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Introduction

This chapter will outline the general principles of the two main components of conducting a literature review: searching the literature and reviewing what you find. In each section, we guide you through the process, so that you will be able to perform your own literature review in your own area of interest.

Why conduct a literature review?

Conducting a literature review is the usual first step in any research project. The reason we do this is to identify what others have found out about the topic that we are interested in, before we start. Often, when we start a research project we think of a general area of interest - for example, friendship - without really thinking about exactly what we want to know about 'friendship'. Doing a literature review helps us to think about the specific research question that we would like to ask about friendship. Reviewing the literature identifies what research has already been done and what questions have already been answered. At the end of a research project, however, the findings often open as many new questions as they answer. This means that thinking about what evidence already exists in the literature helps us think about what we don't know and therefore what is a useful question. This process is implicit in the word, 're-search'. Research involves searching again (re) through what we know in order to establish a novel research question. It is important to have a novel question, because if someone has already answered the question, it makes our project redundant. Conducting a literature review therefore ensures that there is a need for our project, that is, to answer previously unanswered questions, and that the question we ask is appropriate according to what we already know.

What does conducting a literature review involve?

There are two key phases of activity which make up a literature review: (1) searching the evidence base (i.e., what we already know); and (2) critically evaluating the evidence (i.e., establishing whether we can trust what people have found in the past). In phase 1, the objective is to conduct a thorough and focused search of the evidence to ensure that (a) we identify as much as possible that is (b) relevant to our research topic. The objective of phase 2 is to critically evaluate the evidence in terms of methodological quality and trustworthiness. The remainder of the chapter is split into two sections detailing the processes involved in phase 1 – searching the evidence base – and phase 2 – critically evaluating the evidence.

Searching the evidence base

A number of stages are involved in conducting a search of the evidence base. This section of the chapter will outline these stages and provide illustrations using the subject matter used throughout this book, friendship.

Refining your research question and identifying keywords

As mentioned above, a key objective of a literature review is to identify a novel research question. Thinking of a question can be challenging, but searching the literature can help. The first task in conducting a literature search is to identify keywords. An effective way of doing this is to create a mind-map (see Figure 3.3). To do this you need to start with your topic area, in this case, friendship. Next, you need to think of synonyms. You can do this by using a thesaurus, which might identify the following: companionship, acquaintance, comradeship, camaraderie, alliance. You also need to identify related words, for example, friends, mates, buddies, peers. Whilst doing this, be careful to think in terms of both singular and plural, that is, friend and friends, mate and mates, buddy and buddies, peer and peers. Also, remember to think of UK and US spellings and terminology, for example, behaviour/behavior, university/college, secondary school/high school. Include all ideas that come to mind in your mind-map. This can be as messy as you like with as many bubbles as you think are necessary.

You can use the CHIP tool (Figure 3.1) to help develop your mind-map. CHIP helps ensure that your search of the evidence is thorough and covers all aspects of a research project to help identify literature that is relevant to your study. It also helps with writing your research question. A number of research questions about friendship would be feasible, but using the mind-map and CHIP tool helps us to

Context	Friendship groups at university (or college)
How	Qualitative methods
Issues	Meaning of 'friendship' Development of friendship groups at university Ways friends socialise
Population	Students

Figure 3.1 CHIP analysis of friendship study.

What is the meaning of friendship? How do friendship groups at university develop? What do they do to socialise?

Figure 3.2 Research questions for friendship study.

focus our thinking. The CHIP tool has identified the following areas about friendship that we are interested in (see Figure 3.1). The research question to be used in this illustration is shown in Figure 3.2. In qualitative research, questions asked at the outset are often exploratory, with one overarching question and a number of subordinate questions. In this case, the overarching objective is to discover what friendship means to students at university. Alongside this question, we want to know how friendship groups at university develop and what university friends do to socialise. The research questions are shown in Figure 3.2.

Once you have exhausted ideas for your mind-map, done your CHIP analysis and written your research question (Figures 3.3 and 3.4), you can start writing search strategies. This will be covered in the next section.









Figure 3.4 The CHIP tool for ensuring comprehensiveness in your literature search.

Writing and refining your search strategy

A search strategy is a list of keywords that you use to search a database. A comprehensive literature search will involve several keywords and may involve several databases. This is an iterative process which means it is very much trial and error.

