

Master's Research Proposal

Title of your Master's Research Proposal

by

Complete Name of Candidate

**A Masters Research Proposal submitted in partial fulfilment
of the requirements for admission to the study towards the
degree of**

**POSTGRADUATE DEGREE – PLEASE INSERT
EITHER: MTech, MEng, MPhil, MIng – WRITE IN FULL**

in

COMPLETE NAME OF MASTERS DEGREE

in the

Faculty of Engineering and the Built Environment

at the

UNIVERSITY OF JOHANNESBURG

**SUPERVISOR: Name of supervisor
CO-SUPERVISOR: Name of supervisor (if applicable)**

Date of submission

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Writing a Masters Research Proposal

What is a master's research proposal?

A dissertation proposal (minor/ full dissertation), often referred to as a research proposal, is something like an architect's plan. It is a carefully prepared document and it proposes a set of actions... It sets forth a plan of action that you intend to follow. Although you will not have to adhere slavishly to the plan, the general thrust and directions are clearly outlined (Anderson and Poole, 2009: 27).

A research proposal should provide a context for your work and clearly signal how you intend achieving your research objectives. It should also indicate why you believe there is a need for your research or why your research question is one that is worth being answered.

More importantly, the proposal not only justifies your idea and plan of action, but also lays the groundwork for your research study.

Masters Research Proposal Guidelines - General Information

This document provides guidelines for writing the research proposal at the master's level (Minor / full dissertation). Please take note of the following before you work carefully through it:

- Length of the detailed proposal for masters candidates: approximately 3 000 words
- The master's proposal is typically between fifteen to twenty 1.5 line spacing and typewritten pages in length, with one-inch margins all around.
- If your study requires ethical clearance, this clearance must be obtained before your proposal defence.
- Writing a meticulous proposal will help you establish the groundwork for your research study. It will also help you pre-empt any problems you may experience during the course of your writing and research.

Typically, all proposals follow a similar organisational flow chart. While this masters research guidelines will not suit every research proposal exactly, it is useful to consider how your own master's research proposal fits into this template or requires its modification.

This is to be a word document that will be evaluated by the University of Johannesburg's Faculty of Engineering and the Built Environment's

Faculty Higher Degree Committee for final admission to the master's study.

It is recognised that under supervision, the candidate, may within university policy guidelines, change the scope and content of their research project from this proposal as long as the supervisor formally agrees to this.

The proposal should be formatted according to the guidelines as provided. The proposal guidelines consist of some, or all, of the following sections, usually in the listed order as defined on the table of contents.

As a guide the master's research proposal should be no longer than about 20 pages (including appendices and references) – depending on the Engineering and the Built Environment discipline.

The Format of the Research Proposal

The proposal should be typed in Times New Roman (font size 12), using 1.5 line spacing (Use only one font throughout the entire document).

Your proposal should follow all basic format instructions set forth in this specification. The master's proposal shall be submitted in MS WORD and use 12 Times New Roman font. If notes are used, they should be in 10 size font.

As per the standard research rules and guidelines, all cited material should be referenced in full using the ***Harvard Referencing Style or as will be applicable to your discipline***. Academic dishonesty, including plagiarism and other types of academic deception is viewed in a serious light and has severe consequences.

Edit and revise your writing thoroughly; poor grammar and inappropriate style detract from your message and compromise your credibility as a researcher. Use spell check and grammar check applications. • Make an appointment with Academic Skills; and read your proposal out aloud; errors often get picked up this way.

Masters Proposal - Generic Structure

Background / Introduction

Research problem statement

Research question (s)

Research objectives or Hypothesis

Significance of the research

Literature Review

Research Methodology/ Materials / Methods / Approach

Delimitations / Limitations

Conclusions

References list / bibliography

Research timetable / duration

Budget

Appendices (if any)

Declaration

I [**Complete Name of Candidate**] hereby declare that this master's research proposal is wholly my own work and has not been submitted anywhere else for academic credit either by myself or another person. I understand what plagiarism implies and declare that this proposal is my own ideas, words, phrase, arguments, graphics, figures, results and organisation except where reference is explicitly made to another's work. I understand further that any unethical academic behaviour, which includes plagiarism, is seen in a serious light by the University of Johannesburg and is punishable by disciplinary action.

