
Conducting a Literature Review

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Abstract

This article offers support and guidance for students undertaking a literature review as part of their dissertation during an undergraduate or Masters course. A literature review is a summary of a subject field that supports the identification of specific research questions. A literature review needs to draw on and evaluate a range of different types of sources including academic and professional journal articles, books, and web-based resources. The literature search helps in the identification and location of relevant documents and other sources. Search engines can be used to search web resources and bibliographic databases. Conceptual frameworks can be a useful tool in developing an understanding of a subject area. Creating the literature review involves the stages of: scanning, making notes, structuring the literature review, writing the literature review, and building a bibliography.

Introduction

All research needs to be informed by existing knowledge in a subject area. The literature review identifies and organizes the concepts in relevant literature. When students embark on a dissertation they are typically expected to undertake a literature review at an early stage in the development of their research. Often this may be their first significant encounter with the journal and other literature on their subject. They may have successfully completed much of their undergraduate studies by relying on textbooks and lectures. One of the most intimidating aspects of a literature review is encountering the messy nature of knowledge. Concepts transcend disciplinary boundaries, and literature can be found in a wide range of different kinds of sources. This article draws on the extensive experience of the authors. Both have professional roots in library and information management, but also have extensive experience in the delivery of research methods courses, and dissertation supervision at undergraduate, Masters and Doctoral level. The article aims to distill key aspects of the process associated with the development of literature reviews for the benefit of both students and their supervisors. It first identifies the nature and purpose of a literature review. Subsequent sections briefly explore the following aspects of the process associated with the production of a literature review:

- evaluating information sources
- searching and locating information resources
- developing conceptual frameworks and mind mapping
- writing the literature review.

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The Nature of a Literature Review

A literature review distills the existing literature in a subject field; the objective of the literature review is to summarize the state of the art in that subject field. From this review of earlier and recent work, it becomes possible to identify areas in which further research would be beneficial. Indeed, the concluding paragraphs of the literature review should lead seamlessly to research propositions and methodologies. It is therefore important that the literature review is focused, and avoids the more comprehensive textbook-like approach.

Literature reviews are, then, important in:

- supporting the identification of a research topic, question or hypothesis;
- identifying the literature to which the research will make a contribution, and contextualising the research within that literature;
- building an understanding of theoretical concepts and terminology;
- facilitating the building of a bibliography or list of the sources that have been consulted;
- suggesting research methods that might be useful; and in,
- analyzing and interpreting results.

Evaluating Information Resources

A range of information sources might be used to inform the research question and design. The evaluation of these sources is a very real problem. Typically in professional disciplines, like information systems, and business and management, there will be both academic and professional literature. Both may have a role in the identification of a research theme, but the academic literature contains a firmer theoretical basis, with more critical treatment of concepts and models. Articles in scholarly and research journals should form the core of the literature review. Most such articles will be written by researchers. They will include a literature review, a discussion of the research methodology, an analysis of results, and focused statements of conclusions and recommendations. These articles are designed to record and distill systematically researched knowledge in the area, and have typically been peer refereed prior to acceptance for publication. Scholarly and research journals may also include review articles that provide a review of all of the recent work in an area. Such reviews will include a significant bibliography that may be an invaluable source of reference to other work in the area, even if the review does not match a proposed research topic precisely.

Professional and practitioner journal articles are often around three pages in length, they may be useful in identifying recent developments or topical themes in context, policy, legal frameworks, and technological advances, but should be carefully differentiated from research and scholarly articles.

Another source that needs to be used intelligently is books. Standard texts are a good place to start. They provide a summary of current ideas and in disciplines such as business and management and information systems many are regularly updated. Books include bibliographies or lists of references to other useful sources. Figure 1 provides a brief checklist for evaluating books for use in literature reviews.

Figure 1: Evaluating Books

A good book is:

- relevant to the research topic;
- written by an authoritative author; the biographical details given in the book will summarize the authors experience in the field;
- up-to-date, as signaled by the publication date;
- published by a reputable publisher in the discipline;
- one that includes extensive reference to other associated literature; and is
- clearly structured and well presented, and easy to read.

Web resources are easy to locate through simple searches in standard search engines. The web provides access to a wide range of information, but these sources are provided by a range of different individuals and organizations, each with their own messages to communicate, and reasons for making the information available. It can be difficult to evaluate web resources. Many may be more suitable for the data gathering element of a research project, rather than as input to a literature review. They, may, for example, provide valuable statistics, or company information that can be used in desk based research. Figure 2 lists a number of questions that can be asked in the process of evaluating web based resources.

Figure 2: Evaluating Web Resources

1. Who is the intended audience?
2. What is the frequency of update?
3. Which organization is the publisher or web site originator?
4. What is the web resource developer's claim to expertise and authority?

5. Are there links or references to other relevant web, electronic, or print sources?
6. What do reviews or evaluations of the site say?
7. Is a licence or payment necessary for access to the resources?