Despite the technology available to us for searching the evidence base, an element of manual work is still required. Bibliographic databases are an incredible resource and the techniques for searching them are very sophisticated. However, the likelihood of identifying everything that is relevant to us without missing anything is very slim. Typically, when searching the evidence we are compelled to make a trade-off between comprehensiveness (or recall) and specificity (or precision). This means that in our efforts to be comprehensive – that is, not to miss anything – we need to broaden our search, thereby making it less specific. However, if we altered our search to be as specific as possible, it is very likely that this would miss records which are relevant, but which perhaps use different terminology or are categorised in a different way, thereby sacrificing comprehensiveness. The aim, therefore, in a literature search is to find a balance between comprehensiveness

*	Asterisk	Represents any group of characters, including no character
?	Question mark	Represents any single character
\$	Dollar sign	Represents zero or one character

Figure 3.5 Wildcards on ISI Web of Knowledge (check the online help if you are using other databases to see which wildcards are available to you).

and specificity – be as comprehensive as possible whilst narrowing the search as much as possible to increase the chances of records being relevant.

What follows is a demonstration using the Institute for Scientific Information (ISI) Web of Knowledge. This is one of the most widely available bibliographic databases, but if you are using a different database, you can use the online help to assist with writing your search strategy.

A good place to start with searching the database is with your initial term, friendship, and the context, in this case, university; for example, see Example Search Strategy 1. We have included friend\$ or friendship* to exclude terms like friendly which are likely to retrieve articles about user-friendly programmes or websites which are irrelevant in this case.

Example Search Strategy 1:

Topic = (friend\$ OR friendship*) AND Topic = (universit*)

An important aspect of writing search strategies is the use of wild cards and Boolean search operators. Wild cards are used to represent unknown or changeable characters, for example, within the ISI Web of Knowledge: friend* will search for friend, friends and friendship; wom?n will search for woman and women; behavio\$r will search for behaviour and behavior.

Boolean search operators – AND, OR, NOT, SAME – help you manage your strategy and are particularly useful in the later stages in order to refine your search.

It is advisable to save your search history whilst you are experimenting with different strategies, so that you can combine them later if you wish. This also makes it possible for you retrieve your search strategies – and the results they retrieve – at a later time. To do this you are usually required to register with a username and password.

Example Search Strategy 2 retrieved 1,259 records.¹ A limitation with the initial search is that some studies may refer to friendship with a different term,

¹ Note that all numbers of records were true at the time the search was conducted. Data stored in bibliographic databases are updated regularly as more studies are published and so these numbers should only be used as a guide.

AND	To find records containing all terms separated by the operator.	
	9 ² - 10 - 8 1	- Joan Provide
OR	To find records containing any of the terms separated by the operator.	- 1.5 - 1.5
SAME	To find records where the terms separated by the operator appear in the same sentence . A sentence is defined as: the title of an article, a sentence in the abstract or a single address.	n ană Isanin an
NOT	To exclude records including certain words from your search.	

Figure 3.6 Boolean search operators on ISI Web of Knowledge (check the online help if you are using other databases to see which wildcards are available to you).

for example, acquaintance or camaraderie. The inclusion of synonyms like these should open up the search making it more comprehensive.

Example Search Strategy 2:

Topic=(friend? OR friendship* OR acquaintance OR comradeship OR camaraderie) AND Topic=(universit*)

This second strategy did indeed retrieve more records, with 1,337 studies identified. Nevertheless, there may still be some studies that this strategy does not identify. For example, in the USA, the term college is used more readily than university. There are also other terms, such as higher education, which may be used in British studies. A third search with further synonyms should make the strategy even more comprehensive, see Example Search Strategy 3.

Example Search Strategy 3:

Topic=(friend? OR friendship* OR acquaintance OR comradeship OR camaraderie) AND Topic=(universit* OR college* OR "higher education" OR "further education")

This strategy retrieved 5,124 studies, indicating that the initial searches did miss some potentially relevant studies. These results illustrate the need to include synonyms to ensure your search strategy is comprehensive. If we are happy with this level of comprehensiveness, we can begin to narrow the strategy by including more keywords from our mind-map. With each trial search strategy, additional keywords are added to incorporate further items from the CHIP analysis, see Example Search Strategy 4.

