

**English Language Support for International Students
(ELSIS)**

WRITING A FIRST YEAR REPORT

**A course for first year research students
at Edinburgh University**

by Kenneth Anderson

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Independent Study version, adapted by Tony Lynch

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English Language Teaching Centre
University of Edinburgh

Note to students

Research students at the University of Edinburgh are required to submit a document towards the end of their first year to show that their research is proceeding satisfactorily. The document is read and discussed by a group of academics (the two supervisors and one to three other readers), known as the progression panel or review committee.

The exact requirements vary between Schools, but this document is often referred to as a 'first year report'. In some cases it is referred to as a 'research proposal', or by some other title.

This Course is designed to help you compose your first year report (or whatever the equivalent document is called in your case). The materials are based on an analysis of a number of such reports which were judged to be 'good examples' by the supervisors and the academics who read them as part of the students' first-year review. They represent a range of fields, and were written by both native and non-native English speakers. I use excerpts from these texts as examples, for you to analyse. Some minor language errors have been corrected – not only in the non-native students' texts!

The course materials include descriptions of the *typical structure* of the main sections of first year reports. There are also summaries of the *typical language features* which are frequently used in specific parts of the texts, which I hope you will find useful. Each first year report is different, however, and it is impossible to give detailed 'rules' which will suit every topic and type of research. So, while I hope that the materials offer helpful guidelines, exactly what you say, and how you structure and express it, will ultimately depend on your own specific aims.

I would also like to stress the importance of noticing how other researchers *in your field* write; in particular, it would be very helpful to try to see some examples of successful first-year reports in your own School (ask your supervisor if this is possible).

Kenneth Anderson

Course work

The course work involves reading, thinking and writing activities. There are two main types of activities for you to do:

- **QUESTIONS** are about points we want you to reflect on.
- **WRITING TASKS** provide authentic opportunities for practice of the ideas in the course, by asking you to draft parts of your own first year report. By the time you reach the end of the course, you will have begun a preliminary draft of the main sections of your report.

As you are doing the Independent Study version of the course, you will not have the opportunity to talk with other students in class, so in the **Study Notes** at the end of each Unit you will find sample answers to the Questions and Tasks. They will enable you to compare your ideas, analysis and written answers with those in the Notes.

I very much hope you find the course helpful. I would be very interested to hear your comments or suggestions.

Kenneth Anderson

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Unit 1

CONTENT AND STRUCTURE

QUESTION *Requirements for first-year research students at Edinburgh vary to some extent between Schools. What do you have to submit in your first year, and when?*

The detailed requirements regarding the length, content and structure of first year reports vary, and are often laid down in guidelines issued to Research Students. Here are two example extracts from documents produced at Edinburgh:

Guidelines 1

The purpose of the report is to assure us that you have by now a thorough knowledge of the relevant literature and are able to make an appreciation of the key material in it, that you can prepare a research plan for the remainder of your three years of study, and that you can accurately report the work you have already done and its significance. The report should embody the literature review in about 20-30 pages of double spaced text. *It should not be significantly longer than this.* There may also be some diagrams and tables. All references should be properly included and given in full, correct format at the end.

Include a clear statement of the Aims of the project, then put in any significant data which you have obtained during the year. Make sure that the pages are numbered and that spelling, etc., have been thoroughly checked.

IERM, Schools of Agriculture and Resource Economics:
Information for Postgraduate Research Students

Guidelines 2

The proposal should contain (not necessarily in this order or with these section titles):

- (a) Introduction.(Up to 1 page)
An overview of the problem, in general terms, almost like an abstract. This should not be too technical (i.e. should be comprehensible to someone in the department other than your supervisor) and need not go into detail.
- (b) Review of field.(1 to 5 pages)
A succinct summary of existing work, highlighting aspects relevant to your work (where *relevant* does not necessarily mean *similar*). This is not an exhaustive statement of everything done in the field, and need not explain it to the non-specialist reader. The aim is to allow the informed reader to grasp how your work (later sections) differs from or improves upon other work.
- (c) Description of central idea(s). (3 to 10 pages)
A statement of what your thesis is going to be about, and why it is going to be worthwhile. Use as much or as little space as you need to get the message across. Remember worked examples are worth a thousand box-diagrams.

- (d) Work so far. (Up to 2 pages)
A summary of work so far. This need not show achievements and staggering successes, but should simply convey the factual outline of what you have done and what you have concluded from it (including any negative conclusions).
- (e) Future targets (Up to 3 pages).
A summary of what you intend to do in the rest of the project, in a suitable level of detail and with appropriate realism. The early period should contain some indication of time-scales, although these forecasts become increasingly difficult to make beyond a few months. However, the reader should get some idea of the targets you are aiming for, and their approximate time sequence.
- (f) Likely outcome (Up to 1 page).
A very brief statement of what the result of your project will be - a theory? a description of some area of English? a program? if it's a program, what will it do? Also, what will be your criteria for success?
- (g) Bibliography.
Don't forget this. It isn't a display of what you've read, just the details of items cited in the main document.

While the length of the proposal is determined by the student's own judgment of need, 3-5000 words would be a good target length or a maximum of 25 pages.

School of Informatics: *Postgraduate Course: A Brief Description.*

TASK 1.1

You are probably familiar by now with your own requirements. Compare them with those set out in the two sets of Guidelines. What elements do they share?

Make a note of the common features. Are there any significant differences?

The following general elements were present in more than half of all the successful first year reports we were sent by Edinburgh University supervisors:

- **Introduction**
- **Literature review**
- **Objectives of the research**
- **Report on progress**
- **Future plans**
- **References**

In fact, most of these elements were present in *all* of the texts we examined. An *introduction* was included in just over half; in some types of research, where the preliminary research work consists basically of a critical survey of theoretical literature, to establish a framework on which to base the research, *literature review* and the *report on progress* sections are really the same.

NB: you do not have to use the above expressions as the actual section headings in your report. For example, the *literature review* section is sometimes labelled *background* or *review of the field*; or – in a longer Report – it may have a series of sub-headings relating to the specific topics being surveyed.

TASK 1.2

Below are examples of the section headings used in three first year reports. The first is a list of the major section/subsection headings from a relatively short Report which did not have a *Contents* page; the second and third - both from very long texts (61 and 60 pages) - are based on the *Contents* pages.

Try to match the section headings with the list of elements shown on page 3. Are there any headings which do not seem to correspond to any of these elements?

When you have done Task 1.2, you can check your answers with those in the Study Notes, by clicking [here](#)

SECTION HEADINGS 1 (First year report in Animal Nutrition, 18 pages)

- 1. Literature review**
The aims of the research project
Outline of intended work
- 2. Choice-feeding and high temperature**
 - 2.1 Introduction**
 - 2.2 Pilot experiment**
 - 2.2.1 Experiment design**
 - 2.2.1 Experimental methods**
 - 2.2.3 Defects of pilot experiment**
 - 2.2.4 Results of pilot experiment**
 - 2.3 The revised choice-feeding experiment**
- 3. Further plans and future experiments**
Aims of future experiments

References

(Abridged)

SECTION HEADINGS 2 (End of Year Progress Paper in Sociology, 60 pages)

Contents

Part I: Literature

Section 1: Introduction (p. 1-3)

Section 2: The Environmental Crisis (p. 4-8)

Section 3: Concern for the Environment and Sources of Information (p. 9-14)

- 3.1 What do we mean by environmental concern?
- 3.2 Level of Interest and Concern
- 3.3 Sources and Value of Environmental Information
- 3.4 The Problem with Surveys: Survey Scurvy
- 3.5 The Problem with Political Socialisation Theory
- 3.6 The Problem of Researching about Environmental Education

Section 4: Environmental Media (p. 15-21)

- 4.1 Agenda Setting
- 4.2 Media Construction and the Environment
- 4.3 Reception Analysis
- 4.4 Environmental Animation and Other Stories

Section 5: Children and Television (p. 22-26)

- 5.1 Children Watching Television
- 5.2 Learning from Television and Educational Television
- 5.3 Other Effects
- 5.4 Active Viewers

Section 6: Childhood (p. 27-30)

- 6.1 Childhood: Innocence or Evilness?
- 6.2 Childhood: Ages and Stages
- 6.3 Childhood: Social Construction (Constriction?)
- 6.4 Childhood: The Final Construct?

Part II: Research Design

Section 7: Designing the Research (p. 31-38)

- 7.1 Planning the Research
- 7.2 Considerations for Researching Children
- 7.3 Deciding the Age of Children to be Studied
- 7.4 Choosing the Location
- 7.5 Selecting the Media
- 7.6 Case Study

Section 8: Access, Ethics and Consent (p. 39-41)

- 8.1 Researching Children and Ethics
- 8.2 Gaining Access
- 8.3 Informed Consent

Section 9: Data Collection (p. 43-46)

- 9.1 Pilot Study
- 9.2 Questionnaire 1 - Children's Interest in the Environment
- 9.2 Interviews - Children's Media Reception
- 9.3 Questionnaire 2 - Parent's Interest in the Environment
- 9.5 Interview with Teacher
- 9.6 Analysis

Section 10: Summary (p. 47-49)

Appendix: Alderson's Ethical Checklist (p. 50-54)

Bibliography (p. 55-60)

SECTION HEADINGS 3 (Research Proposal in Applied Linguistics, 61 pages)

Table of Contents

Introduction	1
1. Section One: Computers and Language Learning	3
1.1. Definition of Hypertext and Hypermedia	3
1.2. Hypertext History: Mechanical	3
1.3. Hypertext History: Conceptual	6
1.4. Educational and Cognitive Processes Involved in Hypermedia	6
1.5. Conducting Research with Hypermedia	11
1.6. Sound and Text	12
1.7. Technical requirements	13
1.8. The Roles that the Computer can Play in Reading and Listening	14
2. Section Two: Vocabulary Acquisition and Instruction	15
2.1. The Importance of Vocabulary	15
2.2. 'Knowing' a Word	17
2.3. Historical Perspective of Vocabulary	18
2.4. The Mental Lexicon	20
2.5. Does Theory Relate to Practice?	26
2.6. Incidental Acquisition through Reading and Vocabulary Instruction	27
2.7. Listening while Reading	28
3. Section Three: Conducting Research in Hypermedia and Vocabulary Acquisition	31
3.1. Unanswered Questions	31
4. Section Four: Research Method and Pilot Study Results	32
4.1. Hypothesis Development	32
4.2. Experimental Method: Testing the effects of reading while listening on vocabulary understanding	34
4.3. Results of the Pilot Experiment	37
4.4. Discussion	38
4.5. Improvements for Full Study	38
5. Section Five: Timetable and Steps for Proposed Research	39
5.1. July/August/Sept '93	39
5.2. Oct-Dec '93	40
5.3. Jan-June '94	40
Conclusion	41
References	43
Appendix A	48
Appendix B	51
Appendix C	53
Appendix D	55
Appendix E	61

(Abridged)

QUESTION Look again at **Section Headings 1**, by clicking [here](#). Can you suggest improvements to the way section headings are used in this example?

To compare your answer with the Study Notes, click [here](#)

The remainder of course will focus on the six most usual elements identified above:

Unit 2	<i>The Introduction</i>	page 9
Unit 3	<i>Literature Review</i>	page 31
Unit 4	<i>Objectives</i>	page 49
Unit 5	<i>Report on progress</i>	page 58
Unit 6	<i>Future Plans</i>	page 80
Unit 7	<i>References</i>	page 88

You may wish, or be required, to include other elements in your report, such as an *Abstract* or a *Conclusion* or *Summary*, but these seem to be relatively uncommon, and will not be dealt with in these course materials.

If you would like guidance on writing abstracts, try the website

http://www.adelaide.edu.au/writingcentre/learning_guides/learningGuide_writingAnAbstract.pdf

and on writing conclusions, visit <http://www.phrasebank.manchester.ac.uk/conclusions.htm>

To move to Unit 2, click [here](#)

STUDY NOTES (Unit 1)

General

These materials were originally designed for use in the classroom. If you are using these materials on an independent basis, try to discuss your answers with another research student, preferably from your own field of study.

The seven Units are not equal in length. Their length – and the amount of time they should take – is intended to reflect the likely length and complexity of that part of your report / proposal. With that in mind, the longest units are 2 (The Introduction) and 3 (Literature Review). You should expect to spend longer on these than on the others.

The Study Guide at the end of each Unit contains suggested answers to, or comments on, some of the Questions and Tasks.

If **guidelines or regulations** about first year reports (or ‘research proposals’, or whatever name is given) are issued in your School, it is essential that you obtain a copy and familiarise yourself thoroughly with the requirements.

If you have any doubts at all about what is required, discuss them with you supervisor. If what your supervisor tells you to do differs from the advice given in these ELTC materials, *always follow your supervisor's instructions*.

Ask your supervisor whether you can see **copies of good research proposals / first year reports** submitted by previous students. You should find these very useful.

UNIT 1

PAGE 1: **QUESTION**

If you are not sure about the precise requirements in your case, you should find out immediately.

TASK 1.1 Open question.

TASK 1.2

Section Headings 1: No general 'Introduction', though Section 1 seems to perform this function, subsuming with *Literature Review* and *Objectives* (also in 3); *Future Plans* in 1 and 3; 2 is *Report on Progress*; *References*.

Sections Headings 2: Clearly divided into 2 main parts: 'Literature Review', including *Introduction* (which states *Objectives*), and *Future Plans*; *References* = 'Bibliography'. Also 'Summary'.

Section Headings 3: *Introduction*. Sections 1-3 = *Literature Review*, essentially; Section 4 includes *Objectives* (4.1) and *Report on Progress*; *Future Plans* = basically Section 5. *References*. Also 'Conclusion'.

To return to where you were in Unit 1, click [here](#)

QUESTION

The relationship between subheadings under **1** and **3** is not very clear. Do you think the student intended to show there was a hierarchy? It could have been made clearer by using **subsection numbers** (1.1, 1.2, etc.), as we saw in Section Headings 2.

Unit 2

THE INTRODUCTION

QUESTION: *Out of a sample of ten PhD students' first year reports, only five began with a section entitled Introduction. Can you suggest a reason for this?*

One reason why an introduction may not always seem necessary is that a first year report is itself quite similar to an extended introduction. Below are some of the main elements typically found in the **introduction to a research article**.

- *Background / Literature Review*
- *Justification for the research*
- *Statement of aims / Announcement of findings / Outline of structure*

(adapted from Swales, 1990: 141)

QUESTION: *Which of these also represent typical main sections in a PhD First year report (refer to Unit 1)? To compare your answer with the Study Notes, click [here](#).*

In the case of a PhD First year report, the introduction (if included) usually contains some or all of the following elements:

- 1 BACKGROUND TO THE RESEARCH:**
 - ***basic facts (existing knowledge)***
 - ***definitions***
 - ***importance of the field***
 - ***brief summary of literature***
 - ***identifying a research 'gap'***
- 2 THE RESEARCH:**
 - ***aims / hypotheses / questions***
 - ***design (methodology / schedule)***
 - ***value of the research (linked to Stage 1 'gap')***
- 3 THE REPORT:**
 - ***structure***

Although there is a tendency to follow the above three stages or elements in sequence, the order of these stages is not strictly fixed.

Introductions often focus on only some of these elements. Others may be mentioned briefly - or not at all - and treated more fully in sections of the main body of the text. Alternatively (especially in short reports) one of the usual sections listed in Unit 1, such as *Literature Review*, or *Statement of Objectives*, may be omitted in the main body, because all the necessary information is in the introduction.

TASK 2.1

On the next three pages are the titles and introductions to two first year reports. Skim them to identify which of the elements in the Introduction model on page 9 are present in each one.

Label the main parts *B (Background to the Research)*, *RES (the Research)*, and *REP (the Report)*. Then see which of the more detailed labels (e.g. *identifying a research 'gap'* or *aims*) you can apply.

To compare your answer with the Study Notes, click [here](#)

Natural Language Query Interfaces to Temporal Databases - PhD Proposal

1 Introduction

Most existing natural language query interfaces (NLQIs) to databases were designed having *snapshot* databases in mind. Snapshot databases only store information about one state of the world, usually taken to be the "present" state. Consequently, most NLQIs to databases only support questions referring to the present state of the world.

For example, a NLQI to a company's database would typically be able to answer questions like:

"who is the manager of the sales department?"

"what is the maximum manager salary?"

but would usually not support questions referring to the past (or the future):

"who was the previous manager of the sales department?"

"what was the maximum manager salary during the last 10 years?"

"while T. Smith was sales manager, did the annual sales income ever exceed 1 million?"

Most NLQIs to databases can not cope with questions referring to the past or the future because: (a) the linguistic theory on which they are based is not rich enough to support the natural language mechanisms for expressing time (e.g. verb tenses, verb aspects, temporal adverbials, etc.); and (b) the underlying database system was primarily designed to support snapshot databases, and hence does not provide an adequate (in a sense that will be discussed in section 2.4) mechanism for storing and retrieving information about the past or the future.

In the last decade, computer scientists have become increasingly interested in the design of temporal database systems, i.e. database systems that can store information about previous or future states of the world. The proposed temporal database models typically provide formal logic-based query languages.

At the same time, researchers in linguistics and cognitive science have proposed theories, that attempt to describe formally the natural language mechanisms for expressing time (verb tenses, temporal adverbials, etc.). Some of these theories capture the meaning of natural language sentences, by translating them into logics that support the notion of time, or by mapping them to time-oriented knowledge representation structures.

The goal of this PhD project is to explore how existing theories in the areas of temporal databases, linguistics of time, and temporal logics can be refined and combined into an integrated

framework, that can be used to design and implement NLQIs for real-world temporal databases. Up to the present, little research has been carried out in this field.

Apart from the practical benefit of showing how NLQIs to temporal databases can be constructed in a principled way, it is expected that this project will provide an interesting testbed for temporal theories in databases, linguistics, and logics, and that it will suggest ways in which theories in each discipline can support and/or influence the research being carried out in the other disciplines.

The rest of this document is structured as follows:

- Section 2 presents previous research which is relevant to this project.
- Section 3 describes the goals of this project, and discusses how the project will differ from similar research that has already been carried out, and why the project is expected to be worthwhile.
- Section 4 discusses work already carried out by the author, which is relevant to this project.
- Section 5 lists the specific targets that will be pursued during this project, and provides time-scales for the project's phases.
- Section 6 lists the expected products of the project.

