

**Ministry of Higher Education  
and Scientific Research  
University of Baghdad  
College of Science  
Department of Biology**



# **Research Methodology**

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**الدراسات العليا: طلبة دكتوراه علم البيئة  
الفصل الدراسي الثاني**

**استاذ المادة  
أ.د. هند سهيل عبد الحي**

## Lecture 1

## Research

### What is a Research?

Research is a systematic inquiry (question/investigation) to:

- **describe, explain, predict**
- and **control** the observed phenomenon.

### The Research cycle

Allows the students to:

- ✓ design, plan, execute, analyse
- ✓ and finally disseminate their research ideas (by writing a journal article, oral presentation or poster)

### Research process

Research process consists of series of actions or steps necessary to effectively carry out research. These actions or steps are;

- (1) Formulating the Research Problem
- (2) Extensive Literature Survey
- (3) Developing the Research Hypothesis
- (4) Preparing the Research Design
- (5) Determining the Research Design

- (6) Collecting the Research Data
- (7) Execution of the Project
- (8) Analysis of Data
- (9) Hypothesis Testing
- (10) Generalization and Interpretation
- (11) Preparing of the Report or Presentation of the Result

### **Formulation of Research Problem:**

- The researcher must decide the general area of interest or aspect of a subject matter that he/she would like to inquire into
- and then research problem should be formulated.

### **Formulating the Right Title for a Research Article**

#### **What is a research title?**

**It is the gateway to the contents of a scientific article.**

-Title is an important part of the article.

-It condenses article content in a few words and captures readers' attention.

-A **good title** is able to introduce the research work to the fullest extent, but in a concise manner.

-Writing scientific titles that **are informative and attractive** is a **challenging task**.

## **What is a research title? Why is it important?**

- It is usually the first part of a manuscript that the editors and reviewers read.
- After publication, it is the first (and many a times, also the only) part of an article that readers see.
- Based on their understanding of the title, readers decide if the article is relevant to them or not.

The **first impressions** created by the title, help them decide if there is a **need to take a detailed** look at the article.

Hence, authors should **take efforts** to choose an **informative, appropriate** and **catchy title** for their research article.

## **The role that the titles are expected to play**

### **Titles are expected to:**

1. Describe the paper's content, so readers can have an idea of what the paper is about and take the decision.
2. Title should help **differentiate that particular article** from other papers on the topic.
3. Titles should **catch and hold readers' attention**, thereby enticing them to read the entire paper.

4. Ensure that the paper gets “**picked up**” when interested readers are looking for articles on a particular topic in a database.

**In short, we expect the title to attract readers so that the article is read, appreciated and cited.**

## **Types of Titles**

### **1-Descriptive titles:**

Describe the article theme, but without divulging its findings or conclusions (Ex, “Randomized controlled trial of a monoclonal antibody against the interleukin-2 receptor as compared with rabbit antithymocyte globulin for prophylaxis against rejection of renal allograft”)

Many descriptive titles include all aspects of the research question studied (**participant, intervention, control and outcome**; PICO).

Although, this makes the **title rather long**; it has certain advantages too:

1- the readers get **complete information** about the article content.

2- title contains several “**key words**”, it increases the article’s chances of being discovered by search engines, being read by readers, and being cited by investigators

### **2- Declarative titles**

State the main finding or conclusion stated in the paper.

**declarative** title states the outcome and it is believed that a casual reader may then not have much curiosity left for reading the entire

paper “Administration of inhaled steroids to children with bronchial asthma for a two-year period leads to reduction in final height achieved”)

### 3-Inerrogative title

Usually restate the research question (in part or in full; ex:“Does occupational exposure to anesthetic gases lead to increase of pro-inflammatory cytokines?”). This helps maintain the suspense about the outcome.

**Generally, descriptive titles are preferred, as they inform the reader about what a study entails but not about the study result.**

**From the construct point of view,** titles can be classified as, **nominal-compound-** and **full sentence** titles.

Nominal titles capture main premise of the study .

Compound titles (or hanging titles) have a subtitle. The subtitles are primarily used to present additional relevant information.

They may provide additional context, inform about the study design (ex, “Small to- moderate decreases in cold hypersensitivity up to 3 years after severe hand injuries: A prospective cohort study”)

## **Compound titles** Or **provide geographic**

(for example, “**Human leukocyte antigen diversity: a South African perspective**”) or **temporal scope** (for example, “Pelvic floor muscle training for female stress urinary incontinence: Five years outcomes”) of the research.

**Full-sentence titles (not a phrase)** are uncommon and tend to be longer.

They indicate an added degree of certainty of the study results (For example, “Serum vitamin D is significantly inversely associated with disease severity in adults obstructive sleep apnea syndrome”).

## **Attributes of a Good Title**

- Informs the reader accurately about the contents of the article:
- Is simple, direct, clear, brief and attractive:
- Does not contain abbreviations or jargon:
- Use of non-standard abbreviations in the title distracts and disturbs readers.
- Does not contain numerical value of the parameters
- It is line with the tenor of the paper: Medical research
- Is a serious business. Hence, it is better to avoid amusing or hilarious titles for research articles.
- Includes keywords used for indexing:

## The Procedure of Writing a Title

Title is usually one of the **last sections to be written**. Even though this may be generally true, Building a **working title** while the manuscript is being written **is helpful** in preventing the author from going **astray** and if he does, **to re-orient himself** to the main purpose of the study.

**Table 1: Checklist for finalizing title for a research article**

Factor	Remarks
Check Instruction to authors provided by the Journal	Certain journals provide specific instructions with regards to the maximum number of words (or characters) allowed in a title; whether hyphen-, colon, etc. could be used and if study design, species or population studied needs to be included in the title and whether the title should be declarative or descriptive or just informative!
Does the title indicate the main theme of the research paper?	On reading the title, a reader should know exactly what the paper is about.
Is it clear?	No two interpretations. No ambiguity. Not misleading. No confusion about what it means. Precise

Those who wish to begin only after the entire manuscript text is ready can also write a **one-paragraph summary** of the manuscript as a starting point for selecting a title.

They can then **formulate a couple of sentences** (working title) with **key words** and **key terms** that provide description of what the paper contains

### **The Procedure of Writing a Title**

The next step is **to compress** the title by getting rid of redundant words and refining it by making it easier to read, **brief** and **catchy**

There are several ways in which a title can be made attractive. These include using a **famous quote in the title**, twisting or playing with a quote, **going for a clever play of words**, making a **exciting statement** and creating a new acronym or anagram, among others.

The title **should not be finalized in a hurry**.

Also, it is worth asking for **colleagues' and friends' opinion**. Their suggestions can help improve the title.

Is it too long or is it too short?

Really speaking, the prime consideration is not the number of words or characters in the title (unless, the journal directs!!!). The length of the title should be "just right". A title that has un-essential words is too long, shorten it. A title that does not say what the article is about, is incomplete. It lacks focus. It may be "too short". Expand it.