Literature searching and locating information sources

There are a number of different tools to assist in the identification and location of documents in each of the categories discussed above. These include:

1. library catalogues - good for locating books held by a library, and journals to which they subscribe;
2. search engines - good for locating web pages with simple keyword based searches; and,
3. on-line databases or abstracting and indexing services, which provide access to journal articles, papers in conference proceedings, reports, dissertations and other documents.

Whilst search engines make for beguilingly easy location of web pages, academic journal articles are more difficult to locate. The process often has a number of stages, and is less than obvious. To add to the complexity each route to the full text of a document is different. Typical stages in this process are:

1. Start with your library web page; this provides directions to some on-line databases, a portal, or a suitable abstracting and indexing service, such as Emerald for business and management;
2. Conduct a search within the online database, examine the references, and possibly expanded annotations and save or print a list of relevant items. If the library subscribes to the appropriate electronic journal collections there may be a direct link to the full text of the journal articles. Alternatively, you need to move on to the next stage:
3. Use these references, to locate the full text of the article, by revisiting the library web page to examine the catalogue of electronic journals; this should yield some full text copies of articles;
4. Locate other articles through the library serials catalogue, and in print form on the library shelves;
5. Finally, order any articles that you can not access or locate in your library, via inter-library loan.

Most search engines, whether they search online databases, or the web, have two levels of search options. It is possible to conduct Basic

searches using keywords, or to choose the Advanced search option that offers a range of other search devices to assist in the formulation of a more precise search.

As the search algorithms that search engines use to retrieve documents have improved in recent years, it is possible to go a long way with a basic keyword search. These searches are most effective if you use a very precise term (e.g. celebrity endorsement, competitive advantage) or a name (e.g. Consignia, Amazon). The search engine will generate a list of references to web resources in a ranked order that is based on the frequency of, and location of occurrence of the words in the search term. Clicking on one of these web resources will display the appropriate web page. Often links through to related web pages will also be offered in the list of references.

Basic searches work on the terms in the search statement, and prioritise documents in which these words appear close to one another. There are numerous topics for which such a search will not necessarily provide a very focused list of references. For example a search on 'The Queen' would generate a mix of entries covering topics that include royalty, music groups, and sexual orientation. A search on most town names will generate entries on more than one location. For example, a search on Bangor, will generate references in both Wales and Ireland. Similarly searches on more specific topics, such as 'the use of information systems in human resource departments in hospitals' might benefit from more structure in the design of the search statement than is available with Basic search. Such searches benefit from the use of the advanced search option, which typically allows the searcher to be specific about the combination of words in the search statement (by using the Boolean operators, NOT, AND and OR). This option may also allow truncation of the words in the search statement, and specification of the location of the search terms in the document. The exact form of Advanced search facilities vary between the search engines used to locate web resources and those used to search bibliographic databases. Advice and guidance is usually available on the search engine help systems.

There are number of different ways of going about gathering information, and developing a search strategy. The following typology of search strategies, is useful in prompting an awareness of these different approaches:

1. citation pearl growing - starts from one or a few documents and uses any suitable terms in those documents to retrieve other documents. This is a relatively easy approach for a newcomer to a topic, or even indeed, research, to use.
2. briefsearch - retrieves a few documents crudely and quickly. A briefsearch is often a good starting point, for further work.
3. building blocks - takes the concepts in search statement and extends them by using synonyms and related terms. A thorough,

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but possibly lengthy search is then conducted seeing all of the terms to create a comprehensive set of documents.

4. successive fractions - is an approach that can be used to reduced a large or too large set of documents. Searching within an already retrieved set of documents can be used to eliminate less relevant or useful documents

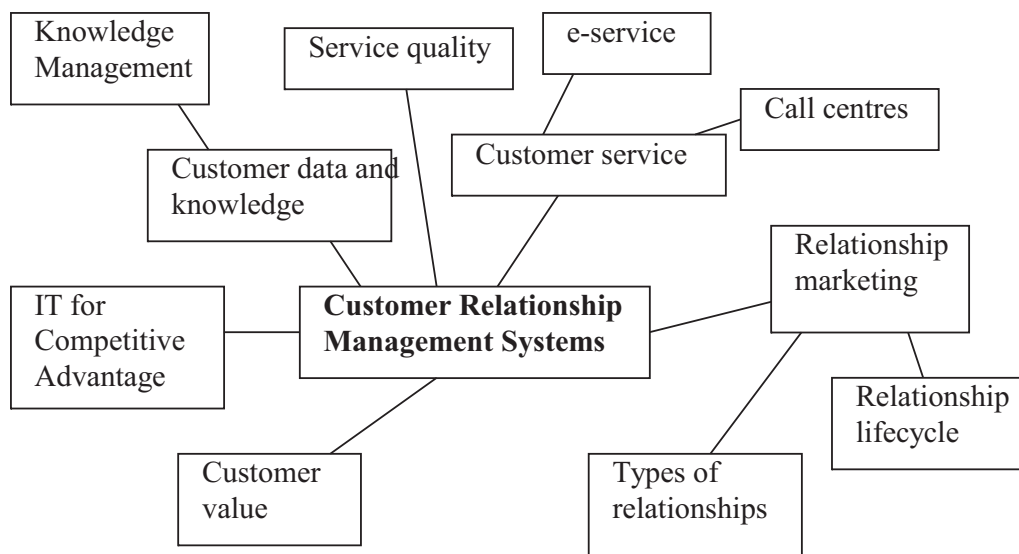
Developing Conceptual Frameworks and Mind Mapping