INTRODUCTION 2 (Applied Linguistics)

Extending Vocabulary Acquisition through Listening while Reading on the Computer: A Research Proposal

Introduction

This proposal sets out to review the current literature of Computer Assisted Language Learning (CALL) with specific attention to hypermedia and vocabulary acquisition through reading and listening on the computer. It also describes a method of examining the computer as a means of improving vocabulary acquisition through a control group/treatment group experimental procedure. The first half of the proposal (sections I to III) will review the literature and the second half (sections IV to VII) will describe the experimental method.

Section I reviews the history of CALL and hypermedia and describes some of the current issues facing this field. Included in this section is a discussion of learning processes that proponents of hypermedia advocate and lists some of the limitations of hypermedia as a teaching medium. It also describes hypermedia's capabilities of incorporating sound and text.

Section II reviews the literature of lexical acquisition and lexical instruction. A brief history of vocabulary instruction is discussed, together with an examination of: (1) the relationship between the L1 and L2 mental lexicon; (2) the importance of sound, rhythm and intonation in lexical acquisition; (3) current studies investigating incidental lexical acquisition; (4) an overview of current methods used to teach vocabulary actively; and (5) a discussion of the debate between theory and practice in vocabulary acquisition/teaching.

Section III will attempt to consolidate sections I and II by suggesting reasons why one might expect a computer-assisted reading/listening programme to assist vocabulary acquisition. This section will relate the importance of acoustic features in vocabulary acquisition and retention and argue that listening while reading will consequently assist vocabulary understanding. The suitability of the computer as a means of providing an effective listening and reading experience will also be examined. Section III will also suggest several gaps in the CALL and reading acquisition vocabulary to date.

The second half of this proposal will consist of sections IV to VII. Section IV will state three hypotheses which the subsequent experiment will attempt to test:

1. Reading while listening will improve learners' ability to recognise the definitions of words as they appeared in the reading/listening context.
2. Students who listen more while they read will show greater improvements than students who read without listening.
3. Vocabulary items encountered in a reading/listening environment are retained over a longer period of time than words encountered in a reading-only environment.

These hypotheses will be restated in a form more directly related to the experiment in Section IV. Section IV will describe the proposed experimental method and the results of a pilot study (conducted on 21 February 1993) on thirteen intermediate Japanese students studying at ELTC and will also include proposed enhancements for a fuller study to take place in summer 1993.

The last section (Section V) will provide a time-table for continuing this research on a larger scale. Included in this section will be a description of the steps necessary to complete the research, possible chapter titles, and probable dates of the completion of each stage and chapter.

On the next few pages you will find some expressions and language features which are often used to express these elements of introductions, together with some examples taken from various Edinburgh University first year reports.

1 **BACKGROUND TO THE RESEARCH**

• **Basic facts**

Obviously, the type of information it may be appropriate to mention will vary widely according to your research topic. It is difficult to generalise, but a brief summary of existing knowledge of the topic area is often given. This often involves making *generalisations*.

Here are two examples:

The economy of Pakistan is based on agriculture directly or indirectly. In the last few years much progress has been made in agricultural research. A number of high yielding, fertiliser-responsive crop varieties produced through conventional breeding programmes have been released... (Plant Breeding)

Following the discovery of serious environmental deterioration, fears that the Earth will not be able to sustain future human populations have prompted a huge array of measures to counteract environmental decay. (Sociology)

TYPICAL LANGUAGE FEATURES

- **present simple** - for generalisations about the present/permanent state of the world
- **present perfect** - to describe recent developments / situations in general terms
- **(past simple** - unusual, except in research with a historical perspective, to refer to specific past events)
- **plural / uncountable noun-phrases** - often used in generalisations
- **quantifiers: *most, many, some, a number of (etc)*** - to indicate the extent of generalisation

QUESTION Can you find examples of any of these features expressing 'basic facts' in Introduction 1 or 2?

To check your answers, click [here](#)

WRITING TASK 2.2

Write 4-5 sentences giving some basic background to your own research topic. Check them carefully, and keep them for use later.

• **Definitions**

In order to explain the basic concepts in your topic area you may need to introduce and define key terminology that will be used in your proposal/report.

Classic 'formal' definitions follow a pattern of this sort (X is the term to be defined):

X is a [GENERAL CLASS] which [FEATURES WHICH DISTINGUISH X FROM OTHER MEMBERS OF THE CLASS]

As we saw, the author of *Introduction 2* used the introduction mainly to outline the structure of the proposal. If you look back to that introduction, you will see that Sections 1 and 2 of the main body of the text actually contain the kind of background information sometimes summarised in an introduction. The following definition is taken from Section 1:

Hypertext is the name given to a genre of computer software ... that permits electronic links between chunks of text on the screen and other chunks of text somewhere else.

The class of things to which *hypertext* belongs is *genres (types) of computer software*; the feature which distinguishes *hypertext* from other software genres is that it *permits electronic links between chunks of text on the screen and other chunks of text somewhere else*.

Alternatively, you can give the **meaning** first, then introduce the **term**:

The process of drawing out metal into wires is known as extrusion.

This 'naming' strategy is suitable only if the meaning can be expressed quite simply.

TYPICAL LANGUAGE FEATURES

- **relative clauses** - to express the 'distinguishing features'
- **'defining' expressions:** *is / can / may be defined as ...*
- **'naming' expressions:** *is known / referred to as ...*

Very often, more sentences giving further explanation follow 'formal' definition sentences. The above definition of *hypertext* continues:

In the design phase, links are established by an 'author' who creates the 'document'. When the document is finished, the user can activate the links by clicking with the mouse on specially highlighted words (often bold, italics, or coloured text). The software then jumps to a new chunk of text and displays it on the screen. Hypertext can be likened to an electronic indexing system. The user decides what is of interest to her/him and the computer 'turns' to the correct page. Fast access to extremely large amounts of information is therefore possible.

Here is another example of an extended definition, from the beginning of the introduction to a first year report in Physics:

A martensitic transition is a first order solid-solid transition which happens in many metals such as Li, Zr, Ti, and so forth. At high temperature, a metal adopts a structure known as austenite, e.g. bcc. When it is cooled, it undergoes a phase transition to another structure of lower symmetry, e.g. hcp. This transition has a few particular characteristics, as follows ... [technical details follow]

WRITING TASK 2.3

Write a definition of two key specialist terms associated with your research topic. Add as many sentences as necessary to make your explanations clear.

Again, keep them for later.

Terms are not always defined in this formal way, however. Note how the special terms *author* and *document* are introduced in the above definition of *hypertext*.

QUESTION Introduction 1 (above) contains explanations of two technical terms: **NLQI** and **snapshot database**. How are the meanings of these terms made clear in the text?

To compare your answers with the Study Notes, click [here](#)

• **Importance of the field**

In explaining the background to the research, the importance of the general area is often highlighted. Adjectives such as *important* or *valuable* are, of course, frequent. Sometimes the importance of the field is expressed in terms of the *needs of society*. Below is the beginning of the introduction to a first year report on *In Vitro Selection in Plant Breeding*. It begins with some 'basic facts' (which we looked at earlier), then goes on to stress the importance of the field:

The economy of Pakistan is based on agriculture directly or indirectly. In the last few years much progress has been made in agricultural research. A number of high-yielding, fertiliser-responsive crop varieties produced through conventional breeding programmes have been released; but still the country is facing a lot of problems in crop production. These problems include: soil salinity, water logging, weeds, insect pests, diseases, high summer temperatures and drought. Therefore there is a continuous need to develop new crop varieties which can be successfully grown under these stress conditions.

Selection is well recognised as the most important facet of crop improvement but the efficiency of selection varies substantially with different breeding approaches.

TASK 2.4

Underline the phrases that highlight the importance of the field.

To compare your answer with the Study Notes, click [here](#)

Another very common strategy is to show that the research is *up-to-date*, by stressing that the general area is currently the focus of much attention. *Introduction 1* contains a typical example:

In the last decade, computer scientists have become increasingly interested in the design of temporal database systems.

TYPICAL LANGUAGE FEATURES

... is important, valuable, significant (etc)

of great / considerable importance / significance

there is an urgent need / necessity for ... it is necessary to ...

With expressions referring to attention, interest, concern, etc.:

- **present perfect** with *in recent years, recently, lately, etc.*
- **present simple / continuous** with *now, currently, presently, etc....*

There has been / is now increasing interest in ...

... has recently received / is currently receiving a great deal of attention

much attention has been / is being given to ...

WRITING TASK 2.5

Why do you consider the general field in which you are working important? **Write one or two sentences** in which you indicate the importance of your research its value - using, if appropriate, one of the above strategies.

• **Summary of literature**

An important aspect of the *background* to your research is the related research that has already been done. We saw in Unit 1 that a *Review of Literature* is one of the main parts of a First year report. If the introduction contains a summary of literature, it is usually simply a brief 'preview' of the *Literature Review* section.

The statements that make up the summary may be quite similar to 'basic facts' statements (findings of previous research of course contribute to the 'basic facts' of your topic area), but are typically more precisely related to your own particular research topic, and so may be more detailed; the most noticeable difference is that they contain **citations**, because they refer to specific research findings. Here is a further extract from a later part of the Plant Breeding introduction:

Many of these modifications manifest themselves as heritable mutations in the progeny of plants regenerated from tissue culture (Scowcroft and Ryan, 1986). Already, plants showing tolerance/resistance to phytotoxins (Gengenback *et al.*, 1979), herbicides (Challef and Ray, 1984) and salt (Nabors *et al.*, 1980, Bajaj and Gupta, 1987), that are high yielding (Ogura *et al.*, 1988) have been obtained, and are being incorporated into crop improvement programmes of important agricultural crops such as wheat, rice, maize, potato, sugarcane, brassicas. Some of these have yielded positive results to the extent of new cultivars being released (Bajaj, 1990).

QUESTION Is there a 'literature summary' in Introduction 1 or 2?

WRITING TASK 2.6

You will by now be familiar with some of the research relating to your own topic. 'Off the top of your head', draft a very brief (2-3 sentence) summary of the main findings or themes, with appropriate citations.

Keep your draft for later.

In Unit 3 we will be looking in more detail at reviewing literature; Unit 6 discusses bibliographic documentation.

- **Identifying a research ‘gap’**

An essential criterion for the award of a PhD (or other research degree) is that your work must be *original*. Thus, in explaining how your work fits into the context of other research in the same general area, it is very common to point to a *gap* in the research-base of your field, which your proposed research will fill. This is an important persuasive strategy in your argument, forming part of the justification of your work. Naturally, such comments usually follow the *summary of literature*.

TYPICAL LANGUAGE FEATURES

- **But, However**, etc. - used to signal the transition from reporting what research *has* accomplished to pointing out what *has not* (yet) been achieved:

*Much attention has been given to ..., **but** there has been very little research on ...*

- The **present perfect** tense is most usual here.

Negative or limiting language used to express *absence* or *insufficiency* of research on your topic include:

- quantifiers: **no** research has / studies have been done/carried out

little research/attention/work

few studies/researchers

- adjectives/adverbs: studies on ... are / research/work on ... is **scarce** / **rare**

scant / **insufficient** attention has been paid to ...

hardly / **scarcely** any attention / work / studies

... has **only** been **partially** investigated

- verbs: research/researchers/scholars have **ignored** / **underestimated** / **neglected**

- nouns: there has been a **lack** of research on ...

Examples

In the Physics introduction about *martensitic transition* quoted above, the ‘background’ stage summarising current knowledge was followed by this statement:

However, there is little comprehension of how the nucleation of a martensite lattice is grown, or how twinning is formed during the period of the transition.

The following example (underlined) from a Sociology Research Proposal introduction, is expressed in a slightly different way:

Communication researchers have extensively studied broadcast and print news as media containing environmental information², at the expense of other sources.

QUESTION Find the ‘gap’ in Introduction 1. To check your answer, click [here](#)

WRITING TASK 2.7

Write a sentence describing the gap in research that you intend to fill (or begin to fill) with your research work. Keep it for later.

2 THE RESEARCH

After preparing the way in the *background* stage, you can announce what you propose to do in your own research.

Aims / hypotheses / questions

It is very important in your proposal or report to give a clear statement of your purposes (i.e. the hypotheses you intend to test, or the research questions you want to answer). This is normally dealt with fully in a section of the main body (see Unit 4), but it is appropriate to give a brief summary in the introduction.

QUESTION Identify where the writers of Introductions 1 and 2 state their aims / hypotheses / questions.

Click here to check your [answers](#).

Some further examples from introductions to Edinburgh PhD proposals / first year reports:

My central concern in this research is to assess the perceptions of eleven year old children towards media containing environmental information. I will locate these children's media observations in the wider sphere of environmental education sources. I wish to identify any patterns of children's programme response stemming from personal, family or school-initiated interest in the environment. (Sociology)

As the primary aim of this investigation is to explain the factors determining the efficiency of *in vitro* selection, this study will examine ... (Plant Breeding)

TYPICAL LANGUAGE FEATURES

- Aims can be expressed as those of the *research* or the *researcher* :

The (primary / central / main) aim / purpose / goal / intention of this study / research / investigation is to ...

My aim (etc.) is to ...

In this study (etc.) I aim to / intend to / will

- **present tense or will**
- Verbs expressing the general aims of research: ***assess, evaluate, investigate, discover, explore, test (the hypothesis that ...), study (the effects of...)***

WRITING TASK 2.8

Summarise your aims as succinctly as you can, in one or two sentences.

Keep them for later.

• **Design (methodology, schedule)**

It is usual also to outline the means (approach or methodology) you will use to achieve your purpose, sometimes indicating in broad terms the sequence of stages to be followed, and perhaps the timescale.

Example The 'aims' statements in the Sociology introduction quoted in the last section is followed by a summary of the research design:

To this end I plan to study children aged 11-12, in the final year of primary school. I will establish what type of environmental education the children have formally received in the school; and, through questionnaires to children and their parents, what level of personal interest they, and other members of their family, have for the environment. Using this information, I will identify any response patterns from the children in the reaction to 'environmental media'. The 'research media' will comprise a fictional cartoon and a factual documentary. Children will watch the media and then be interviewed in groups of six, about their views of the programme: its themes and characters, how it dealt with the particular environmental issue, and so on. The interviews will be videotaped. Questionnaires given to the children and their parents will locate environmental interest in the child or his/her family. This interest will be mapped against the child's response to note any patterns that emerge. The research will take roughly six months: three months in two schools. The period will include a time of classroom observation during science / environmental lessons and project work. This will enable children to become familiar with me, prior to the research.

TASK 2.9

In that study, identify:

- *the subjects*
- *the research 'instruments' and procedures to be used*
- *the timescale*

To compare your answer with the Study Notes, click [here](#)

TYPICAL LANGUAGE FEATURES

- **future time indicators:** *will, intend to*
- **passive voice** to describe **experimental procedures:** *The effect of ... will be measured*
- **active voice** is more common for **non-experimental approaches:** *I will apply this theory to ...*

WRITING TASK 2.10

Write two or three sentences summarising the intended design of your research.
Again, keep them for later.

• **Value of the research**

We saw that one key element in explaining the role of your research is to point out a gap in previous research. However, the fact that something has not been done before does not necessarily mean that it needs to be done at all! It is usually a good idea to explain why you believe the work is worth doing.

Example The Sociology first year report introduction quoted above ends with the following paragraph:

This research is important if we are to advance our knowledge of the variety of sources, and levels of concern that children have about the environment. It is essential to comprehend the whole array of environmental educators, including those outside the formal school curriculum, if we are to fully understand the type of environmental information available to children. Identifying what part the school, family, and the media play in the complex web of environmental information and interest is, is vital if we are to proceed with effective, and lasting, environmental education.

QUESTION Where does the writer of Introduction 1 explain the value of the research?

To check your answer, click [here](#)

This research is important if we are to advance our knowledge of the variety of sources, and levels of concern that children have about the environment. It is essential to comprehend the whole array of environmental educators, including those outside the formal school curriculum, if we are to fully understand the type of environmental information available to children. Identifying what part the school, family, and the media play in the complex web of environmental information and interest is, is vital if we are to proceed with effective, and lasting, environmental education.

TASK 2.11

Underline the words and phrases used in the above paragraph to stress the value of the research; do the same with *Introduction 1*.

To compare your answers with the Study Notes, click [here](#)

TYPICAL LANGUAGE FEATURES

- 'importance' words: *important, valuable, essential, urgent, vital, significant, beneficial (for..)*
of (great, considerable) importance / value / significance / benefit (to...)
- modal verbs with future time reference, together with 'positive effect' verbs:
... may / should / is likely to / will benefit / help / assist / improve / provide...
be of benefit / assistance / help to ...
- other 'positive' adjectives: *effective / successful / interesting / practical* (etc.)

WRITING TASK 2.12

Draft a short paragraph explaining the value of the research you intend to do. Keep it with the others for later.

3 THE REPORT

- **Structure**

Even when a *Contents* page (such as you drafted in Unit 1) is included, it is usual to finish the introduction with a short outline - in full sentences - of the content and structure of the text of your proposal or report. As you will have realised, *Introduction 2* is entirely devoted to this function of introductions.

TASK 2.13

Complete the *Typical Language Features* box (below) by adding further 'text-function' verbs which you know from *Introductions 1* and *2*, or from your experience of reading other introductions, can be used in this way.

TYPICAL LANGUAGE FEATURES

- **present simple tense** or **will**
- 'text-function' verbs: *describe*
discuss
review
- The **subjects** of these verbs can be **numbered sections**, or 'I' following '**In Section X...**':

Section 2 describes / will describe ...

In Section 2, I describe / will describe ...

WRITING TASK 2.14

Using your *Contents* page as a guide, draft the section of your Introduction in which you outline the structure of your report or proposal. Try to make your choice of 'text-function' verbs varied but appropriate.

WRITING TASK 2.15

You can now use the short texts you did for Writing Tasks 2.5-2.14, and write a complete introduction to your report.

If you are working from several short drafts, you need to make sure that your text ‘flows’, by adding appropriate linking words, deleting repetitions, and so on.

