

UNIVERSITY OF TECHNOLOGY AND ARTS OF BYUMBA
OFFICE OF THE DEPUTY VICE-CHANCELLOR FOR ACADEMICS AND
RESEARCH
DIRECTORATE OF RESEARCH AND CONSULTANCY



GUIDELINES FOR RESEARCH PROPOSAL AND REPORT WRITING

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**University of Technology and Arts of
Byumba (UTAB)**

Approved

By:

Academic Senate

University of Technology and Arts of
Byumba (UTAB)

June 2018

For your attention

RESEARCH PROPOSAL WRITING GUIDELINES

OBJECTIVE

The objective of a Research Proposal (RP) is to clearly express one's research idea.

SKILLS

A well elaborated RP provides its author(s) the ability to explain what she/he is especially good at, therefore, depicting talents that set her/him apart via the innovative idea-not jargon (=verbiage).

NOTE ON FONTS AND PARAGRAPH SETTINGS

Fonts

Theme Fonts: Rockwell (body),

Times New Roman, Calibri & Arial

Font Size: 11 for body text and 12 for titles & subtitles and minimum 14 for document title on cover page.

Theme colors: Standard black

Capitalizing: Capitalize each Word for titles/subtitles (exception with articles, prepositions and coordinating conjunctions)

Paragraphing

Alignment: Justified

Outline level: Body text

Indentation: Only in the reference section

Spacing: 1.5 lines

Margins: Margins should be 0.8" all sides of the page

Title and subtitle numbering:

Numbering is done according to the chapter and can't go beyond 3 digits (e.g.: 2.1.2)

WHAT IS A RESEARCH PROPOSAL?

A research proposal (referred to as proposal) is a concise and coherent summary of the proposed research. A proposal is the most important document developed to clearly express a research idea. It sets out the central issues or questions that the researcher intends to address. It outlines the general area of study within which the research falls, referring to the current state of knowledge and any recent debates on the topic. It also demonstrates the originality of the proposed research work. It also gives an opportunity to demonstrate the aptitudes of the researcher and the feasibility of the proposed research. Furthermore, it is through the research proposal that a researcher demonstrates the ability to communicate complex ideas clearly, concisely and critically. The proposal also helps to match the research interest with current community need.

WHAT SHOULD BE INCLUDED IN THE PROPOSAL?

A research proposal should normally include the following information:

Title

This is just a tentative title/topic (precise and concise –ideally, 10-12 words) for the intended research. Once approved, it can be subject to modification in the course of the research implementation.

Examples of research proposal titles:

Feminist Perspectives on the Legal Recognition of Polygamous Marriages in Rwanda

Development of Sensors for Variable Rate Application of Pesticides

Optimization of Irrigation Management Strategies Under Climate Change

Price Formation and Agricultural Land Markets

Abstract

The proposal should include a concise (no more than 300 words) one-paragraph statement, on one page explaining the intended research. This may be a couple of sentences setting out the problem that you want to examine or the central question that you wish to address, the methodology that will be used and the expected results/outputs.

For Your Attention ...

In-text citations: Every statement should be supported with a citation. That is, the Family name and year of publication separated by a comma, unless for few exceptions depending on the position of the citation in the sentence.

Examples:

At the end of a sentence: Agriculture is one of the key economic sectors in Rwanda (MINECOFIN, 2015).

In the middle of a sentence:

It has been reported (Rugina et al., 2014) that the effects of malnutrition among children under five years old, are irreversible if not handled as early as possible.

At the beginning of a sentence:

Muhwezi (2016) recorded an increase in tax compliance as an effect of a systematic mobilization for the use of IBM machines.

Ntezimana and Grieder (2017), recorded a steady increase in drug abuse among secondary school students whose age is in the range 14-17 years.

Rutikanga et al. (2015) recommended single-mat uprooting of banana plants infected with Xanthomonas wilt.

NB: 'et al' which means that more than two people co-authored a research work, can be written as: et al 2009 or et al. 2009 or et al., 2009. 'et al' can also be in italics (*et al*) for all the cases above.

