

MSc DISSERTATION WRITING GUIDE

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1. Abstract

- a. It should be relatively short (NEVER longer than a page).
- b. It should be well structured: Introduction to the topic, problem addressed, research objectives, methodology used, work done (e.g. details of the system developed) and results achieved. (Dissertation Proposal: Introduction to the topic, problem to be addressed, research objectives, methodology that would be used, expected results).
- c. It should include the major Keywords that identify your work (and can be used for indexing it).
- d. No references to authors is usually required (you are summarising your work).

2. Chapter 1: Introduction

- a. Introduction: Give all the necessary background information so that when you explain your Problem Statement/Research Objectives and Research Questions these can be understood in the appropriate context. It should not be too long. Details would be covered in the Literature Review or in later chapters. Any definition should be supported by references to authorities. Major statements made should be substantiated by references. Do not include references to your “solution” or your “objectives”, this would be done in later headings. Focus on what is relevant to understand your work.
- b. Problem Statement: It should not be very long, rather it should be precise and to the point. Do not give background information (this would have been done already in the Introduction). Do not give the solution (the solution is not the problem!). In principle, do not state “several” problems as this is likely to make your research confusing. Identify “who” has the problem.
- c. Research Objectives and Research Questions should be aligned. Include “validation of the solution” as a final objective/question. Typical objectives: Understand the problem; Understand previous research and current related solutions – identify gap; design, develop and test your solution; validate your solution.
- d. Research Hypothesis: Include your hypothesis if required (this may not be necessary). If you include them, you should discuss them/validate them in Chapter 5

or 6. In some cases, students seem to assume implicitly that a mobile application will solve the problem; that assumption may be explicitly stated as a hypothesis.

- e. Scope and Limitations: Scope: Focus on the areas that you plan to cover on your research. Describe areas that you will not cover in your work (e.g. geographical, technical platforms, etc.). Include the platforms for which you will develop (e.g. Android, iOS, Windows, Linux, etc.). Limitations: can your research scale? Is it representative? Would it be applicable in other geographic locations?
- f. Research Relevance (or Justification): Why your work will be useful and to whom? Why solving this problem will be useful?
- g. Ensure everything is aligned: research problem, objectives, etc. Avoid covering other areas that are not relevant.

3. Chapter 2: Literature Review

- a. This section should not include original work by the author.
- b. It is imperative that your literature review is aligned with your problem statement and your research objectives. You should not review concepts or topics that are irrelevant to your research.
- c. Quality of the references is more important than quantity.
- d. Most material presented should be properly referenced; **there should not be long paragraphs without references.**
- e. **Long quotations (cut and paste from other authors) are not allowed.** You should aim at giving a brief description of the work done by others authors, rather than an extensive copy/paste of it. References to work done to various authors on the same topic is preferable to long quotations from a single source.
- f. Long detailed explanations of the work done by any single author are very likely to be irrelevant. If the work by an author is very relevant to your research, just cover it in general terms, explain in the conclusions of this chapter that you will use it, and then cover the necessary details in a later chapter.
- g. You should finish this section with a summary/discussion/conclusions. It is especially important that you mention what work from previous authors you may or may not take into consideration in your own work and why. You should also identify gaps that justify your work and that your research will address.

4. Chapter 3: Methodology

- a. The methodology should align with the research objectives and questions stated in Chapter 1—i.e. explain what methodologies you are going to use to answer the research questions.
- b. Some of the research questions may be fully or partially answered by the literature review; if so, you can state this.
- c. You should explain the methodologies chosen and justify your choice. You should not give long explanations of the methodology itself—the reader can check the references if interested. You should avoid “cut and paste” from books. You should concentrate in explaining “**HOW you will do YOUR research**” rather than how a book describes what needs to be done.
- d. Most Dissertations will be geared towards the development of a software system, hence relevant Software Methodologies are expected rather than those more applicable to social sciences methodologies (i.e. interviews/questionnaires might

only be needed to establish the system requirements or for testing/validating your solution). If applicable, students should be fully aware of standard software development methodologies –you might want to refer to the relevant units in the course syllabus to choose an adequate methodology.