STUDY NOTES - UNIT 2

This is the longest unit, and has the most **Writing Tasks**. These require you to draft an introduction stage by stage, leading up to Writing Task 2.15, in which you put these together to form a complete introduction draft.

The unit will probably take 3-4 hours to complete. If you think you can't afford that amount of time on it, then you could skip some of the earlier Writing Tasks, so as to allow plenty of time for the final Writing Task 2.15.

We believe it is worth spending plenty of time on this unit, because:

- introductions are complex, involving the expression of a range of rhetorical functions;
- writing the introduction is a good way of thinking about the content of the report;
- the introduction - and this Unit - provides a 'preview' of what comes later in the course, so by the end of the unit you will have had practice in producing the kind of written text that we will be analysing in more depth in Units 3 and 4, especially;
- research proposals / first year reports that lack separate or explicitly labelled 'introductions' usually contain the main introduction elements 'repackaged' in other sections

PAGE 9: *QUESTION*

Apart from the reasons suggested later on pages 9-10, you may be able to suggest others. In fact, most of the samples which lacked separate *Introduction* sections actually contained elsewhere the main rhetorical elements of introductions (shown on page 9). For example, in Section Headings 1, the first section basically acts as the introduction; and some include 'gap' statements in the Literature Review.

To return to where you were in Unit 2, click [here](#)

TASK 2.1

Introduction 1 B = 1st 5 paras
 RES = 'The goal' - 'disciplines'
 REP = 'The rest' to end.

Introduction 2 Nearly all REP, but note RES (hypotheses) in paragraph 5 (see question on p 24).

To return to where you were in Unit 2, click [here](#)

PAGE 14: *QUESTION*

Introduction 2 does not have a *Background* stage. Introduction 1 has examples of most of these features, such as

- **present tense** for generalisations *Most NLQIs to databases cannot cope...(etc.)*
- **past simple** for history (?) ...*were designed* (first sentence)
- **plural** for generalisations *NLQIs, Snapshot databases*, etc.
- **quantifiers** *Most*
- (the present perfect in paragraphs 4 and 5 is, arguably, an *importance* signal - see page 18, cf Task 2.4 - rather than - or as well as - a 'recent developments' signal)

To return to where you were in Unit 2, click [here](#)

PAGE 17: **QUESTION**

NLQIs is introduced as an abbreviation (given in parenthetical apposition) to the full term in the first sentence. The meaning of the spelled-out term is not defined further; either the reader is expected to be familiar with them, or to be able to infer the meaning from the ensuing discussion.

Snapshot databases is explained by describing its function in the next sentence.

To return to where you were in Unit 2, click [here](#)

TASK 2.4

Examples: *much progress (?)*, *a lot of problems*, *continuous need*, *well recognised as the most important*

To return to where you were in Unit 2, click [here](#)

PAGE 21: **QUESTION**

The student indicated a gap by writing ‘Up to the present little research ...’ (top of p 13).

NB: This was rather unusual, in coming *after* the *Objectives* statement. I am not sure this was a good idea; it might have been better to reverse the order of these two elements, to improve the logical ‘flow’. The way the student put it seems rather like an afterthought, I think.

To return to where you were in Unit 2, click [here](#)

PAGE 21: **QUESTION**

Introduction 1 ‘The goal of...’

Introduction 2 Hypotheses stated in para 5.

To return to where you were in Unit 2, click [here](#)

TASK 2.9

subjects = children aged 11-12 (etc.)

research instruments = questionnaires, interviews

timescale - (the last 2 sentences) 6 months - three per school

To return to where you were in Unit 2, click [here](#)

PAGE 24: **QUESTION**

In the second-last paragraph (‘*Apart from...*’)

To return to page 25, click [here](#)

TASK 2.11

Example: *important, essential, vital*; also positively evaluative language in ‘if’ clauses: ‘if we are to advance our knowledge ... fully understand ... proceed with effective, and lasting environmental education’

Introduction 1: *practical benefit, principled, provide an interesting testbed, support .. influence*

TASK 2.13

This is a open task, but here are some examples from Introductions 1 and 2:

present, list, provide, (attempt to) consolidate, suggest, relate, argue (that), examine, state/restate (hypotheses)

Others: *deal with, explain, explore, look at*

You may be able to add more.

WRITING TASK 2.15

This will be easier if you have done most of the earlier drafting tasks in this unit. You can then concentrate on how to link ideas so that your text ‘flows’ naturally.

Unit 3

LITERATURE REVIEW

The departmental guidelines we looked at in Unit 1 make it clear that one of the essential functions of a first year report is to demonstrate that you are familiar with the existing research in your field that is relevant to your own topic, and understand exactly how your work relates to it. Occasionally, in shorter proposals / reports which we studied, this function may be confined to part of the introduction, but more often it occupies a major part of the main body, and in some cases may be the principal focus of the paper.

We also noted that the title *Literature Review* is often - but not always - used for this part of the paper. Alternative section headings include *Background* and *Review of the Field*; sometimes headings and subheadings referring to the specific subject-matter are used.

This unit will look mainly at the **structure** of the literature review section, and at styles of **citation**. Unit 7 will deal with bibliographic documentation.

STRUCTURE OF THE LITERATURE REVIEW

It is important to consider how to organise your literature review. It should present the research in a coherent way that leads naturally to your own research objectives.

One very common way to organise the material at a general level is simply to list **key concepts** related to your topic, and write a separate section or subsection about each. You can see examples of this approach in the section headings from Sociology and Applied Linguistics papers cited in Unit 1 (Sections 2-6 in *Section Headings 2*, on page 5, and Sections 1 and 2 in *Section Headings 3*, page 6). To return to page 5 to read those samples again, click [here](#)

Within general topic areas, however, you usually need to relate the ideas you present and the studies you refer to in logical ways. Below are some common organising patterns.

- **general - specific** (moving from general or basic concepts to the more specialised areas you are working in, or from statements of general theoretical principles to citations of the specific empirical findings that support them)
- **chronological** (narrating the historical development of research or debate)
- **problem - solution** (evaluating alternative solutions to a problem)
- **comparing / contrasting theories, procedures, etc.** (describing and evaluating alternatives)

Different principles of organisation may be appropriate for different parts of your literature review. Also, you may want to combine aspects of more than one pattern. For example, a discussion of *alternative theories or procedures* may have a historical (*chronological*) dimension; it might also be seen as a chain of *solutions* to *problems* (in the previous theories or procedures).

TASK 3.1

On the following pages are some extracts from literature review sections of First year reports.

1. Which of the organisational principles (above) can you identify?
2. Underline the words/phrases which help the reader identify the organisational principle used.
3. Is there any evidence of other organisational principles in operation?

EXTRACT 3A (Biochemistry)

The history of the existing classification of *Alpinia* was begun in 1904 by K. Schumann. Later small additions, mainly at sectional and subsectional level were done by Valetton (1913, 1914) and Loesener (1930). In 1950, by dealing with species occurring in the Malay Peninsula only, Holttum divided *Alpinia* into four genera; *Cenolophon*, *Alpinia*, *Catimbium* and *Langhas*. Based on the character of the secondary bracts (bracteoles), Schumann's classification divided the genus into five subgenera and 27 sections. These subgenera are *Alpinia*, *Probolocalyx*, *Catimbium*, *Dieramalpinia* and *Rhizalpinia*. However, according to the most recent infrageneric classification of *Alpinia*, based on the character of the labellum, Smith proposed that the genus be subdivided into two subgenera, namely *Alpinia* and *Dieramalpinia* (see **Colour Plate 1** for details of an *Alpinia* flower and its floral parts).

EXTRACT 3B (Artificial Intelligence)

Although IL_s expressions specify what constitutes an answer to the corresponding natural language question, they do not specify how the answer is to be generated. Similarly, in the traditional relational model, relational calculus expressions specify what constitutes an answer to a query, but not what operations should be carried out to compute the answer. (See [Ullman 88] for a definition of relational calculus and relational algebra.) Clifford [Clifford 90] describes an algebra, similar to the relational algebra of the traditional relational model, which can be used to express in a more procedural manner what operations need to be carried out to answer a question. Clifford also provides a very rough sketch of an algorithm which could be used to translate IL_s expressions into his algebra.

EXTRACT 3C (Sociology)

4.1 Agenda-Setting.

The mass communication theory of agenda-setting posits that, "The media may not always be able to tell us what to think, but they are strikingly successful in telling us what to think about" (Cohen, 1963:16). If we apply this to the media coverage of environmental concerns we could suggest that issues raised through the mass media directly determine the concerns of individuals, groups and organisations. Studies conducted by Atwater et al (1985), Funkhouser (1973) and Protess et al (1987) found an agenda-setting link from the media to the public. In interviews with the public, the environmental issues most recently reported in the media were expressed as prominent environmental concerns by the respondents (Hansen, 1991:444-445). What was on the media agenda was found to correspond to the public agenda of concern.

However there has been much criticism of the agenda-setting theory. Firstly Funkhouser criticises the findings of his own study by questioning whether respondents are simply stating what they have most recently read or seen through the mass media rather than noting their own particular environmental concerns (Hansen, 1991:444-445). Secondly, in a longitudinal study conducted by Lowe and Rudig (1986) into the level of reporting and public concern, it was discovered that ...

EXTRACT 3D (Plant Breeding)

Plant tissue culture can be defined as the culture of all types of plant cells, tissue and organs under aseptic conditions. This definition also extends to the culture of excised embryos and protoplasts. (Smith and Drew 1990). The basic procedure and methods involved in plant tissue culture have been discussed in detail by many research workers (Bhajwani and Razdan, 1983; George and Sherington, 1984; Mantell *et al.*, 1985; Pierik, 1987). Success in the technology and application of *in vitro* methods is due largely to a better understanding of nutritional requirements of cultured cell and tissue (Gamborg *et al.*, 1976; Murashige, 1974; Street, 1977). Murashige and Skoog (1962) developed a revised medium

EXTRACT 3E (Biochemistry)

One of the most attractive aspects of using the ITS region for plant molecular phylogenetic studies is the ease with which sequences of both spacers can be obtained and interpreted. The small size, highly conserved flanks, high copy number, rapid concerted evolution, and length conservation of ITS sequences greatly aid their PCR amplification, sequencing, alignment and phylogenetic analysis (see Baldwin, 1992). Complete sequences of ITS 1 and ITS 2 from many taxa can provide sufficient potentially informative variation for robust resolution of phylogenetic relationships. In addition, predominance of site-substitutions over indel mutations and interspersion of conserved and variable sites can promote ITS sequence alignment and use of ITS indels as characters in phylogenetic analysis (Baldwin *et al.*, 1995). In short, ITS characters have aided understanding of plant phylogeny by providing (1). corroboration of unexpected findings (e.g., Baldwin, 1992), (2). resolution of conflict between data sets (e.g., Donoghue and Strauss, 1988), (3). improved resolution of species relationships (e.g., Wojciechowski *et al.*, 1993), and (4). direct resolution of reticulate evolution (e.g., Kim and Jansen, 1994).

However, there are some disadvantages of ITS data for plant phylogenetic studies as well. First, the spacers can only provide a small number of characters. Four-taxon simulations by Huelsenbeck and Hillis (1993) suggested that sequences of these short spacers are, under most conditions and types of analysis, less effective for accurate tree reconstruction than longer sequences. Useful variation must be more highly concentrated within a set of ITS 1 and 1T52 sequences than in longer DNA regions in order to achieve the same level of phylogenetic resolution and support. Secondly, further constraints on the number of useful ITS characters can be imposed by the need to delete small indel regions from phylogenetic analysis because of uncertain sequence alignment. Therefore, it is essential that data from other sources (e.g., morphology) be combined with ITS evidence to obtain enough characters for well-supported phylogenetic resolution (Kiuge, 1989; Barrett *et al.*, 1991; Donoghue and Sanderson, 1992).

EXTRACT 3F (Sociology)

There is an intriguing time gap to be acknowledged between the first appearance of the concept of social movement in the 1840s (Luhmann, 1993, 135) following the rise of first social movements as a result of the French revolution and its dictatorial aftermath (Wallerstein, 1991, 16) and the birth of the sociology of social movements in the end of the 1960s. One can draw a conclusion that decisive for the birth of the discipline was not the sheer scale of protest, but a remarkable change in the type of public involved. It required wide-scale mobilization of normally peaceful middle classes for the discipline to be formed and acquire status. So long as the prevalent social movement was that of the lower classes (workers' movement) the rise of collective change-seeking action was not considered problematic and demanding explanation.

Not that sociologists had never noticed social movements before. Some of them did: the credit for introducing the concept of social movement to sociology belongs to scholars within the collective behaviour school which began in the USA in the mid-twenties and survived till the present day⁴. There is a difference, however, between the early incarnation of the concept within the collective behaviour theory and its revival following the rebellious sixties. To collective behaviour theorists social movement was a form of collective behaviour - collective mobilization arising from symbolic interaction of individuals within a group (Blumer, 1939; Turner & Killian, 1972, 259). This is a legacy of the earlier studies into the nature of crowd behaviour from where the collective behaviour approach received its impetus - an area of inquiry opened up by a seminal book by Le Bon (1895). Thus, social movement was regarded as a primarily interactive phenomenon. The interaction was believed to be resulting from a specific structural condition identified as 'structural strain' (Smelser, 1962, 47).

Whereas collective behaviour approach operated at the level of group psychology, relative deprivation theory went deeper into the cognitive structures and the construction of perceptions. But both, significantly, sought to explain how individuals come to act collectively on their concerns. Even Smelser (1962), who identified the cause of protest in the structural strain, proposed a theory to account for the passage from structural strain to collective action. In a way, the focus of inquiry was decided by the concept of collective behaviour. Thus, the question 'why protest occurs' was replaced with the question 'how collective action is possible'. The rise of protest was equated to the birth of collective action. And the latter was perceived to be an outcome of psychological processes at the level of individuals and groups.

The psychological conception of protest which ruled the collective behaviour and even relative deprivation approaches was finally overcome with the rise of an alternative explanatory framework in the early seventies - the resource mobilization theory (McCarthy & Zald, 1973; McCarthy & Zald, 1987; Morris & Mueller, 1992). The concept of social movement, which entered the academic debate in the 1970s, has been defined primarily in sociological terms. The roots of protest action were found at the level of macro- and micro-social processes (McAdam et al., 1988).

The resource mobilization theory treated social movements very much like pressure groups, or actors within a given political system...

To compare your answers with the Study Notes, click [here](#)

TASK 3.2

Now think about how you could structure your *literature review* section. You may still have quite a lot of reading to do, but you should have some idea of the areas of research relevant to your topic.

Make a preliminary draft of an outline plan for your literature review, showing, as far as possible, the main headings and subheadings you might use.

If possible, show your outline to another student from your own field. Does the structure seem logical to her/him?

Keep it for later.

Introduction to the *literature review*

It is helpful to the reader if you begin your literature review section with an introductory paragraph outlining the content of the review, particularly if the section is rather long. Section introductions are usually shorter and less complex than the introduction to the paper as a whole. Often they simply outline the content of the section, like the final ‘stage’ of the introduction to the paper (Unit 2). Here is an example:

EXTRACT 3G (Artificial Intelligence)

2 Review of field

This section summarises previous research work which is relevant to this project. Section 2.1 highlights the methodology used in most current NLQIs to snapshot databases. Section 2.2 introduces some key concepts from the field of linguistic theories for temporal expressions. Section 2.3 discusses some of the temporal logics that have been proposed for representing the meaning of natural language temporal expressions. Section 2.4 provides a brief introduction to temporal databases. Finally, section 2.5 presents previous work which has been carried out in the area of NLQIs to temporal databases.

Sometimes this is preceded by some general remarks about the topic, as in the following example:

EXTRACT 3H (Plant Breeding)

3.1. Introduction

Plant tissue culture techniques have become a powerful tool for studying many basic and applied problems in plant biology. The advantage of *in vitro* Systems over conventional breeding procedures for obtaining resistant mutant plants lies in the fact that a large number of individuals and potentially different cells can be screened for resistance or tolerance with respect to a particular character in a rapid, space saving and controlled manner under defined conditions (Strauss *et al.*, 1980). There are four areas in which application of plant tissue culture are possible, either presently or in the near future:

1. Production of pharmaceuticals and other natural products;
2. The genetic improvement of crops;
3. The recovery of disease-free clones and preservation of valuable germplasm; and
4. Rapid clonal multiplication of selected varieties.

Plant cell culture has often been hailed as one of the more significant potential adjuncts to plant improvement. This is usually seen in terms of the ability to apply cellular selection for recovering useful genetic variants.

This review is intended to highlight the utilization of *in vitro* selection. Genetic basis and the nature of somaclonal variation, its usefulness in *in vitro* selection and those tissue culture techniques that are currently being applied for plant cell culture and regeneration will also be discussed in this review.

So a simple model of the typical structure of such paragraphs might look like this:

1. Background:

- **basic facts**
- **definitions**
- **importance of the topic area**

2. Outline of content and structure

WRITING TASK 3.3

Draft an introduction to your literature review section, and check it carefully.

CITATION

Citation means 'reference to the work of others'. Discussing the work of others is the main function of the literature review section of a First year report, and you would expect to include most of your citations here.

When you decide to cite a source, you have basically two options: to **quote** (i.e. use *exactly the same words* as the source), or to **paraphrase** (i.e. use *your own words* to express the idea in a different way).

Academic rules

In English academic writing there are some very strict rules governing the way you use source material. Breaking these rules is known as *plagiarism*, which is the most serious academic offence, and can result in a student being refused a degree. It is very important to note that academic traditions vary from culture to culture, and you cannot assume that exactly the same rules which apply in your country to the use of other people's ideas also apply in Britain.

The University of Edinburgh's guidelines on plagiarism are available on:

<http://www.acaffairs.ed.ac.uk/Administration/GuidanceInformation/AcademicBestPractice/Plagiarism/Index.htm>

Make sure you have read and understood the guidelines before continuing. Here is a brief summary of the position:

1. Whenever you use or refer to any idea in your writing which is not your own original idea, but which you read in a book or article, or on the Internet, *you must acknowledge the source* by giving a reference to the publication (or unpublished document) from which the idea came. This applies to research findings, theories and opinions. It applies to material you quote verbatim and to material you paraphrase in your own words.
2. You must acknowledge the source *each time* you refer to the idea.
3. You must make a very clear distinction between *your own text*, which must be expressed *in your own words*, and material *quoted* from a source. Do not copy sentences out of books unless they are presented as quotations - even if the ideas they express are 'common knowledge'. If you copy any material out of a book or article - *even if you make minor changes* – but do not acknowledge the source, you are committing plagiarism.
4. You should use a recognised system for referring to sources. Choose a system which is approved by your school or supervisor, and use it consistently.