1. Introduction

1.1 Background

This is set to explain the broad background against which the research will be conducted. It should include a brief overview of the general area of study within which the proposed research falls, summarizing the current state of knowledge and recent debates on the topic. This allows to demonstrate a familiarity with the relevant field as well as the ability to communicate clearly and concisely.

1.2 Problem Statement

A problem statement is a brief overview of the issues or problems existing in the concerned area selected for the research. It is an explanation of the issues prevalent in a particular sector which drives the researcher to take interest in that sector for in-depth study and analysis, so as to understand and solve them (Saunders et al. 2009). This focuses on why the study will be undertaken, or why the thesis will be written. *Do not repeat the abstract.*

1.3 Research Question (s)

Developing a good research question is one of the first critical steps in the research process. A research question is an answerable inquiry into a specific concern or issue. It is the initial step in a research project. The 'initial step' means after you have an idea of what you want to study, the research question is the first active step in the research project. The research question should be a clear, focused question that summarizes the issue that the researcher will investigate. Without a question, you can't have a hypothesis. Without the hypothesis, you won't know how to study what you're interested in.

1.4 Hypothesis (Optional)

At its most basic, the research hypothesis states what the researcher expects to find – it is the tentative answer to the research question that guides the entire study.

For Your Attention ...

Flow of idea

In order to have an adequate flow of ideas, efforts should be made to keep the title, research question, general objective, specific objectives and hypotheses interconnected. All the sections such as research question, methodology, results, discussion, conclusion and recommendations, should also remain in line with the above.

1.5 Objectives

1.5.1 General/Global/Main/Overall Objective

The objectives provide an accurate description of the specific actions you will take in order to reach the aim of the study.

As with the problem formulation, the overall objective should be framed in a single sentence. The overall objective should be written as an infinitive sentence.

e.g.: "To analyze the association between nutritional knowledge and the nutritional status of pregnant women attending antenatal care (ANC) in Byumba Hospital.

1.5.2 Specific Objectives

A specific objective consists of one infinitive sentence and should be phrased in a way that makes it possible to draw a conclusion from within the scope of the thesis. The more precisely you formulate your specific objectives, the simpler it will be to define the type of study and which method(s) you will use in your further research. Based on the above overall objective, the following specific can be formulated:

- 🌿 To assess the knowledge level among ANC attendees on the recommended nutritional practices during pregnancy
- 🌿 To assess the nutritional status of pregnant women attending ANC
- 🌿 To analyze the statistical association between nutritional knowledge level and nutritional status in pregnant women attending ANC

1.6 Scope of the study

A thesis is not a place to summarize everything you have ever read on a subject. Explain what will and will not be included. A verbal "road map" or verbal "table of contents" guiding the reader to what lies ahead. Is it obvious where introductory material ("old stuff") ends and your contribution ("new stuff") begins? Remember that this is not a review paper. We are looking for original work and interpretation/analysis by the author.

For Your Attention ...

Reference List vs Bibliography

A reference list, generally, contains only sources cited in-text while a bibliography, generally, is a list of all the sources you have used. This means, in addition to listing the sources you cited in-text, you also list resources that you read or referred to generate the write-up.

1.7 Significance of Research

The proposal should demonstrate the originality of your intended research.

You should therefore explain why your research is important (for example, by explaining how your research builds on and adds to the current state of knowledge in the field or by setting out reasons why it is timely to research your proposed topic)

1.8 Structure/Organization of the Study

This is a summary/a road map that may guide readers through the reading and understanding of the dissertation. In this activity, you will provide readers with a roadmap to your dissertation that illustrates what they should expect i.e how the study is organized and conducted from chapter one up to chapter five.

2.0. Literature Review

Researchers explore and discuss key published literature in the same area as the current research topic. It is also a text of a scholarly paper, which includes the current knowledge articles, books and other sources (e.g. dissertations, conference proceedings including substantive findings, as well as theoretical and methodological contributions to a particular topic in relation to the research problem being investigated).

2.1. Theoretical Framework

These are theories that are developed from academic books and journal articles and other research outputs. They are known as secondary sources, and do not report new or original experimental work relevant to a particular issue, area of research, or theory, providing a description, summary, and critical evaluation of each work.

