

## Writing a Research Proposal

The aim of the research proposal is to present your proposed research clearly and concisely so that institutions can assess whether they will be able to supervise your research, or—for undergraduates—to show that you have carefully planned the research project for your dissertation.

It is essential for you to show that you understand the field and the focus of your research. The core sections of the research proposal are: (1) the literature review; (2)

the aims or research questions; and (3) the data and methodology. You will also need to include (4) limitations and (5) contribution of the study. Each of these sections will shed light on how your research will make an original contribution to the field.

The following annotated text from the field of Human Resources Management shows the structure and aims of each section of a research proposal.

### Introduction

Introduces the reader to the current state of knowledge in the field.

Provides definitions, summarizes key research and links these to the purposes of the research. The present tense is used to introduce the general field of research and any definitions (*provides, refers*).

### Literature Review

Demonstrates an understanding of the current literature. Displays the ability to critically evaluate the cited sources. Shows that the proposed research will be an original contribution to the field. The past tense is used to refer to cited research, e.g. *conducted, revealed*.

Phrases with 'this study' or 'this research' identify and link different aspects of the discussion to the current study.

Phrases using words such as 'lack' show the research gap and point to the originality of 'this study'.

Use of the personal pronoun 'I' to take ownership of the study.

The research proposal uses a combination of tenses and modal verbs.

### TABLE OF CONTENTS (omitted)

#### INTRODUCTION

Learning and development **provides** opportunities ... Organisational Learning (OL) is a term which **refers** to ... (Sadler-Smith, 2006). The literature has shown that ...

**This research project will** therefore seek to explore and investigate the potential connection between Organisational Learning and competitive advantage.

#### LITERATURE REVIEW

[The Literature Review moves from the more general field to the specific focus. The first section (omitted here) deals with the concept of Organisational Learning.] ...

#### *Competitive Advantage*

Competitive advantage is the term used to ... **Despite** the fact that there is a vast amount of literature on Organisational Learning and development, **there is not a great deal of** empirical evidence relating it to competitive advantage. **Nevertheless**, it is widely recognized that ...

#### *The link between OL and Competitive Advantage*

A study **conducted** by Longnecker and Ariss (2002) **revealed** that ... Chakravarthy *et al.* (2006) argue that ... However, a recent survey ... shows that ...

In their study ... Harvey and Denton (1999) **suggested** that ... Their findings **indicated** that ...

#### *Achieving Competitive Advantage through Firm Performance*

Prior studies have shown that ... For instance, Huselid *et al.* (1997) **conducted** a study ... Their findings **revealed** that ... These findings were also **reflected** in a study carried out ... (Yeo, 2003). ... Tippins and Sohi (2003) **conducted** a study ... Their results **proved** that ...

In sum, although there is a great deal of rhetoric on OL and its link to competitive advantage, **there appears to be a lack of** empirical evidence to back it up. **I wish to address this gap in the research** by investigating the effect Organisational Learning can have on competitive advantage.

**Purpose of the study**

Lists the aims of the study, using numbers and research verbs (*find out, identify*).

**Methodology**

Clarifies the proposed methodological approach and the data collection procedures. Situates the proposed methodology within other research. The future tense is used to refer to the proposed method, e.g. *will use*.

**Limitations**

Highlights limitations, showing awareness of the challenges of the research. Proposes possible solutions. Modal verbs are used to suggest limitations, e.g. *should*.

**Contributions**

Emphasizes the originality of the research. Lists possible contributions of the research. Modal verbs are used to hedge contributions, e.g. *should*.

**Bibliography**

Shows breadth of reading.

**PURPOSE OF THE STUDY**

The purpose of this study is to investigate whether there is a relationship between Organisational Learning (OL) and Competitive Advantage (CA).

Objectives:

1. Find out to what extent HR managers use OL.
2. Identify the OL methods which potentially improve a company's performance.
3. Identify differences between organisations that use OL in contrast to companies that do not use OL, in relation to performance.

**METHODOLOGY****Type of Investigation**

This cross-sectional study will take an exploratory approach since there appears to be a lack of empirical research ... This study will seek to explore whether ...

**Sampling Design**

The companies that I will use ... Once a general questionnaire has been sent out ... I will ... interview their managers.

**Data Collection Method**

In this research, I will be looking at two variables. Firstly ... Secondly ... The study conducted by Lee *et al.* (2000) provided a framework ... They used an audit tool ... Similarly, I will propose ... and ask related questions. Throughout the interview procedure, notes will be taken ...

**LIMITATIONS**

One could identify a few limitations to this study. Perhaps the study should be longitudinal in order to determine more accurate results and allow for a larger and more valid sample size. Furthermore, the study could prove to be more expensive and require more resources than are available ... Finally, there may be biased information from some managers ...

**CONTRIBUTION OF THE STUDY**

The aim of this investigation is to reaffirm that ... there is a relationship between Organisational Learning and competitive advantage. ... The results of this research will contribute to the minimization of the literature gap in this area.

In addition, it will help HR managers become more aware ... The results should help managers detect where their weaknesses lie ... This could be done using companies that have high performance as a benchmark.

**BIBLIOGRAPHY (omitted)****Tips**

- Write concisely and avoid repetition.
- Organize your writing using headings and subheadings.
- Be critical in your Literature Review by choosing appropriate reporting verbs/phrases.
- Introduce the steps in your method with words such as *firstly, then, the next stage*.
- Point out the originality of your research by identifying the gap in the research.
- Provide a statement of how you will access resources and acquire skills, such as using statistical software, if asked to do so.

## Writing a Dissertation, Research Report or Long Essay

You may have to write a long assignment as part of your course assessment. This may be a dissertation, long essay, project, research report, etc. The purpose of these assignments is to show the examiner that you:

- have gained research skills, knowledge and understanding from your course;
- can apply the methods of your field to a topic of your own choice;
- can complete an extended, in-depth piece of work.

A dissertation may have all or only some of the following parts, usually presented in the following order:

- **Title page** Contains the dissertation title, your name, department, degree and date of submission. There may be a specific form of words required, e.g. 'A dissertation submitted for the degree of ...'.
- **Abstract** A short summary of the whole text; usually 100–200 words.
- **Acknowledgements** Optional. Thanks are often given in the following order:
  1. your tutor/supervisor
  2. other academic help
  3. technical and financial support; participants in your study
  4. friends and relations.
- **Table of contents** List all the parts of your dissertation with page numbers. Include chapter titles, headings and subheadings, if used.
- **List of figures, tables or other graphic matter** Each graphic element should have a title and a number, e.g. Table 2.4 is the fourth table in Chapter 2.
- **Chapters 1, 2, etc.**
- **References/Bibliography** Include all the works mentioned in your dissertation. Do not include references to works that you do not mention. ➔ See pages AWT46–47 Citations and Bibliography.
- **Appendix 1, 2, etc.** Appendices are for extra matter which supports your dissertation but is not part of it, e.g. a survey questionnaire in social science.

### Tip

- Choose titles and headings that are short but informative. The examiner needs to know the content of each chapter and section clearly.

Requirements and conventions vary in different fields, departments and institutions. Always consult your tutor/supervisor and departmental guidelines for specific details.

Each section of a typical dissertation is explained with examples in a following *Academic Writing Tutor* section. Select and combine sections for detailed information, tips and language suggestions for the whole of your dissertation.

Long texts consist of several shorter sections which you may also have to write as separate assignments, e.g. Introduction, Methods.

### Structure 1 for empirical studies which report data and findings

#### Abstract

#### Introduction

**Literature Review** may be a separate chapter or may be included in the Introduction.

**Methods** may be called, for example, Methodology, Materials and Methods, Methods and Data.

**Results** may be combined with the Discussion.

**Discussion** may be combined with the Conclusion.

#### Conclusion

### Structure 2 for discursive studies which discuss themes, theories, texts, etc.

**Abstract** (optional)

#### Introduction

**Literature Review** may be a separate chapter, or the relevant literature may be discussed within each body chapter.

**Chapters** (2–4) with titles based on their content.

#### Conclusion

- In the arts and humanities, body chapters may analyse/interpret texts, art works, etc.
- In the natural and social sciences, body chapters may describe and evaluate theories, approaches, models, etc.

## Carrying out a research study

### Preparing for your study

Consult your departmental guidelines and regulations so that you know exactly:

- what is required (e.g. formatting, the submission date and the procedure);
- how the study will be assessed (the criteria used and their relative importance).

Look at past assignments to see the scope and standard of successful work.

### Finding your topic

- Start thinking about a possible topic at an early date.
- Note possible topics from lectures, assignments, readings, departmental lists.
- Are there issues arising from your own experience that you could investigate?

### Narrowing down your topic

When you have decided on a general area, focus your reading more specifically.

- What is already known about the topic? What could you find out?
- What methods are used? Could you use these methods?

Discuss your proposed topic with a potential tutor/supervisor. Is it:

- too wide/difficult: cannot be done with the time and resources available?
- too narrow/easy: cannot show an adequate level of knowledge and skill?
- not relevant: cannot show your knowledge of course material?

Define your research question(s)/hypotheses/problem(s).

- What information do you aim to find out?
- What hypotheses do you aim to test?
- What problem do you aim to solve?

Formulate the statements/questions as clearly as you can and check them with your tutor/supervisor.

- Can your proposed methods provide the necessary data?

