Research Methods in Computing
(COMP09092)

Lecture 6

Writing a Research Report

Research Report

Whatever kind of research is being undertaken, you will **need to write it up**

A written account provides tangible evidence of work undertaken

Even for research involving the development of a prototype or simulation, such work still must be **described, justified and evaluated in a textual report**

Research Report

As soon as you have ideas about a possible research proposal and associated objectives, potential deliverables etc it is useful to **start writing this down**

By writing this down it helps in **clarifying ideas, to discover what you think**

Research Report

It is often considered good practice to jot down your thoughts, ideas, problems, insights, plans, viewpoints etc throughout the research proposal stage and then into the Hons Project itself next year (if applicable)

Additional **benefits** of starting writing early include:

- You have something tangible to show your tutor/supervisor for **feedback**

Research Report

- You can include some of it in your project proposal and final Hons Project

- There is **less likelihood of you forgetting** ideas and thoughts or important details

- The easier it can be to write the report since you are not 'starting from scratch' you already have material to get you started

Research Report

Possible **dangers** of not starting to jot down ideas and start writing early are:

- You leave it **too late** before the submission date to produce a coursework report of suitable quality

- You get **overwhelmed by the task** of writing (particularly if you are not used to writing reports)

Research Report

- It is **difficult to get feedback** from tutors and supervisors in relation to 'vague unstructured ramblings'

- You **won't develop your writing skills** if you don't write

Research Report

As you plan your report think about the following questions:

- What is my research question?

- How will I set about answering the question?

- What evidence will I need to justify my answer?

- So what?

Research Report

"So what?" - is a very important question

Think about how you can answer this question

Why could your proposed research be useful to anyone else?

For example:

- Does it fill a gap in current knowledge?

- Does it extend existing understanding?

Research Report

- Can your answer be generalised to other situations?

- Does it have implications for practice?

Research Report

Setting about writing:

Try and develop a writing routine

Set yourself a target

Write at times you can function best

Use the time you function less well to do more mechanical tasks such as spelling corrections, checking reference details etc

Research Report

General Structure:

- **Beginning part:** e.g. title, author, abstract

- **Main part:** e.g. introduction, literature/technical review, research/development methodology (for actual Hons Project might also include results, discussion, recommendations/conclusions)

- **End part:** e.g. references, appendices

Language and Style

Be formal – this is an academic report

Avoid first person

Try not to use **I/we/me** etc

Use **passive** rather than active voice – write about the **action rather than about the actor**

e.g. I will send out a questionnaire to end users **(avoid this style of writing)**

A questionnaire will be sent out to the end users **(this style is better)**

Language and Style

Avoid slang words and phrasing (e.g. I will interview some guy from the IT Department)

Avoid informal abbreviations/contractions (e.g. don't, wont, can't, isn't etc)

Do not use **texting language** (e.g. CU, L8R, OMG)

Be professional

- Check spelling

- Check grammar

- Check punctuation

Overall Formatting

Typed using **Word compatible format**

Include **page numbers** (often overlooked)

Use **A4** paper size

2.5 cm margins at top, bottom and edges of paper

Either **single or 1.5 spaced**

Font size of main body text should be **11pt or 12pt** using clear fonts such as Arial or Times New Roman

Writing

For the Literature Review **don't use multiple lines of quotes** from the literature just strung together over pages and pages

Use quotes where necessary **but don't over do it**

Writing and Referencing

Use a writing style such as the following for example:

You might say:

Major shortfalls associated with approach X have been highlighted by Smith (2015) and Jones (2018) who make the points that .....

Or…

Writing and Referencing

A number of authors have highlighted particular shortfalls with approach X in terms of how it can be applied in the real world (e.g. Smith, 2015; Jones, 2018). Commonly cited problems associated with approach X that these authors highlight include ...

Discuss the authors' points without directly quoting all the time or just cutting and pasting

You can use quotes for example in defining terms or concepts etc but don't overdo it

Figures, Illustrations etc

If directly referred to in the narrative should be placed **in the text as close as possible to the first point at which they are mentioned**

Each type of illustration should be **numbered consecutively throughout the Hons Project**, e.g. Figure 1, Table 3.1 etc.