For Your Attention ...

Combination/separation of sections

It remains the choice of the authors of a research work to combine or separate the following sections:

- Results and Discussion
- Discussion and Conclusion
- Conclusion and Recommendations

2.2. Conceptual Framework

A theoretical structure of assumptions, principles, and rules that holds together the ideas comprising a broad concept. It involves variables such as independent variables and dependent variables that form a topic of a research study. The purpose of conceptual framework is to test the theories, make research findings more meaningful and generalizable, stimulate situation and predict and control the research situation.

3. Methodology

A **research method** is a systematic plan for conducting research. Involves the use both **qualitative** and **quantitative** research methods, including experiments, survey research, participant observation, and secondary data. Quantitative methods aim to classify features, count them, and create statistical models to test hypotheses and explain observations, interview and use of questionnaires. Qualitative methods aim for a complete, detailed description of observations, including the context of events and circumstances.

3.1 Study Site

The area where research study will take place. For example the research study will/was conducted at BPR Gicumbi branch, in Byumba sector, Gicumbi district, Northern province in Rwanda. Or research study was conducted at UTAB laboratory in Byumba sector, Gicumbi district.

3.2 Research Design

Refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data.

The researcher(s) select can select the type of research design to use such Cross-sectional research designs, An exploratory design, Experimental

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Pledge of Honor

This is given adequate attention and enforced to promote the culture of excellence and academic integrity.

designs, historical research design or descriptive designs. The researcher(s) decide the type of research design to during investigation.

3.2.1 Target Population/Population of the Study

A study of a group of individuals taken from the general population who share a common characteristic, such as age, sex, or health condition. A population commonly contains too many individuals to study conveniently, so an investigation is often restricted to one or more samples drawn from it. The research population concerning with members of Byumba Umurenge Sacco who have benefited credits in Agriculture are 6118 members.

3.2.2 Sample Size

Consequential research requires an understanding of the statistics that drive the range of sample size decisions you need to make. A simple equation will help you put the migraine pills away and sample confidently knowing that there is a high probability that your survey is statistically accurate with the correct sample size. The researcher(s) can use formula to compute the population into percentages in order to determine the sample size to use.

3.3 Methods and Techniques (data collection & Analysis)

The proposal should outline your research methods, explaining how the research will be conducted. The methods may include visiting particular libraries or archives, field work or interviews, or laboratory and/or field experiments. Most researches fall through the above approaches. If the proposed research is for example library-based, the researcher should explain where key resources (e.g. law reports, journal articles) are located (in the University or national library. If there is a plan of conducting field work or collect empirical data, the researcher should provide details about this (e.g. for interviews to you conducted? Will there be problems of access?). This section should also explain how you are going to analyze your research findings.

For Your Attention ...

Citation

Avoid copy and paste and keep in mind adding citation for each statement that is not yours to avoid plagiarism.

4 Budget & Timeline

This consists of tables highlighting monetary value of the activities and items required to implement the proposed research. A separate table is also required to specify when each activity will be implemented.

5. Bibliography/Reference

The proposal should include a short bibliography identifying the most relevant works for your topic.

Be reminded that sections on this page are interconnected in order to be consistent and keep a nice flow of idea.

A good thesis has two main aspects. It should tell what you plan to argue, and it should "telegraph" how you plan to argue—that is, what particular support for your claim is going where in your essay.

I. Thesis Structure

1. Title/cover Page (see appendice 1), 2. Abstract, 3. Table of Contents (see appendice 2), 4. Acronyms, 5. List of Figures, 6. List of Tables, 7. Introduction, 8. Literature review, 8. Methodology (Materials & Methods), 9. Results, 10. Discussion, 11. Conclusions, 12. Recommendations, 13. Acknowledgments, 14. References, and 15. Appendices.