### Carrying out your research

- Design your study/experiment using the methods that you learned on the course.
- Carry out a pilot study if necessary.
- Collect your data.
- Analyse the data, using statistical tests if necessary.
- Relate the data to your questions/hypotheses/problems. What conclusions can you draw?
- Make full notes or write up the sections.

## Writing up

Write up individual sections as you carry out your research or write up the whole assignment after you have finished the research.

- Divide your material into chapters and plan roughly how many words in each.
- The introduction and conclusion are usually shorter than the body chapters.

### Order of writing

You do not have to write the chapters in order.

- Writers often begin with the Literature Review or Methods.
- The Introduction is often the last chapter to be written.
- Write the Abstract after you have finished the whole assignment.

### Revising

As you write, you may need to revise your plan, so be flexible.

- Re-read and revise each section as you write.
- When you have a first draft of all the chapters, edit and revise the whole assignment to make sure it is clear and consistent.

### Final checks

Allow plenty of time for proofreading, checking, formatting, printing and binding. Allow some extra time for computer or printer failure.

Have you:

- proofread (for completeness, accuracy, repetition, grammar) and spell-checked?
- formatted your references consistently using a suitable convention for your field?
- followed all the requirements for submission?

➔ See also page AWT2 The Writing Process.

### Tips

- Chapters do not have to be the same length. Each chapter should be as long as necessary to cover the material.
- Do not be worried by the total number of words. Individual sections are often the same length as assignments you have written already.
- Divide the assignment into manageable sections and build up your writing section by section.
- Get someone else to proofread your text. They often notice problems more easily.

## Writing an Abstract

The abstract occurs at the beginning of your dissertation or thesis. The main aim of the abstract is to provide the reader with a summary of your research.

Abstracts in most disciplines have a combination of four moves: providing background information, presenting the aims of the research, describing the methodology and summarizing the results. In some disciplines, other moves are

present. The most common additional move is highlighting implications of the research.

Three short abstracts are presented from different fields, showing differences in structure and language. The following is an abstract from the field of physical/life sciences. The article is from the journal *Mathematical Medicine and Biology* and is about tear film deposition and draining.

<b>Presenting the aims</b>	<b>This paper investigates</b> the deposition of the tear film on the cornea of the human eye. The tear film is laid down by the motion of the upper eyelid and then subsequently flows and thins. Of particular interest is the stability of the tear layer and the development of dry patches on the cornea.
<b>Providing background information</b>	While <b>there has been significant research on</b> the behaviour of tear films between blinks, <b>this paper focuses on</b> understanding the mechanisms which control the shape and thickness of the deposited film and how this affects the subsequent film behaviour.
<b>Explaining the methods</b>	<b>Numerical and analytical methods are applied to</b> a lubrication model which includes the effects of surface tension, viscosity, gravity and evaporation.
<b>Summarizing the results</b>	<b>The model reveals</b> the importance of the eyelid velocity, motion of the surface lipid layer and the storage of tear film between blinks. (Jones <i>et al.</i> , 2005)

Use of the present tense, the present perfect tense or the past tense for presenting background information and presenting aims.

Use of the passive voice when explaining the method.

Use of the present tense or the past tense when summarizing results.

The next example is from a social science field and appears in the journal *Applied Linguistics*. The research is on the use of language within a family and considers the impact of this on language fluency and school performance. The abstract has only three moves and the order of the moves is different from the example above.

<b>Explaining the methods</b>	<b>Working-class and middle-class mothers of Cuban heritage were questioned</b> about their modes of accommodation to America in terms of language proficiencies. Specifically, <b>they were asked</b> about their own language fluency, in both Spanish and English, and that of their children.
<b>Presenting the aims</b>	<b>The focus was on</b> the within-family dynamics of the accommodation process, and the links between mothers' and children's language fluencies and children's school performance.
<b>Summarizing the results</b>	<b>Two distinct patterns emerged.</b> For working-class mothers, the emphasis was more on encouraging their children to learn English in order to 'succeed' in America, especially in school—a 'subtractive' form of bilingualism and biculturalism where advances in English appear to be at the expense of Spanish fluency and heritage culture maintenance. In contrast, for middle-class mothers, success was associated more with the encouragement of Spanish competence, not English—a form of 'additive' bilingualism where the heritage language and culture are protected as the process of Americanization runs its course. (Lambert and Taylor, 1996)

The following extract is from an abstract in the field of medicine, from the *European Journal of Public Health*. It is common in this discipline to structure the abstract with headings. Note the inclusion of the 'highlighting implications' move.

<b>Providing background information</b>	<b>Background:</b> The Netherlands Nutrition Centre (NNC) recommends eating a daily breakfast, preferably including products from five food groups.
<b>Presenting the aims</b>	The aims of this study were to examine to what extent breakfast consumption ...
<b>Explaining the methods</b>	<b>Methods:</b> A cross-sectional study was conducted ...
<b>Summarizing the results</b>	<b>Results:</b> The percentage of participants who reported consuming breakfast every day varied between 62.9 and 95.5 in different subgroups ...
<b>Highlighting implications</b>	<b>Conclusion:</b> Health promotion efforts should aim to stimulate breakfast consumption ... Future research should investigate ... (Adapted from Raaijmakers <i>et al.</i> , 2010.)

## Grammar Focus

### Providing background information

To highlight the current state of knowledge in the field, use the **present progressive tense** or a combination of the **present perfect tense** and the **present tense**.

*Anthropogenic disturbances of wildlife, such as noise and motor vehicles, **are becoming** an increasing concern in conservation biology.*

*While language aptitude **has been investigated** actively, **there is a current dearth** of research on ...*

### Presenting the aims

To summarize the aims of your text, i.e. this essay or dissertation, use the **present tense**; to summarize your research (its aims, methods, findings), use the **past tense**.

*This paper **estimates** the effects on earnings of 'gap years' between school and university.*

*The aim of the present investigation **was to explore** the role of language for ...*

### Explaining the methods

The usual tense is the **past tense**, although some disciplines in the sciences use the **present tense**. You also have the option of using the **passive voice** or a **personal pronoun**, depending on how visible you would like to be in the writing as the researcher of the study.

*Clinical and lifestyle factors **were assessed** using standard questionnaires and procedures.*

*Using an operational weather radar, **we quantified** the reaction of birds to fireworks in 3 consecutive years.*

### Summarizing the results

Use either the **past tense** (most disciplines) or the **present tense** (typical in physical/social science disciplines). You may also use a **personal pronoun** or an **it-structure**.

*Current smoking significantly **declined** in males as age increased ( $P < 0.001$ ).*

***We find** a strong and significant effect of birth order on IQ, and **our results suggest** ...*

***It was also seen that** GJT scores were ...*

## Language Bank

### Highlighting implications

Use the **modal verbs** *should* and *may*.

*Future research **should** further evaluate .../ **should** investigate whether ...  
... studies investigating ... **should** take into account .../ **should** be informed by ...  
... **may** contribute to our understanding of ...  
... **may** be especially useful to teaching ...  
... the principles proposed **may** also be ...*

### Tips

- The abstract is usually written at the end of the research process, and after writing the rest of the dissertation.
- The abstract is a summary of key information: include only key findings.
- It is best to avoid too many technical terms and lengthy references.

## Writing an Introduction 1: physical and life sciences

The main purpose of an introduction is to situate research within its context, showing how it relates to other research in the field and/or to circumstances in the world. The introduction to a dissertation is important because it gives the examiners their first impression of your study and shows your knowledge of the research area. This helps them know what to expect and makes it easier for them to follow the rest of your work.

Introductions in all disciplines often consist of a sequence of three moves (Swales and Feak, 2004): (1) **Establishing a territory** gives the general background to your study;

(2) **Establishing a niche** shows that there is a need for your study, often by establishing that there is a gap or problem in previous research; (3) **Occupying the niche** gives details of your study, showing how it fills the gap or deals with the problem. There are differences between disciplines in the way the moves are typically carried out, so look at dissertations in your field to see exactly how it is done.

This is an extract from an introduction to a research article published in the *Journal of Electron Microscopy*. It describes a new form of water purification.

### Move 1: Establishing a territory

Gives background information. Describes an important world problem. (L1–4)

Claims that the general study area (water purification methods) is important and relevant to the problem. Refers to the literature to support the claim. (L4–7)

Makes a generalization about the study area. Gives examples. (L7–11)

Narrows down the general area to a specific topic (filtration). Claims that filtration is the best method (implies that it is worth studying). Refers to the literature to support the claim. (L12–14)

Makes generalizations about the topic. Gives examples and details. (L14–18)

Narrows down the topic to a specific subtopic (MF membranes). Claims that these membranes are effective in some cases. (L23–29)

### Move 2: Establishing a niche

Indicates a problem related to the subtopic. Refers to the literature to support the claim. (L26–31)

More than one billion people currently **lack** access to low-cost drinking water and more than 2.3 billion people **live** in water-stressed areas. Thus, it **is** of paramount importance  
5 to develop efficient and cost-effective water purification methods especially for the removal of bacteria and viruses [1–10]. There **are** many water purification methods, including filtration (size separation), adsorption,  
10 chemical coagulation, photodegradation, biodegradation, distillation and active sludge, but filtration **is** the most versatile chemical-free method, and it **is** extremely cost-effective, time- and energy-saving [11,12]. Filtration  
15 systems have considerably improved in the past decade and many of them **possess** complex structures, mechanisms and materials such as porous media, polymer membranes ... The filtration processes **are categorized**  
20 mainly by the average size of the pores in the membranes, which **include** microfiltration (MF), ultrafiltration (UF), nanofiltration and reverse osmosis. MF filters have relatively large pores and thus yield a high flux rate compared  
25 with UF filters with smaller pores (10–100 nm) [13,14]. An MF membrane with a pore size ranging from 0.1 to 10 µm nominally **is** capable of retaining microbe-like bacteria larger than 0.2 µm in diameter, but this **is** not  
30 suitable for removing viruses, which **are** often smaller in size by a factor of 10 [15].