Signed.....

Date.....

Title

The title can be a working title in that it must formally be registered at a later date. It should however already convey the essence of the master's research proposed work. (It should be limited to no more than 25 words – twice the recommended UJ formal title rule.)

1.0 Background

The background section should be a brief review of the extant research leading to the research question. It will contain the most recent leading peer-reviewed research in the discipline/topic being proposed.

The background gives an overview of the research project you propose to carry out. It explains the background of the project, focusing briefly on the major issues of its knowledge domain and clarifying why these issues are worthy of attention.

The background will identify a specific purpose for the conduct of the research. Research conducted at the University of Johannesburg is expected to contribute to the global body of knowledge. This means that candidates must demonstrate an understanding of the existing body of knowledge that will be contributed to by this research. The background will clearly identify gaps in existing knowledge as well as outline why the research is important and should be conducted.

The background should endeavour, from the very beginning, to catch the reader's interest and should be written in a style that can be understood easily by any reader with a general science background. It should cite all relevant references pertaining to the major issues described, and it should close with a brief description of each one of the chapters that follow.

Many candidates prefer to postpone writing the Introduction till the rest of the document is finished. This makes a lot of sense, since the act of writing tends to introduce many changes in the plans initially sketched by the writer, so that it is only by the time the whole document is finished that the writer gets a clear view of how to construct an introduction that is, indeed, compelling.

Note on the background:

- Is usually one to two pages long
- Is meant to capture the reader's attention and to introduce the topic

- Is written in the present tense (After you propose, then it will become past tense)

2.0 Research Problem Statement

A research problem is a definite or clear expression [statement] about an area of concern, a condition to be improved upon, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or within existing practice that points to a need for meaningful understanding and deliberate investigation. A research problem does not state how to do something, offer a vague or broad proposition, or present a value question (University of Southern California Handbook).

The formulation of a research problem is the first and most important step of the research process. This is more like identifying a destination prior to beginning a journey (Alan, 2007). A research problem is like the foundation of a building. The type and architecture of the building depends on the foundations. If the foundation is well designed and strong, you can expect the building to be strong as well. You must have a clear idea with regard to what it is that you want to find out but not what you think you must find. A research problem can begin with something simple to something very complex, depending on the nature of the research theme. In ICT, with new emerging technologies, many research problems may be churned from issues in performance, reliability and daily user applications.

2.1 Research Question(s)

A research question guides and centres your research. It should be clear and focused, as well as synthesise multiple sources to present your unique argument. Be careful to avoid the “all-about” paper and questions that can be answered in a few factual statements (Duke Writing Studio).

Examples:

For instance, the following question is too broad and does not define the segments of the analysis:

Why did the chicken cross the road?

(The question does not address which chicken or which road.)

The research questions are broad statements of the goals of the research. They should be directly related to the gaps in existing knowledge identified in the previous section.

While all research questions need to take a stand, there are additional requirements for research questions in the Engineering and the Built Environment disciplines. That is, they need to have repeatable data. Unreliable data in the original research does not allow for a strong or arguable research question.

According to Porush (1995), you need to consider what kind of problem you want to address. Is your research trying to accomplish one of these four goals?

- Define or measure a specific fact or gather facts about a specific phenomenon.
- Match facts and theory;
- Evaluate and compare two theories, models, or hypotheses; and
- Prove that a certain method is more effective than other methods.

Moreover, the research question should address what the variables of the experiment are, their relationship, and state something about the testing of those relationships.

The particular question/s to be investigated should be clearly stated. Usually but not always, this is a more specific form of the problem in question form. If you have a hypothesis, you should state it clearly and concisely.

Key questions to ask yourself at this point

1. Have I asked the specific research question I wish to pursue?
2. Do I have a hypothesis in mind? If so, have I expressed it?
3. Do I intend to investigate a relationship? If so, have I indicated the variables I think may be related?

2.2 Research Objectives or Hypotheses

The research objectives are broad statements of the goals of the research. They are directly related to the gaps in existing knowledge identified in the

previous section. The objectives would cover what the research is attempting to find out (in broad terms). For example:

“This research aims to

- Identify primary concerns regarding the pricing of broadband telecommunication access in developing countries.
- Understand the impact of changes in the relevant telecommunication regulatory policies on the behaviour of service providers using game theoretic modelling.
- Proposes alternative access and pricing models for broadband access that will enable low end users to be included in the broadband arena with the contingent tragedy of the commons developing.”