Example Search Strategy 4:

Topic=(friend\$ OR friendship* OR acquaintance OR comradeship OR camaraderie) AND Topic=(universit* OR college* OR "higher education" OR "further education") AND Topic=(peer\$ OR classmate*)

Example Search Strategy 4 includes synonyms of 'friend' from the mind-map resulting in 632 records. A way of making the search more specific might be to include the methodology of studies you would like to read. As you are concerned with conducting a qualitative project it would be useful to identify some qualitative studies relevant to your own research. As this book illustrates, there are a number of qualitative methods with different names, such as Discourse Analysis and Interpretative Phenomenological Analysis, each of which is associated with different traditions, including social constructionism and phenomenology. However, in the interests of being inclusive (and because the categorisation by qualitative methods is not always as advanced as categorisations of quantitative studies), it is possible to use what is known as a broad-based strategy using just three keywords: findings, interview, qualitative. This strategy for identifying qualitative research has been found to be almost as effective as entering long lists of methodspecific keywords (Shaw et al., 2004). When added to Example Search Strategy 4, we can see how many of the 243 records identified are potentially qualitative studies.

Example Search Strategy 5:

Topic=(friend\$ OR friendship* OR acquaintance OR comradeship OR camaraderie) AND Topic=(universit* OR college* OR "higher education" OR "further education") AND Topic=(peer\$ OR classmate*) AND Topic=(findings OR interview* OR qualitative)

Example Search Strategy 5 retrieved 223 records, which suggests that just about a third of the studies identified used qualitative methods. Remember, at this stage the records retrieved are considered only as *potentially* relevant. This means we cannot yet know for certain whether these studies are about friendship at university or whether they used qualitative methods. To find this out, we need to screen the studies for relevance. Please note that, whilst you are particularly interested in reading those studies which used qualitative methods you also need to review studies which used other methods. This means your review should include studies which used both qualitative and quantitative studies, that is, your pool of potentially relevant literature should include the yield from Strategy 4 as well as those from Strategy 5.

Exploring the use of keywords is helpful when designing a search strategy. The steps taken so far illustrate that starting with broad terms helps ensure the search is comprehensive. Steps can then be taken to narrow the search in order to increase the likelihood that studies retrieved are relevant. Once an effective set of keywords has been identified, a useful exercise is to organise your search according to the different elements of CHIP, as in Example Search Strategy 6.

Example Search Strategy 6:

CONTEXT:	universit* OR college* OR "higher education"	ist Notes
HOW:	findings OR interview* OR qualitative (Topic) AND	
ISSUES:	friendship* OR acquaintance OR comradeship OR camaraderie (Topic) AND	Inal Bu
POPULATION:	friend\$ OR peer\$ OR classmate\$ OR student\$ (Topic)	

Example Search Strategy 6 retrieved 206 results. You now have two options: (1) begin searching through this list of records to identify those which are relevant; or (2) further narrow your search if your research question has become more specific. For example, you may want to focus on how friendship groups affect performance in academic study or whether social groupings affect levels of violence, or whether there is a relationship between friendships during teenage years and success in employment or the development of romantic relationships. Whatever you decide to do, it is recommended that you save the records retrieved to a bibliographic management software package, such as Endnote or Reference Manager, or save them to a file. Make sure you select abstract as a required field in the export so that you have this information available to you in the screening process.



Screening search results for relevance

Once potentially relevant records are saved – either using reference manager software or in a document – it is necessary to search through them thoroughly by reading the abstracts. This is why it is essential that you include the abstract when exporting records from a bibliographic database.

To help screen the records effectively, you can refer back to your CHIP analysis and ask of each record questions about each aspect of the study (see the example in Figure 3.7). During this stage you need to be working from the full reference of each record which includes the title, journal, publication date and abstract. This should be sufficient information for you to decide whether or not you need to

read the full text article. On occasions when you are unsure, it is advisable to code the record as relevant to be on the safe side.