The present tense is often used in all three moves of the introduction.

The past tense is used for describing the work carried out.

Presenting your research using reporting verbs.

**Move 3: Occupying the niche**

Presents the research. Claims that it addresses the problem. (L32–36)

Work carried out (L36–38)

Method (L39–42)

Results and product of research (L43–46)

Results and significance of the research (L47–49)

Significance of the research (L49–53)

In this study, we report a promising method for producing porous membranes that are based on MF but have capabilities for retaining viruses. The membranes are composed of ultra-fine cellulose nanofibers (UFCNs) (5–10 nm in diameter) derived from safe, inexpensive and sustainable nanomaterials such as wood pulp. The cellulose nanofibers were infused into the submicron-sized fibrous scaffolds (100–300 nm in diameter) fabricated by electrospinning. By controlling the processing parameters and material ingredients, we were able to create a composite fibrous membrane structure that has an appropriate pore size to sieve bacteria and a suitable static charge to adsorb viruses.

Measurements of the filtration properties indicate that these membranes have a high retention rate in removing bacteria (*Escherichia coli*, hereafter referred to as *E. coli*) and viruses (MS2 bacteriophage) in water, while maintaining high flux permeation. High-resolution electron microscopy investigations revealed, for the first time, the detailed nanoscale fibrous networks in membranes that are responsible for these superior filtration properties. The demonstrated membrane system opens a door to the further development of other nanostructured biomaterials to adsorb water pathogens and contaminants and increases the realization of the much needed inexpensive MF membranes. (Sato *et al.*, 2011)

**Preparing to write**

- Think about the needs of your readers. You have to show that you know the research context and that your study is a valid and useful piece of research. Consider what information you need to give them.
- Use the three-move structure (right) to help you write your introduction. Note that:
  - the three moves usually occur in sequence;
  - each move narrows down the focus of the text;
  - each move is made up of several possible steps. Choose only those that are appropriate for your study. Use the sequence of steps given or vary it as necessary.
- **Specific disciplines**
  - **Engineering** often defines its terms in move 1 and describes the product of the research, its application and evaluation in move 3.
  - **Medicine** often uses step 3 in move 2: Continuing the work of other researchers.
  - **Computer science** usually describes and evaluates the solution to a problem in move 3.

➔ Look at the Tips on page AWT31.

**Move 1: Establishing a territory****Steps**

1. Describe why your general study area is relevant or important in the field and/or the world. ➔ See the Language Bank at **research**.
2. Make generalizations about your area; give background information or examples. Each generalization becomes narrower until you focus on your own specific topic.
3. Review previous research.

**Move 2: Establishing a niche****Steps**

1. Indicate a gap, problem or need in previous research. ➔ See the Language Bank at **research**.
2. Indicate a problem or need in the world.
3. Continue or extend the work of other researchers.

**Move 3: Occupying the niche****Steps**

1. Present your research, state its purposes, aims or objectives.
2. State your research questions or hypotheses.
3. Describe briefly the work you carried out.
4. Describe briefly the methods, materials or subjects you used.
5. Give brief details of your findings or results.
6. Justify your research by showing the significance or contribution of your study.
7. Describe briefly the organization of your dissertation.



## Writing an Introduction 2: social sciences and humanities

Social science and humanities introductions often have a similar three-move structure to that of the natural sciences. However, the introduction is likely to be more discursive, with extended descriptions and examples to establish the context of the research. There is more flexibility in the sequence of moves, and moves may overlap or be performed

simultaneously. A wider range of steps is also found.

This is an extract from an introduction to a research article in the *Journal of African Economies*. The study estimates the benefits and costs of improving the road network in Africa.

### Paragraph 1

#### Move 3: Occupying the niche

Presents the contribution of the research (attracts attention). (L1–3)

#### Move 1: Establishing a territory

Gives background information. (L3–5)

Describes an important world problem. (L5–7)

### Paragraph 2

#### Reviews the literature

Makes a summary statement about the literature so far. (L8–10)

Cites individual studies. Gives details of their findings. (L10–17)

Generalizes from the literature.

Claims that the area is important.

Quotes the literature for support.

(L17–24)

### Paragraph 3

#### Reviews the situation in the world

Makes a generalization about programmes for addressing the problem. Gives examples. (L25–30)

Generalizes about the programmes.

Claims that they are important.

Refers to the literature to support the claim. (L30–32)

### Paragraph 4

#### Situates the research in relation to previous work

#### Move 2: Establishing a niche

Raises a new question. (L33–35)

#### Moves 2 and 3: Establishing and occupying the niche

Presents the research as a continuation of previous work. Gives the method ('by developing...'). (L35–38)

Indicates how this study differs from previous research approaches. (L38–48)

This paper presents evidence on the trade expansion potential of improvements in Sub-Saharan Africa's road network. At present, overland transport is so difficult and costly that Africa's diverse regions remain largely isolated from one another. Overland trade between the large urban centres of West Africa and South Africa is almost non-existent. ...

Numerous empirical studies have examined the economic impact of poor road conditions (see, e.g., Henderson *et al.*, 2001, for a review). Amjadi and Yeats (1995) find that the relatively low level of Sub-Saharan African exports is essentially due to high transport costs. In a study of transport costs and trade, Limao and Venables (2001) find that poor infrastructure accounts for 60% of transport costs for landlocked countries, as opposed to 40% for coastal countries. Improving cross-border infrastructure is therefore an important part of the development agenda in Africa: 'The vision and ultimate objective for Africa should be to create a single market of 750 million people that is competitive within itself and within the global economy. A critical pre-requisite to this is regional infrastructure integration across Africa.' (Simuyemba, 2000, p. 3).

The World Bank and the African Development Bank (ADB) have both launched initiatives to encourage more integrated infrastructure development. The [World] Bank's Sub-Saharan Africa Transport Policy Program (SSATP) has focused on ... The ADB has proposed ... Such programmes could give a significant boost to regional integration efforts on the continent (Deichmann and Gill, 2008; Naudé, 2009).

How much difference would an integrated, functional road network make for African development? This paper extends the previously cited work by developing an analytical framework for quantifying the benefits and costs of continental road network upgrading. In contrast to the trade literature on the topic discussed in what follows, we estimate the costs as well as trade benefits of transport improvements and we base our analysis on geographically explicit modelling of a realistic trans-African transport network.

**Paragraph 5****Organization of the paper****Move 3: Occupying the niche**

Gives details of the contents of each section in turn. (L49–61)

The present tense is often used in the introduction.

The present perfect tense is used to look back over a recent time period and to summarize what has been done so far in the literature or in the world.

Different ways of describing the organization and contents of your dissertation.

Different ways of referring to the literature.

In contrast to project cost-benefit analysis or **engineering studies**, we **estimate** the continent-wide economic benefits from transport improvements, rather than focusing on local benefits alone, which **are often measured** as traffic volume increases or imputed time savings.

The remainder of the paper is organised as follows. **Section 2** reviews the theoretical and empirical literature on gravity models, highlighting evidence on overland trade flows in developing countries. **In Section 3, we identify** a network of primary roads connecting all 42 mainland Sub-Saharan capitals ... **Section 4 estimates** a gravity model for Sub-Saharan Africa ... **We use** the results to estimate current trade flows in the inter-city network and to simulate the impact of a major improvement in road network quality. **We then explore** the implications of our results for trade expansion at the regional, country and city levels. In Section 5, we **estimate** the costs of network improvement, using a World Bank database ... **Section 6 concludes** the paper. (Buys *et al.*, 2010)

**Preparing to write**

- You can use the three-move structure below to help you write your introduction.
- You will not need all the steps; e.g. a discursive study would outline the argument, but not include methods or results.

**Move 1: Establishing a territory****Steps**

1. Attract the reader's attention and interest, e.g. with a relevant example or quotation.
2. Describe why your general study area is relevant/important in research/the world.
3. Make generalizations about your area; give background information or examples. Each generalization becomes narrower until you focus on your own specific topic.
4. Define terms, especially when there is no agreement in the field.
5. Review previous research.

**Move 2: Establishing a niche****Steps**

1. Indicate a gap, problem or need in previous research.
2. Indicate a problem or need in the world.
3. Raise a new question to be answered.
4. Continue or extend the work of other researchers.

**Move 3: Occupying the niche****Steps**

1. Present your research and state its purposes, aims or objectives.

2. State your research questions or hypotheses.
3. State your theoretical position.
4. Set out the parameters of your research.
5. Describe briefly your methods and participants in survey research.
6. Outline your argument.
7. Give brief details of your findings or a model you propose.
8. Justify your research by showing the significance or contribution of your study.
9. Describe the organization of your dissertation.

**Tips**

- In a long dissertation, you may need to situate your research in relation to several different areas. To do this, repeat the cycle of moves and steps as often as necessary.
- Many research articles have several authors, while a dissertation is written by a single author. Instead of using 'We' to present your work, you can use:
  - a passive verb form with a prepositional phrase (*In this study, it is shown that ...*);
  - an active verb form with a noun phrase referring to your study (*This dissertation investigates ...*).
- In many social science and humanities disciplines you can use *I* (*I argue that ...*). Check whether this is possible in your discipline.