Concept mapping is a useful way of identifying key concepts in a collection of documents or a research area. Such a map can be used to:

- identify additional search terms during the literature search
- clarify thinking about the structure of the literature review in preparation for writing the review
- understand theory, concepts and the relationships between them.

A concept map is a picture of the territory under study, and represents the concepts in that area and the relationships between them. Concepts are typically represented by labeled circles or boxes, and relationships are represented by lines or arrows. Figure 3 shows an example of such a concept map.

Figure 3: A Concept Map relating to Customer Relationship Management Systems



Concept maps may be sketched on paper or on a computer. It is important to recognize that there is no correct answer for a concept map - their purpose is to assist the researcher to develop their understanding. Loosely structured maps appeal to some researchers, whilst others prefer more structured approaches based on principles such as flowcharts, or hierarchies. Since concept maps are based on the researcher's understanding at the point in time when they were drafted it is likely that as the research advances they will change, with concepts being merged, or new concepts and relationships being added.

Drawing Together the Literature Review

There are five steps in the creation of a literature review: scanning documents, making notes, and structuring the literature review, writing the literature review, and building the bibliography:

1. Scanning documents provides a familiarity with the broad spectrum of documents, and the grouping of documents with similar themes. Scanning documents may give some insights into key themes that need to be included in the literature review.
2. Making notes leads to a distillation of key themes and messages. Remember to note the sources of ideas, so that the sources can be cited later. An easy way of making notes is to annotate and mark up the document, so that key pieces of text and figures can be readily located later. Resist the urge to use a marker pen on too many large chunks of text - this is really not very helpful, because it avoids the distillation and categorization that is necessary before an integrated literature review takes shape.
3. Structuring the Literature Review is concerned with identifying the key themes in the review and starting to organize concepts and documents in accordance with the key themes. The structure must emerge from the literature; there is no one answer. Figure 4 offers a general framework that might offer some inspiration, but this needs to be adapted to match the specific research project.
4. Writing the Literature Review can commence once a broad structure has been resolved. The headings in the structure can be used to analyze existing documents by making margin comments referring to section of the literature review. Then all of the documents with content relevant to a specific section of the literature review can be gathered together, and the writing of sections of the literature review can commence. The literature review should integrate in a coherent account three different types of material:
5. a distillation and understanding of key concepts

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6. quotations, in the words of the original writer. These should be used sparingly and for special impact. When they are used it is important to cite the author, date and page number of the quote (e.g. Gree, 2002, p.45), and to include the full reference for the source in the bibliography.
7. a distillation of positions, research findings or theories from other authors, but written in your words. These concepts should be acknowledged with a citation (e.g. Gree, 2002).
8. Building a bibliography is an ongoing process from the beginning of the literature search until the completion of the literature review. A bibliography is a list of all of the sources that you have referred to in the literature review (or at other points in your dissertation). As work progresses it is important to make a note of the documents and other sources that have been read, and, later to translate this bibliography into a list of relevant documents. Most universities specify the type of referencing system to be used and the format of citation to be adopted for different types of documents. There are two main referencing systems. One of these inserts numbers in the text, and then lists references according to numerical sequence of application in the text, at the end of the document. The other system cites documents by author name and date in the text, and arranges the list of references (or bibliography) in order according to the alphabetical sequence of the authors' names. Components of the citations listed at the end of the dissertation vary for different kinds of documents, but there are some very precise specifications as to what to include, and how to punctuate such references. A good dissertation adheres to these guidelines. The most important thing to remember about citations is that there should be sufficient data included to uniquely define a document, and to make it possible to locate it. For example, for books, edition statements and date of publication are important, and with journal articles it is important to include page numbers.

Figure 4: Sample Structure for a Literature Review

1. Basic definitions e.g. What is Business Process Re-engineering (BPR)? What is e-government?
2. Why the subject is of interest e.g. what impact can BPR have on business success? Why are e-government applications important, and what is their scope?
3. What research has already been undertaken on the topic, and is there any research on aspects of the topic that this research might investigate e.g. the application of BPR to support the delivery of e-government applications.

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- 4 A clear summary of the research opportunities and objectives that emerge from the literature review.

Conclusion

Undertaking a literature search, locating documents, and understanding the distilling the literature of a subject area is a complex task. This brief article has reviewed a number of aspects of the development of a literature review. The article is intended to assist students with the process of writing a literature review as a component in an undergraduate or Masters project or dissertation.

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