

Course: Research Method in Software Engineering

WEEK 8 – Writing a Research Report

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WEEK 8 – Writing a Research Report

Contents

1. Overview of Academic Writing Techniques
2. Research Report Preparation
3. Dissertation vs Thesis Writing

Learning Outcome

- Define academic writing and understand the techniques
- Understand characteristics of academic writing
- Identify types of academic writing
- Differentiate academic writing tools
- Define report writing and how to prepare
- Understand sections of a research report writing
- Difference dissertation and thesis

1. Overview of Academic Writing Techniques

What is Academic writing ?

- It is a formal style of writing used in universities and scholarly publications.
- It is encountered in journal articles and books on academic topics, and we'll be expected to write essays, research papers, and dissertation in academic style.
- It follows the same writing process as other types of texts, but it has specific conventions in terms of content, structure and style.

Academic writing is...

- ✓ Formal and unbiased
- ✓ Clear and precise
- ✓ Focused and well structured
- ✓ Well sourced
- ✓ Correct and consistent

Academic writing is not...

- ✗ Personal
- ✗ Long-winded
- ✗ Emotive and grandiose

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writing

➤ Formal and unbiased

- Academic writing aims to convey information in an neutral way.
- The goal is to base arguments on the evidence under consideration, not the author's preconceptions.
- Avoid informal language, including slang, contractions, and conversational phrases.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writing ...cont'd

➤ Clear and precise

- It's important to use clear and precise language to ensure that our reader knows exactly what it mean- This means being as specific as possible and avoiding vague language.
- Avoid hedging claims with words like “**perhaps**,” as this can give the impression that we lack confidence in our arguments.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writing ...cont'd

➤ Focused and well structured

- An academic text is not just a collection of ideas about a topic—it needs to have a clear purpose. Start with a relevant research question or thesis statement, and use it to develop a focused argument.
- Only include information that is relevant to the overall purpose.

➤ Well sourced

Academic writing uses sources to support its claims → Sources are other texts that the author analyzes or uses as evidence.

APA citation example

In-text citation	Elsewhere, it has been argued that the method is “the best currently available” (Smith, 2019, p. 25).
Reference list	Smith, J. (2019). <i>Statistical analysis methods</i> (2nd ed.). New York, NY: Norton.

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writingcont'd

➤ **Correct and consistent**

- As well as following the rules of grammar, punctuation, and citation, it's important to consistently apply stylistic conventions regarding:
 - How to write numbers
 - Introducing abbreviations
 - Using verb tenses in different sections
 - Capitalization of terms and headings
 - Spelling and punctuation differences between UK and US English

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writingcont'd

➤ Avoid being too Personal

- Academic writing generally tries to avoid being too personal.
- Information about the author may come in at some points—for example in the acknowledgements or in a personal reflection—but for the most part the text should focus on the research itself.
- Always avoid addressing the reader directly with the second-person pronoun “**you.**” → Use the impersonal pronoun “**one**” or an alternate phrasing instead for generalizations.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writingcont'd

➤ Avoid Long-winded writing

- Many students think their writing isn't academic unless it's over-complicated and long-winded.
- This isn't a good approach—instead, aim to be as concise and direct as possible.
- If a term can be cut or replaced with a more straightforward one without affecting the meaning, it should be.
- Avoid redundant phrasings in a text, and try replacing phrasal verbs with their one-word equivalents where possible.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Characteristics of Academic writingcont'd

➤ Avoid Emotive and Magnificent

- An academic text is not the same thing as a literary, journalistic, or marketing text.
- Avoid appeals to emotion and inflated claims.
- Because the point of academic writing is to clearly communicate ideas, information, and arguments, not to inspire an emotional response.

Example :

- This horrible tragedy was obviously one of the worst catastrophes in construction history. **X**
- The injury and mortality rates of this accident were among the highest in construction history. **√**

1. Overview of Academic Writing Techniques ...cont'd

Types of academic writing

- Academics mostly write texts intended for publication, such as journal articles, reports, books, and chapters in edited collections.