## Writing a Literature Review 1: physical and life sciences

A literature review is a section in a piece of research writing which describes the existing work that has been done on the writer's research topic. By describing the research already done, the writer can point out what has not been done, and demonstrate the need for the new research. In this sense, the review helps accomplish the objectives ('moves' and 'steps') in the introduction. In fact, the literature review may be part of the introduction, although in some research texts—particularly dissertations—it may occupy a separate section. Literature reviews are

often organized according to a general-to-specific pattern, starting with claims about the research area in broad terms and moving on to specific areas, problems or unanswered questions within it.

The following extract from a research article published in the *ICES Journal of Marine Science* uses a review of the literature to establish the need for a genetic study of farmed and wild Atlantic cod. As is common in the sciences, it makes great use of non-integral references (see also the *Academic Writing Tutor* pages on Citations and Bibliography).

The literature review begins with a general statement about the broad topic. (L1–4)

The reference to Myers helps establish that the research topic is important and has real-life implications. (L4–5)

As it develops, the review covers more specific aspects of the research topic. (L11–12)

Language showing time relationships (*in recent years*) and changing trends in a research area is common. (L11–16)

By moving to problems with aquaculture, the review becomes more specific still. (L24–34)

By showing a gap in the existing research, i.e. a question which little or no research has addressed, the authors can demonstrate the need for their study. (L35–36)

The Atlantic cod, *Gadus morhua*, is both ecologically and economically important, and it has sustained commercial fisheries on both the east and west sides of the North Atlantic. However, overexploitation has led to declines and stock collapses (Myers *et al.*, 1996), and in many regions, cod are regarded as threatened (Jonzen *et al.*, 2002; Svedang and Bardou, 2003; Trzcinski *et al.*, 2006; Arnason *et al.*, 2009). Declines in abundance, along with an established consumer market, have provided a catalyst stimulating widespread interest in the production of this species by aquaculture.

Important advances in cod aquaculture have been made in recent years (Rosenlund and Halldorsson, 2007). For example, heritability estimates of production-related traits have been published (Gjerde *et al.*, 2004; Kolstad *et al.*, 2006; Odegard *et al.*, 2009), and commercial broodstocks have been established from wild captured fish. ... [Two sentences omitted.] Genetic gains through selective breeding programmes will generate fish capable of enhanced productivity in the aquaculture environment (Glover *et al.*, 2009a), but it is very likely that domestication will be at the expense of fitness in the natural environment, as has been observed in the Atlantic salmon (*Salmo salar*; McGinnity *et al.*, 1997, 2003; Fleming *et al.*, 2000).

A big challenge with most forms of aquaculture is containment ... [Two sentences omitted.] Cod have a greater frequency of escaping from fish farms than salmonids (Moe *et al.*, 2007), and behavioural studies have indicated that escapees may mix with wild cod (Uglem *et al.*, 2008), providing opportunity for a range of ecological and genetic interactions (Bekkevold *et al.*, 2006). Moreover, farmed cod may be able to interact with wild populations without physically escaping, when spawning in their cages (Jørstad *et al.*, 2008). Consequently, potential ecological and genetic interactions between wild and farmed cod are of concern.

Knowledge of the genetic interactions between wild and farmed marine fish is sparse, but several attempts at quantifying interactions between farmed and wild Atlantic salmon have been published (Crozier, 1993, 2000; Clifford *et al.*, 1998a, b; Skaala *et al.*, 2006). These studies range

To show that an idea is widely accepted or clearly demonstrated, it can be useful to cite several sources. (L48–53)

A further gap in the research is identified; the aim of the current study is stated. (L56–59)

- 40 from the quantification of gene flow from single escapement events affecting specific wild populations, to more ambitious investigations quantifying genetic changes in historical and contemporary samples of wild populations that have been subject to differing numbers of farmed escapees over time.
- 45 Both approaches **have demonstrated** genetic changes in wild populations, although the full extent of introgression and the long-term implications for conservation **remain** open to debate.

Genetic studies of wild cod **have revealed** considerable differentiation among populations over varying geographic ranges (Frydenberg *et al.*, 1965; Dahle and Jørstad, 1993; Knutsen *et al.*, 2003; Pamoulie *et al.*, 2006; Jorde *et al.*, 2007; O'Leary *et al.*, 2007; Westgaard and Fevolden, 2007; Nielsen *et al.*, 2009). However, except for a study of genetic diversity within and among farmed cod reared in sea cages (Glover *et al.*, 2010a), and a study of spawning in sea cages (Jørstad *et al.*, 2008), no genetic studies **have addressed** the identification of farmed-escaped cod in the wild. Consequently, the aim here was to evaluate the potential for identifying farmed-escaped cod in the wild ... (Glover, Dahle and Jørstad, 2011)

Non-integral references make passive verb forms especially likely.

The present tense emphasizes sources cited as currently available and currently relevant.

The present perfect tense shows that studies have taken place over a period of time, and may suggest that they are still relevant today.

Sometimes no verbs are used to introduce a reference; an idea is simply stated, together with a reference to the work which shows that the idea is correct.

## The purpose of citations

References to the existing literature can serve a range of functions; for example:

- providing support for a fact or an idea;
- showing that there is agreement or disagreement among experts on a topic;
- showing whether a research tradition is established or new;
- showing the development in knowledge about a topic.

Try to understand what function or purpose a reference to a source can serve, and use each reference selectively and to that purpose.

## Tips

- Read widely, so that you are familiar with the existing research related to your topic.
- It is appropriate to use a literature review to show your teachers, examiners, etc. that you have read widely. However, do not cite works which are not relevant.
- Have a clear idea of how each area you raise in your literature review is connected to your own research.
- Show the relationships between works, e.g. that one builds upon another or identifies problems with an earlier work.
- Use the review to highlight a gap in the existing literature which your work will fill.

## Language Bank

**Research verbs** describe the research which was done, its aims, processes and results.

*Important advances have been **made** in recent years.*

*..., as has been **observed** in the Atlantic salmon.*

*Both approaches have **demonstrated** ... Commercial broodstocks have been **established**.*

*Several studies have **examined** the use of ...*

**Reporting verbs** emphasize the research article, book, etc. as a text which communicates, and what it says, shows, reveals, etc.

*Behavioural studies have **indicated** that ...*

*Genetic studies of wild cod have **revealed** ...*

*Studies of dune systems have **shown** that ...*

*Recent work has **suggested** that ...*

*Prior research has **documented** ...*

*Previous research has **noted** that ...*

## Writing a Literature Review 2: social sciences

The literature review in the social sciences serves the same basic function as in the natural sciences, namely to set the new work in the context of what has already been done on the topic. However, there are a number of differences in the way reviews are written in the two subject areas. Integral citations, where the name of the researcher or study is mentioned within the sentence, are relatively common in the social sciences. Because of this, a wider range of verbs is used to report on what earlier works said and did. Verbs may also occur in a wider range of grammatical forms. Because the ideas dealt with in the

social sciences may be more subject to disagreement or questioning, writers often need to express some sort of evaluation of earlier work. For example, *Shaw notes ...* suggests that the writer believes that Shaw was correct, while *Shaw states ...* does not indicate the writer's view about whether Shaw was correct or not.

Here are the opening paragraphs from a literature review included in a study of the relationship between income and happiness, published in the *Cambridge Journal of Regions, Economy and Society*.

The writers relate earlier works to each other. Older views are contrasted with the findings of more recent researchers. (L1–10)

Verbs appear in various forms: the past, the present perfect and the present are very common.

Graham's argument is briefly summarized, using the present tense. (L12–22)

A range of verbs is used to report what other researchers have said, done or concluded. (L22–32)

The writers identify a solid body of existing work. (L33–43)

References can be integral (L41–43) or non-integral (see pages AWT32–33).

While it was initially **found** that the relationship between income and happiness only holds within and not across countries—the so-called 'Easterlin effect'—more recent econometric studies by Deaton (2008) and Stevenson and Wolfers (2008) based on **new data** collected worldwide by the Gallup Organization have **challenged** this view, **finding** that income exerts strong effects on happiness across the board. Sacks *et al.* (2010) **suggest** that there is a close relationship between material living standards and life satisfaction and that countries that experience a rapid economic **growth** also get an equivalent increase in life satisfaction levels.

While income levels matter for happiness, work by Graham (2008) **finds** the relationship between the two is relative. Noting the paradox of the 'happy peasant and the miserable millionaire', Graham **contends** that although people can adapt to be happy at low levels of income, they are far less happy when there is uncertainty over their future wealth. Thus, the income effect on happiness is not only based on individual perceptions but also on the social and economic context in which individuals are embedded. The effects of unemployment on happiness tend to be larger in places where unemployment is generally low, while the effect is weaker if the individual lives in a place with high unemployment and thus the future is more uncertain. Helliwell (2003) **suggests** that happiness is affected by institutional factors such as governmental stability or effectiveness more so than economic ones. Helliwell and Putnam (2004) **note** [a] strong connection between social capital and happiness, beyond income effects. Deaton (2008) **examines** the relationship between income and life satisfaction and **concludes** that there is a strong relationship between the two. Deaton does, however, **question** the usefulness of health or health satisfaction as happiness measures, as he **finds** such measures have little relation with life satisfaction as a whole.