If you are in any doubt about any of these rules, ask your supervisor for clarification.

Quotation

Rule 3 points out that when you reproduce *the original words* used by an author you are citing you have to make it clear that this is what you are doing.

Short quotations (from a single word up to one or two lines) are handled differently from longer quotations. The following (abridged) extract contains both short and long quotations:

EXTRACT 3I (Sociology)

The environmental crisis is not a crisis originating from the natural environment. As Clow notes "The natural environment has not malfunctioned. It is the destructive behaviour of humans which is the problem" (1994:8). Talk of 'the environment' has come to refer to a wide range of problems or crises (Stamm, 1972) stemming from modern industrialisation and "wrapped up in political and economic relations and tied to social lifestyles and cultural value systems" (Martell, 1994:3). In their definition of 'environmental crisis,' Sellers and Jones include air and water pollution, overpopulation, pesticides, radiation, waste disposal pollution, and land use: "Resource exhaustion and the disruption of the ecosystems capacity for orderly transformation of materials and energy" (1973:52). Other considerations often grouped with the environmental crisis include : the human treatment of animals; problems created between humans in the urban environment; problems created by the 'North' impacting on the less developed 'South'; and the threat to indigenous peoples within nations. Although there is a general understanding about what lies under the umbrella of environmental problems, as Adams notes, "No such consensus has been reached over interpretations of the degree of the problems, their causes or their potential solutions (1995:125)....

At this stage, environmental concern became focussed under an umbrella of related issues (Brooks et al, 1984:76). which, as Atkinson suggests, were located very much within the broader, social and political, public arena,

In the wake of the euphoric days of 1968 and as the first signs were emerging that the long post-war economic boom was drawing to a close, the public were suddenly exposed to an intense debate in the media over 'the environment' : arguments were presented for and against the contention that our way of life and in particular that 'economic growth' - the continued accumulation in material wealth - could not be sustained for too much longer without bringing about increasingly intractable environmental problems that would sooner or later radically or violently reduce our material well-being (1991:14-15).

QUESTION *What differences are there between the styles used for short and for long quotations?*

Note that academic convention demands that when you quote you should also state the *page number* on which the original text is found.

QUESTION *Sometimes you may want to omit words (or whole sentences) from, or add words to a passage you are quoting. Can you suggest reasons for doing either of these things? Do you know the conventional ways of showing additions and omissions in quotations?*

To see the Study Notes, click [here](#)

Paraphrase / summary

When you refer to source material without quoting *verbatim*, it is very important that you reformulate the cited material as completely as possible using your own words. Clearly, paraphrasing is more difficult than quoting, and some non-native speakers may find it difficult to find different ways to express something; nevertheless, you must try to avoid using the same words and phrases as the original (except, of course, for specialist terms, etc.).

Paraphrasing has many advantages over quotation. In some scientific fields, direct quotation is rare, and normally used only for single terms, definitions and diagrams.

QUESTION *What are the advantages of paraphrasing, rather than quoting? Suggest some reasons why you might decide to quote.*

To see the Study Notes, click [here](#)

One very common use of paraphrase in literature reviews is to *summarise* ideas which may be expressed at great length in the original books and articles. In Extract 3J, from an Applied Linguistics First year report, the author summarises a book, *Words in the Mind* by Jean Aitchison (Basil Blackwell, 1987), about how vocabulary is stored in the memory (the *mental lexicon*) in our mother-tongue. Note that some direct quotation is included in the summary.

QUESTION *Identify the instances of direct quotation. How were you able to do this?*

EXTRACT 3J (Applied Linguistics)

Aitchison (1987) also provides useful insight into the state of the mental lexicon. She notes that words can generally be divided into *content* (or *lexical*) words and *grammatical* words. The study of the mental lexicon is generally concerned with lexical words and their organisation. In the mental lexicon, a word's meaning and its part of speech are not separate entities but are integrated within the same component. A word is probably more tightly connected to other words in the same word class than even to itself in a different word class. For example, the verb *shout* is probably stored more closely to the verbs *yell* and *bellow* than to the noun *shout*. Proof of this appears in so-called 'tip-of-the-tongue' errors where the majority (80 %) of incorrect words come from the same word class as the intended word (Deese 1965, in Aitchison 1987). Guesses and word association experiments suggest that words from the same classes are quite closely linked, especially nouns.

Aitchison cites one of the primary questions of lexical research: is the mental lexicon stored as single items ready for use or are they disassembled into morphemes and then put together when needed? (Flores d'Arcais & Meijers 1983, in Aitchison 1987) Aitchison looks

first at derivations and inflections. Derivations are those attachments which when added form a new word (such as *teach* and *teacher*). Inflections are attachments that add information to a word without fundamentally altering it (such as *dog* and *dogs*). Evidence suggests that inflectional endings are added on when needed; that is, for example, *dog* is not stored as a separate item from *dogs*. Errors made by speakers confirm this (e.g., 'He *go backs*'; and 'They *point outed*'; Aitchison 1987: 109). One must be careful how strongly one argues that inflections are produced and not stored with the word as a separate item. Slips of the tongue occur with regular items (Aitchison gives the example of *Fran Sancisco*) suggesting that inflectional errors probably occur just before the time of utterance rather than in the planning stage preceding it.

Derivations, in the case of prefixes, are generally attached to stems and stored that way-at least with the more common words. This is due primarily to the fact that the rules for forming stems plus derivations are so erratic. There are, therefore, three reasons for making derivational errors (Aitchison 1987: 115):

1. Blending: two words are blended together as in 'it is fun to speculise' (speculate+surmise)
2. Derailment: the speaker starts a word, but not paying attention, gets carried onto another word as in, 'Bees are very industrial' (industrious).
3. Fall-Back Procedure: When people cannot think of a word, they use rules to make up a new word (which might actually be correct) as in, 'Children are so deduceful' (deductive).

WRITING TASK 3.4

Choose an article or part of a book which you would expect to refer to in connection with your research, and write a brief summary of the main points that are directly relevant to your work. For this task, aim at around 50-100 words only. If appropriate, include a short direct quotation, with the appropriate citation details.

Proof-read your text carefully.

'INTEGRAL' AND 'NON-INTEGRAL' CITATION STYLES

As we have seen, you must always acknowledge the sources you refer to by quoting or paraphrasing / summarising. However, you can choose how much emphasis to give to the names of the particular authors cited. In many cases, you may want to give less attention to the individual scholars and researchers than to the ideas themselves. In such cases, the names of the authors you refer to do not appear as part of a sentence, but are simply added in brackets (parentheses) – often at the end of the sentence – or given in a footnote or end-

note. This has been referred to as ‘non-integral’ citation (Swales, 1990: 148). Here is an example:

It is well known that high ambient temperature decreases food consumption, which in turn decreases growth rate (Sinurat and Balnave, 1985; Cowan and Michie, 1977, 1978; Geraet *et al.*, 1991; Mitchell and Carlisle, 1992).

Alternatively, you may decide to highlight the author's name by including it in a sentence, in other words, using ‘integral’ citation (Swales, 1990: 148). The most prominent position is as grammatical subject:

Jain *et al.* (1986) screened NaCl resistant lines of *Brassica juncea* L. through *in vitro* selection.

In 1937, Zobell and Rittenburg (2) reported that chitinolytic bacteria, which are abundant and widely distributed in the sea, played an important role in the bioconverting process of insoluble chitin.

Other, less prominent positions can also be used, such as the agent in a passive sentence:

Strains of bacteria, *S. marcescens*, which produced much higher levels of chitinases than the parental strain using DNA technology was first developed by Horowitz *et al.* (15).

Both *integral* and *non-integral* citation styles seem to be in common use in all academic fields. Extracts 3A - J (above) contain many examples of both styles. Which style you choose will depend on how much you want to focus on a particular study. Integral citation is commonly used when you quote from or give a detailed summary of a particular work (see extract 3J, above). There is also a tendency to use integral citation when referring to studies closely related to your own work, for example, when you may want to draw attention to the specific contribution of other researchers in your own area of investigation.

QUESTION Extracts 3K and 3L (below) illustrate typical uses of 'non-integral' citation. Discuss with some other students why you think the writers have chosen this style, rather than the 'integral' style, in each case.

EXTRACT 3K (Biochemistry)

The family Zingiberaceae (or gingers) is recognised as class Monocotyledonae (Liliopsida) and subclass Zingiberidae. It is found within the order Zingiberales which includes seven other families simply known as the ginger group (Cannaceae, Marantaceae and Costaceae), the banana group (Heliconiaceae and Musaceae), and the bird-of-paradise group (Strelitziaceae and Lowiaceae) (see **Fig.1**) (Dahlgren and Rasmussen, 1983).

The family Zingiberaceae is a moderately sized family of 46 genera and approximately 1,200 species. Within the family, the genus *Alpinia* Roxb. comprises the greatest number of species at 250 (Willis, 1985).

Alpinia species are distributed throughout entire geographical areas including Japan, China, Indo-China, Burma, India, the Andamans, Sri Lanka, Thailand, Malaysia, the Philippines, Carolines, Indonesia, New Guinea, Australia, the Solomons, New Hebrides, New Caledonia, Fiji and Samoa (Smith, 1990).

EXTRACT 3L (Sociology)

The totalitarian state was an arena of mass movements initiated and coordinated by the state. This allowed some of the scholars to describe that society as a society-wide totalitarian movement (Arendt, 1958), a movement-regime (Tucker, 1971, 7), a mobilization regime (Lowenthal, 1970, 35). The movement which came to dominate the scene of citizens' activism after the death of Stalin was a movement of political dissent. The climate of the 1960s was also conducive for the rise of moderate change-oriented non-political movements, e.g. of environmental orientation. Political changes in the Soviet Union had been reflected in the change of theoretical perspective on the Soviet society. The adequacy of the totalitarian framework (Arendt, 1958; Friedrich, 1954; Friedrich & Brzezinski, 1965) was questioned by the so-called pluralist school (Skilling & Griffiths, 1971; Hough & Fainsod, 1980). This approach discovered interest groups in Soviet politics (Skilling, 1986) and found that citizens had albeit limited opportunities to make their claims within provided channels of political participation (Friedgut, 1979). Other scholars pointed out the existence of illegal non-political civil society in the Soviet Union which thrived under Brezhnev (Starr, 1988; Shlapentokh, 1989).

To check your answers, click [here](#)

TYPICAL LANGUAGE FEATURES

Integral citations, especially, often involve '**reporting verbs**'

- **past tense reporting verbs** are normally used to report the findings of empirical research:

*X **found** (that ...)*

*X **identified** ...*

*... **were examined** by X*

- **present tense reporting verbs** are often used, especially in humanities fields, to report opinions, comments, theoretical ideas, etc., which contribute to continuing debate:

*X **points out** (that ...)*

*X **suggests** (that ...)*

*X **argues** that ...*

*X **proposes** (that) ...*

These verbs are often used in an introductory subordinate clause: ***As X points out / suggests** (etc.), ...*

- **other tenses** are sometimes found:

present perfect can be used to report recent findings or other statements

*Singh et al. (1996) **have discovered** ...*

*Ibrahim (1995: 97) **has made the point** that ...*

past is used with opinions, etc., if the sentence refers to a specific time, or if the historical development of ideas is being discussed

*In the nineteen-thirties, Wells **commented** that...*

TASK 3.5

Choose two of the literature review extracts (above) which contain integral citations, and underline the *reporting verbs* used. Identify the *tenses* of these verbs, and decide why you think they were chosen.

To compare your answer with the Study Notes, click [here](#)

TYPICAL LANGUAGE FEATURES

The **choice of reporting verb** is important; the verb you use should be appropriate to the kind of thing you are reporting.

- verbs commonly used to report empirical findings:

<i>find</i>	<i>discover</i>
<i>report</i>	<i>identify</i>

- verbs used to report opinions / theories, etc.:

<i>suggest</i>	<i>remark</i>	<i>argue</i>
<i>propose</i>	<i>comment</i>	<i>deny</i>

TASK 3.6

Add as many more reporting verbs to the above lists as you can. (Look at the extracts for further examples).

You could also look at texts in your academic field, for further expressions that may be specific to your area.

ADOPTING A CRITICAL STANCE

As a serious academic writer you are expected not simply to accept all published claims at face value, but to examine them critically and reach your own evaluation of their validity. This is particularly important when you are discussing competing theories, or subjective judgements, but it is also important in many 'objective' fields, such as experimental science, to look out for possible flaws in the methodology employed, sample selection and size, statistical procedures used, etc., and whether the claims made by the researchers are adequately supported by the data obtained.

TASK 3.7

Look again at the Extracts 3B, C and E, and underline the words and phrases that express criticism of the reported ideas. For answers in the Study Notes, click [here](#)

TYPICAL LANGUAGE FEATURES

Note that the choice of some verbs may indicate **whether you agree or not** with writer you are citing.

- verbs indicating **acceptance**:

make the point that
point out
show
demonstrate

- verbs indicating (potential) **criticism**:

claim
assert
assume
suppose

We saw in Unit 2 that a very common strategy in justifying your own research in the Introduction is to point to weaknesses or gaps in existing research, and you may need to elaborate on your criticism in your literature review. The box on page 20 (click [here](#)) contains some of the language elements you may find useful in doing this.

WRITING TASK 3.8

Make a preliminary draft of a few paragraphs of your literature review. You will need to think about:

- the **structure** (sequence of ideas)
- whether to **quote** or **paraphrase** / **summarise**
- whether to use **integral** or **non-integral** citation
- which **reporting verbs** to use, and which **tenses**
- whether to express **criticism** of the source material, and how to do that

STUDY NOTES - UNIT 3

YOU WILL FIND IT USEFUL TO REFER TO ONE OR TWO OF THE JOURNAL ARTICLES / TEXTBOOKS YOU INTEND TO MENTION IN YOUR LITERATURE REVIEW

Again, this is a relatively long unit, but I think it is sensible to take some time over this as it is often seen as the main purpose of the paper.

PAGES 31-2

The list of structural patterns is not exhaustive, and usually some combination of organising principles is in operation.

TASK 3.1 (questions 1 and 2)

Note that *comparing / contrasting theories/procedures* are usually involves identifying *problems* and evaluating attempted *solutions*.

Extract 3A: 1. **Chronological.** 2. *history; in 1904 ... In 1950 (etc).*

Extract 3B: 1. **Problem - solution.** 2. *although ... they do not; ... but not ... (problem); ... can be used to (solution).*

Extract C: 1. **Comparing/contrasting theories.** 2. *theory ... posits that; However there has been much criticism of the ... theory ...*

Extract 3D: 1. **General - specific.** 2. *In vitro methods (i.e. of plant tissue culture) introduced in sixth line.*

Extract 3E: 1. **Comparing/contrasting procedures / problem/solution.** 2. Evaluative language: *One of the most attractive features ... ease ... small size, highly conserved flanks (etc.) ... greatly aid ... can provide ... can promote .. have aided; However, there are some disadvantages ... can only ... less effective ... further constraints (etc.)*

Extract 3F: 1. **Combination of chronological, contrasting theories and problem-solution, I think.** 2. **Chronol.:** *the first appearance ... in the 1840s, following the rise of ..., ... in the 1960s, which began ... in the mid-twenties, following the rebellious sixties, was replaced with..., ... in the early seventies, (etc.); contr. theories / prob. - soln.:* *There is a difference between, ... was regarded as a ... phenomenon, ... whereas collective behaviour approach ... went deeper, both .. sought to explain ..., an alternative explanatory framework ... (etc.).*

To go back to your place in Unit 3, click [here](#)

PAGE 39: **QUESTION (1)**

Short quotations (up to two or three lines of text) are placed within single or double quotation marks ('inverted commas'); longer quotations are indented ('nested') from the left margin, without quotation marks.

QUESTION (2)

- *Omit* parts of the text that are not directly relevant (but make sure what remains is grammatical and makes sense); show omissions with *ellipsis marks* (three dots, or four if including a full-stop): ...

- *Add* words to clarify the sense of something removed from its original context, or replace eg pronouns with names; show additions with *square brackets*: [].

To go back to page 40, click [here](#)

PAGE 40 **QUESTION (1)**

Paraphrasing demonstrates that you have understood the original text; it allows you to make independent and selective use of the original ideas and relate them to other ideas more flexibly.

Quotation may be preferable if you believe the original text is very effectively expressed, or if changing the wording would distort the meaning; definitions are often quoted, for example.

To go back to page 41, click [here](#)

PAGE 41: **QUESTION (2)**

'He go backs', *'They point outed'*; the three reasons enumerated at the end of the extract.

The inclusion of **page numbers** in the reference makes clear that these are quotations. Note that the quotation marks around *'tip of the tongue'* do not indicate a quotation, but are 'scare-quotes'. Scare quotes are used as a warning that the author is using a popular - rather than technical or scientific - phrase, which should be treated **with caution**.

Click [here](#) to go back to your place in Unit 3

PAGE 43: **QUESTION**

In the case of 3K, the text describes the place of the *family* in question within the taxonomy. Giving more prominence to the roles of the botanists responsible for the various parts of the classification in integral citations would disrupt the description and shift the focus away from the taxonomy itself.

Similarly, in 3L, it is the history of the development of ideas (sociological theory) that the author wants to keep in focus, more than the individual personalities who contributed to the discourse.

Click [here](#) to go back to your place

TASK 3.5

Present tense in 3B, 3C (*'Funkhouser criticises'*), 3I and 3J is used, characteristically, to report ideas of a theoretical nature; the choice of present presents them as belonging to the current discourse.

This is in contrast with the **past** in 3F (Smelser ... *proposed* a theory ...), which presents theoretical pronouncements from a historical point of view - with the implication that they are or no longer given serious consideration.

The use of **past tense** in 3C (*'Funkhouser ... and Protess et al ..found'*) and 3D is normal in the reporting of empirical findings.

