Literature review

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## Contents

Reviewing the literature (Doctoral students) - context to your research ........................................ 2  
1 A literature review .......................................................................................................................... 3  
2 Why write a review of the literature? ......................................................................................... 3  
3 Define the purpose and the topic ............................................................................................... 4  
4 Reading material .......................................................................................................................... 4  
4.1 Library ..................................................................................................................................... 4  
5 Managing your reading materials – Referencing skills ............................................................ 6  
5.1 Critical reading ....................................................................................................................... 6  
5.2 Web based material .................................................................................................................. 7  
5.3 Questions for effective reading ............................................................................................... 7  
5.4 Taking notes .............................................................................................................................. 8  
5.5 Plagiarism ............................................................................................................................... 8  
6 Structure ........................................................................................................................................ 9  
7 Constructing your argument ....................................................................................................... 10  
8 Begin to write ............................................................................................................................... 10  
9 Checklist ...................................................................................................................................... 10  
10 Acknowledgements .................................................................................................................... 12  
11 Bibliography .............................................................................................................................. 12
REVIEWING THE LITERATURE (DOCTORAL STUDENTS) - CONTEXT TO YOUR RESEARCH

This online help sheet is intended as back up to the workshops provided by the Graduate School. It does not replace the detailed and practical information given in these workshops, by tutors or supervisors. It is strongly recommended that you read relevant literature reviews, transfer reports and theses written by students in your department/division.

Departmental / Divisional requirements vary. Some faculties ask for a formal ‘Literature Review’ section, others include the literature context in sections such as the Introduction. To find out more see your research group information, student handbook, consult your Director of Postgraduate Studies (DPS), postgraduate tutor, or postgraduate administrator. If you have difficulty locating these please contact graduate.school@imperial.ac.uk

If you are writing a systematic review some of this information may be useful to you, but if you e-mail us, we can forward further information on how to proceed. There is a new three day course on systematic reviews and will soon be some online material available.
1 A literature review

An effective literature review analyses, synthesises and evaluates knowledge on a particular topic. Using insight, it brings the reader up to date with relevant literature and forms the basis of justification for your research. It should be defined by a guiding concept (e.g. your research objective, your argumentative thesis). Your literature review provides context to proposals and transfer procedures and a foundation to your thesis. Obviously an important aspect of any literature review is being able to search for and find relevant information. Time and attention should be paid to formulating your search strategy.

If you need help or guidance in this area both your supervisor and your Liaison Librarian are good to contact for advice: http://www.imperial.ac.uk/admin-services/library/subject-support/

2 Why write a review of the literature?

A review of the literature defines and sets the framework for your research and enables you to build a working knowledge of your field. It may reflect results of your preliminary research and will identify areas to be explored. It is important to clarify the relationship of previous research to the rational of your project, even if you write it before data collection. This will enable you to direct your literature search and reading. A literature review helps you to:

- Define and limit your study area to form a research question
- Increase your knowledge of the subject area and methodology
- Give background, context and perspective to your work and thesis
- Avoid reinventing the wheel (saves time, avoids the mistakes of others)
- Evaluate possible research methods
- Build on existing knowledge, to suggest further research
- Identify people working in your field.

It shows the reader that you can:

- Organise information and relate it to the research question
- Compare and contrast authors’ views noting areas of disagreement
- Criticise aspects of methodology
- Identify: seminal and exemplary work; gaps and areas of controversy
- Synthesise results into a summary of what is and is not known
• Formulate questions that need further research

3 Define the purpose and the topic

Defining the purpose (e.g. introduction to a scientific paper, chapter of a thesis, funding proposal) helps focus the scope of the review. Read and clarify any guidelines provided by your programme of study, journal or funding body. Defining the topic as a clear research question will aid focus, analysis and evaluation and give purpose to your search. For your search, think about key words; could other words be used, synonyms or variations in spelling? Set limits and define the scope.

4 Reading material

You’ll need to access a good range of literature in your area of study. Your supervisor, postdocs and other PhD students in your department/division may be able to indicate initial reading material. Different universities have different search systems, so it is important that you get help with your search.

4.1 Library

Library courses Information available on
http://www3.imperial.ac.uk/graduateschool/currentstudents/professionalskillsresearch
(doctoral students) or
http://www3.imperial.ac.uk/graduateschool/currentstudents/professionalskillsmasters
(masters students) under Information Skills Courses. To get the most out of your search effective use of library catalogues, bibliographic databases, electronic journals, other resources and reference management software is vital.