Is it too unwieldy?

Does it contain relevant "key words"?

Consider breaking it into a title and a sub-title  
Incorporation of all the relevant "key words" in the title ensures greater discoverability and visibility through search engines

If using many technical words...

Will the intended readership understand the jargon? If not, simplify.  
Is the jargon making the title "difficult to read"? If yes, simplify

## Lecture 2

## Writing introductions

In order to help you write the Introduction to your own research, the **model you build** must answer the following three questions:

- How do writers normally start the Introduction?
- What **type of information** should be in my Introduction, and **in what order**?
- How do writers **normally end the Introduction**?

### Symmetrical structure

Because many of the things you need to do in the Introduction are done — in reverse order — in the Discussion/Conclusion.

You need to write an **opening sentence** which enables you and your reader

to **'get in'** or start your paper/thesis and you also need to **'get out'** at the end of the Discussion/Conclusion by finding an acceptable way to end the paper/thesis.

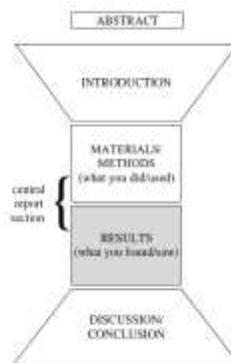


Fig. 1. The shape of a research article or thesis.

- **Make sure your research title describes**
- **(a) the topic**
- **(b) the method**
- **(c) the sample,**
- **and (d) the results of your study.**

Is it in line with the article's tenor?	How will editors, reviewers and readers react to a hilarious title for an article dealing with a serious research issue?
If using pun, irony or humor.....	These do help the title grab readers' attention. Will it be understood and appreciated by all readers? Is it culturally appropriate? Is there a need to use a sub-title to help readers understand what lies in the article?
Need to make it more interesting, attractive and catchy?	See if you can use a quote, use an anagram or introduce a clever play of words.....

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- You can use the following formula:
- [Result]: A [method] study of [topic] among [sample]

Example: Meditation makes nurses perform better: a qualitative study of mindfulness meditation among German nursing students

you **must look for** a way to interface with the **central report section** at the end of the **Introduction**, and again — in reverse — when you move out of the central section to start the Discussion/Conclusion.

If using abbreviations...	Do they have to be there? Are they well-known (e.g. DNA, MRI) and do not need to be explained? Will the article miss out on being picked by the search engines? Consider providing the expanded term, as well.
If the result is stated in the title...	Will it kill the curiosity? Will the readers lose motivation and interest to read the full article?
If using numbers in the title...	Are the numbers really large to be mentioned in the title itself?
If using a clear statement about the outcome	Are the results really unequivocal, definitive and unchallengeable?

**Narrows towards the central report section, and widens after it.**

Represents the **way information is ordered** in the Introduction and the

Discussion/Conclusion:

in the **Introduction** you start out by being fairly general and gradually narrow your focus, whereas the opposite is true in the **Discussion/Conclusion**.

## Writing introductions

- Establish the context, **background** and/or **importance of the topic**
- Indicate an **issue, problem, or controversy** in the field of study
- Define the **topic or key terms**
- State of the **purpose** of the essay/writing
- Provide an **overview of the coverage** and/or structure of the writing

**Introductions to research articles/ dissertations tend to be relatively short but quite complex**

- establishing the **context, background** and/or **importance of the topic**
- giving a brief **synopsis** of the relevant literature
- highlighting the **inadequacy** of previous research
- indicating a **problem**, controversy or a **knowledge gap** in the field of study
- establishing the **desirability of the research**

- listing the **research questions or hypotheses**
- providing **a synopsis** of the research method(s)
- explaining the **significance or value** of the study
- defining **certain key terms**
- providing an **overview of the dissertation or report structure**
- explaining **reasons for the writer's personal interest in the topic**

### **Establishing the importance of the topic for the world or society**

X is a fundamental property of ....

X is fast becoming a key instrument in ....

X is a common disorder characterised by ....

X plays an important role in the maintenance of ....

**Xs are the most potent anti-inflammatory agents known.**

X is a **major public health problem**, and the main cause of ....

Xs are one of the most rapidly declining groups of insects in ....

In the new global economy, X has become a central issue for ....

X is the leading cause of death in western-industrialised countries.

Xs are one of the **most widely used groups** of **antibacterial agents** and..

X is increasingly recognised as a serious, worldwide public health concern.

X is an important component in the climate system, and plays a key role in Y.

In the history of development economics, X has been thought of as a key factor in.

## **Establishing the importance of the topic for the discipline**

A key aspect of X is ....

X is a classic problem in ....

A primary concern of X is ....

X is at the heart of our understanding of ...

Investigating X is a continuing concern within ....

Central to the entire discipline of X is the concept of ....

X and Y have been an object of research since the 1960s

X is a major area of interest within the field of ....

The issue of X has received considerable critical attention.

X has been studied by many researchers using ....

One of the most significant current discussions in legal and moral philosophy is ....

## **Establishing the importance of the topic (time frame given)**

One of the most important events of the 1970s was ....

**Traditionally**, Xs have subscribed to the belief that ....

**Recent** developments in X have heightened the need for ....

**In recent years**, there has been an increasing interest in ....

**Recent trends** in X have led to a proliferation of studies that ....

**Recent developments in the field** of X have led to a renewed interest in

**Recently, researchers** have shown an increased interest in ....

**The past decade** has seen the rapid development of X in many ....

The **past thirty years** have seen increasingly rapid advances in the field of

**Over the past century** there has been a dramatic increase in ....

X proved an important literary genre in the early Y community. The changes experienced by Xs over the past decade remain unprecedented.

Xs are one of the most widely used groups of Y and have been extensively used for ....

### **Synopsis of literature (Outline)**

**Previous studies** have reported ....

**Recent evidence suggests** that ....

**Several attempts** have been made to ....

**Studies of X show** the importance of ....

**A number of researchers have** reported ....

**Recently investigators have examined** the effects of X on Y.

Factors found to be influencing **X have been explored in several studies.**

In the past two decades **a number of researchers** have sought to determine ....

**A considerable amount of literature** has been published on X. These studies ....

Surveys such as that conducted by Smith (1988) showed that ....

The first serious discussions and analyses of X emerged during the 1970s with ....

There have been a number of longitudinal studies involving X that have reported ....

Xs were reported in the first models of Y (e.g., Smith, 1977; Smith and Patel, 1977).

What we know about X is largely based upon empirical studies that investigate how ....

Smith (1984: 217) shows how, in the past, research into X was mainly concerned with ....

### **Highlighting a problem**

However, **a major problem** with this kind of application is ....

Lack of X has existed as a **health problem** for many years.

However, these rapid changes **are having a serious effect** on ....