II. Content

Title Page

This page contains: the research title, author names, institution, Faculty/department, Month & Year of submission, research supervisor (s)(See example on appendice 1)

Abstract

A good abstract explains in one line why the study is important. It then goes on to give a summary of major methodologies used, key obtained results, conclusion and recommendations. The final sentences explain the major implications of the accomplished work. A good abstract is concise, readable, and quantitative. The length should be a 1-page paragraph, approximately, 300-400 words. Abstracts generally do not have citations. Information in the title should not be repeated. It should be explicit and use numbers where appropriate. Answers to these questions should be found in the abstract: What did you do? Why did you do it? What question were you trying to answer? How did you do it (methodology)? What did you learn (major results)? Why does it matter (Point out at least one significant implication)?

For Your Attention ...

Divide the literature review into subtitles according to the focus of the research topic.

Acronyms/Initialism/Abbreviation

Beware not to confuse 'Acronym, Initialism and Abbreviation' as the three are often interchanged, yet they are quite distinct. The main point of reference is that abbreviations are merely a series of letters (Dr. for Doctor, Prof. for Professor, and lb. for pound) while acronyms form new words (UTAB for University of Technology and Arts of Byumba, Sida for Swedish International Development Agency, AIDS for Acquired Immune Deficiency Syndrome, and SIM card for Subscriber Identification Module...) and Initialisms pronounce each letter (ATM for Automated Teller Machine, aka for also known as, a/c for air conditioning...). Abbreviations, Initialisms and acronyms are typically considered informal and should be carefully considered and defined before including them in more formal writings.

Pledge of Honor

The '*Honor Pledge*' is a statement undergraduate and postgraduate students are asked to write (by hand) and sign on examinations, thesis and dissertation, or any other academic assignments. The signing of the scroll (=document) is each student's *introduction to the culture of academic integrity* fostered by the University of Technology and Arts of Byumba. The Vice-Chancellor or his delegate, signs the Honor Scroll to demonstrate this commitment to academic integrity during each induction for new students. The following pledge applies to EVERY examination, paper, or academic exercise unless specifically exempted by the instructor:

“On my honor, I have neither given nor received unauthorized aid on this assignment, and I pledge that I am in compliance with UTAB Honor System”

Neither the presence nor the absence of a signed pledge statement shall exempt a student from the requirements of the Honor System.

For Your Attention ...

Tables: The table captions are placed on the top of the table summarizing the research findings. Both are put immediately, below the paragraph where the table is first cited. Result tables should be standalone and self-explanatory. A table caption is ideally a precise and concise sentence. Any additional information for the table is placed as footnote (also precise and concise) just below the table.

Table 1: Overview of bean yield (t/ha) and price (Frw/kg) for three consecutive seasons (A, B and C).

Season	Beans (t/ha)	Price (Frw/kg)
A	0.9 ^{bc}	300 ^b
B	1.2 ^c	250 ^a
C	0.3 ^a	300 ^b

The difference between means with similar letters in the same column is not statistically significant.

Table lines: It is advised, for scientific reporting, to avoid putting all the table lines (e.g.: Table 2), rather keeping only the top 2 and the last bottom horizontal border lines (e.g.: Table 1). Vertical lines separating columns are not put all.

Table 2: Overview of bean yield (t/ha) and price (Frw/kg) for three consecutive seasons (A, B and C).

Season	Beans (T/ha)	Price (Frw/Kg)
A	0.9 ^{bc}	300 ^b
B	1.2 ^c	250 ^a
C	0.3 ^a	300 ^b

Certification

I certify that this project report titled.....is the bonafide work of Mr/ Ms/Mrs.....who carried out the research under my supervision.

I certify further that, to the best of my knowledge, the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Names and Signature of the Supervisor:

Name and Signature of the HoD:

Date:

Dedication

The dedication page is optional. It is not counted, numbered or listed in the Table of Contents. It is used to acknowledge those who have supported you during graduate studies. This is not typically the place to recognize those who assisted you in your academic research, which is done on the required Acknowledgements page. There are no restrictions on the style or format.

Acknowledgement

Thank advisor/supervisor(s) and anyone who helped you: technically (including materials, supplies) intellectually (assistance, advice) financially (for example, departmental support, and travel grants).

Table of Contents

This lists all headings and subheadings with page numbers, and indent for subheadings.

For Your Attention ...

Colored tables: Colored tables (Table 3) are also discouraged as they may be considered a distraction to the readers and may also incur additional costs for publication and printing.