To go back to Unit 3, click [here](#)

TASK 3.7

Like the Task 3.1 'problem' signals: **3B**: *they do not specify ... but not*. **3C**: *criticism / criticises, questioning* **3E**: *there are some disadvantages, less effective, useful variation must be more highly concentrated, further constraints, it is essential that data from other sources ... be combined with ITS evidence to obtain enough characters ...* Look for further examples in texts in your own field.

Unit 4

OBJECTIVES

The first year of a PhD is ‘probationary’. The basic function of a first year report is to *persuade* your progression board (or panel or committee) that your research is on course and that you should be allowed to continue. It should be clear, therefore, that stating what you intend your research to achieve is a key element in the persuasion process. You may have referred to your aims briefly in the introduction, but most proposals / reports are expected to contain a section in which those aims are stated fully.

This section need not be very long. Examples we have seen range from less than a page, in shorter papers, to four or five pages in longer ones. Here are two examples of very short ‘objectives’ sections, both from short papers:

EXTRACT 4A (Plant Breeding)

2. Objectives

1. To determine the factors limiting efficiency of *in vitro* selection.
2. To study the variation that does occur in somaclones; stability and heritability.
3. To understand the mechanism by which these cells survive at elevated salt and herbicide levels.
4. To consider the relative effectiveness and practicability of different *in vitro* culture systems utilising selection and their effect on the efficiency of *in vitro* selection.

EXTRACT 4B (Animal Nutrition)

The aims of the research project

This research is designed to study the mechanisms of high ambient temperature effects on growth rate by measuring the energy absorbed (metabolisable energy) and measuring the utilisation of the energy in growth processes. This research also aims to study ways of improving growth rate under heat stress.

As in Extract 4A, the use of bulletpoint lists is quite common, even in longer ‘objectives’ sections; ask your supervisor whether this is acceptable in your School.

The language used to express objectives is fairly predictable. Writers normally select from a relatively limited set of basic structures and vocabulary:

TYPICAL LANGUAGE FEATURES

- **Nouns referring to *purpose* and *research*:**

The **purpose** of this **study** is / are to ...
objective(s) **investigation**
goal(s) **project**
aim(s) **research**

OR

*In this study / investigation (etc.), **my** goal / objective (etc.) is to ...*

- **Verbs referring to *purpose*:**

*This study / investigation (etc.) **aims** to ... OR In this study (etc.), **I aim** to ...*
***is designed** to...*

- **Verbs describing *research objectives*:**

study
investigate
examine
assess
evaluate
determine
describe
identify
understand
test *the hypothesis that ... / the theory of ...*
resolve *the problem of ...*
extend *our understanding of ...*

These verbs are often used in the 'To + INFINITIVE' structure to express purpose:

To investigate ..., *we plan to ... / ... will be carried out*

TASK 4.1

1. Can you add any further suitable verbs to the above list of verbs describing **research objectives**?
2. Which verbs would you choose to describe the objectives of your particular research?
3. Some of these verbs regularly occur with particular types of noun-phrase as their grammatical *object* , e.g.

*assess / evaluate the **role** / **importance** of ...*

*test the **hypothesis** that ...*

*identify / understand the **causes** / **effects** of ... / **mechanism** by which ...*

What object noun-phrases would you use with the verbs you chose in response for question 2?

QUESTIONS AND HYPOTHESES

Alternative ways to express your objectives include stating *questions* or *hypotheses*. These approaches may be more common in some fields than in others. The following extracts exemplify each:

EXTRACT 4C (Sociology)

The central question I would like to address in this research is: How does the institutional and symbolic context of a political system shape people's responses to discontent? Why do people respond to discontent the way they do? For instance, why does response to discontent take the form of a social movement or a more conventional pressure action, or even an individual self-help action?

I would like to understand the processes that drive people to this or that course of action. Political opportunities and actors' beliefs (meanings) are the two central concepts employed to account for the motivation of actors, which I intend to explore in my research. The political opportunities argument assigns instrumental rationality to the actors and assumes that the latter are able to evaluate the opportunities correctly. On the other hand, the argument about the contribution of meanings to action assumes that substantive rationality is to account for the rise of action. I would like to explore to what extent the form of response to discontent is determined by the structure of opportunities, and to what extent by the meanings (beliefs) held by those who choose to act this or that way. Is the rational choice model of actor correct when applied to protest action? Do people act by rationally estimating opportunities? ...

EXTRACT 4D (Applied Linguistics)

Based on what is known about the acoustic nature of the mental lexicon, and the current state of computer technology, we could make three general hypotheses:

1. Students who listen to a text while reading it on the computer will gain better short term understanding of the semantic sense of unknown or difficult words in that context than students who simply read the text without listening to it.
2. Students who choose to listen to the text more than others will gain better short term understanding of the semantic sense of unknown or difficult words in that context than students who listen less.
3. Students who listen while reading will retain new vocabulary to a greater degree than those who read without sound.

So the objectives of these researchers are to answer the questions raised, and test the hypotheses stated.

WRITING TASK 4.2

State the objectives of your research very briefly, in whichever way you consider to be the most appropriate. Use a few sentences only, or a bulleted / numbered list.

DEVELOPING YOUR 'OBJECTIVES' SECTION

The short statement of objectives you composed in Writing Task 4.2 may be all that is needed if the length of your proposal or report is to be only a few pages. However, in many cases, a more extended presentation of your aims is expected.

There are a number of ways to do this. One is to add **explanations**. This may involve referring to, in summary, some of the key concepts you have discussed in your literature review (alternatively, you may decide – or be instructed – to place the ‘objectives’ section *before* the ‘literature review’; in this case you might preview some of the concepts which you will go into in more detail in the review section.)

TASK 4.3

In which sentences in Extract 4C does the student refer to the **key concepts** which lie behind her questions?

To check your answer to Task 4.3 with one in the Study Notes, click [here](#)

Another method of developing your 'objectives' section is to say how you intend to achieve the objectives - in other words, to indicate the **approach or methodology** you will use. This should be kept at a fairly general level, as the specific details of the research design are usually given in a separate section (see Unit 6: *Future Plans*).

You can simply use **by + -ING** to link the approach or method to be adopted with your objectives, as in the following extract:

EXTRACT 4E (Biochemistry)

DNA sequencing of the internal transcribed spacer (ITS) region, which includes ITS1 and ITS2, has been phylogenetically insightful within and among genera of angiosperms (e.g. Baldwin, 1992, 1993, and Wojciechowski *et al.*, 1993), due to the ease with which sequences of both spacers can be obtained and interpreted. **By combining** the ITS sequence data with morphological data of *Alpinia*, and exploring congruence between data sets, this project aims to reconstruct phylogenetic trees (cladograms) which more accurately reflect evolutionary relationships of *Alpinia* species. These cladograms should be able to confirm or disconfirm Smith's infrageneric classification of *Alpinia*.

Note that this writer began the paragraph with a sentence justifying her choice of method.

WRITING TASK 4.4

Draft a brief summary of the approach or method you will use.

How could you link this with your objectives statements (Writing Task 4.2)?

You may have noticed that Extract 4E explains the objectives on two levels: the *immediate goal* of constructing cladograms, and the *significance* of this anticipated outcome in terms of the validity of an existing theory (Smith's classification of *Alpinia*). A further very common way to extend the discussion of objectives, then, is to look beyond the immediate results of the research to explain its expected **value or significance** for your field of study, or perhaps its wider implications for society. (You may have given a brief indication of this in your introduction, as we saw on page 25).

The writer of Extract 4E concludes her 'objectives' section with a still more general 'value' claim:

Finally, it is hoped that these studies will lead to a better understanding of plant taxonomy, evolution and biodiversity.

WRITING TASK 4.5

Draft a few sentences explaining what you hope will be the wider value or significance of your research.

QUESTION *Below are some extracts from a longer Report, in which the writer has 'fleshed out' his basic aims to create an extended explanation of the objectives. Work with a partner. Can you find examples of any of the three methods of development described above? The writer has also used some other development methods - how many can you identify?*

EXTRACT 4F (Artificial Intelligence)

The goal of this PhD project will be to explore how existing theories in the areas of temporal databases, linguistics of time, and temporal logics can be refined and combined into an integrated framework, that can be used to design and implement an actual NLQI for temporal databases.

More specifically, the goal of the project will be to:

- Select - and possibly tailor - an existing linguistic theory, which can be used to account for the syntax and semantics of English questions towards a temporal database. It is probable that two or more partial linguistic theories will have to be combined (e.g. a theory for tense/aspect and a syntactic theory). The aim, however, will be to use existing linguistic theories, rather than to propose new ones. The resulting linguistic theory need not be over-sophisticated: it must simply be able to cope with the kinds of questions a user may most probably want to ask a temporal database, and it must be able to capture enough information from the user's question, to allow the system to determine what constitutes a valid answer to it. For example, if as Clifford claims (see section 2.5), aspectual distinctions are irrelevant in the context of database querying, such distinctions need not be supported.
- Select - and possibly modify - a temporal logic that can be used to formalise the semantics of the chosen linguistic theory. The temporal logic should be able to express the meaning assigned by the linguistic theory to each English question, in the same way as IL_S can be used to express the meaning of sentences in the QE-III fragment (see section 2.5). The temporal logic should also facilitate the mapping from English to logic expressions. In IL_S , for example, this mapping is facilitated by the A-operator. In the ideal case, the semantics of the linguistic theory will be already formalised, and the linguistic theory will provide mechanisms for translating natural language expressions into logic (as in the case of Montague's grammar).
- Check if some of the temporal database models that have been proposed can support the evaluation of the logic expressions generated by the formalised linguistic theory; i.e. check if the logic expressions

generated by the linguistic theory can be translated into a query language supported by the temporal database. If this is not possible, the project will explore whether the gap can be bridged by making changes to the linguistic theory and/or to the temporal database model. It may be necessary to consider alternative linguistic theories, and/or alternative formalisations of the semantics of these theories, if this seems to lead to a more natural connection between the linguistic theory and the temporal database model. [...]

The selected linguistic theory and temporal logic will be tested in practice, by modifying an existing English-to-logic front-end (a system that translates English sentences to logic expressions, e.g. the CLE system [Alshawi 92]). The front-end will be modified, so that English temporal questions are translated into the selected temporal logic, according to the linguistic theory adopted. The aim is to avoid the burden of implementing parts of the linguistic front-end (e.g. parser, parts of the grammar, parts of the dictionary, etc.) which are not directly relevant to this project, and are probably insensitive to whether the natural language input contains temporal expressions or not. It is possible that modifying an existing front-end will prove to be more difficult than implementing a new one, in which case the latter solution will be followed. [...]

- Finally, the overall system will be tested in a hypothetical application (e.g. interfacing to a hypothetical temporal database used by a company).

This project will adopt the general strategy followed in Clifford's work (see section 2.5), in the sense that: it will attempt to provide a formal definition for the syntax and semantics of English questions towards a temporal database, it will attempt to show how the English questions can be systematically mapped to expressions of a temporal logic, and it will explore what kind of temporal database model is needed to support the evaluation of the temporal logic expressions....

Apart from the practical benefit of showing how an actual NLQI for temporal databases, based on a principled and formalised theory, can be designed and implemented, it is expected that the project described in this document will prove interesting for the following additional reasons:

- The project will provide the opportunity to test - and possibly refine - some of the linguistic theories of tense/aspect in a real-life application. Many of these theories have never been tested computationally.
- As a side-effect, the project will produce a formalised theory for the syntax and semantics of a large fragment of English temporal questions, which may also prove useful in other natural language processing applications, such as NLQIs to planning systems. [...]

To check your answer with one in the Study Notes, click [here](#)

WRITING TASK 4.6

Now draft a more extended explanation of some of your objectives. Expand and develop the text you wrote for Writing Task 4.2, in whichever ways you think are most appropriate.

STUDY NOTES - UNIT 4

TASK 4.3

(2nd paragraph) *Political opportunities ... action.*

PAGE 55: *QUESTION*

Explanation: actually, there are no very clear examples in this case

Approach / method: the paragraph (p 57) beginning ‘This project will adopt ...’

Value / significance: the last paragraph, beginning ‘Apart from the practical benefit ...’

Other means of development:

Examples: Examples in 1st two bulleted points ‘For example, if as Clifford claims ...’

Alternative options (indicating a flexible approach): ‘If this is not possible ..., It may be necessary ...’ (3rd bulleted point), etc.

Unit 5

REPORT ON PROGRESS

The title *First year report* is a clear signal that the paper should contain some form of account of work done so far, and this is normally expected in similar documents with other titles, such as *Research proposal*. As we noted in Unit 1, for some students the main activity during their first year may be the completion of an extensive and detailed review of literature relating to the topic, design and methodology of the proposed research. In such cases there may be no need for a separate section reporting progress, as this will be covered in the *Literature review*.

In many cases, however, particularly where the research has an empirical basis, you will have undertaken some preliminary practical work which you will need to report. Some examples of headings for this section are: *Progress*, *Work so far*, *Progress in the laboratory in the first year*.

INTRODUCTORY PARAGRAPH

A brief introduction to your report is helpful to the reader. In Extract 5A, the writer introduces the section with a simple outline. Each of the three main subsections begins with a short summary of the work which is later reported in detail (the first is shown here):

EXTRACT 5A (Biochemistry)

My work done over the last eight months is divided into three parts:

1. Preliminary studies to look for the most suitable assay method for chitinase.
2. Investigation of chitinase activity from two species of the marine bacterium *Vibrio*.
3. Purification scheme development to obtain purified enzyme for molecular biology studies.

1. Preliminary studies to look for the most suitable assay method for chitinase study.

Three different assay methodologies (radioactive assay using ^{14}C chitin, viscosimetric assay using glycol-chitin and colorimetric assay using chitin-azure) were developed and compared. In each assay method, variable amounts of *Serratia* chitinase purchased from Sigma were determined at different time intervals.

WRITING TASK 5.1

Decide on a title for your 'report on progress' section, and outline the structure. If appropriate, turn your outline into an introductory paragraph.

The form of your report will depend on the type of work you have done. For example, your report may be in the form of a *personal account* or an *experimental report*, or it may combine both – or other – types.

PERSONAL ACCOUNTS

In some cases it may be appropriate to write a straightforward narrative of significant events during the year, presenting, in chronological order, the progress of your preliminary work, and describing any problems you have encountered and how your research plans have developed. Extract 5B is part of such an account.

EXTRACT 5B (Biochemistry)

Phase 2 In November, 1995, I visited a plot of about 400 acres that is owned by Srinakarinwirot University, Thailand. This trip ... included [name of supervisor] and 3 Thai biologists (2 botanists and 1 zoologist). After the survey of the plot was made, I decided that plants would be an important group of organisms to look at. Among them, plants of the family Leguminosae appeared to be particularly interesting.... They are economically important, and the natives use some of them as medicines.

In December, 1995 I had the chance to visit the plot again. This time a more detailed survey of the plot was carried out. To aid my study of the types and names of Leguminosae, I took a number of photographs of plants belonging to this family. I also managed to obtain several books and papers on Leguminosae, and started reading them.

Phase 3 At the end of December, I returned to Edinburgh. There were slight changes in the plans for the project. According to the types of molecule which were proposed, it was important that I should obtain leaf samples from a wide range of plant divisions (from Bryophyta to Angiospermophyta), due to the fact that the molecules are responsible for some coding regions, evolve slowly and thus, have been used to address phylogenetic questions at the family level or higher taxonomic levels in plants.

Later, I had the opportunity to attend Evolution and Assessment of Angiosperm Biodiversity classes (for M.Sc. students studying plant taxonomy and Biodiversity) at the Rutherford Building, King's Buildings. I was able to discuss my project with the lecturer, [name of lecturer] [The lecturer] has a particular interest in using the internal transcribed spacer (ITS) region for studies in plant phylogenies. Basically, the molecule is small, flanked by highly conserved regions (18S-265 nrDNA) and occurs in high copy number. Therefore, it should be relatively easy to handle using processes such as PCR, DNA sequencing, alignment and phylogenetic analysis.

TYPICAL LANGUAGE FEATURES

In the narrative parts of this type of text you would use the language normally associated with reporting past events:

- past tense verbs
- time expressions

TASK 5.2

In Extract 5B, find and underline examples of those language features.

To compare your answer with the Study Notes, click [here](#)

EXPERIMENTAL REPORTS

You may have carried out some preliminary experimental work, such as 'pilot' studies, or the initial stages of a long programme of experimental research, which you need to report. Your report may be in the form of a brief summary or a full experimental report, depending on the space you have available and the importance of the individual results.

**(If you will not need to report such work in your paper,
you can omit the rest of this unit.)**

SUMMARY REPORTS

In Extract 5C the writer begins the section with a paragraph concisely summarising the various experiments which have been carried out. The writer mentions what was studied, why, and - in very general terms - what was found:

EXTRACT 5C (*Plant Breeding*)

5.1. Summary

Progress to date has largely been aimed at satisfying the requirement of 4.1 [one of the *objectives*]. The experiment to be discussed in detail forms one component of this study. The explant source material which have been tested for their suitability for use in *in vitro* selection procedures are: leaf disc with main vein, leaf disc without main vein, petiole and hypocotyle. Genotypes being examined in this study include: spring rape (*Brassica napus* L. var. *Annua*), curly kale (*Brassica oleracea* var. *Acephala*), cauliflower (*Brassica oleracea* var. *Botrytis*) and

rapid cycling species of *Brassica oleracea*. Although explants from all the sources of each genotype were capable of producing callus, growth was much affected by the genotypes, explant source used, and the concentrations of both NAA and BAP.

The structure of summary reports

TASK 5.3

The writer of Extract 5C goes on (in Extract 5D) to summarise in a little more detail two experiments and a series of experiments. Divide each paragraph into sections, labelling each with the following letter code:

- P** ***purpose***
- G** ***general description of the experimental procedure***
- M** ***specific details of the methodology used***
- R** ***results***
- I** ***implications of the results (conclusions)***

No results are given for one of the experiments. Why not?