- e. The chosen methodology should clearly cover how the various activities were done (e.g. if you are developing a software system or mobile app, you should cover areas such as: System Analysis, Design, Implementation, Testing and Validation using the terminology proper to the software development methodology used).
 - f. This Chapter's headings and sub-headings need to be aligned to the methodology used.
 - g. If surveys/interviews/questionnaires were done, they should be explained as well as what knowledge the researcher is seeking and how the results of the survey will be used for the rest of the work. The surveys should be included in the context in which the results will be used, i.e. under Feasibility Study, Requirement Analysis, System Analysis & Design, Testing, Validation, etc. Reference to the Questionnaires in the Appendix should be given.
 - h. Surveys/Interviews/Questionnaires and the rest of the work should be well tied up: a survey that is not used in the rest of the work done, it is not admissible. If feedback from users will be used to improve your work, explain your methodology on how you did this.
 - i. A reference to the Questionnaires used should be included. The actual Questionnaires should be included as Appendices.
 - j. Software methodologies used (e.g. Use Case, UML, DFD's, Sequence Diagrams, ERD's, Wireframes, etc.) should be included and properly referenced to the main literature sources on that subject; hence, there is no need to give long theoretical explanations that can be found in the relevant literature.
 - k. Cover the various tools that you will use in software development and provide references (e.g. refer to the website where these tools might be obtained).
 - l. Explain in detail your Testing and Validation methodologies. Testing should be geared towards ensuring that your solution is user friendly, covers the systems requirements, implements the design and it works as expected. Validation should check whether your solution actually solves the problem.
 - m. The reasons why a certain methodology is used should be given.
 - n. There should not be "original" work by the student in this chapter. (This is more about "how" you did your work than about "what" you did).
 - o. If your main objective is to develop an algorithm, your methodology will need to reflect that—rather than the above. If you are developing a tool as a proof-of-concept of your "algorithm", the above might not be applicable in full as a tool is not a software system.
 - p. The following chapters (Chapters 4, 5, etc.) should be named according to the terminology used in your methodology.
5. Chapter 4: System Design and Architecture (Not applicable to Dissertation Proposal)
- a. System Design and Architecture may be combined on this chapter or be covered as separate chapters.

- b. If a database was used, a database schema should be given. This should include a discussion on the design supported at least by an ERD. It should also include a description (in table format) of the entities (tables) and attributes (fields) as well as primary and foreign keys, relationships, views, indexes, procedures and triggers (if applicable). It is advisable to not clutter the ERD with attributes (only Primary and Foreign Keys are needed to illustrate relationships). Relationships between entities in an ERD do not need to be named (students often confuse relations between entities with “procedures” that are only implemented programmatically).
 - c. If a web and mobile system were implemented, both must be distinctly covered except the areas in which both systems may overlap.
 - d. A proper system modelling should be indicated using class and sequence diagrams.
 - e. Use wireframes to design mobile applications and websites.
- 6. Chapter 5: System Implementation and Testing (Not applicable to Dissertation Proposal)
 - a. System Implementation and Testing might be combined on this chapter or be covered as separate chapters.
 - b. The functionalities of the various systems implemented should be clearly stated and illustrated via screen-shots. The most relevant screen-shots should be included as part of this chapter (i.e. screen-shots that help the reader visualise the functionalities implemented); less relevant screen-shots might be included in an appendix (e.g. login screens, screen messages that add little to other previously shown screens, etc.).
 - c. If a web and mobile system were implemented, both must be distinctly covered except the areas in which both systems may overlap.
 - d. Apart from testing techniques such as functionality, usability, compatibility, security, navigation, a proper **validation** of the system implemented needs to be carried out. This should verify if the system developed actually solves the problem identified (i.e. the “problem statement” in Chapter 1).
- 7. Chapter 6: Discussion of Results (Not applicable to Dissertation Proposal)
 - a. This chapter should discuss the results of your work in the previous chapters highlighting your findings and achievements. It should not incorporate new work done or results achieved not covered previously.
 - b. Major references to literature should have been covered in previous sections. Here you should explain the results of YOUR work.
 - c. An explanation of how the results achieved meet the research objectives should be given.
 - d. If hypothesis were made, you should validate them in this chapter.
- 8. Chapter 7: Conclusions, Recommendations and Future Work (Not applicable to Dissertation Proposal)
 - a. Conclusions should focus on the work done not on general statements.
 - b. A summary of the major results obtained should be given.
 - c. You may highlight the importance and benefits that may be derived from the work done.
 - d. Recommendations could cover how the results of your work may be implemented in real life, especially if this involves third parties.