Despite its safety and efficacy, X **suffers from several major drawbacks**

However, research has consistently shown that these students lack ....

There is **increasing concern** that some Xs are being disadvantaged  
....

Despite its long clinical success, X has **a number of problems in use.**

**Questions have been raised about** the safety of prolonged use of ....

Along with this growth in X, **however, there is increasing concern over**

### **Highlighting a controversy in the field of study**

**To date** there **has been little agreement** on what ....

**One major issue in early** X research concerned ....

**The issue has grown** in importance **in light of recent** ....

One observer **has already drawn attention** to the paradox in ....

**Questions have been raised about the safety** of prolonged use of ....

**Debate continues about the best strategies** for the management of  
....

In many Xs, **a debate is taking place between** Ys and Zs concerning  
....

This **concept has recently been challenged by** X studies  
demonstrating

The debate about X has gained fresh prominence with many arguing  
that

**More recently, literature has emerged that offers contradictory  
findings about**

One of the most significant current discussions in legal and moral  
philosophy is ....

**Highlighting inadequacies of previous studies**

Researchers **have not treated X in much detail.**

Previous studies of X **have not dealt with** ....

**Half of the studies evaluated failed to specify whether** ....

**Most studies in the field of X have only focused on** ....

Most studies in X have only **been carried out in a small number of**  
areas.

The experimental **data are rather controversial**, and there **is no  
general agreement about** ....

Such expositions **are unsatisfactory** because they ....

The research to date **has tended to focus on X rather than Y.**

Research on the subject has been **mostly restricted to limited  
comparisons** of ....

The existing accounts fail to resolve the contradiction between X and  
Y.

**Highlighting a knowledge gap in the field**

What is not yet clear is the impact of X on ....

**No previous study has investigated X .**

There has been little quantitative analysis of ....

**The neurobiological basis of this X is poorly understood.**

Until recently, there has been no reliable evidence that ....

**In addition, no research has been found that surveyed ....**

Little is known about X and it is not clear what factors ....

**This indicates a need to understand the various perceptions of X that exist among ....**

So far this method has only been applied to ....

**So far, however, there has been little discussion about ....**

However, far too little attention has been paid to ....

However, the evidence for this relationship is inconclusive ....

However, much uncertainty still exists about the relation between ....

However, there have been no controlled studies which compare differences in ....

In contrast, very little is known about X in non-mammalian vertebrates and in ....

**Highlighting a knowledge gap in the field**

Although While Whilst	some research has been carried out on X,	no single study exists which .... no studies have been found which .... no controlled studies have been reported. only two studies have attempted to investigate .... the mechanism by which .... has not been established. there have been few empirical investigations into .... there is very little scientific understanding of ....
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**Apart from Smith (2014), there is a general lack of research in ....**

Despite this, very few studies have investigated the impact of X on ....

Several studies have produced estimates of X (Smith, 2002; Jones, 2003), but there is still insufficient data for ....

### **Indicating the focus, aim, argument of a paper**

This paper **challenges the claim that** ....

This paper will **review the research conducted on** ....

This paper will **focus on/examine/give an account of** ....

This paper seeks to **remedy these problems by analysing the literature of**

This paper **examines the significance of X in the rise of** ....

This **essay critically examines/discusses/traces** ....

This **account seeks to** ....

In this **paper I argue that** ....

In the pages that follow, **it will be argued that** ....

This paper **attempts to show that** ....

In this essay, I attempt to defend the view that ....

The central thesis of this paper is that ....

The aim of the paper is to provide a conceptual theoretical framework based on....

The purpose of this paper is to review recent research into the ....

### **Stating the purpose of research**

The **major objective of this study was to investigate** .....

The **aim of this study was to clarify several aspects of** ....

The aim of this study is **to investigate the differences** between X and Y.

The aim of this research project has therefore **been to try and establish what ....**

The main aim of this investigation **is to assess** the doses and risks associated with ....

The aim of this study **is to shine new light on these debates through an examination of ....**

The objectives **of this research are to determine whether ....**

**The main purpose of this study is to develop an understanding of ....**

This paper investigates the usefulness of ....

This thesis intends to determine the extent to which .... and whether ....

This thesis will examine the way in which the ....

This research examines the emerging role of X in the context of ....

This case study seeks to examine the changing nature of ....

This dissertation seeks to explain the development of ....

This dissertation aims to unravel some of the mysteries surrounding ....

This study systematically reviews the data for...., aiming to provide ....

### **Research questions or hypotheses**

**The central question in this dissertation asks how ....**

**This research seeks to address the following questions:**

In particular, this dissertation **will examine six main research questions:**

**The hypothesis that will be tested is that ....**

**The key research question of this study was whether or not**

**This study aimed to address the following research questions:**

**Another question is whether ...**

**Synopsis (outline) of the research design, method, source(s) of data**

**Five works will be examined, all of which ....**

**Data for this study were collected using ....**

**This dissertation follows a case-study design, with in-depth analysis of**

**This study was exploratory and interpretative in nature.**

**The approach to empirical research adopted for this study was one of**

**The methodological approach taken in this study is a mixed methodology based on ....**

**By employing qualitative modes of enquiry, I attempt to illuminate the**

**This work takes the form of a case-study of the ....**

**Both qualitative and quantitative methods were used in this investigation.**

**A combination of quantitative and qualitative approaches was used in the data analysis.**

**Qualitative and quantitative research designs were adopted to provide ....**

**A holistic approach is utilised, integrating X, Y and Z material to establish ....**

**The research data in this thesis is drawn from four main sources: ....**

The study was conducted in the form of a survey, with data being gathered via ....

### **Indicating significance**

**This project provided an important opportunity to advance the understanding of .....**

This study **provides an exciting opportunity to advance our knowledge** of

**This is the first study to undertake a longitudinal analysis of ....**

**The findings should make an important contribution to the field of**

Therefore, this study **makes a major contribution to research on X** by demonstrating ....

**The study offers some important insights into ....**

**This study aims to contribute to this growing area of research by exploring ....**

There are several important areas where this study makes an original contribution to ....

### **Indicating limitations**

**The thesis does not engage with ....**

**Due to practical constraints, this paper cannot provide a comprehensive review of ....**

**It is beyond the scope of this study to examine the ....**

The **reader should bear in mind** that the study is based on

**Another potential problem is that the scope of my thesis may be too broad.**

**A full discussion of X lies beyond the scope of this study.**

**Giving reasons for personal Interest\***

**My main reason for choosing this topic is personal interest.**

**I became interested in Xs after reading ....**

**This project was conceived during my time working for X. As a medical advisor, I witnessed ...**

**I have worked closely with X for many years and ....**

**It is my experience of working with X that has driven this research.**

**\* sometimes found in the humanities, and the applied human sciences**

**Outlining the structure**

**The main questions/issues addressed in this paper are: a), b and c).**

**This paper has been divided into four parts.** The first part deals with

**The essay has been organised in the following way.**

**This paper reviews the evidence for ....**

**This paper begins by .... It will then go on to ....**

**The first section of this paper will examine ....**

**This paper first gives a brief overview of the recent history of X.**

**My thesis is composed of four themed chapters.**

**The overall structure of the study takes the form of six chapters, including this introductory chapter.** Chapter Two begins by laying out the theoretical dimensions of the research, and looks at how ....

