. But we know that you're a beginner, and that this all might still seem very bewildering. We think it is a good idea for you to keep the lessons you've learnt from this chapter at the back of your mind as you work through your review – treat this chapter as a practical guide that you have to hand.

Here are our key messages:

- Organization is key to a successful review
- Plan ahead but be prepared to be flexible
- Identify the resources you have available to you
- Plan your file storage system at the beginning of the project so you know where information is to be stored
- Back up files regularly
- Keep detailed records of the tasks that you've done
- Use a bibliographic software package
- Check institution style guides for thesis submission
- Larger or more complex reviews may benefit from the use of specialist software packages
- Speak to your supervisor and/or experts for help and advice

Key points to consider when writing your protocol

Well-designed protocols reflect most of the headings in Box 2.1 with the exception of results and discussion. Protocols usually include a section on project timelines – use the information in this chapter to help plan your time

What an examiner is looking for in your thesis

- A well-structured document that adheres to institutional submission guidelines
- Academic style with appropriate use of language and with no (or very few) spelling mistakes and typing errors – if this is an area where you are weak (e.g. if English is not your first language) then seek assistance
- Appropriately formatted (and correct) references and a similarly correct reference list – don't throw away marks by skimping on this aspect of your thesis

Frequently Asked Questions

Question 1: As well as studying I work full time, so how can I manage my time?

Many of the tasks, such as Stage 1 screening (Chapter 5) and data extraction (Chapter 6), can be carried out in short time slots. Make the most of the time that you do have available. For example, if you have an hour free, scan-read some titles. An important thing to remember is that, with certain non-critical tasks, it is OK to start a new task before you have completed a current one. Be flexible, co-ordinate your activities to reflect the time available on any given day, but remember that you need to block out some dedicated time for writing up (and **dissemination**).

Question 2: What do I do if an article that I ordered arrives later than planned?

It depends. If the article arrives on the day that you are due to submit your thesis, then you can acknowledge its existence without incorporating it into your review. You might state, 'The following study was received too late for incorporation in the review. However, future updates should examine its eligibility and implications.' If it arrives the week before you are due to submit, and you are confident that inclusion will not change your conclusions, you could state, 'The following study was received too late for incorporation in the review; however, a cursory examination suggests that the results of the current review would not be sensitive to its findings.' If it arrives the week before you are due to submit, and you believe that inclusion will change your review findings, then you need to discuss what to do about it with your supervisor and make a pragmatic decision based on what you can realistically achieve during the week before submission.

Question 3: I don't know what to do about the statistical aspects of my review – what are statistical software packages, and will they help me?

Statistical software packages are specialized computer programs for combining numerical data. It is possible that, at some point in your review, you will need to use a statistical package to conduct statistical analyses and/or produce graphs and tables. If you are not familiar with statistical software packages then you are probably not very familiar with statistics either. This means that you really should get statistical advice from an expert.

Question 4: Should I use a spreadsheet (e.g. Microsoft Excel) or a database (e.g. Microsoft Access) to help me manage my review?

The tasks that can be achieved using spreadsheets and databases are similar – both systems use tables to store data. However, while there is an overlap in functionality, they are designed to carry out different jobs. In short, spreadsheets are essentially large tables (or several tables) that have the ability to run formulae and analyses, and produce summaries and reports of data. Databases are large tables that can store vast amounts of data in various formats; tables can be interlinked and manipulated. There isn't a right or wrong choice; your choice will be based on what software you think best fits the needs of your review.

Question 5: How can I get the most out of my chosen software?

If you know what you want to achieve with specific software, but don't quite know what steps you need to take, then we recommend that you take advantage of all that the Internet has to offer. Be assured – there are people who are knowledgeable when it comes to making software do what they want, from basics to more complex functions, and they are more than happy to share their skills online, for free, to help others. Part of the research journey (for us at least) is often figuring out how to do something new, how to solve a problem; this might include carrying out multiple Internet searches for inspiration, followed by a bit of trial and error, and then the joy of walking into a colleague's office and celebrating success (and then sharing the new-found knowledge)!

Question 6: Are there any checklists available to help me structure my write-up?

Yes, there are many checklists available to help you structure your write-up. Looking at other systematic reviews, you will find that a common feature is the inclusion of a **PRISMA** flow diagram (Figure 2.3). PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Liberati et al., 2009; Moher et al., 2009). The PRISMA flow diagram represents a standardized approach to reporting how many studies were identified for inclusion in your review, and what happened to these studies as your review progressed (i.e. how many were excluded from your review, why and when?). You can also visit the EQUATOR Network (www.equator-network.org) for more information about reporting guidelines for systematic reviews.