There is a substantial literature **documenting** the transformation from industrial to post-industrial economies and societies. Nearly a half-century ago, Machlup (1962) **identified** the rise of the knowledge economy. Drucker (1967) coined the term 'knowledge worker' to refer to the emerging social group of workers who understand how to apply knowledge to productive use. This construct was later expanded to one of a 'knowledge

40 society' (Drucker, 1993) where the traditional means of production are replaced by human capital and new institutional structures. Bell (1973) predicted the rise of a 'post-industrial society' led by a class of highly educated scientists and technocrats. ... [Two paragraphs follow.] (Mellander, Florida and Rentfrow, 2012)

Reporting verbs relate to what the source said.

Thinking verbs place the focus on the author's thought processes.

Research verbs relate to the research that was done, including its aims, processes and results.

Evaluative verbs indicate agreement with the researcher's findings.

## Grammar Focus

The **present tense** shifts the emphasis from the research which was done to the research article, book, etc. which reports on it. It may also be used to show that ideas from earlier works are still current/relevant.

*Irvine (2001) provides ...*  
*As Charles (2006) shows, ...*

The **past tense** puts the emphasis on the research processes carried out, rather than their current existence in literature. It may also be used to position research as belonging to an older tradition, allowing the writer to introduce challenges to it.

*Becher (1997) surveyed registered voters in the 21–30 age group ...*  
*It was once believed that ... (Martin, 1985).*  
*However, more recent research suggests that ...*  
*Brewer's (1967) classic text established the importance of investigations of this nature.*

The **present perfect tense** can be used to show cumulative trends in earlier work.

*A considerable volume of research has consistently demonstrated that ...*  
*Beginning with Danielson's (2004) study, numerous scholars have employed ...*

The subject of the verb may be:  
**The research** (e.g. the study or

investigation). This places the emphasis on the work that was done or the conclusions that must be drawn from it, which are not really open to debate. This is common in both the natural and the social sciences.

*Studies have shown that work-life policies have a positive influence on staff retention (Almer and Kaplan, 2002).*

**The text(s)** in which the research is reported. Here, the focus is on the arguments or findings that the work contains, but the implication is that these arguments or findings have been generally accepted. This is more common in the social sciences.

*Literature indicates that evidence from research is underutilized (Innvær et al., 2002).*

**The researcher.** This places the emphasis on the researcher's thoughts, views and arguments, with which other researchers (and you) may agree or which you may wish to challenge. This is probably the most common way of introducing an integral citation in the social sciences (but is not very common in the natural sciences).

*Porter (2008) suggested that the configuration of the five forces ...*

## Language Bank

### Referring to the collected work on a topic

*The literature on ...*  
*The body of research/literature on ...*

### Describing how much research has been done

*There is a large/small/substantial/sizeable body of research ...*  
*There is little/some/considerable evidence to suggest that ...*  
*... has received scant/a great deal of attention.*

### Describing the development of research

*It was initially/traditionally believed that ...; however, recent research suggests that ...*  
*Early research on the topic addressed ...*  
*Recent studies, by contrast, have investigated ...*  
*An initial focus of investigation for researchers on this topic was ...*

➔ For language to indicate a gap in previous research, see the Language Bank at **research**.

## Writing up Methods 1: an experimental method

Reporting on the method used in undertaking your research is a crucial part of the research writing process. Method sections in dissertations in any discipline will usually have a combination of the following three purposes. A method section aims to:

1. **describe** the data and method used;
2. **explain** how the data were collected and how the method(s) were employed in the research; and
3. **justify** why the data were selected and why particular method(s) were chosen.

Method sections in different disciplines differ in terms of the emphasis they place on the different purposes. Science disciplines tend to favour a more concise description and

explanation of the data and method used. Humanities and social science disciplines tend to favour a more extended discussion of the explanations and justifications of how and why things were done. Whatever the discipline, the primary goal of the method section is to convey to the readers the validity of the research you have undertaken.

A key feature of the method section in the sciences is the need for a description of the experiment, i.e. the procedures followed and how the results were calculated. This is a method section from a research article published in the journal *Behavioral Ecology*, investigating the feeding preferences of hummingbirds.

### Paragraph 1

#### Description of the data

Describes the data in terms of size and location.

### Paragraph 2

#### Explanation of the design of the experiment

Explains the set-up of the experiment. Information on the materials used, how they were prepared for the study, and the duration of the experiment is included here.

### Paragraph 3

#### Description of the experiment

Describes the list of procedures followed in carrying out the experiment.

### Paragraph 4

#### Explanation of the method

Explains how the results were calculated. This includes information on how the calculations were obtained.

Twelve male rufous hummingbirds (6 in 2007 and 6 in 2008), which had been defending territories containing a 250-ml inverted bottle feeder (filled with 14% sucrose) for at least a week, were trapped, color-marked, banded for individual identification, and released. The field site was the Westcastle river valley in the Rocky Mountains, Alberta, Canada (lat: 49.349024, long: -114.410902).

Not less than 3 days after trapping, birds were trained to feed from an artificial flower containing 14% sucrose during the course of a day (6–9 h). The “flower” was a red cardboard disk (diameter 4.5 cm) with a syringe cap inserted through its center to act as a well. The flower was taped with red tape to the top of a cane (1 m), which was pushed into the ground within 5 m of the usual position of the feeder. Observers sat at least 10 m from the flower.

Following training, there were 2 experimental days: Treatment 1 and Treatment 2, which weather permitting immediately followed the training day. As on the training day, the feeder was removed and replaced with the artificial flower. In Treatment 1 (low, high, and low), the flower contained 14% sucrose for the first 3 h, 25% sucrose for the next 3 h, and 14% sucrose for the final 3 h. In Treatment 2 (high, low, and high), the flower contained 25% sucrose for the first 3 h, 14% sucrose for the next 3 h, and 25% sucrose for the final 3 h. Half the birds received Treatment 1 first and the other half Treatment 2 first.

The volume drunk and the timing and duration of each of a bird’s visit[s] to the flower were recorded during both training and treatment days. Volumes were measured by refilling the syringe cap using a repeating pipette accurate to 10 µl. Duration of a feeding bout was the interval between the first insertion of the bird’s bill into the flower and the last withdrawal from the flower before flying away. (Bacon *et al.*, 2011)

Complex noun phrases are used for concise description.

A series of verbs describes actions that follow one after the other.

Additional information, such as measurements or timing, is provided in parentheses.

## Preparing to write

- Consider who is going to read your dissertation and what they will need to know about your research.
- An examiner will want to see the rationale behind your choices, especially with the experimental design.
- You can use the outline below to help you structure your experimental method section.

### Data and data collection

#### 1. Description of the chosen data

Describe the size, location and characteristics of your data.

#### 2. Explanation of the technique used to collect your data

Explain how you chose your data. Include information on how your data were restricted or whether there were any conditions which limited the collection of your data.

### Method

#### 1. Description of the design of the experiment

Describe how your experiment was set up, including any information on materials used.

Describe the experiment step by step and in a chronological order.

#### 2. Explanation of the method

Explain how you arrived at your results. Usually, this might be how your results were calculated; for example, this might involve the use of statistics or other types of measurements.

#### 3. Justification of the method

Justify the experimental design and method by providing reasons why this is the best method for your research.

After Lim (2006)

## Grammar Focus

### How it was done:

#### The passive voice + by ...ing

Volumes *were measured by refilling the syringe cap.*

Water content *was calculated by subtracting dry weight from fresh weight.*

Red squirrel densities *were estimated by counting squirrels along visual line transects.*

The test chemical *was prepared by dissolving CAF in distilled water.*

The test *was carried out by using saturated solution of sodium sulphate.*

#### The passive voice + by + noun

The cells *were collected by centrifugation.*

DNA *was prepared by the method of Sherman et al. (1982).*

HSV lesions *were induced by means of exposure to ultraviolet radiation.*

### Why it was done:

#### The passive voice + to + verb

The QBR index *was used to measure the quality of riparian habitat.*

#### to + verb, + the passive voice

*To improve the separation of phases, a centrifuge was used for 20 min.*

*In order to control for any confounding effects of familiarity, domestic animals were excluded.*

## Tips

- In an experimental method section, use the **passive voice** to describe what was *done* (rather than the active voice to describe what *you did*): the focus is not on you as the researcher but on the experiment.
- You can use **relational processes** ('X is Y' structures) to describe the location, materials, tools and parameters of your experiment: *The field site was the Westcastle river valley ...; The "flower" was a red cardboard disk ...; Duration of the feeding bout was the interval between ...*
- A detailed step-by-step explanation is crucial as it allows other researchers to replicate your experiment.



## Writing up Methods 2: a survey method

In social science disciplines, readers are likely to be as interested in your method as in your findings. This is particularly true of methods that involve a survey as there are a number of issues which need to be taken into account—for example, the sampling technique, the representativeness of the sample, the variables involved, and the questions posed in the survey. The method section may therefore be a detailed account of the steps undertaken

in the research. Almost all method sections using a non-experimental approach are likely to have the three main components of description, explanation, and justification of data and method.

This is an extract from a method section in a research article published in *Social Science Japan Journal*, describing a survey of parental attitudes towards public school education in Tokyo.