**Outlining the structure**

The third chapter is concerned with the methodology used for this study.

The fourth section presents the findings of the research, focusing on the three key themes that ....

Chapter 6 analyses the results of interviews and focus group discussions undertaken during ....

The remaining part of the paper proceeds as follows: ....

The final chapter draws upon the entire thesis, tying up the various theoretical and empirical strands

in order to ....

.... and includes a discussion of the implication of the findings to future research into this area.

Finally, the conclusion gives a brief summary and critique of the findings .

Finally, areas for further research are identified.

### **Explaining Keywords (refer to Defining Terms)**

**Throughout this paper, the term X will refer to ....**

**Throughout this dissertation, the term X will be used to refer to**

**...**

**In this article, the acronym/abbreviation XYZ will be used.**

**According to Smith (2002), X can be defined as follows: “....”**

**The term X is a relatively new name for ., commonly referred to as**

**While a variety of definitions of the term X have been suggested, this paper will use the definition first suggested by Smith (1968)**

**who** saw it as ....

### **Grammar and Writing Skills**

## **Tense Pairs**

Present Simple/Present Continuous

Past Simple/Present Perfect

## **Signalling Language**

**Sentence connection**

**Cause**

**Results**

**Contrast/difference**

**Addition**

**Unexpectedness**

**Passive/Active Use**

**Paragraphing**

## Lecture 3

## LITERATURE REVIEW

**One of the distinguishing features of academic writing is informed by:**

- what is already known,
- what work has been done before,
- what ideas and models have already been developed. Thus, academic writers frequently make reference to external sources

### **Purpose of the literature review section**

- To show the reader, in a systematic way, what is already known about the research topic as a whole,
- to outline the key ideas and theories that help us to understand this.
- evaluative and critical of the studies or ideas which are relevant to the current work (refer to *Being Critical*).

*For example, you may think a particular study did not investigate some important aspect of the area you are researching, that the authors failed to notice a weakness in their methods, or that their conclusion is not well-supported.*

### **A note on verb tenses:**

For general reference to the literature, the **present perfect tense** (have/has + verb + ed) tends to be used.

e.g. Studies have showed

For reference to specific studies carried out in the past, the **simple past tense** is most commonly used.

e.g. James indentified/ reported

**When referring to the words or ideas of writers,**

the **present tense** is often used **if the ideas are still relevant**, even if the author is no longer alive.

**General descriptions of the relevant literature**

A large and growing body of literature has investigated

More recent attention has focused on the provision of

Much of the current literature on X pays particular attention to ....

There is a large volume of published studies describing the role of ....

**In recent years**, there has been an increasing amount of literature on

....

**General reference to previous research or scholarship: normally more than one author**

Several studies investigating X have been carried out on

Previous studies have reported .... (Smith, 1985; Jones, 1987;

Johnson, 1992)

A number of studies have found that .... (Smith , 2003; Jones, 2004).

It has been suggested that levels of X are independent of the size of the Y (Smith *et al.*, 1995).

**Reference to current state of knowledge**

There is an unambiguous relationship between X and Y (Rao, 1998).

X has been found to oppose the anti-inflammatory actions of Y on Z (Alourfi, 2004).

A relationship exists between an individual's working memory and their ability to .... (Jones, 2002).

GM varieties of maize are able to cross-pollinate with non-GM varieties (Smith, 1998; Jones, 1999).

**Reference to single investigations in the past:  
researcher(s) as sentence subject**

**Smith (1999)**

found that as levels of literacy and education of the population rise  
....  
showed that reducing X to 190oC decreased .... (see Figure 2) .  
demonstrated that when the maximum temperature is exceeded ....

**Reference to single investigations in the past: researcher(s) as  
sentence subject**

**Jones et al. (2001)**

investigated the differential impact of formal and non-formal  
education on  
analysed the data from 72 countries and concluded that ....  
reviewed the literature from the period and found little evidence  
.....

**Reference to single investigations or publications in the past: time  
frame prominent**

In 1975, Smith et al. published a paper in which they described ....

In 1990, Patel et al. demonstrated that replacement of H<sub>2</sub>O with heavy water led to ....

Thirty years later, Smith (1974) reported three cases of X which ....

### **Reference to single investigations in the past: investigation prominent**

Preliminary work on X was undertaken by Abdul Karim (1992).

The first systematic study of X was reported by Patel *et al. in 1986*.

Analysis of the genes involved in X was first carried out by Smith *et al* (1983).

One study by Smith (2014) examined the trend in ....

### **Reference to single investigations in the past: research topic as main focus**

To determine the effects of X, Zhao (2005) compared

X was originally isolated from Y in a soil sample from .... (Wang *et al., 1952*).

The electronic spectroscopy of X was first studied by Smith and Jones<sup>1</sup> in 1970

X was first demonstrated experimentally by Pavlov (Smith, 2002). In his seminal study ....

### **Reference to what other writers do in their text: author as subject**

Smith (2013) identifies X, Y, and Z as the major causes of ....

Perez (2013) draws on an extensive range of sources to assess

Toh (2013) mentions the special situation of Singapore as an example of ....

Al-Masry (2013) uses examples of these various techniques as evidence that ....

## Reference to another writer's ideas or position (author as subject)

According to Smith (2003), preventative medicine is far more cost effective, and therefore ....

As noted by Smith (2003) X is far more cost effective,

	points out		that
	argues		
	maintains		
	claims		
Smith	concludes		
(2013)	suggests		

preventative medicine is far more cost effective, and therefore better adapted to the developing world.

## Synthesising sources

Similarly, Nicoladis (2006) found that X ....

In the same vein, Smith (1994) in his book XYZ notes ....

This view is supported by Jones (2000) who writes that ....

Smith argues that her data support O'Brien's (1988) view that ....

Al-Masry's (1986) work on X is complemented by Smith's (2009) study of ....

Almost every paper that has been written on X includes a section relating to ....

Unlike Smith, Jones (2013) argues that ....

## Some ways of introducing quotations

Commenting on X, Smith (2003) argues: '.... ....'

As Smith argues: ‘In the past, the purpose of education was to ....’  
(Smith , 2000:150).

As Carnoy (2004: 215) states: ‘there are many good reasons to be sceptical’.

Sachs concludes: ‘The idea of development stands today like a ruin in the intellectual landscape...’(Sachs, 1992a

### **Summarising the review or parts of the review**

Together, these studies outline that ....

Overall, these studies highlight the need for ....