Table 3: Overview of bean yield (t/ha) and price (Frw/kg) for three consecutive seasons (A, B and C).

Season	Beans (T/ha)	Price (Frw/Kg)
A	0.9 ^{bc}	300 ^b
B	1.2 ^c	250 ^a
C	0.3 ^a	300 ^b

Figures: As for tables, result figures (chart columns/histograms, bars, lines) should standalone and be self-explanatory. The caption should also be a precise and concise statement, put below the figure and both are placed just after the paragraph where they are first mentioned.

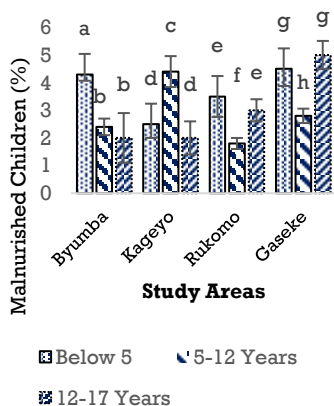


Figure 1: Status of malnutrition among school children, with age range of 5-17 year old, in Byumba, Kageyo, Rukomo and Gakenke.

List of Figures

It should include a short title for each figure (but not the whole caption) and corresponding page numbers in the text file.

List of Tables

It should include a short title for each table (but not the whole caption) and corresponding page numbers in the text file.

Chapter One: Introduction

1.1 Background

Be sure to include a hook at the beginning of this introductory part. This is just a statement of something sufficiently interesting to motivate/draw the readers in and make them want to read the rest of the thesis. It can be an important/interesting general or national scientific knowledge under which the study falls. This section should contain sufficient background information to allow the reader understand the context and significance of the question the author is trying to address. Remember to include proper acknowledgement (citation) of the previous similar work on which you are building. The next paragraphs in the introduction should then go on to explain why the current work was necessary (your work, of course).

What else belongs in the introductory section (s) of your Research Report?

1.2 Problem Statement

A problem statement is a brief overview of the issues or problems existing in the concerned area selected for the research. It is an explanation of the issues prevalent in a particular sector which drives the researcher to take interest in that sector for in-depth study and analysis, so as to understand and solve them (Saunders et al. 2009). This focuses on why the study was undertaken, or why the thesis was written. *Do not repeat the abstract.*

For Your Attention ...

Error bars and letters: Error bars and letters indicating homogeneous group are key to highlighting the statistical significance of the difference between means.

Figure/Chart lines: In scientific reporting, neither the gridlines, nor the border lines are kept (see Figure 1, for a good example and Figure 2, for a not to follow example).

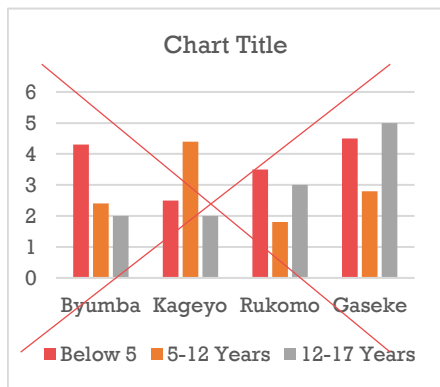


Figure 2: Status of malnutrition among school children, with age range of 5-17 year old, in Byumba, Kageyo, Rukomo and Gakenke.

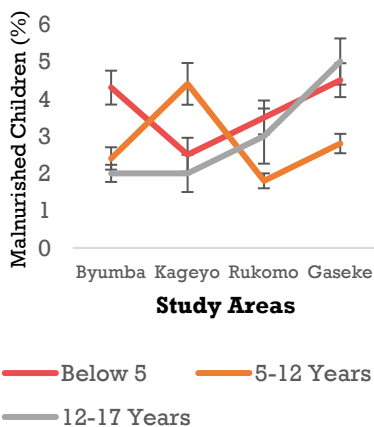


Figure 3: Status of malnutrition among school children, with age range of 5-17 year old, in Byumba, Kageyo, Rukomo and Gakenke.