Whilst answering the CHIP questions you need to decide whether the question has inclusion/exclusion power; that is, if the answer to the question is 'no', will the study be excluded from your review? It is unlikely that the 'How' question will function as an exclusion criterion, because although your interest is in finding qualitative literature – to help you think about designing your own study and to find studies which are similar to your own – you also need to consider findings of studies which used quantitative methods. If we take a logical approach to the problem, we can consider guidelines which may help to make the decision of whether a record is relevant. If a study has more 'yes' responses than 'no' responses then it should be included in your review. If there is a full set of 'no' responses, this study is unlikely to be useful to you. Having said all that, it is difficult to be prescriptive,

3.3 Activity suggestion

Go through your own search results using the CHIP questions to decide what is relevant to your research question.

С	Context: Is the study set in a university? If not, is it relevant to university life?
Н	How: Has this study used qualitative methods? What methods does this study use?
I	Issues: Does this study further our knowledge of the meaning of friendship? Does this study help us understand how friendship groups develop? Does this study investigate how friends socialise?
Р	Population: Does this study have student participants? Does this study have participants who have been students in the past? If not, who are the study's participants?

Figure 3.7 Screening questions using CHIP.

especially with qualitative research, which can often be exploratory. These suggestions should be read as guidelines rather than rules to be followed strictly. Whilst you are doing your CHIP analysis to establish relevance, it is useful to keep some brief notes on each abstract to which you can return later when writing up your review (more on this in Chapter 12).

Obtaining full-text articles

Once all records have been screened, it is necessary to obtain the full text articles of all those you have judged as relevant so that you can read them. Most universities now have systems that link directly to electronic bibliographic databases, which means you can click on the record in the database. If the university has a valid subscription to that journal at the time the article was published, you will be able to click straight through to the full text. If not, you will simply need to look up each article in the library or online using your university catalogue or e-library system. If the article is not available at your institution online then check the hard-copy holdings - it might be necessary to search the shelves and photocopy the article, particularly if it was published before about 1997 when publishers began to store electronic copies of articles. On the other hand, if the article is not available at your institution at all, there are a number of ways of obtaining it. You can search the library catalogues for other local university libraries (these are normally available online) and if they have the article you need you may be able to visit that library yourself. Check with your own institution's library for details on how to get access to other libraries. Alternatively, you can submit an Inter-Library Loan request to your own university library which will submit the request to the British Library. There is a fee for this service (via your university library) and often students have a limited annual allocation. Finally, when attempting to obtain a specific article you can search for it on Google Scholar or contact the corresponding author to request a reprint.

A brief note on full-text versus bibliographic databases

Many UK institutions now have access to full-text journal databases. These have been developed by publishers and so are limited to their own journals. For example, PsycARTICLES is a full text database produced by the American Psychological Association (APA) and only includes articles published in APA journals. Other full text databases include ScienceDirect, which includes journals published by Elsevier. The benefit of full text databases is obvious – they take you directly to the full-text article. However, your search is severely limited by the selective coverage offered. Bibliographic databases, such as Web of Knowledge, PubMed, and PsycINFO (a bibliographic database including all available published literature of psychological relevance since the 1800s) provide far greater coverage, often with more

sophisticated searching options and therefore give you more likelihood of an adequately comprehensive and systematic literature search. For example, if you are working on a piece of assigned coursework where your lecturer has recommended the use of a couple of journal articles in preparing your work, you may choose to access a full-text database, where you will find a limited number of articles which you can access in full text from your desktop. By contrast, a systematic literature review requires you to have searched across all the literature in your subject area, including those articles that were only published in print and those for which your institution does not have a full-text subscription.

What about Google and Google Scholar?

The Internet has become an integral part of everyday life and even more so in academic work, which means we are all familiar with search engines such as Google and its academic search engine, Google Scholar. Using these search engines offer a 'quick and dirty' way to search the literature. It may be useful in an initial search to stimulate ideas when you are first exploring what area to study. It is also useful for looking up references. Say you remember reading an article, you know in which journal it was published and the title but not the date or the authors. You can put all the information you remember into Google Scholar and the likelihood is it will find the full reference for you. However, it is not a good tool for conducting a literature search proper. In the same way that we choose a bibliographic database over a fulltext database in order to be comprehensive and systematic in our literature searching, we must also choose a bibliographic database over Google Scholar. At the time of writing, Google has yet to inform the research community about Scholar's source of data and how frequently it is updated. This means you cannot know what you are searching, which makes a systematic and thorough search impossible.

Searching the literature and identifying studies of relevance are only the first phase of conducting a literature review. The second phase, critically evaluating the evidence, is discussed in the next section.