Example : - The most common types of academic writing

Type of academic text	Definition
Essay	A fairly short, self-contained argument, often using sources from a class in response to a question provided by an instructor.
Research paper	A more in-depth investigation based on independent research, often in response to a question chosen by the student.
Thesis/dissertation	The large final research project undertaken at the end of a degree, usually on a dissertation topic of the student's choice.
Research proposal	An outline of a potential topic and plan for a future dissertation or research project.
Literature review	A critical synthesis of existing research on a topic, usually written in order to inform the approach of a new piece of research.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Useful tools for academic writing

- There are a lot of writing tools that will make our writing process faster and easier.

a) Paraphrasing tool

- A paraphrasing tool is an AI-powered solution to help us quickly reword text by replacing certain words with synonyms or restructuring sentences.
- They can also help to write more clearly about sources without having to quote them directly.
- Though it's still crucial to give credit to all sources in the right way to prevent plagiarism

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

1. Overview of Academic Writing Techniques ...cont'd

Useful tools for academic writing

b) Grammar checker

- Writing tools that scan a text for punctuation, spelling, and grammar mistakes.
- When it detects a mistake the grammar checker will give instant feedback and suggest corrections.
Helping to write clearly and avoid common mistakes.

c) Summarizer

- Helps to condense text into its most important and useful ideas.
- It can make it easier to understand complicated sources.
- Also use the tool to make a research question clearer and summarize the main argument.

[1]. Scribbr, Academic Writing. <https://www.scribbr.com/category/academic-writing/>

2. Research Report Preparation

What is a Research Report?

- A well-crafted document that outlines the processes, data, and findings of a systematic investigation (e.g. Thesis/ Dissertation).
- It is an important document that serves as a first-hand account of the research process, and it is typically considered an objective and accurate source of information.
- In many ways, a research report can be considered as a summary of the research process that clearly highlights findings, recommendations, and other important details.
- Reading a well-written research report should provide all the information we need about the core areas of the research process.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014, <https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

2. Research Report Preparation

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Table. Divisions and sections of a research report

Broad Divisions	Individual Sections
(1) Preliminary material	Title of Report
	Table of Contents (not always required)
	Abstract/Synopsis
(2) Body of report	Introduction
	Literature Review (sometimes included in the Introduction)
	Methodology
	Results
	Discussion
	Conclusion
	Recommendations (sometimes included in the Conclusion)
(3) Supplementary material	References or Bibliography
	Appendices

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[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(1). Preliminary material of a research report

Title

- Should be concise and point to the aims, objectives, and findings of a research report.

Table of Contents

- This is like a compass that makes it easier for readers to navigate the research report.

Abstract/Synopsis

- An overview that highlights all important aspects of the research including the research method, data collection process, and research findings.
- Think of an abstract as a summary of a research report that presents pertinent information in a concise manner. The focus of a research abstract should be the 5Ws and 1H format – What, Where, Why, When, Who and How.

[3]. Formplus, Research Report: Definition, Types + [Writing Guide], Busayo Longe, July 27.
<https://poe.com/chat/3pxmrki1yxfzk2mfanb>

(2). Body of research report

- **Introduction** - Background information may include a brief review of the literature already available on the topic so that we are able to 'place' our research in the field. Some brief details of methods and an outline of the structure of the report.
- **Literature Review** - It may be useful to do a sequential format where we discuss from the earliest to the latest research, placing the research appropriately in the chronology. Alternately, we could write in a thematic way, outlining the various themes that we discovered in the research regarding the topic. Again, it is need to state where the research fits.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(2). Body of research report ...cont'd

Methodology

- Clearly outline what methodology used in the research i.e. what we did and how we did it.
- This is a detailed account of the research process, including the methodology, sample, and research subjects.
- It is expected to provide in-depth information on the research process including the data collection and analysis procedures.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(2). Body of research reportcont'd

- **Results** - This is where we indicate what is found in the research. Give the results of a research, but do not interpret them. We are expected to present the results of the systematic investigation.
- **Discussion** - This is where we discuss the relevance of your results and how the findings fit with other research in the area. It will relate back to the literature review and introductory thesis statement.
- Here, it is expected to present a justification for each outcome and show whether the results are in line with the hypotheses or if other research studies have come up with similar results.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(2). Body of research report ...cont'd

Conclusion

- This is a summary of the most significant results/findings.
- Should not include any new material in this section.
- Sometimes we could indicate some areas where the research has limits or where further research would be useful.

Recommendations

- This includes suggestions for what needs to be done as a result of our findings.
- Recommendations are usually listed in order of priority.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(3). Supplementary Material of research report

References or Bibliography

- Includes all references used in the report or referred for background information.
- This must be done using the referencing convention
- The references section lists the resources used to research or collect the data for the report that provide proof for our points.
- Also, provides solid reasoning for the readers so that they can review the original data sources themselves.
- Credit must be given where credit is due.

[2]. The University of Adelaide, Writing a Research Report, Writing Centre, 2014,
<https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>

(3). Supplementary Material of research reportcont'd

Appendices

- Although this one is not necessary, more like an optional element.
- It may include additional technical information that is not necessary to the explanation provided in the body and conclusion but further supports the findings, such as tables or charts or pictures, or additional research not cited in the body but relevant to the discussion.
- It must be referred to in the body of the report and must have a clear purpose for being included.
- Each appendix must be named and numbered.