### Target profiling: Description and explanation of method

Explains the data collection method. (L7–15)

Describes the method used (target profiling) by relating it to an existing method in the field. (L17–22)

Explains how the method was used (target profiling in two stages). (L23–28)

### Subjects of analysis: Description and justification of data

Describes the data (who they are, where they are located and how many there are). (L29–33; 44–46)

Justifies the data (providing reasons for the exclusion of fathers and restriction to the Tokyo area). (L33–44)

## 2. Analytical Framework

### 2.1. Target Profiling

Our study differs significantly from previous research in its approach to categorizing parents. The typical approach is to group parents by a single characteristic, such as age or employment status, and then cross-tabulate with other variables. We forgo this method in order to create multidimensional profiles of parents that more closely approximate reality by taking several factors into account to develop a comprehensive and more true-to-life view of parents. For example, we do not lump all young parents into one group based on the single characteristic of age. Instead, we simultaneously consider several other factors such as parents' degree of cooperativeness, the strength of their sense of responsibility and whether their children attend cram schools. In short, we present a comprehensive narrative of parenting in Japan. ...

When considering which methodology to apply, we were drawn to target profiling, a method used primarily in fields such as marketing science and psychology. In target profiling, [7] members of a sample are classified into several groups based on shared characteristics. The degree of divergence between groups is revealed by comparing their responses to a set of questions. [8]

We conducted our target profiling in two main stages. First, using cluster analysis and attribute data compiled from parents, we categorized parents into several groups and uncovered the distinct characteristics of each group. Second, we assessed how much these groups differed from one another in their responses to questions on school education.

### 2.2. Subjects of Analysis

For our sample, we selected mothers of second grade students attending public elementary schools in Tokyo, who had participated in the 2003 Benesse/Asahi Shinbun survey mentioned above. Although fathers and other legal guardians also sent in responses, roughly 90% of survey participants were mothers, so we focus solely on them. Given that younger mothers have been blamed for the burgeoning number of complaints filed against schools and teachers, we chose mothers of second graders in the expectation that they would be younger on average than the other mothers in the survey. Under the assumption that parents' concerns about middle school admission tests may further heighten their concerns regarding elementary school performance, [9] we further narrowed our focus

**Variables:****Explanation and justification of method**

Explains each variable and provides reasons for its inclusion. (L47–56)

Explains how the results were calculated (the selection of responses to particular questions). (L59–62)

Listing steps, variables or categories using numbers or letters is a useful way of presenting information.

Verbs used to describe the research process.

Use **by + verb-ing** to show how a particular result was achieved.

Different ways of connecting your research to other research in the field.

to residents of Tokyo proper, where such admission tests are more prevalent, to control for this variation. After filtering out 45 participants by these criteria and eliminating missing values, 116 mothers remained in our study.

**2.3. Variables**

We used **eleven** variables in our cluster analysis: age, employment ... access to information, tendency to worry, and 50 cultural capital, for the following reasons[10]:

- 1 Age. Included to test whether younger mothers are more likely to file complaints against schools.
- 2 Employment. The amount of time a mother can spend with her child depends on her working status, and dual 55 income (full-time) families presumably have higher incomes than those with mothers working part-time or not at all. [Nine further variables are presented with reasons for their inclusion.]

To test the extent to which different types of parents have 60 different attitudes toward schools, we **selected** responses to survey questions that focused on parents' expectations and level of satisfaction with their children's elementary schools. These questions generally fall into **five** categories (see Table 4 below for a detailed list of survey questions): (a) general expectations of 65 schooling (e.g. what type of education and guidance should all schools provide?); (b) expectations of one's own child's school; ... [Three further categories are listed]. (Yamashita and Okada, 2011)

**Preparing to write**

- You can use the outline below to help you structure your survey method section.
- Note the justification step: this occurs when you discuss your data collection procedures and provide reasons for the method you have chosen to use.

**Data and data collection****1. Description of the data**

Describe the size, location and characteristics of the data.

**2. Explanation of the data collection procedures**

Explain the steps in the data collection. Include information on restrictions and other limiting factors.

**3. Justification of the data collection procedure**

Provide reasons for the advantages of using the chosen procedure of data collection. You may compare your approach with others in the field.

**2. Explanation of the method**

Explain how the method was employed in the research. Specify any items in questionnaires or other research instruments that were used. Define variables and explain the ways in which you arrived at your findings.

If you used any kind of measurement, e.g. statistics, you will need to explain this here.

**3. Justification of the method**

Justify the method you have used by highlighting its advantages. You may wish to do so by illustrating its use in other research in your field.

After Lim (2006)

**Grammar Focus**

In social science survey methods, it is usual to use the **first person pronoun + past tense verb** to describe/explain your research. You do not have to use the passive. *We conducted our target profiling in two main stages.*

*For our sample, we selected mothers ...*

Use the **first person pronoun + present tense verb** to justify your research decisions. *Our study differs significantly from previous research ...*

*For example, we do not group ...*

**Method****1. Description of the method**

Describe the chosen method. You may wish to refer to other research in the field.

## Presenting Data

One of the main ways you can present your data effectively is to use visuals. Visuals summarize your data and make it easy for readers to understand what has been found in your research. There are many different visuals you can choose from to present your data. Two options will be presented here: **tables** and **bar charts**.

This is an extract from a findings section in a research article published in the *Socio-Economic Review*. The study looked at occupational change in Britain, Germany, Spain and Switzerland from 1990–2008. The writers have chosen tables to present their findings. Tables are used when the data contain relatively few numbers and there are only one or two categories of information that need to be displayed.

### Section heading

Statements before the tables summarize what the tables are going to be about. (L2–7)

### Title for the table

#### 4. Findings for the pattern of occupational change, 1990–2008

Before examining changes in quintiles' sizes, we present in Tables 1 and 2 the three occupations that have experienced the **largest expansion or decline** over the last two decades in each country.

To convey a sense of quintiles' occupational compositions, the last columns of Tables 1 and 2 report the job quality quintile in which each occupation falls.

Table 1 The three occupations with the **largest increase** in their relative share of employment.

Country	Occupation	Change in relative employment share (in percentage points)	Job quality quintile <sup>a</sup>
GB, 1991–2008	Care assistants and attendants	1.26	1
	Treasurers and financial managers	1.12	5
	Educational assistants	1.09	1
DE, 1990–2007	Legal professional, not specified	2.57	5
	Nursing associate professionals	1.01	3
	Social workers	1.01	3

[More data follow.]

### Commentary based on the table

This interprets the findings for the reader by:

- pointing out a trend in the data (L12–14);
- contrasting the findings with other findings (usually from this study but it can sometimes be from other studies too). (L22–25)

Strongly *growing* occupations can be divided into **two groups**: the **first** comprises highly qualified occupations such as financial managers, legal and computer professionals set in (private) business services; the **second** includes (public) social service occupations such as health care employees, teachers and social workers. It is noteworthy that computer professionals and (assistant) nurses **have expanded very strongly** in all four countries. In contrast, we can **distinguish three groups of strongly declining** occupations. A **first** group comprises the victims of de-industrialization and includes production workers such as mechanics, maintenance fitters and assemblers. These manufacturing jobs are not particularly low-paid, spreading across the middle Quintiles 2 to 4. The same observation **applies to a second group of shrinking occupations**—office clerks and secretaries—which represent typical mid-range jobs set in the intermediary Quintile 3. **Finally, the fall in employment has also been strong** among agricultural workers and farmers. Yet unlike jobs in production or the secretariat, these jobs are unequivocally **associated with low earnings and set in Quintile 1.**

[Further discussion follows.]

(Oesch and Rodríguez Menés, 2011)

Use numbers or ordering to list findings.

Use passives to report findings.

Words and phrases that highlight trends.

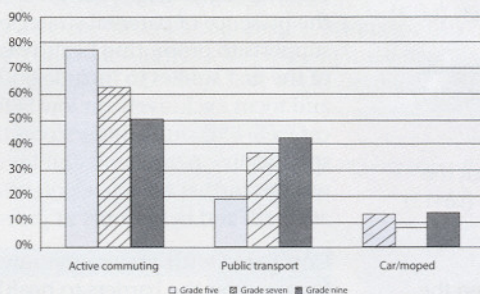
The following extract is from the *European Journal of Public Health*. It reports on a study of how Swedish children travel to school. The results are reported using a bar chart. Bar charts are useful for showing differences between discrete groups or categories.

### Commentary on the bar chart

This interprets the findings for the reader by:

- summarizing the overall finding (L1–2);
- pointing out a trend. (L3–5)

Active commuting **was reported** by 62.9% of the whole national sample (37.8% walking and 25.6% cycling at least one way). However, it **decreased with age** (figure 1): 76.4% of fifth graders (~11 years old), 61.9% of seventh graders (~13 years old) and 50.0% of ninth graders (~15 years old). Public transport on the other hand **increased with age**: 18.8% of fifth graders, 36.3% of seventh graders and 42.6% of ninth graders. Only around 10% in any age group got to school by car or moped, though **significantly fewer** in the seventh grade, compared with both grades five and nine.



**Figure 1** Active commuting, public transport and car/moped/motorcycle use to or from school in grades five, seven and nine in Sweden. Data from HBSC 2005/06.

(Johansson, Laflamme and Hasselberg, 2012)

### Caption for the bar chart

## Preparing to write

You must know and understand your data well and then use visuals carefully to ensure that they efficiently display your data in a meaningful way.

All visuals need to be accompanied by two elements. These are:

1. Statements that summarize what your visual is about. These usually occur before your visual within the text or as a title for your visual.
2. A commentary that interprets your findings for the reader. This interpretation may include the following items:
  - highlighting a trend you want the reader to notice;
  - commenting on unexpected findings;
  - explaining your findings in relation to other findings in your research;
  - drawing some preliminary conclusions based on the data.