In qualitative research proposals, the research objectives might be sufficient to provide a conceptual framework for the study. However, in studies which are quantitative in nature, the candidate might be expected to develop hypotheses (*depending on the supervisor*) to be examined in the study.

In general, research objectives describe what we expect to achieve by a project. Research objectives may be linked with a hypothesis or used as a statement of purpose in a study that does not have a hypothesis. Even if the nature of the research has not been clear to the layperson from the hypotheses, s/he should be able to understand the research from the objectives.

3.0 Significance of the research

This section of the master’s proposal should typically include an explanation of the intended research significance, its potential benefits and its overall impact. The significance of a study, often called the “rationale”, attempts to explain to the reader why the research work is worth to be conducted.

This section should explain which specific groups of people can/ will benefit from the research. It should typically indicate how the specific project fits within the developing body of knowledge. If the research project is part of a larger investigation, the rationale should explain the overall importance of that larger project as well.

Candidates should consider why their work is important and what its implications are. Also, consider how the study might fill in knowledge gaps

in your field, develop better theoretical models or point the way toward further study. Candidates should also examine what impact the study might have not just on the academic or scientific community but also on the general public. Practical benefits should be presented if possible, such as how the work might inform policy, improve some aspect of people's lives, help people save money, make a process more efficient or help the environment.

This should be a statement (not more than one page) of why it is important to undertake this research, in terms of the field of study involved and anticipated benefits to the wider community. What is the potential of the research to produce knowledge for some useful application? This section is linked to the background and should be a relatively short review of the context and value of the study for the wider society.

4.0 Literature review

The Literature Review (or Foundations) section of the master's research proposal, serves a collection of very important aims. First, it demonstrates that you have built a solid knowledge of the field where the research is taking place, that you are familiar with the main issues at stake, and that you have critically identified and evaluated the key literature. On the other hand, it shows that you have created an innovative and coherent view integrating and synthesising the main aspects of the field, so that you can now put into perspective the new direction that you propose to explore.

The Literatures reviewed must give credit to the authors who laid the groundwork for your research, so that when, in the research objectives section of the proposal, the reader is able to recognise beyond doubt that what you are attempting to do has not been done in the past and that your research will likely make a significant contribution to the global body of knowledge in the field of study.

This section of the proposal is usually the more extensive part of a research proposal, so it will expectedly develop over various paragraphs and sub-paragraphs. It should be accompanied by comprehensive references, which you list at the end of the proposal. Ideally, all influential books, book chapters, papers and other texts produced in the knowledge domain you are exploring which are of importance for your work should be mentioned here and listed at the end of the proposal. You should follow very strictly the appropriate referencing conventions and make sure that no document you refer to is missing in the final list of references, nor vice versa.

The choice of referencing conventions may depend on the specific field where your research is located. Popular conventions are those established by the Association for Computing Machinery (ACM), the Association for Information Systems (AIS), the Institute of Electrical and Electronics Engineers (IEEE), Harvard Referencing or Author-Date Style and the American Psychological Association (APA).

Key questions to ask yourself at this point

1. Have I surveyed and described relevant studies related to the problem?
2. Have I surveyed expert opinion on the problem?
3. Have I summarised the existing state of opinion and research on the problem?

5.0 Research Methodology/ Materials / Methods / Approach

Research Design /Methodology/ Method/ Approach/: includes a description and rationale for the methods of data collection and analysis, and the materials to be used for solving the problem. When and how will you know, for example, that sufficient experimentation has been done, and sufficient and valid data analysed, to support or invalidate the original hypothesis?

This section includes the dataset/s, calculations, equipment, calibration graphs, and procedures to be used, lists project limitations and outlines how ethical considerations of the research will be considered.