Online library information (http://www.imperial.ac.uk/admin-services/library/research-support/) provides information on reference management, plagiarism and other topics. For databases and access to the library collections: (http://www.imperial.ac.uk/library/)

Note in particular the information on copyright and embargo of thesis:
(http://www.imperial.ac.uk/research-and-innovation/support-for-staff/scholarly-communication/open-access/theses/)

Librarians (http://www.imperial.ac.uk/admin-services/library/subject-support/) can help you to use and locate library resources, including department and campus specific liaison librarians or principal library assistants. They can also advise on contacts in other Imperial
libraries and interlibrary loans (http://www.imperial.ac.uk/admin-services/library/find-books-articles-and-more/document-delivery-service/).

**Bibliographies and reference lists** in materials sections that you read will help to locate further articles, and to get an idea of the scope of materials available on your topic.

**Look at other peoples' theses:** Spiral catalogue, the Digital Repository for research output of Imperial College [http://spiral.imperial.ac.uk/](http://spiral.imperial.ac.uk/) (full text peer-reviewed versions of journal articles and conference papers produced by academic staff of Imperial College London, as well as students' MSc dissertations and PhD theses).

EThOS - Beta, British Library electronic theses online service ([http://ethos.bl.uk/Home.do](http://ethos.bl.uk/Home.do))

Index to Theses, A comprehensive listing of theses with abstracts accepted for higher degrees by universities in Great Britain and Ireland since 1716 ([http://www.theses.com/](http://www.theses.com/)).
5 Managing your reading materials – Referencing skills

If you haven’t set up your own reference library, start now! Go to a course at the library (Endnote or Refworks) or use the online tutorials for help. There are also other systems such as BibTeX for use with LaTeX, if you are using LaTeX there are some templates available (http://www.prettyprinting.net/imperial).

As soon as you find a relevant article, enter the publication details into your selected referencing system. The material can be sorted by content area or keywords, note the call number of the book or journal and the library it came from to aid access. If you have taken hard or soft copies, note where you filed them to avoid duplication/loss.

5.1 Critical reading

- Keep your purpose in mind when you read
- Don’t get distracted from your reading agenda
- Before reading think about what you expect
- Previewing or pre-reading can help focus your thoughts (and stop you photocopying unnecessary information)
- Look at figures and graphs, skim the headings, abstract, first line of each paragraph and the conclusion
- Do you need to read everything with equal attention?
- At each stage decide whether you need to read more

Material in peer reviewed journals can be wrong, always keep the critical focus:

- Check the authors' credibility: what are their credentials/qualifications?
- What is the perspective of the writer? (e.g. cultural context)
- If online, why does the site exist? What are the affiliations? Bias vs. balance?
- Check the stance, approach, methods: compared with other workers?
- Who is the intended audience (novice/expert)?
- How current is the material?
- How relevant is the material?
- Were the methods appropriate?
- What, if anything, in the material is new / novel?
• Is the work seminal or incremental?
• Can you relate the work to other material published by the same authors?
• Are the arguments logical, with evidential support?
• Is the material correctly and fully referenced or linked to other online information?
• If online: look at the URL to check the type of organisation (e.g. .gov/.com/.ac.uk/.edu)

5.2 Web based material

There is a lot of information on the internet, if access is through academic databases it is usually peer reviewed, most online information is not. It is crucial that you read all written material critically and objectively, apply the above critical reading guidelines to all material you read, if in doubt do not use it.

5.3 Questions for effective reading

Asking specific questions helps to develop analytical skills and keep an objective outlook, it will also help you to focus and deal with the material. Develop your own questions, below are some non-specific examples (add to and adapt them to suit your reading):

• What did the authors want to discover?
• If the research is important, think why?
• What was measured?
• What information do you have on the data / sample?
• How did the authors collect the data?
• Are sources of error tested properly?
• Are new techniques presented, if so how well are they justified/tested?
• What were their results?
• What do the authors conclude?
• Can you accept their findings?
• How can you apply these findings to your own work?

The questions will form the basis of your review; although they will slow the reading process, doing your critical work early will make the writing much easier. Comprehensive note taking, in your own words, will also help you to write.
5.4 Taking notes

Follow your reading questions when taking notes, critical comments are more useful than summarising alone.