## Tips

- The commentary on your findings will include some discussion of the significance of your findings. This should not be confused with your discussion section. The commentary on the findings only interprets the data for your reader. In your discussion section, you will widen the discussion by linking it to literature on the topic and discussing the implications of your findings.
- Other common forms of visual are **line graphs** and **pie charts**. Line graphs show developments over time. Pie charts are used for comparing percentages of parts of a set of data.
- ➔ For useful language for referring to visuals, see the Language Bank at **table**. For language for describing statistics, see the Language Bank at **statistic**. For language for describing trends, see the Language Bank at **trend**.

## Discussing Results

In the previous 'Presenting Data' section, the focus was on the findings of the study and the interpretation of the findings for the reader. In the discussion section of the dissertation, your aim is to persuade the reader to accept the findings you have previously highlighted. It therefore primarily involves an explanation of your findings.

This is an extract from the discussion section of a research article published in *Health Education Research*. The topic is on the eating habits of children. Several different paragraphs have been extracted to show you the different ways in which you can explain your findings.

### Paragraph 1

#### Move 1: Background information on the study

Step 1: Restating the purpose of the study (L1–3)

Step 2: Summarizing the main finding of the study (L3–6)

Step 3: Pointing out the value of the study (L6–12)

### Paragraph 2

#### Move 3: Discussing the finding

Step 1: Comparing the finding with other studies (L13–17)

#### Move 2: Stating the finding (L15–17)

#### Move 3: Discussing the finding

Step 2: Explaining the finding by providing an example (L17–22)

Paragraph 3 repeats the cycle of moves and steps in Paragraph 2.

### Paragraph 6

#### Move 2: Stating the finding (L35–38)

#### Move 3: Discussing the finding

Step 1: Comparing with previous studies (L38–45)

Step 2: Explaining the finding by using an example (L45–48)

The purpose of the current study was to explore the family and environmental factors underlying resilience to unhealthy eating. Individual interview discussions with mothers from disadvantaged neighbourhoods and their children revealed the presence of parental strategies and external barriers and supports to promoting healthy eating behaviours. This is one of the first studies to include both mother and child reports and focus exclusively on low SEP families of children who eat well. Our study underscores the importance of focussing specifically on 'resilient' children (i.e. those eating relatively well) to further elucidate potentially effective parent-child attitudes and behaviours in preventing unhealthy eating.

Compared with previous studies that have predominantly focussed on the barriers to healthy eating and a healthy weight status, our results highlighted the active role mothers from disadvantaged neighbourhoods played in promoting healthy eating. For instance, almost all the mothers in the current study believed that parents were the main vehicle for influencing healthy eating and as a result, they exercised significant control over their child's food by implementing 'food rules', providing access to fruit and vegetables and restricting unhealthy food items.

Although there is some evidence to suggest that excessive control over access to certain foods and implementing food rules has a negative effect on eating and weight [18, 19, 21], the children did not report their mothers to be too strict or controlling. Perhaps, this was because mothers also offered education and explanations about unhealthy food items and promoted the importance of being healthy. It is also possible that the children in the current study, particularly those who were younger, were also accustomed to this parenting style (or unaware of anything different) and shared similar attitudes about food and eating. [Two paragraphs follow with a further discussion on parental attributes and style.]

The results from our study also highlighted some environmental influences as both barriers and supports to healthy eating among families residing in disadvantaged neighbourhoods. Previous research has indicated the negative impact on eating of advertising and poorer access and availability of healthy food options [40, 41]. Some mothers from our study reported instances of poor availability and quality of healthy produce yet many had developed strategies to overcome these barriers, namely, through responding to and creating more sustainable access to fruit and vegetables and

Step 3: Hypothesizing on the specific findings (L48–54)

45 other healthy food options. For instance, many families had their own fruit and vegetable garden, a practice consistently associated with increased fruit and vegetable consumption [23, 42]. Although a number of families in the current study benefited from residing in rural or provincial areas where  
50 fruit and vegetables were the town's primary industry and accessibility to larger garden space was more available, **it is possible that** provision of skills and resources for home-grown produce is a potential avenue for increasing fruit and vegetable consumption among low SEP families.

Paragraph 7 repeats the cycle of moves and steps in Paragraph 2.

55 Previous research has consistently highlighted the negative impact advertising has on children's eating, yet **our results indicated** that although some children reported an awareness of the negative influence of food advertising, most children did not feel negatively influenced by televised food advertisements.

Here, Move 3, Step 2 is: Explaining the finding by giving possible reasons (L60–61)

60 There are three plausible explanations for this finding. Firstly ... Secondly ... Thirdly ... [Three reasons are provided and explained.] (Williams, Veitch and Ball, 2011)

Use the past tense when stating the findings of the study.

Refer to previous research to compare and contrast your own findings.

Use hedging language when giving reasons for, or hypothesizing from, the findings.

## Preparing to write

- You will not be able to discuss all the findings of your research, so in your discussion section you will need to focus on a few of the core findings.
- Your findings will need to be made relevant to the wider academic community, so it is essential that your discussion is rooted in other relevant research.
- Use the following move and step structure to organize your discussion. Your discussion section will typically include several **cycles** of Moves 2 and 3, with each cycle focusing on a different finding from your study.

### Move 1: Background information on the study

Step 1: Restating the purpose of the study

Step 2: Summarizing the main findings of the study

Step 3: Pointing out the value of the study

Step 3 is optional, as pointing out the value of your study may take place in the 'Conclusion' section.

### Move 2: Stating the finding

Move 2 may occur as an independent move (as in Paragraph 6 of the model text) or it may be embedded within Move 3 (as in Paragraphs 2 and 3). In either case, it is an important move as it contextualizes the discussion which follows. There are several ways in which Move 2 can be used. In addition to reminding your

reader of the finding, this move can also mark a finding as expected or unexpected.

### Move 3: Discussing the finding

Step 1: Comparing with previous studies

Step 2: Explaining the finding by using an example or providing reasons

Step 3: Hypothesizing on the specific findings

There are several possible steps in Move 3. A very common step is to compare your study with previous studies. This may include pointing out similarities/differences between your study and the ones you are referring to.

### Tips

- The discussion section is where you can show yourself more visibly as the researcher of the study by using pronouns (*Consistent with our hypothesis, we found ...*).
  - In certain fields, the discussion section may be integrated with the findings section or with the conclusion section. The move structure would still be the same but you will need to incorporate your discussion with the findings or extend your discussion by evaluating it, highlighting the limitations, or suggesting future research.
- ➔ For hedging language, see the Language Bank at **hedge**.

## Writing a Conclusion

In the conclusion, writers stand back from their work in order to view it in the wider context of the discipline as a whole or the real-world situation. Thus, the purpose of the conclusion is in direct contrast to that of the introduction: it leads out from the narrow topic of the dissertation to more general issues.

In some disciplines, there may be some overlap between the Conclusion and the Discussion. For example, the final chapter may be called 'General Discussion'. In this case, the conclusion may be a section of the

final chapter. It is still important to include a conclusion, however, because it gives you the opportunity to highlight the most important points in your dissertation. It is the final impression that the examiners take away from your work, so it should finish on a positive note.

This is an extract from a conclusion to a research article published in *Applied Linguistics*. The study analysed the language of academic weblogs (blogs).

### Paragraph 1 Move 1: Summary of the findings

[Paragraph 2, Move 1:  
Summary (omitted).]

### Paragraph 3 Move 2: Evaluation of the study (limitations) (L12–16; 23–26) Move 3: Suggestions for future research (L16–19; 26–31)

Negative evaluation,  
signalling the limitations  
of the writer's research.

Positive evaluation of  
the future research.

### Paragraph 4 Move 4: Implications of the study, with Move 2: Evaluation of the study (achievements) (L32–35)

Move 5: Applications of  
the research, with Move  
2: Evaluation of the study  
(achievements) (L35–48)

This study has explored the manner in which academic blog participants define group relationships and create social meaning through interaction. The findings reveal that the academic weblogs in this study are social forums for self-presentation, networking, discussion, and idea testing, in many ways more similar to face-to-face academic discussions ... than to written academic genres. The affective indicators ... help to compensate for face-to-face affordances such as body language, facial expression or intonation. However, the specific features of weblogs (e.g. written medium, potential anonymity) also allow for the use of anti-social features more typical of some written genres in various disciplines.

This study was intended to analyse some aspects of relational communication in academic blogs, but I am aware that it is limited in several key respects. First, although academic bloggers are quite a heterogeneous group, this study has treated them as a homogeneous group. Categorizing weblogs along several dimensions (e.g. participants' status, gender, motivation or discipline) could reveal significant results about relational communication. ... Additionally, since previous research on academic discourse has revealed disciplinary differences in the use of some discourse strategies, a cross-disciplinary study of markers of relational behaviour in academic blogs could yield interesting results. Another limitation stems from the fact that data sampling procedures (restricting the number of comments taken from each posting) interfered with the collection of whole message threads. Since there are online discussions where disagreement escalates and exchanges get more heated, the analysis of whole discussions could yield a higher frequency of anti-social indicators. Future research could examine whole message threads in order to provide a more accurate picture of interaction patterns.

Despite the limitations, findings from the present study can help in understanding online academic literacy practices and developing research-informed pedagogical approaches to teaching such emerging practices. The results of this study may be useful in the preparation of materials intended to help postgraduate students and scholars participate effectively in online academic settings and make them aware of strategies to construct their authorial identity in such settings. The potential of academic blogs to engender solidarity and interaction revealed by this study

Positive evaluation of the applications of the writer's research.