Collectively, these studies outline a critical role for...

The evidence presented in this section suggests that ....

The studies presented thus far provide evidence that ....

Overall, there seems to be some evidence to indicate that ....

Together these studies provide important insights into the ....

In view of all that has been mentioned so far, one may suppose that

....

## Lecture 4

## Describing Methods

Writers give an account of **how they carried out their research.**

The Methods section **should be clear and detailed enough** for another experienced person **to repeat the research and reproduce the results.**

Where the methods chosen **are new, unfamiliar or perhaps even controversial,** the Methods section will **tend to be much more extensive.**

Note that for most of the functional categories in this section, the verbs are written in the **simple past tense.**

### **Describing previously used methods**

To date various methods have been developed and introduced **to measure X:**

In most recent studies, X has been measured in four different ways.

Traditionally, X has been **assessed by** measuring....

Different authors have measured X in a variety of ways.

Previous studies have based their criteria for selection on ....

### **Giving reasons why a particular method was adopted or rejected**

**A case study approach** was used to allow a ....

**Qualitative methods offer** an effective way of ....

**A quantitative approach was employed** since ....

The X method is one of the more practical ways of ....

The semi-structured approach was chosen because ....

A major problem with the experimental method is that ....

### **Indicating a specific method**

X was **prepared according** to the procedure used by Patel *et al.* (1957).

The synthesis of X was done according to the procedure of Smith (1973).

X was **synthesised using** the same method that was detailed for Y, using ....

**An alternative method** for making scales homogenous is by using ....

Samples were analysed for X as previously reported by Smith *et al.* (2012)

### **Describing the characteristics of the sample**

Eligibility criteria required individuals to have received

A random sample of patients with .... was recruited from ....

Forty-seven students studying X **were recruited** for this study.

**Just over half** the sample (53%) was female,

**Of the initial cohort of 123 students**, 66 were female and 57 male.

Only children aged between 10 and 15 years were included in the study.

### **Indicating reasons for sample characteristics**

Criteria for selecting the subjects were as follows:

The area of study was chosen for its relatively small ....

Five individuals were excluded from the study on the basis of ....

A small sample was chosen because of the expected difficulty of obtaining ....

The subjects were selected on the basis of a degree of homogeneity of their ....

### **Describing the process: infinitive of purpose**

In **order to understand** how X regulates Y, a series of transfections was performed.

**To establish** whether .....

**To measure** X, a question asking .... was used.

**To see** if the two methods gave the same measurement, the data was plotted and .....

**To control** for bias, measurements were carried out by another person.

### **Describing the process: other phrases expressing purpose**

**For the purpose** of height measurement, subjects were asked to stand ...

For the purpose of analysis, 2 segments were extracted from each .....

**For the estimation of protein concentration**, 100  $\mu$ L of protein sample was mixed with .....

### **Describing the process: typical verbs in the passive form**

The **data were normalised** using .....

Descriptive data **were generated** for all variables.

The procedures of this study **were approved** by .....

Data for this study **were retrospectively collected** from

Prompts **were used** as an aid to question two so that

The experiments **were** run using custom software **written** in.....

### **Describing the process: sequence words and phrases**

**Prior to undertaking** the investigation, ethical clearance was obtained from .....

**After collection**, the samples were shipped back to X in

**Once the Xs** were located and marked, a thin clear plastic ruler ....

**On arrival** at the clinic, patients were asked to ....

### **Describing the process: sequence words and phrases**

Following correction for ....., X was reduced to ....

The soil **was then** weighed again, and this weight was recorded as ....

The results were corrected for the background readings and then averaged before

**Finally**, questions **were asked** as to the role of ....

**In the follow-up phase** of the study, participants were asked ....

### **Describing the process: adverbs of manner**

The soil was then placed in a furnace and **gradually heated up to ....**

The vials were shaken **manually** to allow the soil to mix well with the water.

The medium was then **aseptically** transferred to a conical flask.

### **Describing the process: adverbs of manner**

The resulting solution was **gently** mixed at room temperature for ten minutes and ....

A sample of the concentrate was then **carefully** injected into ....

The tubes were **accurately** reweighed to six decimal places using ....

soil was then placed in a furnace and **gradually heated up to ....**

### **Describing the process: using + instrument**

15 subjects were recruited **using email** advertisements requesting healthy students from ....

Data were collected **using two** high spectral resolution Xs.

The data was recorded on a digital audio recorder and transcribed **using** a ....

Semi-automated genotyping was **carried out using X** software and ....

### **Describing the process: giving detailed information**

Compounds 3 and 5 **were dissolved** in X at apparent pH 2.5 to give concentrations of 4mM ....

.... and the solutions **were degraded** at 55°C or 37°C for a total time of 42 hours.

At intervals of 0.5 min, 50 µL of the X **was aliquoted** into 0.5mL of Y (pH 7.5) to ....

### **Indicating problems or limitations**

In this investigation there are several sources for error. The main error is ....

Another major source **of uncertainty** is in the method used to calculate X.

In particular, the analysis of X **was problematic**.

Further data collection is **required to determine** exactly how X affects Y.

It was not possible to investigate the significant relationships of X and Y further **because the sample size was too small**.

## Lecture. 5

## Reporting Results

To **present** and **describe** the results in a **systematic** and **detailed way**.

When reporting **qualitative results**, the researcher will **highlight** and **comment on the themes** that emerge from the analysis.

These comments will often be illustrated with **extract from the raw data**.

In **quantitative studies**, the results section is likely to consist of **tables and figures**, and writers **comment on the significant data shown in these**.

This often takes the form of the **location or summary statement**,

- which identifies **the table or figure and indicates** its content,
- and a **highlighting statement** or statements, which **point out and describe** the relevant or significant data.

All figures and tables **should be numbered and given a title**.

### **Reference to aim or method**

Changes in X and Y **were compared using** ....

**Simple statistical analysis** was used to ....

To assess X, the **Y questionnaire was used**.

To **distinguish between these two possibilities**, ....

T-tests were used to analyse the relationship between ....

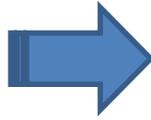
In order to assess Z, **repeated-measures ANOVAs were used**.

Regression analysis was used to predict the ....

### **Reference to aim or method**

Table 1  
Figure 1

shows  
compares  
presents  
provides



an overview of ....  
the experimental data on X.  
the summary statistics for ....  
the breakdown of X according to ....  
the results obtained from the preliminary analysis of X.  
the intercorrelations among the nine measures of X.

The table below illustrates  
The pie chart above shows

some of the main characteristics of the ....  
the breakdown of ....

### Reference to aim or method

As shown in Figure 1,  
As can be seen from the table (above),  
It can be seen from the data in Table 1 that  
From the graph above we can see that



the X group reported significantly more Y than the  
other two groups.