Typically, it uses subheadings (i.e. Subjects, Instrumentation, Data Collection, Methods of Analysis etc.) and is written with a future aspect, e.g. *The research will initially examine water treatment processes in...*

The section on research methodology will include a brief consideration of some of the following questions:

- a. What level of research is this (e.g. theory building, confirmatory, exploratory etc., etc.)
- b. What type of research is it (e.g. qualitative, quantitative, combination, experiment)
- c. What exactly are your research questions (if qualitative)
- d. What exactly are you measuring (if quantitative)
- e. What measures will you use and why

- f. How will you establish validity and reliability (Consider issues of instrument calibration etc.)
- g. If you are doing sample based research consider who/what is your sample (and why them and not others):
 - i. Sample size
 - ii. Sampling technique
 - iii. Method of execution (where will you get hold of these people / when / how/ why)
 - iv. Sampling methodology impacts on validity and reliability of researched results
 - v. What will you do to limit bias, and improve survey response rates?
- h. What measurement instruments will you use (e.g. in the case of qualitative research: discussion guidelines, questionnaires, coding frames, in the case of quantitative research: pressure sensors, ammeters, etc.)
- i. What type of data will you collect (and why) (e.g. ratio, ordinal, categorical, interval if quantitative) (e.g., text, semiotics, paralanguage, interpretations, proxemics, kinesics, if qualitative)
- j. The experimental setup to be developed to collect this data should at least be described at a high level
- k. What method of data analysis will you use to understand your results – remember to also indicate software requirements if this is unusual
- l. Ethical constraints of your research area

6.0 Delimitations & Limitations

Delimitations also referred to as the scope of the study are choices made by the researcher which should be mentioned.

This section of a proposal should explain what information or subject is being analysed. For instance, the scope of a historical research should include a scope section that explains what time period the researcher will be considering in the study. Since it is impossible to study every aspect of every subject, the scope of study tells the reader which aspects of a subject the writer has chosen to study. Most research is limited in scope by sample size, time and geographic area. The scope of study is usually followed by an explanation of the limitations of the research.

Limitations are shortcomings, conditions or influences that cannot be controlled by the researcher. They are not under the control of the researcher. Candidates should state any limitations that might influence the results of the study (if already known). Examples of limitations include funding and time constraints that affect methodology.

7.0 Conclusion

The conclusion is intended to help the reader understand why your research should matter to them after they have finished reading the proposal. A conclusion is not merely a summary of the main topics covered or a re-statement of your research problem, but a synthesis of key points. For most proposals, one well-developed paragraph is sufficient for a conclusion, although in some cases, a two or three paragraph conclusion may be required.

Reference list and/or bibliography

A list of references should be provided in an appropriate academic format such as Harvard or Author-Date or IEEE.

The choice of referencing conventions may depend on the specific field where your research is located. Popular conventions are those established by the Association for Computing Machinery (ACM), the Association for Information Systems (AIS), the Institute of Electrical and Electronics Engineers (IEEE), Harvard Referencing or Author-Date Style and the American Psychological Association (APA).

Research timetable/ duration

This section should include a consideration of the time frame required to prosecute the research, review theoretical materials, develop the experimental system, collect data, analyse the data and write up a thesis based on the outcomes of the experimentation. Candidates should recognise that the minimum expected duration of the PhD study is 2 years for full time or 3-4 years for part-time. The timetable submitted must adhere to these timeframes to be acceptable. (Only details at the highest level are required). The timetable can be prepared in form of a Gantt chart or in any other form.

Budget

The budget must contain details of costs that the candidate expects to incur in the conduct of the project. For example, costs associated with fieldwork, travel, mailing surveys, internet survey hosting, etc. The University of Johannesburg is not *automatically* responsible for all costs involved with the conducting of research by postgraduate students. Ensure that your supervisor is both aware of these costs as well as having access to funds that make this possible. Non-availability of funds is not a reason for holding anyone responsible for an inability to progress in the study.

Acknowledgement

These guidelines are based on the original proposal guidelines prepared by Professor A.L. NEL of the School of Mechanical and Industrial Engineering, Faculty of Engineering and the Built Environment of the University of Johannesburg. Other sources used in the preparation of this guideline include:

Bryman, Alan. "The Research Question in Social Research: What is its Role?" *International Journal of Social Research Methodology* 10 (2007): 5-20

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Tips and Examples for Writing Thesis Statements. The Writing Lab and The OWL. Purdue University.

David Porush (1995). A Short Guide to Writing about Science. (New York: Harper Collins, 1995), 92-93.

Duke Writing Studio. https://twp.duke.edu/uploads/media_items/research-questions.original.pdf

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