3. Dissertation VS. Thesis Writing

Thesis

- A thesis is an academic report paper completed near the end of a student's course of study for a master's degree program.
- Note that most master's degrees require the completion of a thesis for graduation.
- Some bachelor's degree programs even require students to write an undergraduate thesis, which is typically shorter and less in-depth than a master's degree thesis.
- A thesis is typically structured in a relatively rigid format, depending on the policies of the university and the individual department.

The following components are often required:

- Title page, Abstract (summary) ,Table of contents, Table of figures/maps, Body, typically divided into chapters, and Conclusion/results

[4]. Grand Canyon University (GCU), Dissertation vs. Thesis: A Comparison, September 08, 2021.
<https://www.gcu.edu/blog/doctoral-journey/thesis-vs-dissertation>

Dissertation

- In contrast to a thesis, students working on a doctoral dissertation conduct their own original research after reviewing the established research.
- The goal of a dissertation is not only to prove the student's own knowledge and skills but also to add to the existing body of knowledge in their field.
- The process of writing a dissertation begins in a way similar to the process for a master's thesis. Students select their topic and then conduct a literature review, which is a thorough analysis of the existing research on that topic.
- Students can work on developing a new theory, exposing a previously established theory or finding a new angle on an existing theory.

[4]. Grand Canyon University (GCU), Dissertation vs. Thesis: A Comparison, September 08, 2021. <https://www.gcu.edu/blog/doctoral-journey/thesis-vs-dissertation>

3. Dissertation VS Thesis Writing

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- Like that of a thesis, the specific makeup of a dissertation depends on the policies and requirements of the university and the doctoral candidate's department.
- In general, however, dissertations include the following elements:

- Title page
- Acknowledgements
- Abstract
- Table of contents
- Introduction
- Literature review and theoretical framework
- Methodology
- Findings
- Discussion of findings (interpretation, analysis and applications)
- Conclusion
- Reference list
- Appendices

[4]. Grand Canyon University (GCU), Dissertation vs. Thesis: A Comparison, September 08, 2021.
<https://www.gcu.edu/blog/doctoral-journey/thesis-vs-dissertation>

Similarities between Thesis and Dissertation

- Each is considered a final project and required to graduate
- Both require huge understanding of the material
- Written skills are key to complete both
- Neither can be plagiarized
- Both are used to defend an argument
- Both require analytical skills
- We will have to draft, rewrite, and edit both pieces of writing
- For both, it is useful to have another person look over before submission
- Both papers are given deadlines

[5]. University of the People (UoPeople), Dissertation vs Thesis: The Differences that Matter, Writers of UoPeople, April 26, 2020. <https://www.uopeople.edu/blog/dissertation-vs-thesis/>

Differences between thesis and Dissertation

- A dissertation is longer than a thesis
- A dissertation requires new research
- A dissertation requires a hypothesis that is then proven
- A thesis chooses a stand on an existing idea and defends it with analysis
- A dissertation has a longer oral presentation component

[5]. University of the People (UoPeople), Dissertation vs Thesis: The Differences that Matter, Writers of UoPeople, April 26, 2020. <https://www.uopeople.edu/blog/dissertation-vs-thesis/>

Summary

- Academic writing is a formal style of writing used in universities and scholarly publications.
- Academic writing should be formal and unbiased, clear and precise, focused and well structured, correct and consistent, avoid being too personal, and Long-winded writing
- Paraphrasing tool, summarizer and grammar checker are writing tools that make our writing process faster and easier
- A research report is a concise summary of the research process, outlining findings, recommendations, and other crucial details.
- A thesis is an academic research report completed near the end of a student's course of study for a master's degree program.
- The goal of a dissertation is not only to prove the student's own knowledge and skills but also to add to the existing body of knowledge in their field.

Reference

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2. The University of Adelaide, Writing a Research Report, Writing Centre, 2014, <https://www.adelaide.edu.au/writingcentre/ua/media/28/learningguide-writingaresearchreport.pdf>.
3. Formplus, Research Report: Definition, Types + [Writing Guide], Busayo Longe, July 27. <https://poe.com/chat/3pxmrki1yxfzk2mfanb>.
4. Grand Canyon University (GCU), Dissertation vs. Thesis: A Comparison, September 08, 2021. <https://www.gcu.edu/blog/doctoral-journey/thesis-vs-dissertation>.
5. University of the People (UoPeople), Dissertation vs Thesis: The Differences that Matter, Writers of UoPeople, April 26, 2020. <https://www.uopeople.edu/blog/dissertation-vs-thesis/>

Thank You!