Critically evaluating the evidence

Once a set of relevant work has been obtained and full-text articles read, it is necessary to assess the quality of literature identified. You can conduct the most thorough and systematic literature search possible, but all that hard work becomes of limited value if you then do not consider the quality of evidence retrieved.

Why is quality important?

Psychology is a science and its pursuits must therefore be judged by scientific standards in order for its findings to be considered a valid contribution to knowledge.

As psychologists in training, therefore, we must not take for granted what we read in journal articles (or what we are told in lectures, for that matter); we must take a critical stance – that is, question everything. This enables us to take a step back from research papers we read, so we can fully consider their quality. Thinking about quality is an inherent part of a literature review – this is evident in its name. Just as a film critic would review a film, so we must review the literature: pick holes in the plot/the appropriateness of the methods to the research question; find fault with the film set/context in which the study took place; criticise the camera work/how the methods were employed; analyse the characters/the roles of the researcher and participants during data collection and analysis; scrutinise the happy ending/claims made in the discussion to ensure they are evidenced by data reported.

Quality is important because as researchers reviewing the evidence base we need to be able to trust the findings of the research reports we retrieve. A central objective of conducting a literature review is to present a rationale for your own study, that is, demonstrate why your study is necessary. To achieve this we need to identify studies that we can trust and those that have limitations. Those of high quality, which we can trust, help support the argument in favour of doing our study. Those with limitations indicate ways in which we can improve our study design; for example, to ask questions that have not been asked previously or to introduce new methodology to a subject area which has been studied from a largely experimental perspective.

What criteria are used to assess quality?

Methodology is very important to psychologists, so when we talk about critically evaluating the literature, a major aspect of this is to review the articles retrieved according to their methodological quality. You will no doubt already be familiar with the terms objectivity, reliability, internal and external validity, and generalisability (see e.g., Robson, 2002 for definitions of these terms). These are the criteria by which the methodological quality of quantitative psychology studies is judged. However, the appropriateness of these constructs for assessing qualitative research is questionable. This is because qualitative research is fundamentally different from quantitative research, both in terms of its objective and its methods. The objective of quantitative research is to make predictions about future behaviour by, for example, observing people's behaviour in a controlled setting, designing a survey based on a particular theory or measuring people's reactions when faced with different stimuli. Qualitative research, on the other hand, aims to explore phenomena that are relevant to people's everyday lives in order to understand some aspect of human experience. This might be achieved, for instance, by conducting interviews with students to understand their friendships and what friendship means to them, or recording a conversation on a telephone helpline to understand the mechanisms at work in the listener's and caller's talk. A different framework is therefore required to assess the quality of qualitative evidence identified during the literature search.

We have already talked briefly about trustworthiness – whether you can trust the findings reported in a journal article (see Robson, 2002 for a discussion of trustworthiness and criteria for assessing qualitative research). This is at the core of establishing research quality. When we are conducting a review of articles published in academic journals, it is the written article that we use to assess quality. This means the transparency of information in the article is paramount; everything the researcher did must be described clearly for us to judge whether it was appropriate and whether it was performed systematically and conscientiously. When we evaluate research evidence, therefore, an adequate level of transparency in the article will enable an informed decision regarding the trustworthiness of its findings and claims made. Hence, when we conduct a literature review that includes qualitative and quantitative research, our measure of quality is designed around these two constructs: trustworthiness and transparency.

The prompts in Figure 3.8 are adapted from Dixon-Woods et al. (2004) and can be used to judge the quality of the science reported in each article. The questions direct your thinking to the design of the research study, whether its methods are appropriate and whether you can understand how the study was conducted. This provides you with 'ammunition' for your review; if you identify problems with the methods or insufficient information is provided to explain how a method was performed, then this lack of transparency makes it difficult for you to trust the findings reported. As a result you will be able to critique the paper based on its poor methodology. Similarly, if the methods seem inappropriate for the question asked you can challenge the evidence on these grounds; if the methods were inappropriate, it is unlikely that the question will have been answered adequately or the question may have been altered in order to fit the methods available. This helps create a rationale for using new or different methods in order to provide a better fit between question and method. When conducting this evaluation, you need to keep notes on each study assessed. Refer back to the CHIP analysis notes you made whilst establishing relevance and add to those the responses to these

	Are the research questions clear?
	Are the following clearly described?
	 Sampling
	 Data collection
	 Analysis
۰	Are the following appropriate to the research question?
	 Sampling
	 Data collection
	 Analysis
•	Are the claims made supported by sufficient evidence?
0	Are the data, interpretations, and conclusions clearly integrated?
۰	Does the paper make a useful contribution?