- e. Future Work must be included as a separate sub-heading and explain how your work could be extended by other researchers (e.g. covering areas that were out of your Scope but might be of interest). If your work was built for a single platform (e.g. Android) when other common platform exists, you may suggest that it could be expanded to the other platforms (e.g. iOS, Windows).

9. References

- a. Use the APA style.
- b. Order alphabetically. Do not number.**
- c. URLs: Include the date in which the URL was accessed.
- d. Do not use “et al.” but provide a list of all authors unless more than nine (9).
- e. Ensure that any reference in the text is quoted in this section and vice versa.

10. Appendices

- a. Content in the appendices should have been referenced in the main text.
- b. In addition to other appendices that are normally included in appendices, the TURNITIN report MUST also be included with a similarity index of not more than 30% (Not applicable to Dissertation Proposal).

11. General

- a. References should be to recent work (unless quoting seminal work).
- b. Your work is a Dissertation; hence, you should avoid referring to it as “thesis” or “project”.

Note: Chapters 4 and 5 assume that the core of your work is to develop a software product. If this is not the case, these chapters may have different headings depending on your work. (E.g. if the core of your work is to develop an algorithm or a tool your headings may reflect this).

MSc DISSERTATION FORMATING GUIDE

1. This is a formal academic work:
 - a. Non-formal language/expressions should be avoided.
 - b. Poor grammar and spelling mistakes are inadmissible.
 - c. Expressions such as “can’t”, “isn’t”, “it’s”, “don’t” should be written in full.
 - d. Do not use the word “App”, spell it in full: “Application”.
 - e. Words that describe established entities or platforms such as “Communications Authority”, “Internet”, “Android”, “Windows” should always be capitalised.
 - f. In Kenya, the English spelling rather than the US spelling of words is preferred (e.g. “organisation” rather than “organization”).
 - g. In general, the symbol “&” should be avoided, use ‘and’ instead.
2. Proper formatting is required:
 - a. Capitalisation of all headings/tables/figures to be done properly.
 - b. Consistency in fonts, spacing, indentations and styles.
 - c. Consistent distance between paragraphs.
 - d. Proper spacing before/after punctuation marks (e.g. commas, full stops, parenthesis, etc.). Refer to an English Writing Guide when in doubt.
 - e. Proper use of semicolons and colons. (Use colons to precede lists, not semi-colons). Refer to an English Writing Guide when in doubt (there are many in the Internet).
 - f. Occasionally, you might want to use em-dashes. Learn how and when to use them. You will also profit if you can differentiate between: hyphen, em-dahs, en-dash and the minus symbol and when to use them.
 - g. Avoid using “:-” as this is not a punctuation symbol, a simple colon suffices.
 - h. It is preferable that figures and tables be numbered according to the chapters (e.g. Figure 1.1, 2.1, 3.2, etc.). For figures, the word “Fig.” should be avoided, spell it in full: “Figure”.
 - i. Legends/text in figures/tables should be readable.
 - j. Pie charts should look like circles rather than ovals.
 - k. Do not include full-stops at the end of titles, headings, sub-heading, figures or table titles.
3. Use the APA format for referencing.
 - a. The expression “et al.” should be spelled and punctuated correctly.
 - b. The proper style to reference an author when the quotation is part of the phrase (as opposed to quotations that are not part of a phrase) should be observed.
4. **Cover Page:** Include Name and Registration No.
5. **Table of Contents:** Capitalise headings properly.
6. **List of Figures/Tables:** Capitalise headings properly.
7. Figures and tables should always be referenced in the text.
8. Appendices should be referenced in your text where relevant.

Last revised, January 2017