The results of the correlational analysis  
The themes identified in these responses



are shown  
can be compared  
are presented  
are set out  
are summarised

in Table 1.  
in Figure 1.

### **Highlighting significant data in a table / chart**

**It is apparent from this** table that very few ....

**What is interesting** in this data is that ....

In Fig.10 there is a **clear trend of decreasing** ....

**As Table III shows, there** is a significant difference ( $t = -2.15$ ,  $p = 0.03$ ) between the two groups.

The differences between X and Y **are highlighted in Table 4**

### **Statements of positive result**

**Strong evidence of X** was found when ....

This result **is significant at the  $p = 0.05$**  level.

There was a **significant positive correlation between**

There was a **significant difference between the two conditions** ....

On average, **Xs were shown to have** ....

The mean score for X was ....

### **Statements of negative result**

**There was no increase** of X associated with .....

There were **no significant differences** between ....

**No significant differences** were found between ....

**No increase in X** was detected.

**No difference greater** than X was observed.

**No significant reduction** in X was found compared with placebo.

### **Highlighting significant, interesting or surprising results**

Interestingly, the X was observed to ....

The more surprising correlation is with the ....

The most striking result to emerge from the data is that

The correlation between X and Y is interesting because

**Interestingly**, there were also differences in the ratios of

### **Reporting a reaction**

When X cells were stimulated with Y, no significant difference in the number of Z was detected.

However, stimulation of X cells with Y did not increase the ....

Following the addition of X, a **significant increase (P<0.05)** in the Y was recorded.

With successive increases in intensity of the X, the Y moved further to ....

### **Observations about qualitative data**

The themes of X and Y recurred throughout the dataset.

Five broad themes emerged from the analysis.

Two discrete reasons emerged from this. First .... Second ....

A number of issues were identified ....

This theme came up for example in discussions of .

A recurrent theme in the interviews was a sense amongst interviewees that ...

### **Transition statements**

If we now turn to ....

A comparison of the two results reveals ....

**Turning now to** the experimental evidence on ....

**Comparing the two results**, it can be seen that ....

The **next section of** the survey was concerned with ....

In the **final part of the survey**, respondents were asked

### **Summary and transition**

These results suggest that ..../Overall, these results indicate that ....

Together these results **provide important insights into**

**Taken together, these results suggest** that there is an association between ....

**In summary, these results show that ....**

The results in this Chapter indicate that .... The next Chapter, therefore, moves on to discuss the ....

## **Lecture. 6      Reporting Results**

To present and describe the results in a systematic and detailed way.

When reporting qualitative results, the researcher will highlight and comment on the themes that emerge from the analysis these comments will often be illustrated with extract from the raw data.

In quantitative studies the results section is likely to consist of tables and figures and writers comment on the significant data shown in these

### **Reporting Results**

This often takes the form of the location or summary statement,

- which identifies the table or figure and indicates its content,
- and a highlighting statement or statements, which point out and describe the relevant or significant data

All figures and tables **should be numbered and given a title.**

### **Reference to aim or method**

Changes in X and Y were compared using Simple statistical analysis was used to

To assess X, the Y questionnaire was used

To distinguish between these two possibilities ,

T -tests were used to analyse the relationship between

In order to assess Z, repeated measures ANOVAs were used.

Regression analysis was used to predict the ....

### **Highlighting significant data in a table / chart**

It is apparent from this table that very few

What is interesting in this data is that

In Fig 10 there is a clear trend of decreasing

As Table III shows, there is a significant difference ( $t = 2.15$ ,  $p = 0.03$ ) between the two groups

The differences between X and Y are highlighted in Table 4

### **Statements of positive result**

Strong evidence of X was found when

This result is significant at the  $p = 0.05$  level

There was a significant positive correlation between

There was a significant difference between the two conditions

On average, Xs were shown to have

The mean score for X was ....

### **Statements of negative result**

There was no increase of X associated with

There were no significant differences between

No significant differences were found between

No increase in X was detected

No difference greater than X was observed

No significant reduction in X was found compared with placebo.

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Interestingly, the X was observed to

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The most striking result to emerge from the data is that

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Interestingly, there were also differences in the ratios of

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Five broad themes emerged from the analysis

Two discrete reasons emerged from this First... Second

A number of issues were identified

This theme came up for example in discussions of

A recurrent theme in the interviews was a sense amongst interviewees that

### **Transition statements**

If we now turn to

A comparison of the two results reveals

Turning now to the experimental evidence on

Comparing the two results, it can be seen that

The next section of the survey was concerned with

In the final part of the survey, respondents were asked

## **Summary and transition**

These results suggest that Overall , these results indicate that

Together these results provide important insights into

Taken together, these results suggest that there is an association  
between

In summary, these results show that

The results in this Chapter indicate that .... The next

Chapter, therefore, moves on to discuss the ....

## Lecture 7      Discussing Findings

### Symmetrical structure

Because many of the things you need to do in the Introduction are done in reverse order in the Discussion/Conclusion.

You need to write an opening sentence which enables you and your reader to ‘ get in ’ or start your paper/thesis and you also need to ‘ get out ’ at the end of the Discussion/Conclusion by finding an acceptable way to end the paper/thesis.

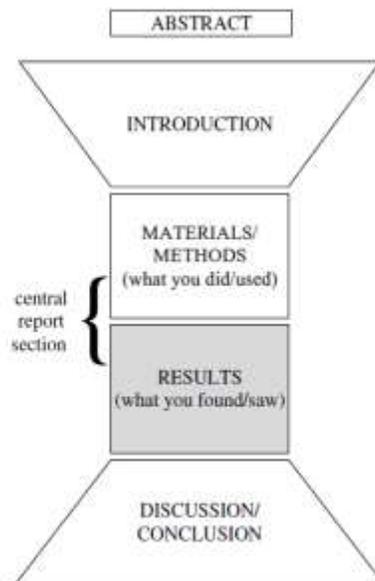


Fig. 1. The shape of a research article or thesis.

You must look for a way to interface with the central report section at the end of the Introduction and again in reverse when you move out of the central section to start the Discussion/ Conclusion.

Narrows towards the central report section, and widens after it.

Represents the way information is ordered in the

Introduction and the Discussion/Conclusion

In the Introduction you start out by being fairly general and

gradually narrow your focus, whereas the opposite is true in the

Discussion/Conclusion

### **Discussing Findings**

a) considering both sides of an issue , or question before reaching a conclusion;

b) considering the results of research and the implications of these 'statement of result ' or an important 'finding

As there is usually more than one result , discussion sections are often structured into a series of discussion cycles

### **Background information: reference to literature or to research aim/question**

As mentioned in the literature review, ....

The third question in this research was ....

Prior studies that have noted the importance of ....

An initial objective of the project was to identify ....

Very little was found in the literature on the question of ....

This study set out with the aim of assessing the importance of X in ....

The first question in this study sought to determine ....