EXTRACT 5D (Plant Breeding)

One month old callus from each explant of all the genotypes was used for shoot formation. Small pieces of callus were subcultured in different concentrations of BAP and NAA. Each piece of callus was examined for shoot formation after one month. All the genotypes with the exception of curly kale failed to produce shoots. In case of curly kale only the hypocotyle explants produced shoots successfully. Slight shoot formation was also observed on callus derived from petioles. No shoot formation was observed on the callus from leaf discs. These results suggest that hypocotyle explants of the curly kale might be used successfully for further studies.

Regenerated multiple shoots were separated and transferred to rooting media which comprised both full and ½ strength MS medium, with and without growth regulators and 1% sucrose. Rooting is still in progress.

To determine the optimum concentration of NAA and BAP, a series of experiments has been carried out using hypocotyle explant of curly kale. For callus formation different combinations of concentrations of NAA and BAP were studied. The optimum concentration of NAA and BAP selected is 2 mg L⁻¹ of each. In cases of shoot formation, the maximum number of shoots were observed in the medium comprising 1 mg L⁻¹ of BAP with no NAA.

To check your answer with one in the Study Notes, click [here](#)

TYPICAL LANGUAGE FEATURES

PURPOSE:	to + infinitive
METHODOLOGY:	by + -ing passive voice past simple tense
RESULTS:	past simple tense
IMPLICATIONS:	present simple tense / modal verbs (<i>may, might, could</i>)

QUESTION *The last paragraph of Extract 5D begins with a sentence in the present perfect tense. Is this a mistake?*

Check your answer [here](#)

WRITING TASK 5.4

Draft a summary of an experiment which you have carried out (or are in the process of carrying out).

If you plan to do experimental work as part of your research, but have not yet started, write a 'fictitious' summary of an experiment you expect to do (you will have to invent the results!)

Proof-read your text carefully.

FULL EXPERIMENTAL REPORTS

Complete reports of experimental studies published as research articles in journals normally conform (sometimes with minor variations) to a conventional format. This is often referred to as ***IMRAD***, which is an acronym for the traditional section headings:

Introduction

Methods (or *Materials and Methods*)

Results

(*And*)

Discussion (and / or *Conclusions*)

You may decide to include a detailed experimental report in this section of your First year report. In such cases, it is usually appropriate to follow the ***IMRAD*** structure, except that it would not be necessary to include the type of *introduction* which is normal in a research article (see Unit 2), as you will already have presented the necessary background information and the justification for the research in other parts of your paper. Instead, a brief introduction of the type discussed at the beginning of this unit would be sufficient.

On the following pages we will be looking at some of the most important aspects of language use in the *Materials*, *Results* and *Discussion* sections of experimental reports. However, if your research involves experimental work, we strongly recommend you to buy one of the following books, which contain much more detailed guidance on the organisation and language of ***IMRAD*** – type reports than is possible here:

Writing Up Research by R. Weissberg and S. Buker (Prentice Hall Regents, 2nd edition, 2004)

Academic Writing for Graduate Students by J. Swales and C. Feak (University of Michigan Press, 2004)

Teacher's guides to each book, containing answers to the exercises, are also available. Blackwell's bookshop on South Bridge can order the books for you if they are not in stock.

The following analysis is largely based on *Writing Up Research*.

MATERIALS AND METHODS

Materials

If your experiment involves standard equipment and materials, these need only be identified briefly in your description of the procedures you followed. In such cases the section is often simply entitled *Methods*. However, if you used specially designed materials (whether physical equipment or other research instruments for recording behaviour, such as questionnaires, tests, interview schedules, coding systems, and checklists), you should provide a description of its structure and function. Below is a description of equipment used in an animal nutrition experiment, from a first year report:

QUESTION What is the organising principle of this description?

EXTRACT 5E (Animal Nutrition)

2.2.2.1 The calorimetry system

This consists of:

1 - Five calorimeters (open-circuit), designed to hold a bird or birds up to the weight of 4 kg. The internal dimensions are 600mm x 600mm x 450mm high. Each calorimeter is an airtight Perspex box, fitted with a Perspex door, sealed by a rubber gasket and quick-release nuts. The internal area is divided by a partition into a test section and an air-conditioning system. The test section is floored by a shallow tray which supports a heavy-gauge plastic-covered wire mesh and is used for collecting droppings. The test section is also provided with a calibrated drinker designed to minimise evaporative water loss; a feeder can be introduced when required.

The air conditioning system can be divided into the recirculation system and the fresh-air ventilation system. The former is concerned with control of the climatic environment, the latter with control of the gaseous environment.

2 - The analysis system. This consists of three main parts : a gas volume flowmeter, a paramagnetic oxygen analyser and an infra-red carbon dioxide analyser.

3 - The automated calibration system. This system is designed to consume oxygen and produce carbon dioxide at known constant rates, of the same order as those of a resting chicken. This function is effected by withdrawing dry air (zero gas) from the calorimeter system, and replacing it simultaneously with an equal volume of a 4 to 1 mixture of nitrogen and carbon dioxide at the same temperature and pressure from a calibrated motorised pneumatic cylinder.

4 - The computer-based control and data acquisition system. This system has four roles : control of gas switch-valves, initiation of the calibration procedure (i.e. of the simulated chicken), acquisition of data from the measuring transducers and on-line data processing (Lundy *et al.* 1978).

Note that acknowledgement has to be given to the publications in which the design of materials was originally described.

Check your answer to the Question [here](#)

TYPICAL LANGUAGE FEATURES

Expressions signalling various relationships:

- **whole - part**

X (whole) **comprises** a, b, c (parts)
 consists of
 is divided (by ...) into

- **basic item - special feature**

X (basic item) **is provided with** Y (feature)
 is fitted with

- **equipment - function**

X (equipment) **(is used)** **for + -ING** (function)
 to + INFINITIVE
 (is) designed to + INFINITIVE

NOTE: The **past tense** is most commonly used when describing materials specially constructed for the experiment.

QUESTION Which tense was used in Extract 5E? Do you think this was a mistake, or can you suggest a reason?

Samples

Samples selected to represent a population in trials, surveys, etc., are sometimes considered to belong to 'materials'. The **present simple** tense is usual for general statements about the **population** as a whole:

Students entering the English Language Support for International Students (EL SIS) programme are first assessed using the Test of English at Matriculation (TEAM).

However, the **sample** itself - the specific *subjects* who participated - are referred to in the **past simple** tense:

The subjects comprised 50 non-native speakers of English who were registered for postgraduate degrees in the University of Edinburgh during the academic year 1995-96. All subjects had been tested on TEAM in October or November 1995, and had obtained scores of 60 or below.

WRITING TASK 5.5

Describe any special equipment or instruments you have used (or plan to use) in your research, and/or the sample who participated. Focus on the organisation of your description, and try to vary the ways in which you signal relationships between elements.

Methods

You are expected to describe the procedures you followed, in sufficient detail to allow another researcher to replicate your experiment, and in chronological order.

TYPICAL LANGUAGE FEATURES

- **past simple tense** to describe the procedure followed:

subjects completed a two-page questionnaire

data were analysed

- **passive voice** to focus on procedural events or subjects, not researchers:

96 patients were interviewed

a series of tests were carried out

note the use of **short passive forms**:

data were collected and [they were] analysed

subjects were interviewed and blood samples [were] taken

the results [which were] obtained were compared with ...

NB: researchers in some fields now tend to use the **active** rather than the passive in this context (for example, the editors of the *British Medical Journal* advise contributors to avoid the passive in describing their research methods):

***I interviewed** 30 mothers*

***We compared** the results with*

- **purpose signals:**

to / in order to + INFINITIVE

(in order) to measure ...

so that + CLAUSE

so that ... could be measured

- **means signals:**

by / by means of + -ING

by (means of) removing ...

+ NOUN (method)

by (means of) spectrometry

with + NOUN (equipment)

with a spectrometer

The following example of a methods section comes from the same report as 5E:

EXTRACT 5F (Animal Nutrition)

2.2.2 Experimental methods

Thirty-six Ross males were kept in two small climate chambers, 18 birds per group, one receiving a complete diet, the other a choice feeding diet (whole wheat and high protein diet). The diet compositions are summarised in Table 2. Temperature was reduced from 35°, to 30°, to 25°, to 20°C every 5 days until 20 days of age, and was thereafter held constant until the end of the experiment at 60 days of age. Measurements of food intake, protein intake and growth rate were taken from these two chambers.

Two birds were taken from each group on each occasion at 7, 21, 35 and 46 days of age, and the 4 birds put in calorimetry chambers for 8 days for measurements, as follows:

- The first 6 days were feed measurement days, when food intake, water intake, growth rate, body temperature and heat production were recorded. Droppings were also collected during the last 3 days to calculate metabolizable energy values. Energy retention was calculated by subtracting heat production from metabolizable energy. In addition, from measurements of nitrogen retention, energy retention as protein could be estimated.
- On the following day, food was withdrawn in preparation for measurement of fasting heat production and collection of excreta for estimating endogenous energy losses. This is required to calculate true metabolizable energy values on the last day of the run. This procedure was carried out in each of the four runs.

WRITING TASK 5.6

Draft the *Methods* section of your experimental report. Pay particular attention to your choice of *verbs*.

Results

This is the section in which you present the findings of your experiment. In quantitative research this will involve the presentation of numerical data. Data is normally presented in *tables* or *figures* (graphs and diagrams), and commented on in the accompanying text.

How you present your data will depend on its nature and your purpose. The following checklist may help you decide on the most suitable type of presentation for your results:

GRAPHICS USE CHECKLIST	
<i>Purpose</i>	<i>Type of graphic</i>
Present raw data	table, list
Compare / contrast	pie chart, bar chart
Classify	table, list
Describe change	line graph, bar chart
Relate data to constants	line graph
Describe proportions	pie chart, bar chart
Describe relationships	table, line graph

adapted from Sides (1991: 58)

The accompanying text should provide a *commentary* on the data. This has three basic elements:

- ***location statements and /or summary statements***
- ***highlighting statements***
- ***discussions of implications, problems, exceptions, etc.***

Swales and Feak (1994: 80)

location / summary statements

These are statements that tell the reader where the data is presented. They may also summarise the most important findings.

TYPICAL LANGUAGE FEATURES

- **present simple tense**

- **data location verbs:**

followed by NOUN PHRASE

followed by NOUN PHRASE **or** *that* + SUMMARY

present

show

give

illustrate

provide

indicate

Table 2 presents the results ...

Table 2 shows the rates / shows that the rate has increased

- **active or passive:**

*Figure 1 **shows** the rate of growth in the period 1990-95*

*The rate of growth in the period 1995-2004 **is shown** in Figure 1.*

- **As -clauses** (active or passive) + SUMMARY:

***As Figure 1 shows,** the level of ... fell significantly*

As is shown in Figure 1,

Based on Swales and Feak (1994: 80-83)

Highlighting statements

As the term suggests, your verbal *description* of the data should not attempt to repeat in words everything that is in the table or figure (this would be tedious and unnecessary), but gives you the opportunity to draw attention to general trends or comment on specific values that are especially interesting. As Swales and Feak point out (1994), this allows you to demonstrate that you can **identify patterns in the data** and **discriminate between important and unimportant findings**.

Note that the **past simple tense** is used for describing the specific results of your research:

There was no correlation between age and score on any of the indicators.

A small overall increase in mean temperature was recorded.

Discussion of implications, problems, exceptions, etc.

Brief *comments* on the significance of the results are regularly included in this section, even though the Discussion section is where these issues are given more extensive treatment.

TYPICAL LANGUAGE FEATURES

- **present tense**

This result is consistent with previous findings

- **cautious language** for tentative generalisations / explanations

modal verbs: *may, might, can, could*

tentative verbs: *suggest, appear, seem, imply, indicate*

tentative adjectives / adverbs: *possible, probable, apparent, likely / possibly* (etc.)

This suggests that ... may be a possible factor in ...

There appears to be a tendency for ... to ...

TASK 5.7

Extract 5G (on this page and the next two pages) is the complete *Results* section from the report on the pilot experiment in Animal Nutrition which you read in Extracts 5E and F.

1. Identify:

- **location / summary statements (say which it is, in each case)**
- **highlighting statements**
- **discussion statements**

2. Does the extract reflect the pattern of tense choice and the other language features described in this Unit?

EXTRACT 5G (Animal Nutrition)

2.2.4 Results of pilot experiment

Weights and ages of the birds which were used in the 4 treatments and 4 runs are shown in Table 3.

Table 3 - Ages and weights of the birds.

Ages	CN	CH	FN	FH
7-14	305	277	255	281
21-28	595	874	629	908
35-42	2210	2332	1549	1744
46-53	2220	1769	2315	1055

Table 4 shows a clear effect of high temperature on food consumption in runs 2, 3 and 4, where high temperature decreased food intake, while the effect did not appear in the first run, perhaps because of the age of the birds. Also, food consumption increased with age, except in the treatments (CN) and (FH) in the last run. The reason was probably behavioural.

Table 4 - Means of food consumption g/d/b.

Ages	CN	CH	FN	FH
7-14	36	35	31	25
21-28	89	59	90	61
35-42	174	96	135	123
46-53	152	101	203	67

Protein intake is shown in Table 5. Protein intake was related to food intake and age. Birds at high temperature with choice-feeding did not select to maintain protein intake; the birds which received

the complete diet at high temperature consumed more protein than those kept at the same temperature and fed by choice-feeding.

Table 5- Means of protein consumption g/d/b.

Ages	CN	CH	FN	FH
7-14	8.1	8.1	7.5	5.6
21-28	20.6	13.8	20.6	10.0
35-42	41.3	22.5	27.5	21.3
46-53	35.6	23.8	50.0	16.9

Growth rate is shown in Table 6. In general, all values were correlated with the amount of food intake. However, the bird at high temperature on complete diet in the fourth run had a lower growth rate than that of the bird in the third run although it consumed more food. This may have been due to the amount of water consumed. Also, the weight of the bird kept at high temperature with choice-feeding in the last run decreased by about 15g although it consumed 66.7g of food, This was a result of intake being less than the maintenance requirements.

Table 6 - Growth rate g/d/b.

Runs	CN	CH	FN	FH
7-14	16.4	16.7	17	11.4
21-28	30.2	19.2	41.0	16.1
35-42	56.4	30.1	58.8	39.9
46-53	30.0	21.3	54.3	-15.7

Apparent metabolizable energy (Table 7) was not affected either by temperature or by age, and it ranged from 72% to 80% of total energy intake.

Table 7 - AME kJ/g

Runs	CN	CH	FN	FH
7-14	11.2	11.8	11.0	11.8
21-28	13.3	13.7	12.3	12.9
35-42	12.5	11.9	12.1	12.0
46-53	11.7	12.6	11.2	11.9

Table 8 shows the means of the heat production. Heat production was depressed when temperature increased. Heat production increased with age, and this may be related to bird weight and food intake.

Table 8- Fed-heat production kJ/d/b.

Runs	CN	CH	FN	FH
7-14	211	173	178	152
21-28	526	462	593	437
35-42	591	369	498	469
46-53	1334	747	1509	809

The last table (Table 9) shows the relation between body temperature, age, and environmental temperature. From the results shown it seems that there was no effect of age on body temperature, but high ambient temperature increased body temperature.

Table 9 - Body temperature °C.

Runs	CN	CH	FN	FH
7-14	40.6	40.9	40.9	41.4
21-28	40.5	40.8	41.1	41.7
35-42	41.1	42.2	41.2	41.7
46-53	41.3	41.7	41.1	41.4

To check your answer to Task 5.7, click [here](#)

WRITING TASK 5.8

Now write a Results section for your experimental report.

Again, for the purposes of this exercise only you may, if necessary, invent the data!

Include appropriate figures or tables, and restrict your verbal description to the points you feel need to be highlighted. Be careful to use appropriate tenses.

Discussion

The distinction between *Results* and *Discussion* sections is not absolute; some writers merge the two, in a combined 'Results and Discussion' section, particularly in shorter reports. We have seen that the Results section usually includes not only a report of the data, but also commentary, of various degrees of generality. Swales and Feak point out that, compared to the Results section, we expect the Discussion section to be:

more theoretical
or
more abstract
or
more general
or
more integrated with the field
or
more connected with the real world
or
more concerned with implications or applications

AND, if possible, some combination of these.

Swales and Feak (1994: 196)

Some of the elements you may want to include in the Discussion of experimental results in a first year report are:

- **restating the purpose / hypothesis**
- **restating / summarising the findings**
- **explaining the findings**
- **limiting the findings**
- **comparing findings**
- **drawing conclusions**
- **commenting on the current state of the experiment (e.g. whether still in progress)**
- **stating the implications for the continuation of your research programme**

(adapted from Weissberg and Buker (1990: 162))

TASK 5.9

Below are two short discussions of preliminary experimental results from First year reports (Extracts 5H and I). Which of the above 'discussion' elements appear in the extracts?

EXTRACT 5H (Biochemistry)

In conclusion, ammonium sulphate precipitation seemed to be a useful step for chitinase purification because it removed half the amount of undesired proteins whereas the total activity of chitinase remained. DEAE-Sephadex G-50, pH 7.0 was considered for use in the next step because it provided a significant fold purification. Chitin affinity chromatography was tried but specific and/or mild conditions for protein elution are still underway.

EXTRACT 5I (Applied Linguistics)

4.4 Discussion

The number of subjects in this study was too small to make strong claims about the statistical significance. However, there does seem to be a positive correlation between the degree to which students used the listening facility and their subsequent test-scores. I have not posited possible reasons for this correlation as once again the experimental group is too small.

The test itself had several items that all students in both groups answered correctly, and several that all students found difficult (see Appendix B for statistical summary). This suggests that the test was slightly easy for the pilot group. Future groups will probably be at a lower language level and therefore the test may be a more effective discriminator between groups. On consultation with testing experts, the standard deviation was within accepted norms. The following section will deal with some improvements for a fuller study based on the conduct of the pilot study and analysis of the results of the pilot study.