1.3 Research Question (s)

Developing a good research question is one of the first critical steps in the research process. A research question is an answerable inquiry into a specific concern or issue. It is the initial step in a research project. The 'initial step' means after you have an idea of what you want to study, the research question is the first active step in the research project. The research question should be a clear, focused question that summarizes the issue that the researcher will investigate. Without a question, you can't have a hypothesis. Without the hypothesis, you won't know how to study what you're interested in.

1.5 Hypothesis (Optional)

At its most basic, the research hypothesis states what the researcher expects to find – it is the tentative answer to the research question that guides the entire study.

1.6 Objectives

1.6.1 General Objective

The objectives provide an accurate description of the specific actions you will take in order to reach the aim of the study. As with the problem formulation, the overall objective should be framed in a single sentence. The overall objective should be written as an infinitive sentence.

e.g.: *“To analyze the association between nutritional knowledge and the nutritional status of pregnant women attending antenatal care (ANC) in Byumba Hospital.*

1.6.2 Specific Objectives

A specific objective consists of one infinitive sentence and should be phrased in a way that makes it possible to draw a conclusion from within the scope of the thesis. The more precisely you formulate your specific objectives, the simpler it will be to define the type of study and which method(s) you will use in your further research. Based on the above overall objective, the following specific objectives can be formulated:

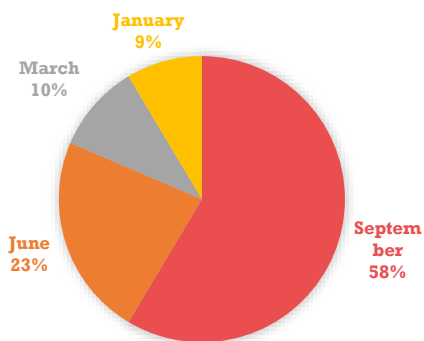
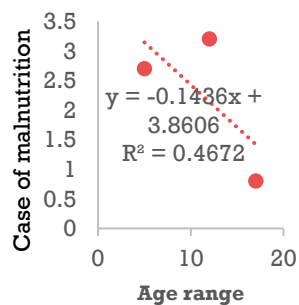


Figure 4: UTAB Student enrollment for the four major intakes, 2017-2018



● Malnutrition
 Linear (Malnutrition)

Figure 5: Relationship between the age range and cases of malnutrition among school children in Byumba District.

1. To assess the knowledge level among ANC attendees on the recommended nutritional practices during pregnancy
2. To assess the nutritional status of pregnant women attending ANC
3. To analyze the statistical association between nutritional knowledge level and nutritional status in pregnant women attending ANC

1.7 Scope of the study

A thesis is not a place to summarize everything you have ever read on a subject. Explain what will and will not be included. A verbal "road map" or verbal "table of contents" guiding the reader to what lies ahead. Is it obvious where introductory material ("old stuff") ends and your contribution ("new stuff") begins? Remember that this is not a review paper. We are looking for original work and interpretation/analysis by the author.

1.7 Significance of Research

The proposal should demonstrate the originality of your intended Research. You should therefore explain why your research is important (for example, by explaining how your research builds on and adds to the current state of knowledge in the field or by setting out reasons why it is timely to research your proposed topic)

1.8 Structure/Organization of the Study

This is a summary/a road map that may guide readers through the reading and understanding of the dissertation. In this activity, you will provide readers with a roadmap to your dissertation that illustrates what they should expect i.e how the study is organized and conducted from chapter one up to chapter five.

For Your Attention ...

Note on the Number of Pages:

The number of pages for a Research Project Report is advised to be around 60 pages. This will also improve the appearance of the book after the hard-cover binding.

Chapter Two: Literature Review

In the literature review section, the author should briefly cite previous research in the study area. This section should also cite those who had the idea or ideas first, as well as those who have done the most recent and relevant related work.

Chapter Three: Methodology

What belongs in the "methods" section of a scientific paper?

Information to allow the reader to assess the believability of your results.
Information needed by another researcher to replicate your experiment.
The description of your materials, procedure, theory, calculations, techniques, equipment, calibration including plots, is done in this section.
The description of your analytical methods, including reference to any specialized statistical software is also done here. The methods section should be answering the following questions and caveats: Could one accurately replicate the study (for example, all of the optional and adjustable parameters on any sensors or instruments that were used to acquire the data)? Could another researcher accurately find and reoccupy the sampling stations or track lines? Is there enough information provided about any instruments used so that a functionally equivalent instrument could be used to repeat the experiment? If the data are in the public domain, could another researcher lay his or her hands on the identical data set? Could one replicate any laboratory analyses that were used? Could one replicate any statistical analyses?