- Summarise the authors conclusions and evidence
- Comment on research methodology
- Compare and contrast the views of other authors
- Make a note of what you think about the material, especially if you need to clarify
- Keep track of the difference between your ideas and those of other authors (reduces risk of plagiarism and helps to filter information)
- Make sure your notes are legible
- Keep clear references including page numbers in case you want to look at the original material again, or cite it in your review

5.5 Plagiarism

It is crucial to separate an author's evaluation of research from your own. Organisation, note taking and referencing can help ensure that your work is correctly referenced. Make sure that you understand what needs to be referenced; penalties are severe. Consult Imperial College of London’s policy on plagiarism (http://www.imperial.ac.uk/admin-services/library/research-support/plagiarism-awareness-for-researchers/ and http://www3.imperial.ac.uk/library/researchers/plagiarismdetection) and the registry information on procedures (http://www3.imperial.ac.uk/registry/information/formsproceduresandregulations#exams; https://workspace.imperial.ac.uk/registry/Public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Examination%20and%20Assessment%20Academic%20Integrity.pdf and http://www3.imperial.ac.uk/registry/proceduresandregulations/policiesandprocedures/examinationassessment

Plagiarism of ideas = paraphrasing facts or arguments without citation. Any ideas you get from materials, even when written in your own words, need to be referenced.

Plagiarism of words = copying an author exactly without putting the words in quotation marks. Even with citation information, you also need to use quotation marks. Citations of quotations usually include page numbers.
6 Structure

You will need to plan and structure your work and the concepts to ensure that your literature review is a coherent piece of work (Table 1). Brainstorming and mind mapping can help to work out a plan for the review as a whole. With the basic framework of title, introduction, main body, conclusion and references, there will often be several possible structures for the main body (e.g. thematic, trend, chronological, policy, methodological). Define the scope of your review. Making outlines or plans can help evaluate different structures; discuss these with your supervisor before you start writing.

Do not simply summarise work in lists, make the literature relevant and link it to the rest of the document (e.g. thesis/proposal/ paper) showing a clear relationship between the literature review and the hypothesis and methodology to follow.

Table 1. Possible literature review section content (look at examples in your Department / Division)

<table>
<thead>
<tr>
<th>Literature Review Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Concise and descriptive of topic</td>
</tr>
<tr>
<td>Introduction</td>
<td>~1/10th of the report, guides reader by establishing scope and importance of topic and where it fits in the broader research field</td>
</tr>
<tr>
<td>Main body - majority of the review, divided into clear sub-sections</td>
<td>Synthesizes publications: summarises concepts, facts, theories Identifies, analyses and evaluates: different views in the literature; emerging concepts; gaps and inconsistencies</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Summarises key ideas, gaps, inconsistencies identified Highlights implications Proposes further research (often ends with key questions the research will address)</td>
</tr>
<tr>
<td>References</td>
<td>Complete, consistent and accurate list of cited references using department/division accepted reference style Shows comprehensive and updated review of literature</td>
</tr>
</tbody>
</table>
7 Constructing your argument

A cohesive literature review has a clear line of argument:

- Demonstrate a clear relationship between your arguments and the evidence
- Use summary statements at the end of sections to draw conclusions
- Back up opinion with facts and theory in the literature
- Account for differing opinion, acknowledge opposing viewpoints and clarify your position
- Connect the sections of the review, provide an outline statement in the introduction to present the order of the arguments, and give some reason for your choice in ordering the material

8 Begin to write

It may be difficult to know whether you 'know enough' to start to write. Writing a draft can help you to decide if you need to do some more reading, you may want to start on a small section of the review. Look for something you feel comfortable with and write about it.

Straightforward, short sentences and paragraphs are better than complex prose. Read the literature reviews of some theses in your area, there are copies in the library and your department. Avoid a personalised tone and strong or emotive language. Be respectful and objective, criticisms of other authors’ works need to be fair. You need to be convincing, confident and decisive avoid vague or qualifying statements (e.g. perhaps).

9 Checklist

Your literature review will be judged in the context of your completed research. It needs to further the reader’s understanding and provide a rationale for your research.

- Who will be the readers of the review?
- Have you identified the key facts, theories and concepts of the subject area?
- Have you defined key terms?
- Is the purpose of the review clear?
- Is the scope of the review reasonable?
• Is the selected literature relevant?
• Do you understand why you included / excluded literature?
• Is the timeline of developments clear?
• Have you emphasised recent research developments / emerging concepts?
• Have you used mostly primary sources with some use of secondary sources?
• Is your bibliographic data complete?
• Have you organised your work logically and according to issues?
• Does the detail included on each issue relate to its importance?
• Is your criticism of design and methodological issues adequate?
• Did you clarify when results were conflicting or inconclusive and discuss possible reasons?
• Is the relevance of each reference clearly indicated?
• Are wider implications indicated?
• Check your reference list as you write, many mistakes can be avoided!
10 Acknowledgements

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11 Bibliography