If taken from other works, **the source of the illustration should be given under the illustration**

Figure 1: Title (Source: Smith and Jones, 2016)

Figures, Illustrations etc

If the illustrations are **not directly referred** to in the text, but are used to emphasise a point made, they should be gathered together as **Appendices at the end of the report**

Illustrations and tables **should fit onto one page**, taking care that they do not run over from the bottom of a page to the top of the next page

The Writing Process

Your writing should be **critical** drawing upon evidence to justify points

Usually takes **multiple drafts** – seldom get everything right after a single draft

Proof read critically for **content, validity, completeness, robustness**, as well as…

Style, fluency and language

Use commas, full stops, paragraphs etc – don't have 10 line sentences or pages full of 1 line sentences

Planning

Important to start off by brainstorming what you have been asked to do

- Write down the purpose of the report in the middle of a piece of A4 paper

- Write down the key ideas/phrases that link to the purpose of the report

- Group pieces of information under the key areas connecting them by links

Planning

- Review the plan, adding or deleting points where necessary

- Look for a simple structure, and order the key ideas

- You could structure the report around the coursework marking scheme

- This will make up key sections of your report

Research

- **Check existing knowledge**, i.e. what you know already, and what you need to find out

- Record the **research and/or development methods to be** used

- Record the **sources** used

- **Make notes** from the sources – reference sources as you go along

Research

- **Order** your notes and **group together** points based on the original plan

- **Check** that you have done what the task requires

Report writing – the structure

Style and Structure

Match the **style** to the reader. Key is to keep the report clear and concise

Avoid unnecessary jargon and use Plain English when possible

Sentences – keep then short – no longer than 25 words

Report writing – the structure

Style and Structure

Paragraphs:

Concentrate on one theme, paragraphs should be connected with link words

Avoid paragraphs that are too short (1 or 2 sentences) or too long more than half a page

Report writing – the structure

Style and Structure

Notation:
Identify the main components of the report

1.Heading
1.2 Subheading
1.2.1 Avoid numbering further than this

Include page numbers

Report writing – the structure

Style and Structure

Use meaningful **headings and sub-headings**

Provide **'signposts'** that tell the reader what is to come and what has been covered so far, for example:

- The last section explained that … This section now covers…
- The structure of this report is a follows…

Report writing – the structure

Style and Structure

Illustrations:

Only include in main body of report if fundamental to text, or if referred to several times

Otherwise place them in an appendix

Report writing – the structure

Illustrations checklist:

- Are all your diagrams / illustrations clearly labelled?
- Do they have titles?
- Is the link between the text and the diagram clear?
- Are the headings precise?
- Are the axis of graphs clearly labelled?
- Are the diagrams / illustrations legible?

Report writing – the structure

References (Should be Harvard Style):

Details should include:

- Author's name and initials
- Date of publication
- Title of book, paper or journal
- Publisher
- Place of publication
- Page numbers
- Details of volume of journal
- If web resource – URL and date accessed

Appendices

Used for material which is:

- Too large or detailed for the main body of text

- You will refer to from the main body of text

Examples include:

- Tables of results, examples of completed questionnaires, interview transcripts

- Program code or configuration files

Report writing – After writing

Check your report for:

- Completeness
- Accuracy
- Layout
- Spelling
- Numbering
- Illustrations

Report writing – After writing

Need to check:

- Is the report written in a **clear style** without spelling and grammatical errors?
- Does the report have a **clearly signposted structure and logical sequence**?
- Is **evidence provided** for each assertion/claim?
- Do the tables and diagrams enhance the visual appeal of the report and also **aid in understanding the proposed research?**
- Are all tables, diagrams and other illustrations properly labelled?
- Are the references complete and in the style expected for your subject area?

Report writing – After writing

Your report may require **several revisions** before you get to the final version

Rushed reports and report produced at the last minute are not usually of the best quality and highest standard

There are usually 'tell tale' signs that show a report has been produced quickly with little time and effort spent

Report writing – After writing

Very Important

Check against the coursework marking scheme to ensure you have not overlooked anything

Don't throw away marks by forgetting to include important sections