Could another researcher approximately replicate the key algorithms of any computer software? Citations in this section should be limited to data sources and references of where to find more complete descriptions of procedures. Do not include descriptions of results.

Chapter Four: Presentation and Discussion of Findings

The results are actual statements of observations, including statistics, tables and graphs. They also indicate information on range of variation. This section, mentions negative as well as positive results. In this chapter, do not interpret results - save that for the discussion. Lay out the case as for a jury. Present sufficient details so that others can draw their own inferences and construct their own explanations. Use S.I. units (m, s, kg, W, etc.) throughout the thesis. Break up the results into logical segments by using subheadings. Key results should be stated in clear sentences at the beginning of paragraphs. It is far better to say "X had significant positive relationship with Y (linear regression $p < 0.01$, $r^2 = 0.79$)" than to start with a less informative like "There is a significant relationship between X and Y". Describe the nature of the findings; do not just tell the reader whether or not they are significant.

Note: Results vs. Discussion Sections

Quarantine your observations from your interpretations. The writer must make it crystal clear to the reader which statements are observation and which are interpretation. In most circumstances, this is best accomplished by physically separating statements about new observations from statements about the meaning or significance of those observations. Alternatively, this goal can be accomplished by careful use of phrases such as "I infer ..." vast bodies of geological literature became obsolete with the advent of plate tectonics; the papers that survived are those in which observations were presented in stand-alone fashion, muddled by whatever ideas the author might have had about the processes that caused the observed phenomena.

How do you do this?

Physical separation into different sections or paragraphs. Don't overlay interpretation on top of data in figures. Careful use of phrases such as "We infer that" Don't worry if "results" seem short.

Why?

Easier for your reader to absorb, frequent shifts of mental mode not required. Ensures that your work will endure in spite of shifting paradigms.

Start with a few sentences that summarize the most important results. The discussion section should be a brief essay in itself, answering the following questions and caveats: What are the major patterns in the observations? (Refer to spatial and temporal variations). What are the relationships, trends and generalizations among the results? What are the exceptions to these patterns or generalizations? What are the likely causes (mechanisms) underlying these patterns resulting predictions? Is there agreement or disagreement with previous work? Interpret results in terms of background laid out in the introduction - what is the relationship of the present results to the original question?

What is the implication of the present results for other unanswered questions in earth sciences, ecology, environmental policy, etc....? Multiple hypotheses: There are usually several possible explanations for results. Be careful to consider all of these rather than simply pushing your favorite one. If you can eliminate all but one, that is great, but often that is not possible with the data in hand. In that case you should give even treatment to the remaining possibilities, and try to indicate ways in which future work may lead to their discrimination. Avoid bandwagons: A special case of the above. Avoid jumping a currently fashionable point of view unless your results really do strongly support them. What are the things we now know or understand that we didn't know or understand before the present work? Include the evidence or line of reasoning supporting each interpretation. What is the significance of the present results: why should we care? This section should be rich in references to similar work and background needed to interpret results. However, interpretation/discussion section(s) are often too long and verbose. Is there material that does not contribute to one of the elements listed above? If so, this may be material that you will want to consider deleting or moving. Break up the section into logical segments by using subheads.

Chapter Five: Conclusions and Recommendations

6.1 Conclusions

What is the strongest and most important statement that you can make from your observations? If you meet the reader at a meeting six months from now, what do you want them to remember about your findings? Refer back to problem posed, and describe the conclusions that you reached from carrying out this investigation, summarize new observations, new interpretations, and new insights that have resulted from the present work. Include the broader implications of your results. Do not repeat word for word the abstract, introduction or discussion.

6.2 Recommendations

Include when appropriate (most of the time), remedial actions to solve the problems. Further research to fill in gaps in your understanding. Directions for future investigations on this or related topics.