Modal verbs are used to signal the future research and potential applications of the writer's research.

**could** also be tapped in academic writing courses to help students discuss and revise a paper and foster in them a sense of community. In addition, ... the results **can** help EAP students become familiar with the discursive features of informal scholarly genres, both digital (e.g. informal e-mails) and face-to-face. Finally, academic blogs **can** be used together with other genres ... to help students **acquire** a repertoire of linguistic practices and associate these practices with specific genres. (Adapted from Luzón, 2011.)

## Preparing to write

- Think about what your dissertation has achieved: the most important ideas or findings that you want the examiners to know.
- All studies have limitations, so think also about what your dissertation has not been able to cover. Mentioning its limitations shows that you are able to evaluate your own work objectively and according to the standards of the discipline.
- Use the four-move structure below to help you write your conclusion. Note that:
  - The sequence of Moves 2, 3 and 4 may vary. They may also be combined or incorporated into Move 1.
  - Each move widens the focus of the conclusion, moving from more specific to more general statements.

### Move 1: Summary

- Restate briefly the work carried out, the aims, hypotheses or research questions.
- Highlight the most important findings or results.

### Move 2: Evaluation of the study

- State what you consider to be the achievements and limitations of your work.
  - ➔ See the Language Bank at **evaluation**.
- Assess how far the aims of your study have been satisfied.
- Include a personal assessment of what you have learned from doing the dissertation, if you are asked to provide this.

### Move 3: Suggestions for future research

- Suggest how the work reported in the dissertation can lead to new research possibilities. These suggestions often follow from the limitations of the study. ➔ See the Language Bank at **suggestion**.

### Move 4: Implications of the study

- Place the study in the wider context of research in the discipline and/or a situation in the real world, e.g. 'Theoretical implications' or 'Pedagogical implications'.

**Applied fields** may also use move 5 and/or move 6.

### Move 5: Applications of the research

- Indicate how the research may be practically useful in real-world situations. This may appear within Moves 1 or 3.

### Move 6: Recommendations

- Give specific suggestions for real-world actions to be taken on the basis of the research.

## Grammar Focus

Use the **present perfect tense** to sum up/ evaluate the whole study or previous research.

*This study **has explored** ...  
It **has attempted** to show ...*

Use the **past tense** to state what your aim was and to refer to the actions you carried out.

*This study **was intended** to analyse ...  
The aim of this study **was** to ...  
We **used** target profiling ...*

Use the **present tense** to evaluate your study and to state the generalizations and implications that you draw from your findings.

*The results **add** to knowledge of ...  
These findings **suggest** that ...*

You can use either the **present tense** or the **past tense** to summarize your results. Check which tense is used in your discipline.

*The findings **reveal** that ...  
Densities **are** much lower ...  
It **was found** that ...  
We **identified** four types ...*



## Citations and Bibliography

In academic writing, it is necessary to support your points by referring to or citing other authors. This is done in your text through a citation. Any in-text citation must be accompanied by a full reference in the bibliography. The bibliography provides all the additional details (the title, author, publisher, etc.) a reader would need if they wished to read the source for themselves.

A citation is useful to the reader for several reasons:

- It provides information on the location of your source.
- It assures the reader that you have read around your topic.
- It gives evidence that you are not

plagiarizing the information, but giving credit to the original source of the information.

The format of an in-text citation and the bibliography is determined by the citation style. There are different styles and these vary between and within disciplines. It is important to check the citation style used in your discipline or department and to follow it consistently and precisely.

The citation style determines the referencing system you will adopt. There are two systems—the author-date system and the footnote/endnote system. These systems determine a number of different referencing styles (for example, APA Style or Chicago Style).

### The author-date system

This system is used in the physical and social science fields. The author's surname and the year of publication of the cited source appear in the text. Other details of the source are provided in the bibliography at the end of the text.

There are different ways in which citations may appear in the text. You could be referring to them in-text or quoting them directly.

#### In-text citation: referring to sources

Diets rich in fruit and vegetables have ... cancers and type 2 diabetes (Faller and Fialho, 2009).

There is a great amount of literature ... in raw fruit and vegetables (Sun *et al.*, 2007; Gawlik-Dziki, 2008; Roy *et al.*, 2009; Lemoine, Chaves and Martinez, 2010).

In the text, sources in a list are cited according to year of publication, separated by semi-colons.

#### In-text citation: quoting

Organizational environments are systems of ... '... negotiated political interactions' (Kostova *et al.*, 2008, p. 1002).

In the text, a comma is used between author surname and date of publication.

The Bibliography in the author-date system is presented in alphabetical order.

### Bibliography: books

Rothstein S. *Structuring Events*. Oxford: Blackwell Publishing; 2004.

Schein B. *Plurals and Events*. Cambridge, MA: MIT Press; 1993.

### an article/a chapter in an edited book

Hoepelman J., Rohrer C. 'On the mass count distinction and the French imparfait and passé simple'. In: Rohrer C., editor. *Time, Tense and Aspect*. Niemeyer. Tuebingen. 1980. p. 629–45.

### conference proceedings

Nakanishi K. 'On comparative quantification in the verbal domain'. In: Young Robert B., editor. *Proceedings of SALT XIV. CLC Publications*. Ithaca, NY: Cornell University; 2004. pp. 179–96.

### a dissertation

Hackl M., 2000. *Comparative Quantifiers. Dissertation, Massachusetts Institute of Technology.*

### a journal article

Kostova T., Roth K., and Dacin M. T., Institutional Theory in the Study of Multinational Corporations: A Critique and New Directions. *Academy of Management Review*, 2008, 33:994–1006.

Note the different uses of punctuation, italics and abbreviations in the Bibliography. There is variation between disciplines, so it is important to check the preferred format. The most important point is consistency.

Use of punctuation.

Ordering of citations/references.

Use of italics.

Use of abbreviations/suffixes.

## The footnote/endnote system

This system is used especially in the arts and humanities, but also in some science fields. References are numbered in-text and these correspond to a full reference which appears either at the end of the page in a footnote or at the end of the text in an endnote. Here are some examples:

### In-text citation: number in brackets (endnote)

The first demonstration of ... was reported by Uchida and Tonomura [3].

### In-text citation: number in superscript (footnote)

For his part, Neville Chamberlain ... among the working classes,<sup>14</sup> and ...

At the end of the page or at the end of the document, you need to refer to your sources according to the numbers you have used. In the examples (right), there is

variation in terms of punctuation, italics and abbreviations. Please check for the preferred format in your department.

[3] Uchida M. and Tonomura A., Generation of electron beams carrying orbital angular momentum. *Nature* 2010;464:737–739.

14 Self, *Neville Chamberlain: A Biography*. Vermont: Ashgate; 2006: 75–7, 91.

40 S. Eskilson, *Graphic Design: A New History*. Yale University Press, New Haven, CT, 2007.

43 S. Yavuz, 'Mediating Messages: Cultural Reproduction Through Advertising' in A. Bennett, *Design Studies: Theory and Research in Graphic Design*, Princeton Architectural Press, New York, 2006, pp. 273–290.

An important difference between the systems is that in the **footnote/endnote system** the references are presented numerically, whereas in the **author-date system** the references are alphabetical.

## Other points to note

You might find it helpful to use the following abbreviations.

### (1) Use of *et al.*

Use *et al.* in your in-text citations when a source has more than two authors:

#### In text:

Civic leaders ... (Karpyn *et al.*, 2010).

#### Bibliography:

Karpyn A., Manon M., Treuhaft S., Giang T., Harries C. and McCoubrey K. 'Policy solutions to the 'grocery gap''. *Health Affairs*, 2010; 29: 473–480.

### (2) Use of *ibid.*

This abbreviation avoids repetition of the full reference: 'ibid.' is used when the source cited is the same as the one immediately before.

#### In-text:

Designers ... tend to be practical, pragmatic and goal-oriented (Dodgson *et al.*, 2005). Design relies heavily on rules-of-thumb ... and experience with real-world problems (*ibid.*).

### (3) Use of suffixes

You might also need to refer to two *different* pieces of work by the same author. This is achieved through the use of suffixes.

#### In text:

Yet, as pointed out by Ulrich Beck, not everybody ... same extent (Beck, 2002a).

First, as several studies ... local change (Beck, 2002a, 2002b; Vertovec and Cohen, 2002; Wimmer and Glick Schiller, 2002, 2003).

#### Bibliography:

Beck U., 'The cosmopolitan society and its enemies', *Theory, Culture and Society*, 2002a, 19: 1–2. 17–44.

Beck U., 'The cosmopolitan perspective ...', in ... 2002b: 61–84.

In the footnote/endnote system, each reference will have a different number and be referenced accordingly in the footnotes/endnotes.

## Other citation styles

The website [owl.english.purdue.edu/owl](http://owl.english.purdue.edu/owl) (Purdue University Online Writing Lab (OWL)) provides information on the formatting styles used by the American Psychological Association (APA style) and the Modern Language Association (MLA Style).

Detailed information can be found in:

[www.apastyle.org](http://www.apastyle.org)  
[www.mla.org](http://www.mla.org)  
[www.chicagomanualofstyle.org](http://www.chicagomanualofstyle.org)

The OSCOLA style for the discipline of law:

[www.law.ox.ac.uk/publications/oscola.php](http://www.law.ox.ac.uk/publications/oscola.php)