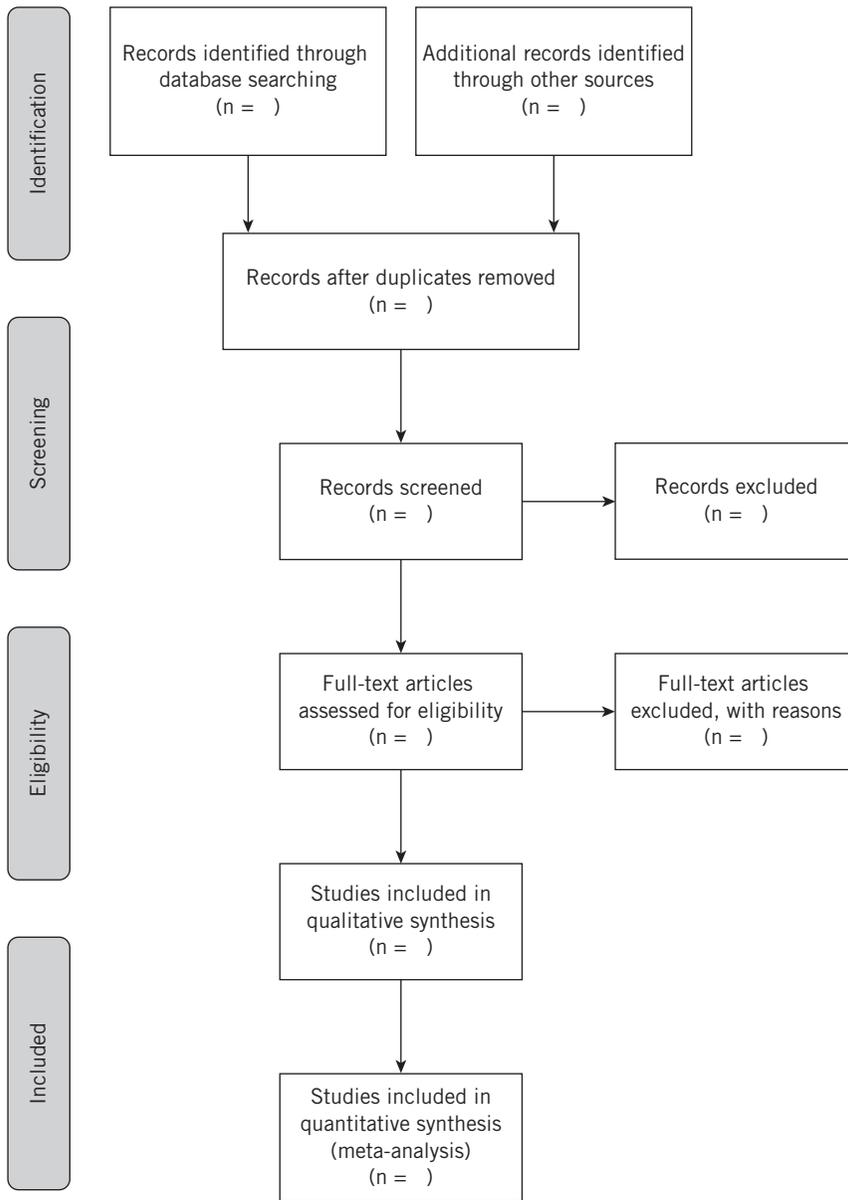


FIGURE 2.3 The PRISMA flow diagram for use in systematic reviews of quantitative evidence

Source: Liberati et al., 2009; Moher et al., 2009.

Further Reading and Resources

Booth, A., Papaioannou, D. and Sutton, A. (2016) *Systematic Approaches to a Successful Literature Review*. 2nd edn. London: SAGE.

Gough, D., Oliver, S. and Thomas, J. (eds) (2012) *An Introduction to Systematic Reviews*. London: SAGE.

Higgins, J. and Green, S. (2011) *Cochrane Handbook for Systematic Reviews of Interventions*. (www.handbook.cochrane.org). (Last accessed February 2017).

Joanna Briggs Institute (2014) *Reviewers' Manual*. (www.joannabriggs.org). (Last accessed February 2017).

Pears, R. and Shields, G. (2010) *Cite Them Right: The Essential Referencing Guide*. 8th edn. Basingstoke: Palgrave Macmillan.

Petticrew, M. and Roberts, H. (2008) *Systematic Reviews in the Social Sciences*. 2nd edn. Oxford: Blackwell.

PODCASTS

READING AND EXAMPLES

ADDITIONAL RESOURCES



Take your systematic review journey online at:
<https://study.sagepub.com/doingasystematicreview2e>