It was hypothesized that participants with a history of ....

The present study was designed to determine the effect of ....

A strong relationship between X and Y has been reported in the literature.

In reviewing the literature, no data was found on the association between X and Y.

**Statements of result: usually with reference to results section**

The current study found that ....

The most interesting finding was that ....

In this study, Xs were found to cause ....

The results of this study show/indicate that ....

This experiment did not detect any evidence for ....

On the question of X, this study found that ....

The most important clinically relevant finding was

Another important finding was that ....

In the current study, comparing X with Y showed that the mean degree of ....

It is interesting to note that in all seven cases of this study ....

The results of this study did not show that .../did not show any significant increase in ....

### **Unexpected outcome**

Surprisingly, X was found to ....

What is surprising is that ....

One unanticipated finding was that ....

Surprisingly, no differences were found in ....

This finding was unexpected and suggests that ....

It is somewhat surprising that no X was noted in this condition

Contrary to expectations, this study did not find a significant difference between ....

However, the observed difference between X and Y in this study was not significant.

However, the ANOVA (one way) showed that these results were not statistically significant

### **Reference to previous research: support**

These findings further support the idea of ....

This finding confirms the association between ....

This study confirms that X is associated with ....

These results match those observed in earlier studies.

The results of this study will now be compared to the findings of previous work.

The findings of the current study are consistent with those of Smith and Jones (2001) who ....

These results are consistent with those of other studies and suggest that ....

This finding supports previous research into this brain area which links X and Y.

This finding corroborates the ideas of Smith and Jones (2008), who suggested that

This finding is in agreement with Smith's (1999) findings which showed

It is encouraging to compare this figure with that found by Jones (1993) who found that ....

Increased activation in the X in this study corroborates these earlier findings.

The present findings seem to be consistent with other research which found ....

These results agree with the findings of other studies, in which ....

In accordance with the present results, previous studies have demonstrated that ....

The findings observed in this study mirror those of the previous studies that have examined the effect of ....

This study produced results which corroborate the findings of a great deal of the previous work in this field.

There are similarities between the attitudes expressed by X in this study and those described by ( Smith, 1987, 1995) and Jones (1986).

### **Reference to previous research: contradict**

However, the findings of the current study do not support the previous research.

This study has been unable to demonstrate that ....

However, this result has not previously been described.

In contrast to earlier findings , however, no evidence of X was detected.

These results differ from X's 2003 estimate of Y, but they are broadly consistent with earlier ....

Although, these results differ from some published studies (Smith, 1992; Jones, 1996), they are consistent with those of ....

## Lecture 8

## Explanations for results

There are several possible explanations for this result.

A possible explanation for these results may be the lack of adequate....

It is difficult to explain this result, but it might be related to ....

There are, however, other possible explanations.

These factors may explain the relatively good correlation between X and Y.

Some authors have speculated that ....

A possible explanation for this might be that ....

Another possible explanation for this is that ....

This result may be explained by the fact that ....

It seems possible that these results are due to ....

This inconsistency may be due to ....

This discrepancy could be attributed to ....

This rather contradictory result may be due to ....

The observed increase in X could be attributed to ....

Since this difference has not been found elsewhere it is probably not due to ....

The observed correlation between X and Y might be explained  
in this way. ....

The reason for this is not clear but it may have something to do  
with ....

It may be that these students benefitted from ....

There are two likely causes for the differences between ....

The possible interference of X cannot be ruled out.

### **Advising cautious interpretation**

These findings cannot be extrapolated to all patients.

These data must be interpreted with caution because ....

These results therefore need to be interpreted with caution.

It is important to bear in mind the possible bias in these responses.

However, with a small sample size, caution must be applied, as the  
findings might not be transferable to ....

Although exclusion of X did not reduce the effect on X, these results  
should be interpreted with caution

### **Suggesting general hypotheses**

The value of X suggests that a weak link may exist between

It is therefore likely that such connections exist between ....

It can thus be suggested that ....

It is possible to hypothesise that these conditions are less likely to occur in ....

It is possible/likely/probable therefore that ....

Hence, it could conceivably be hypothesised that ....

### **Suggesting general hypotheses**

These findings suggest that ....

It may be the case therefore that these variations ....

In general, therefore, it seems that ....

It is possible, therefore, that ....

Therefore, X could be a major factor, if not the only one, causing ....

It can therefore be assumed that the ....

This finding, while preliminary, suggests that ....

### **Noting implications**

This finding has important implications for developing ....

An implication of this is the possibility that ....

One of the issues that emerges from these findings is ....

Some of the issues emerging from this finding relate specifically to  
....

This combination of findings provides some support for the conceptual premise that ....

These findings may help us to understand ....

These results provide further support for the hypothesis that

### **Commenting on findings**

However, these results were not very encouraging.

These findings are rather disappointing.

The test was successful as it was able to identify students who

The present results are significant in at least major two respects

These findings will doubtless be much scrutinized, but there are some immediately dependable conclusions for ....

The results of this study do not explain the occurrence of these adverse events.

### **Suggestions for future work**

Further work is required to establish this.

This is an important issue for future research.

Several questions remain unanswered at present.

There is abundant room for further progress in determining ...

Further research should be done to investigate the

Research questions that could be asked include

Future studies on the current topic are therefore recommended.

A further study with more focus on X is therefore suggested.

## **Suggestions for future work**

Further studies, which take these variables into account , will need to be undertaken.

In future investigations, it might be possible to use a different X in which ....

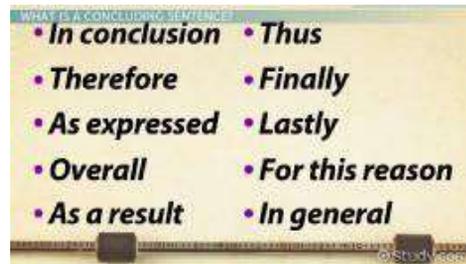
In further research, the use of this data as X could be a means of ....

However, more research on this topic needs to be undertaken

before the association between X and Y is more clearly understood.

## CONCLUSIONS

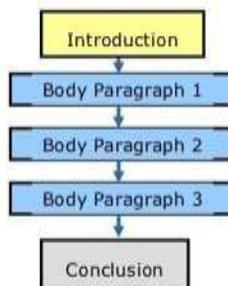
- Conclusions are logical deductions based on the data in the Findings section
- Usually includes a comprehensive summary of the findings
- Ends with a statement which will lead to the Recommendations section



## Parts of an Essay Conclusion



The conclusion paragraph is the last paragraph in the essay. It completes the essay by summarizing or repeating the most important ideas. The conclusion can also include an opinion, a prediction, or a solution to a problem.