To check your answers, click [here](#)

TYPICAL LANGUAGE FEATURES

restating purpose / hypothesis / results

- **past simple tense:**

the aim of this experiment was to ...

my hypothesis was that ...

it was found that were more likely to ... than ...

explaining findings

- **cautious language (modal verbs, etc. – see page 70)**

- **cause / effect signals:**

	cause	effect
verbs:	<i>lead to</i> <i>cause</i> <i>bring about</i> <i>result in</i> <i>affect</i>	<i>be due to</i> <i>be the result of</i> <i>stem from</i> <i>result from</i> <i>be affected by (etc)</i>
nouns:	<i>reason</i> <i>cause</i> <i>source</i> <i>origin</i> <i>factor</i>	<i>result</i> <i>effect</i> <i>consequence</i>
link words:	<i>because</i> <i>as</i> <i>since</i> <i>owing to</i> <i>due to</i>	<i>so</i> <i>thus</i> <i>consequently</i> <i>for this reason</i>

- **past tense** for specific explanations limited to the study:

It is possible that contamination of the medium caused this inconsistency.

This may have been due to the unusual nature of ...

- **present tense** for generalized explanations:

It seems likely that humidity affects ...

comparing findings

these results are in agreement with / are (in)consistent with / conflict with / differ from

drawing conclusions

- **present tense / cautious language**

These findings/results suggest / imply that
support
provide evidence for

the assumption/hypothesis that

WRITING TASK 5.10

Consider the implications of your results, and draft a brief Discussion section.

References in this unit

Sides, C. 1991. *How to Write and Present Technical Information*. Cambridge: Cambridge University Press.

Swales, J. and C. Feak. 1994. *Academic Writing for Graduate Students*. Ann Arbor: University of Michigan Press.

Weissberg, R. and S. Buker. 1990. *Writing Up Research*. Englewood Cliffs, NJ.: Prentice Hall Regents.

STUDY NOTES - UNIT 5

Most of this unit is designed for students involved in **experimental research**.

If your research **does not** have an experimental component, you will need to think about how best to report on what you have done so far; if you are uncertain, discuss this with your supervisor. Instead of working through pages 61-78, I suggest you write a draft report in the 'personal account' style (after Task 5.2), and/or do more work on your literature review.

TASK 5.2

past tense: *I visited, this trip included; was made; I decided (etc.).* Note also first person pronouns.

time expressions: *In November, 1995; After the survey; At the end of December; Later (etc.)*

To go back to the unit materials, click [here](#)

TASK 5.3

Paragraph 1

G *One month old callus ... was used for shoot formation.*

M *Small pieces were subcultured ... after one month.*

R *All the genotypes ... failed to produce... leaf discs.*

I *These results suggest ...*

Paragraph 2

M only - no R, because 'still in progress'

Paragraph 3

P *To determine ... BAP,*

G *a series ... kale.*

M *For callus ... were studied*

R *The optimum ... no NAA.*

To go back to the unit materials, click [here](#)

PAGE 62: QUESTION

General - *specific* or, more accurately, **whole - part**, basically (see page 65).

To go back to the unit materials, click [here](#)

PAGE 65: **QUESTION** Present tense; perhaps because the reported experiments are still in progress.

To go back to the unit materials, click [here](#)

TASK 5.7

Qu. 1

location statements: *Protein intake is shown in Table 5; Growth rate ... Table 6; Table 8 shows ...; The last table (Table 9) shows....*

summary statements: *Table 4 shows a clear effect; Apparent metabolizable energy (Table 7) was not affected*

highlighting statements: *Also, food consumption...in the last run; Protein intake was related to ... choice feeding; In general ... consumed more food; Also, the weight ... of food; Heat production increased with age.*

discussion: *The reason was probably behavioural; This may have been due to...; This was a result of ...; ... and this may be related to bird weight and food intake; from the results shown it seems that ... temperature.*

Qu. 2: Yes.

To go back to where you were, click [here](#)

TASK 5.9

EXTRACT 5H:

drawing conclusions (*In conclusion ...*), stating implications for continuation (*... was considered for use in the next step...*), commenting on current state (*...are still underway*).

EXTRACT 5I: limiting the findings (*...was too small to make strong claims ...; ... as once again the experimental group is too small*), summarising findings (*... there does seem to be a positive correlation ...; The test itself had several items ...*), explaining findings (*This suggests that the test was slightly easy ...*), implications for continuation (*Future groups will probably be ... The following section will deal with some improvements ...*).

To return to the unit, click [here](#)

Unit 6

FUTURE PLANS

In addition to reporting what you have already done in your first year, you are expected to explain what you plan to do during the rest of your time in order to achieve the objectives you have set out (which is why the term *Research proposal* is used in some Schools at Edinburgh, instead of *First year report*).

TASK 6.1

This time, instead of giving you a list of *Typical Language Features*, we would like you to compose the list yourself!

First, predict what this list would contain. In this section of your paper you will need to write about **future events**. Think about the grammar and vocabulary that you can use to do this. Which parts of speech (or word-classes) – nouns, verbs, adverbs, adjectives, prepositions, etc. – are most useful?

Jot down a list of the language features (vocabulary items and grammatical points) that you would expect to be used to signal future plans in an academic context.

TASK 6.1 (Continued)

After making your list, study the following extracts from first year reports (Extracts 6A - E), in which the students described their plans. Underline or highlight the words and phrases which they use to signal those plans.

EXTRACT 6A (Animal Nutrition)

3. Further plans and aims of future experiments

A second experiment is planned to investigate the effect of high ambient temperature on growth rate in more detail. Mitchell and Goddard (1989) housed three groups of birds at different temperatures ... Results like this suggest that there are many questions regarding mechanisms. High temperature affects growth even when the high temperature birds eat the same amount of food. My second experiment will be similar to that of Mitchell and Goddard (1989) but metabolizable energy values will be measured to determine whether the more rapid growth obtained in the pair-fed group is due to more energy metabolized from total energy intake comparing with the group kept at high temperature or if there is another explanation.

Further experiments will be designed to provide more information on the mechanisms of reduced growth and to explore methods of improving growth under the effect of heat stress. These will be planned in response to results of the initial experiments.

EXTRACT 6B (Biochemistry)

TARGET FOR NEXT YEAR

A complete purification scheme is expected to be achieved within the end of this year. As soon as the scheme is successfully developed, milligram quantities of purified *alginolyticus* chitinase will be prepared for amino acid sequence analysis. My work for the next year will be concerned with molecular cloning and expression of *alginolyticus* chitinase. There are two approaches to isolating the chitinase gene:

Method 1: Screening an *alginolyticus* DNA library with radioactive probe.

After the chitinase is purified, the partial amino acid sequence of the chitinase will be determined and used to design oligo primers for PCR products. The PCR products will be used to make an *alginolyticus* DNA library and used as a specific DNA probe to screen the DNA library in order to isolate the chitinase gene.

Method 2: Screening an *alginolyticus* DNA library with agar/chitin assay.

To make a DNA library, genomic DNA fragments cut with restriction endonucleases will be constructed in plasmid - probably pUC18 or pUC19 The transformant *E. coli* will be screened for chitinase activity on agar plates containing chitin substrate. Clones producing clear zones on the chitin agar plate will be selected and the plasmid containing chitinase gene fragment will be amplified and isolated. PCR products will be used as a probe to isolate the chitinase gene from recombinant plasmid DNA.

After the chitinase gene has been isolated, my subsequent work will deal with DNA sequencing techniques to determine the sequence of the chitinase gene. The ultimate goal for my next year work is the successful development of a high expression system to overproduce recombinant chitinase enzyme for further characterisation and studies.

EXTRACT 6C (Sociology)

I have chosen to compare five different periods in Russia's post-1953 political history in terms of the political opportunities structure ... patterns of response to discontent, and discourses of various forms of protest. The periods can be identified by the leader of the communist party: Khrushchev, Brezhnev, Andropov-Chernenko, Gorbachev and Yeltsin. I shall see if change in the political context (policy change reflected in the official party discourse) has had an impact on patterns of response to discontent (protest repertory) and the way protest is framed by actors themselves (protest discourse)....

I shall use a combination of methods, such as interviews with people who undertook an action in response to discontent (reconstruction of protest discourse), analysis of the available written records of the protest discourse, archival research (for data on public protest action), analysis of the official press and publication (to reconstruct the official discourse of opportunities) and secondary sources (previous research done in this area). To make the project realizable I have chosen a locality-based research. Since most of research on Russia is conducted in the capitals, Moscow or St. Petersburg, I have opted for a less explored locality: a place called Saratov where I have spent most of my life. Saratov is no more representative of the country than are Moscow and St. Petersburg, yet it is probably more typical, i.e. less exceptional than either of the capitals. A case-study is bound to have a limited generalizability (external validity), but so is a comparative research (e.g. involving several localities of different size) which perhaps is a more attractive option than a case-study, but difficult to handle as a Ph.D. project.

Representation can only be achieved by employing quantitative research techniques, such as a survey. This means that the case has to be an individual and the information collected about each case will be limited to a small number of variables. The nature of my research questions excludes a nation-wide survey as a method, as it would not allow me to recreate the discourse of protest which I am interested in.

The research procedure includes three stages:

I shall start with the question: what kind of protest occurred in the locality over the specified period? My task will be to identify different forms of response to discontent and see if any change occurred in terms of incidence and forms of protest, issues which led to protest, protest repertory and types of public involved. To analyze change in conventional forms of response to discontent I shall use the available official statistic. I hope to identify non-conventional protest action by gaining access to party and KGB archives. For contemporary protest, the press provides a useful source of information. Alternatively, I may turn to the local experts, i.e. the former party and KGB officials, retired local journalists, former activists in underground movements for information on illegitimate protest before 1985. In order to understand the role of mass public organizations in channeling discontent, I shall speak to the former leaders of the local branches of these organizations.

At the second stage, I plan to look at the discourse of protest, i.e. the way people explain their actions to themselves. I will select various forms of protest representative of each of the five periods and conduct semi-structured interviews with people who chose them. I shall ask the interviewees to recollect the history behind the response to discontent, especially the stage of the inception of action. Alternatively, I plan to look at the written documents such as letters to authorities and the press or movement manifestos.

Reconstruction of the discourse of protest is the focal point of this research. I will look for the differences in the discourse of protest depending on the form and issue of protest, the period when action occurred, and social characteristics of the actor. My aim will also be to identify various frames actors employ to justify and rationalize their actions. I hope to be able to learn to what extent response to discontent was spontaneous or prepared, a customary or reflection-based action, whether the actor had done anything like that before. I also want to know whether actors reflected on such things as possibilities of success, availability of resources, ...

EXTRACT 6D (Applied Linguistics)

4.5 Improvements for Full Study

I intend to use several classes this summer. There are likely to be at least 30 in both the experimental and control groups which will provide decidedly more reliable statistics. The log system will also be improved to include a record of the time spent on each page, the time between mouse clicks, and the time taken to read the text from start to finish. This will provide us with data that might suggest the amount of time needed to read with sound (compared with reading only) and have implications for courseware design. Such a log will also provide greater insight into user behaviour, and individual patterns and strategies should be fairly clear.

Several minor modifications will be made to multiple choice test as some of the distractors appear to be too close to the correct answer.

Since all IALS students take part in a placement test, we will have a good idea of each group's level. Comparisons can then be made between language levels. It may very well be that lower level students show more improvement through this kind of listening facility than higher level groups. This might be particularly true with students whose first language does not use a Roman alphabet - matching of sound to orthography often proves especially difficult for such students.

This larger study will also include a delayed post test (to test hypothesis three above). The test will be identical to the immediate post test and will be administered two to three weeks after the experiment. Depending on the length of stay of the students, some co-ordination might be necessary with students' teachers in their home country. Since the groups will be Japanese contract courses, this is not likely to be prohibitively difficult. Results from this hypothesis may necessitate venturing into more psycholinguistic literature, paying specific attention to memory retention, factors affecting long-term/short term memory ... and other aspects of vocabulary knowledge affected by the experiment (e.g., memory of word-stress, pronunciation, etc.).

I would also like to question the students about the experiment. This will take the form of a questionnaire. Results of this qualitative study might suggest the degree of difficulty students have with the activity, their overall attitudes towards the computer, listening to the computer, and reading on the computer.

5. Section Five: Timetable and Steps for Proposed Research

5.1. July/August/Sept '93

As has been said, I intend to follow the procedure used in the pilot study (with the improvements stated) on larger groups this summer. There are several Japanese contract groups coming to IALS on whom such a study will be appropriate. ... Students will be asked early in their stay if they are willing to participate. Permission will be sought from group leaders/chaperones and IALS teachers. Collection of data might take all of the summer months. If students are tested early in their stay, it may be possible to perform the delayed post test while they are in Edinburgh. If not, I will seek the assistance of the leaders and chaperones in the hopes that the testing can be done in Japan and then sent back to Edinburgh. In September, I intend to describe some of my results in a paper at the EuroCALL conference (15-18 September) in Hull....

5.2. Oct-Dec '93

The autumn of 1993 will be devoted to the collation and organisation of data. At this time, I will perform the various statistical tests used in the pilot study, and seek more advice regarding any other appropriate statistical devices. At this time, I may also be sending and receiving the delayed post test to/from Japan....

EXTRACT 6E (Sociology)

Section 9 Data Collection

This part of the paper will cover the ways in which data will be collected during this research. A variety of sources and methods will be used. The main section of the research will be conducted by interviews with children, following their viewing of the media containing environmental information. Rather than seeking adult responses to reflect children's experiences, this research places the child at the centre of the research by seeking their views on the environment, and their active responses to media texts. The interviews with children will be supplemented through a questionnaire to the children, and another to their parents, relating to their personal and familial level of environmental interest. Teachers will also be informally questioned to ascertain the level of environmental focus within the classroom both past and present.

The main project will begin in January 1996. The research will be undertaken during a period of approximately six months; three months in two schools. The research will take place in the time allotted in the weekly schedule for science and environment lessons. It will focus on children aged between 11 and 12 years: those students in the last year of primary school in Scotland. Contact with the schools, will be made in October and November 1995 when a pilot study will take place. In the run up to the research, I will visit the schools informally, during the science and environment lessons, in order to familiarise the children with me, and vice versa. This will also be a good time to seek access and informed consent from the children, and from their parents.

9.1 Pilot Study.

My research will begin with a pilot study during October/November 1995. This will enable a test for possible hitches in research design. Any problems can be dealt with and any needed alterations can be made before the main interviews get under way. It will also enable an initial familiarity with the group dynamics of 11 year olds during an interview situation. In the pilot study I will try a selection of group numbers to see the differences in interviewing in larger or smaller groups. Morgan recommends a 'medium' size group of between six and eight people but notes that this is smaller than the fashion a few years ago (1988:43). I will be interested to note any gender inhibitions during responses within the group. It may be that a single sex groups will elicit fuller responses. In this case I may select single sex groups as well as mixed sex groups during the main interviews. The pilot interviews will allow me to become familiar with the video recording equipment that I will use for the main research. Time limits can be checked during the pilot so as to gain a comprehension of how much time is need to work through the areas I would like to discuss. Finally, the pilot study will enable response categories to emerge, so that they can be identified and/or abandoned during the main research.

9.2 Questionnaire 1: Children.

The questionnaire for the children will identify each child's opinions towards the environmental crisis. It will distinguish whether children are actively concerned about the environment and, if so, how this manifests itself. For example, are the children part of a youth group which carries out environmental projects. It will also seek information regarding their perceptions of their familial/domestic environmental habits. It will be interesting to compare these findings to those encountered from the second questionnaire administered to the parents.

TASK 6.1 (Continued)

Now answer the following questions:

- ***How many of the features you had predicted in your list are used in the extracts?***
- ***Are there any you want to add to your list.***
- ***Which future signals are most common?***
- ***Does your list include any that are not found in the extracts? Have you seen them in published works in your field?***

Finally, decide on the most effective way to organise the items, and make a *Typical Language Features* box' of your own, like those we have used in other units.

To compare your box with the Study Notes, click [here](#)

INFORMATION ELEMENTS

The 'future plans' sections of first year reports usually include at least one of the following types of information:

- ***aims*** of the specific activities planned (rather than overall objectives of the research)
- ***procedures / methods*** to be used, and the ***reasons*** for choosing them
- ***schedule*** (in some cases this is worked out in some detail, in others it is quite sketchy)

QUESTION Look again at Extracts 6A - E. Which of the above information types can you identify in each case?

Check your answers with the [Study Notes](#)

*N.B. A comment on the anticipated **value or significance** of the research could also appropriately be added to the end of this section, instead of to the 'objectives' section (see page 54).*

WRITING TASK 6.2

Now draft (part of) your description of your research plans. Try to vary the language you choose for referring to future activities.

STUDY NOTES - UNIT 6

TASK 6.1

Some of the *future* signals in 6A-F:

I intend; There will be; will be improved; will provide data that might suggest; should be fairly clear; can then be made; it may very well be ... that; this might be ... true; depending on ... might be necessary; may necessitate; I would like to; I have opted for; I have chosen; I shall start; I shall use; I may turn to; I plan to look at; My aim will be to; I also want to know; There are likely to be; might be; will begin (etc.)

Below is one possible way to organise the *Typical Language Features*:

TYPICAL LANGUAGE FEATURES

- **modal verbs:**

<i>will /(shall)</i>	<i>(most certain)</i>
<i>should (3rd person)</i>	
<i>may</i>	
<i>might/could</i>	<i>(least certain)</i>
<i>would</i>	<i>(hypothetical)</i>
- **other 'probability' expressions:** *is / are likely to*
- **other verbs with future meaning (present tense):** *intend (to + INF)*
plan
hope
expect
want
- **'choice' verbs (present perfect):** *I have chosen (to)*
opted (for + NOUN / to + INF)
- **'purpose' expressions:** *I aim to*
my aim is/will be to (etc. - see page 51)
- **sequence signals:** *In the first stage*
then
my second experiment
my subsequent work
after ...,
as soon as ...
- **verbs referring to research procedures:** *determine, investigate, isolate, identify (etc. - see page 50)*
- **'methods' language features, e.g. passives (see page 66).**

PAGE 85: **QUESTION**

6A: aims (*A complete .. is expected, To make ...*); **procedures** (*Method 1 & 2*)

6B: aims (*to investigate, to determine, to provide...*); **procedures** (*similar to that of ..., will be measured ...*)

6C: aims (*my task will be to identify ... etc.*); **procedures** (*I shall use a combination of methods, such as ...*); **schedule** (*I shall start with ..., At the second stage ...*)

6D: aims (*This will provide us with data..., etc*); **procedures** (most of 4.5: *This larger study will include ..., etc*); **schedule** (5.1 & 5.2)

6E: procedures (most of the extract: *A variety of sources and methods will be used ..., etc*) **aims** (*to ascertain ..., This will enable ...*); **schedule** (The main project will begin in January 1996, My research will begin with a pilot study during ...)