Figure 3.8 Prompts for assessing quality of studies retrieved.

3.4

prompts. You will also find it useful at this stage to summarise the 'take home' message of each research report, that is, what this study achieves and what conclusion it draws. It will also pay off later if you describe any further details of the study, which may form part of the argument made in the write-up of your literature review. For example, the study may offer insight into the significance of gender in the forming of friendships but it was conducted with school-aged children. Whilst its subject matter – the issues it addresses – is relevant, the population is different to that in your own inquiry. This enables you to argue that further work with people of university age is required to fill a gap in our knowledge and therefore justifies the need for your study.

Activity suggestion

Find a couple of published journal articles that report studies that have used qualitative research methods. Use the prompts for assessing quality to review those articles and write a brief report and their good and bad points.

Constructing your literature review

Writing up your literature review can be a daunting task. The first challenge is to establish what you are going to say about each article. This doesn't have to be a great deal but should summarise the main point you want to make. The second is to decide the order in which you present the studies. The finished review should be a coherent account of the relevant studies identified, their findings, their failings and what your study will add to them. This will build the rationale for your study.

A literature review is essentially the story of what has happened so far, which sets the scene for your study. Think of it as a prequel to the main event; like *Star Wars – The Phantom Menace* (1999), the first of three prequels to the original (fourth in the series) George Lucas film, *Star Wars* (1977). In providing this background you have two objectives: (1) to inform the reader what we know already; and (2) to demonstrate how your study will fill a gap in current knowledge. To achieve this you need to construct a series of arguments with evidence to back them up.

Structuring your review

The structure of your literature review will depend on the results of your search and your critical evaluation. Return to the notes you made during screening with your CHIP analysis and during the critical evaluation stage using the prompts in Figure 3.8. These will help identify points of significance in each study – what

exactly was the study about, details of the sample population, how it was conducted, the appropriateness of methods used, and whether you can trust the conclusions drawn. Once you have familiarised yourself with the evidence in this way you need to organise the studies by theme. Whether you organise by 'context', 'how it was conducted', 'issue', or 'population' depends on the nature of the evidence you are reviewing as well as the focus of your research question. Hence, the structure of your review very much depends on the nature of your rationale.

Building a rationale and presenting your research question

Alongside presenting the reader with the story so far, a literature review must build the rationale for your study. The rationale is the justification of your study – why it is necessary. This comes largely from your critical evaluation. Through highlighting the limitations in existing research you can draw attention to gaps in the literature that your study will help fill. As you go through each theme in your review, you need to clearly indicate what is missing and what needs to be done to address the unanswered questions. Research studies often throw up more new questions than those it answers. This makes the task of justifying new research relatively simple because there are clearly issues which have not been addressed previously perhaps because they were considered unimportant or because the methods to investigate them were not available. In essence, the rationale you provide needs to address each aspect of the CHIP analysis (see Figure 3.9).

С	Context: Why is it necesary to conduct a study on friendship in a university setting?
Н	How: What is the benefit of using qualitative methods?
I	Issues: What will this study add to our understanding of the meaning of friendship and the development of friendship groups at university?
	Population:

Figure 3.9 Creating a rationale using CHIP analysis.

A literature review should close with a statement of the research question(s) of the current study. In qualitative research we often ask open-ended exploratory questions, such as those in described in Chapters 5 and 7. It is likely, as in our example, that you will have one over-arching question and one or more subsequent questions which are more specific. The reader should almost be able to recognise what the research questions are likely to be from reading your literature review.

Summary points

- 1. Conducting a literature review is fundamental to the research (re-search) process.
- 2. We need to establish what is already known before we can decide with any great certainty exactly what questions we want to ask.
- 3. Searching the evidence is a systematic process which must be followed by the critical evaluation of the literature that is identified.
- 4. The rationale for your study is developed in part through explaining what is missing and what your project will add.
- 5. The literature review is the foundation of any research project.