# Conclusion Outline

1. Restate the thesis IN DIFFERENT WORDS.
2. Make reference to your hook.
3. Summarize main points in ONE SENTENCE.
4. Choose a strategy.
  - General to specific
  - Specific to general
  - Give a warning and state the consequences of failing to act
  - Give advice or offer a possible solution.
  - Tell the reader what he should now think, do, or feel
  - Tell what you really think of the topic.
  - Tell what lessons or truths should now be understood

## Writing Conclusions

Shorter sections of academic texts which serve two functions:

- 1- Summarise & bring together the main areas covered in the writing.
- 2- Give a final comment or judgement on this.

The final comment may also include:

- Making suggestions for improvement and
- Speculating on future directions.

In dissertations and research papers, conclusions tend to be more complex and will also include sections on:

- Significance of the findings and
- Recommendations for future work.

Conclusions may be optional in research articles where consolidation of the study and general implications are covered in the Discussion section.

### **Restatement of aims**

- This paper has argued that ....
- This study set out to determine ....
- This essay has discussed the reasons for ....
- The present study was designed to determine the effect of
- The main goal of the current study was to determine ....
- In this investigation, the aim was to assess ....
- The purpose of the current study was to determine ....
- This project was undertaken to design .... and evaluate ....
- Returning to the hypothesis/question posed at the beginning of this study, it is now possible to state that ....

### **Summarising research findings**

- This study has shown that ....
- The investigation of X has shown that ....

- These findings suggest that in general ....
- It was also shown that ....
- This study has found that generally ....
- The relevance of X is clearly supported by the current findings
- This study/research has shown that ....
- The second major finding was that ....
- The results of this investigation show that ....
- The most obvious finding to emerge from this study is that ....
- X, Y and Z emerged as reliable predictors of ....
- Multiple regression analysis revealed that the ....

### **Suggesting implications**

- The evidence from this study suggests that ....
- The following conclusions can be drawn from the present study ....
- The results of this study indicate that ....
- The results of this research support the idea that ....
- In general, therefore, it seems that ....
- Taken together, these results suggest that ....
- An implication of this is the possibility that ....

### **Significance of the findings or research contribution**

- This research extends our knowledge of ....
- The present study makes several noteworthy contributions to
- This work contributes to existing knowledge X by providing
- The present study provides additional evidence with respect to
- The current findings add to a growing body of literature on ....
- The study has confirmed the findings of Smith et al. (2001) which found that ....
- The findings from this study make several contributions to the current literature. First,...
- These findings enhance our understanding of ....

### **Significance of the findings or research contribution**

- The study has gone some way towards enhancing our understanding of ....
- The X that we have identified therefore assists in our understanding of the role of ....
- The empirical findings in this study provide a new understanding of ....
- The key strengths of this study are its long duration and ....
- This is the first study reporting an advantage in those who
- This is the first time that X has been used to explore ....

- This is the largest study so far documenting a delayed onset of

### **Significance of the findings or research contribution**

- This study has demonstrated, for the first time, that ....
- The analysis of X undertaken here, has extended our knowledge of ....
- This research will serve as a base for future studies and ...
- The methods used for this X may be applied to other Xs elsewhere in the world.
- Taken together, these findings suggest a role for X in promoting Y.
- The present study confirms previous findings and contributes additional evidence that suggests ....
- This research has several practical applications. Firstly, it points to ....

### **Significance of the findings with a qualification**

- Whilst this study did not confirm X, it did partially substantiate
- Despite its exploratory nature, this study offers some insight into ....
- Although the current study is based on a small sample of participants, the findings suggest ....
- Notwithstanding these limitations, the study suggests that ....

## Lecture 10

## Limitations of the current study

- Finally, a number of important limitations need to be considered. First, ....
- The findings in this report are subject to at least three limitations. First, ....
- Thirdly, the study did not evaluate the use of ....
- The generalisability of these results is subject to certain limitations. For instance, ....
- The most important limitation lies in the fact that ....
- The major limitation of this study is the low response rate.

### Limitations of the current study

- A limitation of this study is that the numbers of patients and controls were relatively small.
- Several limitations to this pilot study need to be acknowledged. The sample size is ....
- This limitation means that study findings need to be interpreted cautiously.
- The current study has only examined ....
- The current investigation was limited by ....
- The current study was unable to analyse these variables.

## **Limitations of the current study**

- The current study was unable to analyse these variables.
- The current research was not specifically designed to evaluate factors related to ....
- The study is limited by the lack of information on ....
- The scope of this study was limited in terms of ....
- However, these findings are limited by the use of a cross sectional design.
- The project was limited in several ways. First, the project used a convenience sample that ....
- The sample was nationally representative of X but would tend to miss people who were ....

## **Recommendations for further research work**

- This research has thrown up many questions in need of further investigation.
- What is now needed is a cross-national study involving
- More broadly, research is also needed to determine ....
- More research is needed to better understand when implementation ends and ....
- More research is required to determine the efficacy of
- It would be interesting to assess the effects of ....
- It would be interesting to compare experiences of individuals within the same ... .
- It is recommended that further research be undertaken in the following areas:

- It is suggested that the association of these factors is investigated in future studies.
- Further work needs to be done to establish whether ....
- Further research is needed to account for the varying ....
- Further research might explore/investigate ....

### **Recommendations for further research work**

- Further research in this field would be of great help in ....
- Further research regarding the role of X would be worthwhile/interesting.
- Further investigation and experimentation into X is strongly recommended.
- Further experimental investigations are needed to estimate
- A further study could assess the long-term effects of ....
- Further research needs to examine more closely the links between X and Y.

### **Recommendations for further research work**

- Future trials should assess the impact of ....
- Future research should therefore concentrate on the investigation of
- A future study investigating X would be very interesting.
- A number of possible future studies using the same experimental set up are apparent.
- Another possible area of future research would be to investigate why ....

- A natural progression of this work is to analyse ....

### **Recommendations for further research work**

- These findings provide the following insights for future research: ....
- The precise mechanism of X in insects remains to be elucidated.
- Considerably more work will need to be done to determine .....
- The issue of X is an intriguing one which could be usefully explored in further research.
- Large randomised controlled trials could provide more definitive evidence.
- A greater focus on X could produce interesting findings that account more for ....
- More information on X would help us to establish a greater degree of accuracy on this matter.

### **Implications or recommendations for practice or policy**

- Other types of X could include: a), b). ....
- Moreover, more X should be made available to ....
- Another important practical implication is that ....
- Unless governments adopt X, Y will not be attained.
- These findings suggest several courses of action for ....
- A reasonable approach to tackle this issue could be to ....
- There are a number of important changes which need to be made.

## **Implications or recommendations for practice or policy**

- Management to enhance bumble-bee populations might involve ....
- A key policy priority should therefore be to plan for the long-term care of ....
- This information can be used to develop targeted interventions aimed at ....
- Taken together, these findings do not support strong recommendations to ....
- An implication of these findings is that both X and Y should be taken into account when ....
- The findings of this study have a number of important implications for future practice.