Citations and References

Citations

With an adequate reference, a reader could, by going to the library, or a search engine, achieve a sophisticated understanding of the context and significance of the study. Cite all ideas, concepts, and text, data that are not your own if you make a statement, back it up with your own data or a reference.

Examples of citations in the text-file:

1. Cite single-author references by the surname of the author (followed by year of the publication in parenthesis).

e.g.: According to Hays (1994), the population growth is one of the greatest environmental concerns facing future generations.

2. Cite double-author references by the surnames of both authors (followed by year of the publication in parenthesis).

e.g.: Simpson and Hays (1994).

3. Cite more than double-author references by the surname of the first author followed by et al. and then the Year of the publication.

e.g.: Pfirman, Simpson and Hays would be: Pfirman et al. (1994)

2. References

You can use footnotes or any reference other software, but the essential is to list all references cited in the text-file in alphabetical order using the format below for different types of materials cited. It is acceptable to put the initials of the individual authors behind their last names, e.g. Pfirman, S.L., Stute, M., Simpson, H.J., and Hays, J (1996) followed by the research title, the publishing journal and the page numbers.

Use '*Hanging by 038 inch*' for indentation, '*single space*' for line spacing and leave 12points after each reference.

Journal articles:

Hunt, S. (1966). Carbohydrate and amino acid composition of the egg capsules of the whelk. *Nature*, 210, 436-437.

Pfirman, S.L., M. Stute, H.J. Simpson, and J. Hays (1996) Undergraduate research at Barnard and Columbia, *Journal of Research*, 11, 213-214.

Stute, M., J.F. Clark, P. Schlosser, W.S. Broecker, and G. Bonani (1995). A high altitude continental paleotemperature record derived from noble gases dissolved in groundwater from the San Juan Basin, New Mexico. *Quat. Res.*, 43, 209-220.

Websites

National Oceanic and Atmospheric Administration (1997) Commonly asked questions about ozone. <http://www.noaa.gov/public-affairs/grounders/ozol.html>, accessed on 27th September 1997.

Books

Pechenik, J.A. (1987). *A short guide to writing about biology*. Harper Collins Publishers, New York, 194pp.

Book Chapters

Pitelka, D.R., and F.M. Child (1964) Review of ciliary structure and function. In: *Biochemistry and Physiology of Protozoa*, Vol. 3 (S.H. Hutner, editor), Academic Press, New York, 131-198.

Lecture notes

Sambrotto, R. (1997). Lecture notes, Environmental Data Analysis, Barnard College, October 2, 1997.

News papers

New York Times (1/15/00) PCBs in the Hudson still an issue, A2.

Appendices

This is a list of all relevant information in support of the study. This include:

- All the raw data
- Reference data/materials not easily available (theses are used as a resource by the department and other students).
- Tables (where more than 1-2 pages).
- Calculations (where more than 1-2 pages).

- You may include a key article as appendix.
- If you consulted a large number of references but did not cite all of them, you might want to include a list of additional resource material, etc.
- List of equipment used for an experiment or details of complicated procedures.

Note: Figures and tables, including captions, should be embedded in the text and not in an appendix, unless they are more than 1-2 pages and are not critical to your argument.

Appendice 1: Cover Page (an illustrative example)



**UNIVERSITY OF TECHNOLOGY AND ARTS OF BYUMBA
FACULTY OF AGRICULTURE ENVIRONMENT MANAGEMENT
AND RENEWE BLE ENERGY
DEPARTMENT OF AGRICULTURE
OPTION OF CROP PRODUCTION**

**OCCURRENCE OF VERTICILLIUM WILT IN SOIL AND ITS
DISTRIBUTION ACROSS KEY POTATO GROWING AREAS OF
RWANDA**

**A RESEARCH PROJECT REPORT SUBMITTED
TO THE DEPARTMENT OF AGRICULTURE
IN PARTIAL FULFILMENT FOR THE AWARD
OF BACHELOR DEGREE WITH HONOURS
IN CROP PRODUCTION**

By

James Rudasingwa (UG 102 516)

Supervisor

RUTIKANGA Alexanrde

July 2018

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