6F: aims (most of the text describes 'targets', eg *Collect ... Select/refine a linguistic theory ...*); **schedule** (italicised comments)

Unit 7

REFERENCES

The final section of your first year report is usually the list of *References* (sometimes called *Bibliography*). In Unit 3 we looked at different ways in which you can cite source material. In your References section you list, in a conventional format, the full details of the books, articles and other material you have cited, whether in the Literature Review section or in any other part of your paper (you should not, however, include any material you have not actually cited).

In this unit we look at the conventions governing correct bibliographic presentation; in addition, we consider the important final stage of proof-reading your Report / Proposal, and think about ways in which you can continue to improve your written English after this course has finished.

The material in this unit has been adapted from Lynch and Anderson (2006) and Anderson and Lynch (2007).

BIBLIOGRAPHIC PRESENTATION

Bibliographic conventions vary from field to field, and also within fields. There are several different systems for documenting your sources. Some (such as this document) use an ‘author-date’ style, in which the author’s surname and year of publication are placed in the text, and full details are given in an alphabetical list of references at the end of the document. Others use superscript numbers and footnotes or end-notes (‘notes and bibliography’ style). In some fields, systems using reference numbers in the text and a numbered references list are usual. If you have not already been given information by your supervisor about the format for presenting references, ask whether there is a stylesheet that you should follow.

See page [98](#) for recommended on-line guides to referencing formats.

TASK 7.1

Below is a British student's bibliography. Which of the items are completely acceptable in their format and content?

REFERENCES

Bygate, M. 1987. *Speaking*. Oxford: Oxford University Press.

Jones, K. 1982. *Simulations In Language Teaching*. Cambridge: University Press.

Long, M. 1985. 'Input and second language acquisition theory' in *Input In Second Language Acquisition*. Gass, S and Madden, C (ed). U.S.A.: Newbury House Publishers, Inc.

Nolasco, R and Arthur, L. 1987. *Conversation*. UK: Oxford University Press.

Richards, J. 1990. 'Con conversationally speaking: approaches to the meaning of conversation' in *The Language Teaching Matrix*. Richards (ed), Cambridge: Cambridge University Press.

Richards, J. and Schmidt, R. 1983. 'Con conversationally Analysis' in *Language and Communication*. London and New York: Longman.

Rivers, W. and Temperley, M. 1978. *A Practical Guide To The Teaching Of English As A Second Or Foreign Language*. New York: Oxford University Press.

Swain, M. 1985. 'Communicative competence: some roles for comprehensible and comprehensible output in its development' in *Input In Second Language Acquisition*. Gass, S and Madden, C (ed). U.S.A.: Newbury House

To check your answer, click [here](#)

Formatting software

Word-processing software packages (such as *Microsoft Word*) now include tools which can automatically format references in academic papers. Ask your supervisor's advice on using them.

WAYS OF IMPROVING YOUR WRITING FURTHER

As we come to the end of this course, it is useful to think about ways of continuing to improve your written English during the remainder of your research period. As we have seen, student writing has to be of high *quality* (showing competence in handling the content, clarity of expression, and adherence to academic conventions of style and organisation); research students at Edinburgh are also required to produce a substantial *quantity* of writing.

We will be looking at ways of enhancing your writing by focused attention at three stages of writing:

- ***while reading for an assignment***
- ***while doing the writing itself***
- ***after you have had feedback on your work.***

Attention while reading

The best way to become familiar with the norms of academic writing in your field is to continue doing what we have done in many of the tasks and questions on this course, namely, ***reading analytically*** to see how texts are usually structured, what kind of things texts do, in which order, and how ideas are typically expressed.

In this course the examples of writing are taken from research students' first year reports, in order to reflect the sort of writing that is expected in such assignments. But you can also use your reading of books and articles as models of successful writing ('successful' because they have been accepted for publication).

Many of our previous students have found that their course reading was a key source of knowledge about academic *writing*, as well as about academic *English*. Here are the comments of four of those students (adapted from Anderson & Lynch, 2007):

Student 1

First of all, I think a good way for improving writing, especially for academic purposes, is to do a lot of reading. At first I started to read any parts of academic papers which I recognized to be related to my subject area. Sometimes there was not too much relevance in the whole text, but I tried to continue reading to find frequent ways of linking the different parts of the discussion, and working out all the sentences which I felt could be used in my own writing. I tried to develop my discussion using the same style. Sometimes I explore the sentences which are exactly what I want to say, then I use them for writing in my own research subject. I think this way and procedure can really improve writing for academic purposes and also understanding the essence of others' writing.

Student 2

Sometimes, when I read a book or an article in my subject, I come across clauses or sentences which explain in a very accurate, concise way concepts which I would have used longer sentences to express. I find very useful to incorporating the grammatical form of such sentences in other places in my own writing.

Student 3

When I am writing my essay or answering an exam question, I usually use sentences from the references I have read. As a result I get another advantage, which is to improve my vocabulary. However, due to my lack of ability in grammar I also need help from some of my classmates who are native English speakers.

Student 4

I have improved my writing, though I still have problems with it, by reading different academic handbooks and literature. At the same time I have improved my academic vocabulary. Also when I read a subject I try to summarise it in my own words and that helps me to understand the subject and improve my writing.

QUESTIONS

1. Do you see any problems with those suggestions? Check your answer [here](#)
2. In what ways have you yourself used reading to help your vocabulary and writing?

Check your answer [here](#)

Attention during the writing process

Traditionally the teaching of writing has focused on the *product* (i.e. what we write), but over the last decade or so educational researchers have recognised the value of also considering the *process* (the route we take to achieve a good product). The process of writing an academic paper varies according to the content and purpose of the text, as well as your personal composing style, but is likely to include at least some of the following stages:

- | | |
|---------------------|---|
| Preparation: | <ul style="list-style-type: none">• specifying the topic and aims• searching for relevant literature• reading• making notes• collecting and interpreting data• planning (thinking, drafting an outline)• discussion with supervisor/colleagues• revising outline |
| Writing: | <ul style="list-style-type: none">• drafting• evaluating critically, further planning, further discussion• revising/redrafting (making substantial changes to the content and organisation of the previous draft)• editing (making minor changes, especially to the expression of the ideas)• proof-reading (checking for mistakes in grammar, spelling, punctuation, data, bibliographic details, etc.) |

People vary in the way they approach the stages in the process. For some writers these stages proceed in a *linear* sequence, while for others the process is *cyclical*: activities listed under *planning*, for example, may continue during the *writing* phase. A researcher at the University of Newcastle (Shaw, 1991) interviewed 22 international postgraduate students about their writing processes. Below are some of their responses:

Nine interviewees reported planning in a good deal of detail before writing, while six wrote down ideas and then fitted them together. One interviewee described writing draft paragraphs on loose paper and then ordering them and writing connections. Another worked

by getting a very detailed plan clear in his mind, then writing a draft in mixed English and Indonesian, then rewriting it in English, and then getting it checked before writing a third draft for submission to his supervisor. The majority (17) wrote first in "rough English" or "bad English" and corrected this after they had got the ideas in order and connected.... Three aimed to write in correct English from the outset, though one admitted that later revising the content tended to make this a wasteful activity.... Most interviewees described themselves as writing at least three drafts before being satisfied. Two of the three who aimed at writing correct English in their first draft said that they would only write two drafts; they were perhaps rather unrealistic altogether. Comments that one might add material even after the third draft were frequent.

Shaw (1991: 197-198)

QUESTIONS

1. *Do any of those responses describe your own writing processes?*
2. *Do you use your first language at any stage?*
3. *What are the advantages and disadvantages of doing that?*

To compare your answer to question 3 with the Study Notes, [click here](#)

Writing academic assignments can be a rather lonely activity, and students – native writers, as well as non-native – are often anxious about the acceptability of what they are writing. Discussing your ideas with someone else, such as your supervisor, and getting their advice, *at an early stage* in the process (for example, when you have written an outline or first draft), can help you to feel more confident about what you are doing, and can highlight problems in time for you to revise your draft.

Time for revising

In this course, time has been limited. In particular, we have not had the opportunity to allow a realistic amount of time for *revising* the draft sections of your Proposal / Report which you have produced. You may have noticed that the diagram on page 92 separates revising (or *redrafting*) - making **substantial changes** to the content and organisation - from editing - making **minor changes** to grammar and vocabulary. Studies have shown that skilled writers tend to redraft, while less proficient writers tend to be less flexible about their text as a whole, and make only *editing* adjustments.

QUESTION Can you suggest reasons why less skilled writers make fewer and smaller changes to their text? To compare your answer, click [here](#)

Proof-reading

The final stage in the diagram on page 92 is **proof-reading**. Unfortunately, students often allow too little time to the proof-reading stage of their assignments. It may not be the most *exciting* part of writing but it plays a crucial role in influencing the *overall impression* your work makes on the readers:

... a piece of writing that has not been proof-read will irritate readers, impede rapid understanding, and cause readers to think that the writer is less intelligent and educated than may be the case.

Brookes and Grundy (1990: 60)

The fact that all students now have access to computers means that readers' expectations about the accuracy and care shown in written work are much higher than they used to be. In the days when students did their writing on a typewriter, rather than a computer, markers were less concerned with typing errors and spelling mistakes, because they were more difficult to rectify. The excuse of '*not having enough time*' is less acceptable than it once was. The fact that we now use computers for written assignments means that readers' expectations about the accuracy of proof-reading in written assignments are much higher than they used to be.

Most of us rely on **spell-check** programs. Although they are very useful, spell-checkers are not foolproof:

- (1) they only recognise words that they have been programmed to recognise, so they will query every occurrence of a proper name or technical term, unless you have added them in yourself;
- (2) they don't understand the meaning of what you write, so will accept any words they recognise, even if they are in fact mis-spellings of other words: e.g. *their* for *there*, *it's* for *its*, and *practice* for *practise*.

(Did you notice the **mistake** in point 2?)

Grammar-checking programs are similarly limited. One we tried correctly suggests that the sentence *My dog play with a ball* should be changed to either *My dog plays with a ball* or *My dogs play with a ball*. However, it failed to identify either of the following as ungrammatical, although one is (**question**: which one?):

a *I watched my dog play with a ball.* **b** *I watched my dog plays with a ball.*

Check the correct answer [here](#)

The moral is that there is really no substitute for carefully proof-reading a printed draft of your text – i.e. not just reading it on the screen.

TASK 7.2

The extract below comes from an MSc project submitted by a British teacher (!) of English. Proof-read it for

- grammatical mistakes
- word-processing slips (e.g. not deleting an 'old' bit of text)
- repetitive use of language
- punctuation errors

The Karelian English Teaching (KET) programme has been in action for a decade. Although it's value may be difficult for British teaching assistants to perceive, the effects it is having on Karelian teachers and the students is definitely showing. On a micro level all the people who are in contact with the assistant professionally and personally, have felt the impact on the way they perceive foreigners. Similarly the effect living in Karelia has had an effect on the lives of assistants and their views of Karelia. On the macro level it will take some time for changes to take place English language teaching in Karelia, but the process has begun. Changes are taking place in the teaching style of Karelian teachers although there is inevitably some resistance to change but through perseverance and flexibility this change can take place.

To compare your answer with the Study Notes, click [here](#)

Attention after writing: Feedback

When you have had feedback on completed work, you may find that the readers assessing your work concentrate on the content and not necessarily on the English. If you get no comments on your English, take that as a **good sign**.

Often British academic staff make rather vague and very general comments such as '*be more careful about spelling*', or even just '*Grammar!*'. From the point of view of making improvements in your future writing, you should ask for more specific feedback.

For example, the student quoted below found that his readers had problems understanding the logical argument in what he wrote, so he decided to concentrate on his use of English connectors:

Student 5

I had problems with connectors, so I made a table showing typical English connectors and giving the translation in my mother tongue. Each time I have to write an essay, report, etc., I use the table.

QUESTION *Do you think that would be an effective strategy?*

To compare your answer with the Study Notes, click [here](#)

Sources of further help

Books on academic writing and postgraduate research

Full reference details of the following books can be found on page 102.

The '*Short Guide to Writing about...*' series published by Pearson Longman contains some excellent books on academic writing in various fields, such as *A Short Guide to Writing about Biology* by Jan A. Pechenik.

Academic Writing for Graduate Students by John Swales and Christine Feak. For non-native academic writers.

English in Today's Research World: A Writing Guide by John Swales and Christine Feak. A follow-up to *Academic Writing for Graduate Students*.

Writing Up Research by Robert Weissberg and Suzanne Buker. Particularly useful for students doing empirical and experimental research.

Scientists Must Write by Robert Barrass. A practical guide for scientists and engineers.

The Unwritten Rules of PhD Research by Gordon Rugg and Marian Petre.

The Postgraduate Research Handbook by Gina Wisker.

For help with the surface features of writing in English, we recommend *Collins COBUILD English Usage*. Among other things, it contains clear and detailed rules on punctuation and spelling.

The best way to find out about the conventional formats for First Year Reports is to look at examples of **previous students' work**. Ask your supervisor or another member of staff if you can see some examples.

On-line help

There are now hundreds of sites available, but here is a selection of ones that we have been recommended by students or colleagues.

The University offers advice on various aspects of PhD study via this page on the Institute for Academic Development site:

<http://www.ed.ac.uk/schools-departments/institute-academic-development/postgraduate/doctoral/advice-support>

An extremely helpful site for non-native English users studying in English is *Using English for Academic Purposes (UEfAP)*:

www.uefap.com

One particularly valuable feature of *UEfAP* is the lists of **links** to external sites: choose **Links** from the *UEfAP* home page menu, then Language for grammar and vocabulary sites, or **Skills** for links to sources of help for writing (also listening, reading and speaking).

Referencing:

The *UEfAP* site offers detailed guidance on citation and links to further details on common styles of reference:

<http://www.uefap.com/writing/writfram.htm>

The *Chicago Manual of Style Quick Citation Guide* gives examples showing how to format citations and references, including electronic sources, in some commonly used ‘author-date’ and ‘notes and bibliography’ styles:

http://www.chicagomanualofstyle.org/tools_citationguide.html

This page on the IAD site contains links to many useful sources of help and guidance on citation and avoiding plagiarism:

<http://www.ed.ac.uk/schools-departments/institute-academic-development/undergraduate/services/referencing>

The *Harvard College Writing Program* website has a detailed **guide to using sources** as well as a very comprehensive selection of downloadable **discipline-specific writing guides** in its ‘Resources for Students’ section:

<http://isites.harvard.edu/icb/icb.do?keyword=k24101&pageid=icb.page123040>

General advice on academic writing:

<http://www.vuw.ac.nz/lc/academic-writing>
<http://owl.english.purdue.edu>

If you find any other useful sites or books, please send the details to me at kenneth.anderson@ed.ac.uk.

Computer thesaurus

One final suggestion:

Student 6

I do quite a lot of writing for the popular press and I notice that I tend to use some words over and over again. So I use the thesaurus to get more variety into my writing. I ask a native speaker to check the new words to make sure they're OK.

QUESTIONS

1. Why is it necessary to check a thesaurus item with a native speaker?
2. Have you any other suggestions for strategies to improve your writing, which we have not mentioned in this session?

To compare your answer with the Study Notes, click [here](#)

STUDY NOTES - UNIT 7

TASK 7.1

Only the first item (Bygate) is completely correct.

- The **Jones** item is missing *Cambridge* before *University Press*.
- **Long** should have the editors' names before the book title, and page numbers are missing.
- **Nolasco & Arthur** should have *Oxford* instead of *UK*.
- **Richards** - see comments on **Long** (above).
- **Richards & Schmidt**: editor's name, and page numbers, missing.
- **Rivers & Temperley** has correct publication details, but incorrect capitalisation in the book's title (articles and prepositions shouldn't have capital letters).
- **Swain** - see comments on **Long**.

To return to Unit 7, click [here](#)

PAGE 91: QUESTION (1)

These are basically good suggestions, but Students 1-3 will need to be careful not to plagiarise the texts they want to use; it is simply a question of acknowledging their sources. The idea of noticing the English in what you read is a very important one.

Student 4's strategy of summarising in his own words is safer, but still requires acknowledgement in his text.

To return to Unit 7, click [here](#)

PAGE 93: *QUESTIONS*

Open questions. You may find it easier to express and organise your ideas if you use your mother tongue in composing, but this is likely to result in you translating, which may produce less idiomatic and natural English than if you wrote directly in English (see the question on page 98).

PAGE 94: *QUESTION*

One possibility is that weaker writers have less time to revise and redraft because they have lower-level problems of self-expression, which means they take longer to produce their written work and so can only edit it.

To return to Unit 7, click [here](#)

PAGE 95: *QUESTION*

b is wrong.

TASK 7.2

Tony Lynch's corrections:

The Karelian English Teaching (KET) programme has been in action for a decade. Although ~~it's~~ its value may be difficult for British teaching assistants to perceive, the effects it is having on Karelian teachers and ~~the~~ students are ~~is~~ definitely showing. On a micro level all the people who are ~~are~~ in contact with the assistant professionally and personally, have felt the impact on the way they perceive foreigners. Similarly ~~the effect~~ living in Karelia has had an effect on the lives of assistants and ~~the~~ their views of Karelia. On the macro level it will take some time for changes to take place in English language teaching in Karelia, but the process has begun. Changes are taking place in the teaching style of Karelian teachers; although there is inevitably some resistance, ~~to change but~~ through perseverance and flexibility such ~~this~~ changes s can take place.

PAGE 96: *QUESTION*

Student 5 may be assuming that connectors are used in the same way in Spanish and in English. Research by Granger and Tyson (1996) found that native and non-native writers used them differently.

PAGE 99: *QUESTION (1)*

The problem is that so-called 'alternative' expressions listed in a thesaurus are not necessarily interchangeable, so you really do need to ask a native speaker whether they are acceptable in context.

Reference

Granger S. and S. Tyson. 1996. 'The use of connectors in the English essay writing of native and non-native students'. *World Englishes* 15/1: 17-27.

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