

WRITING SCHOLARLY THESIS PROPOSAL AND REPORT

(A quick guide for postgraduates)

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PREPARING TO WRITE A SCHOLARLY RESEARCH REPORT

Writing is easy. All you do is stare at a blank sheet of paper until drops of blood form on your forehead -Gene Fowler

Preface

This guide is written to guide postgraduate students on writing a research proposal and full report. The focus is on Dissertations and theses since this is more detail than scholarly peer-reviewed publications and notwithstanding they all adhere to the same basic scientific writing principles. Although the guide is structured in a monograph style so as to concisely address basic and common elements in both project proposal and report writing in particular at Master Degree level. The distinct differences between Master and PhD level are given in box 1. The illustrative examples are drawn from past theses in the Department of Civil Engineering. The words: study, project, work, thesis and investigation are used interchangeably.

Box. 1.

Master level:

Student should display mastery of a complex and specialized area of knowledge and skills, employing advanced skills to conduct research.

PhD level:

Student should make a significant and original contribution to a specialized field of inquiry, demonstrating a command of methodological issues and engaging in critical dialogue with peers and accepting full accountability for outcomes.

- Prof Kat Riach, PhD Director, Essex Business School, University of Essex, Wivenhoe Park, Colchester, Essex CO4 3SQ, UK. kriach@essex.ac.uk

Know your community: academia

Researchers communicate their results and help accumulate knowledge through conference papers, reports, on-line journals and print journals. While there are many rewards for having research disseminated in a scholarly outlet, the preparation of a good research report is not a trivial task (Rudner and Schafer, 1999). Right from undergraduate studies students are gradually and deliberately trained in the art of scientific writing. They are required to submit a variety of reports for assessment particularly in sciences and engineering disciplines. No wonder, written and oral communications skills are sterling qualities expected of a graduate and a professional. It is imperative that students realize the importance of developing these skills to a greater level because this is the peculiarity of the community they belong: ie academia

Petre and Rugg (2011) put succinctly: "Writing is difficult and it takes time" This assertion notwithstanding, the arts of writing can be learnt and developed through conscious committed effort. Petre and Rugg (2011): gave general advice for inculcating this effort to include:

- Practice: Writing is a skill, and like most skills it improves and becomes easier with practice.
- Commitment: Make a commitment to write something each day
- When someone critiques your writing, take the time to analyze the critique: why did the critic make those comments or suggest those changes?
- If someone copy-edits or redrafts your writing, take the time to analyze the changes: why those changes, what do they change and how do they improve the prose?
- Organize the ideas/concepts/material before you start to write
- Be precise

Presentation

The personal computer and word processing has brought the art of publishing to individuals and has made project preparation and revision easier and convenient. Students should not underestimate the importance of presentation of work “very well” because of the first impressionably impact and influence on the supervisor and other readers; otherwise it may wrongly conveys the impression of carelessness. Headings, subheadings and sub-subheadings, tables, graph, diagram improve the appearance of project writing. It is of utmost importance that students develop the art of sourcing for relevant and authoritative information specific to own study or project.

Academic Suicide

The usage of literature material is cornerstone in scholarly report. It gives credence to broad reading and in-depth knowledge of research theme. It also shows ability to source, collate and synthesize information which in itself is an important criteria and requirement for postgraduate studies and research. However all sources must be credited otherwise it may be tantamount to plagiarism. Plagiarism is a serious form of academic dishonesty which has been described as academic suicide and in British academia; it is a ‘mortal sin’ (Putre & Rugg, 2005). Plagiarism is the use of another person’s ideas, words or material either directly or indirectly without crediting the original author. It is important for student to be very mindful of this so as not to unintentionally commit academic suicide. A student in whose dissertation plagiarism is uncovered has automatically failed. It may also attract other punitive measures that are specific to individual University. The rules are very simple and clear to comply with and guide against a terrible experience. These include (Petre and Rugg, 2005):

- Any usage of ideas, words or material of any sort from a specific source, it must be attributed to the source. Even paraphrasing requires explicit attribution.
- If a usage of someone else’s words verbatim, then it must be in quotation marks and attribute them to that person.

CHOOSING A TOPIC

In choosing or deciding upon a research topic, the most important consideration is in ensuring that the topic is of utmost interest to you. It is normal for the decision to take some time because the process involves consideration and eliminations among feasible topics. However, a clearer picture would ensure on your honest answers to the following questions (Lee, 2009):

- Why do I think this topic is important and worth researching?
- Who would benefit from the research?
- Whose research agenda is this?
- What kinds of research questions would I be asking?
- Do I have the resources to conduct this project?
- In what setting and with what data sources (or with which people) would I do the research?
- Do I think this project is achievable in my given timescale?

WRITING SCHOLARLY RESEARCH PROPOSAL

The purpose of writing a thesis proposal is to demonstrate direction and also:

1. to articulate a project topic that addresses a specific engineering problem either in theoretical or practical formulation.
2. to identify the required data and information needed and how to obtain them
3. to state the methods of data analysis and the expected results
4. to discuss relevancy of results to the problem and give suggestion on improvement
And on further work.

ADVANTAGES OF THE PROJECT PROPOSAL

1. Project proposal is like a blue-print. It guides the students on what to do and how to do them.
2. It also allows the students to focus on the work and ensure compliance with the schedule of work.

3. The long term benefit is to help the students in acquiring the art of proposal writing which would be required in the students' future career either as an academic or in professional practice.
4. Developing a proposal is in the best interest of the students for it allows for self progress monitoring and assessment. Ditto for the student project supervisor/advisor.

BRIEF DESCRIPTION OF EACH ELEMENT OF THESIS PROPOSAL

1. Title The title or topic or theme is a simple and informative heading that reveals what the study is about and should not be more than 15 words.

2. Introduction

This section describes the background to the study, its purpose and justification.

Box 2: Structure of thesis proposal

A thesis proposal should have the following key elements in this order:

1. Title
2. Abstract
2. Introduction
3. Aim and Objectives
4. Scope of Work
5. Literature Review
6. Methodology
7. Expected Results
8. Time Frame (schedule)
9. Budget
10. References

3. Aim and Objectives

The aim of the study must be clearly stated and it becomes the project goal statement. The objective should adequately explain or capture its essence.

4. Scope of Work

This defines the boundary of the work stated in the main objective. That is the extent the study will not exceed and within the work plan

5. Literature Review

This section discusses past similar works relevant to the project and attempt to fill the gap in what is considered inadequate/missing in the past works.

6. Methodology

This is a description of the methods or technique to be adopted in the study. This does not include the theoretical background of the method but the appropriateness of the methods should be stated

7. Expected Results

This section attempts to answer questions such as: What results or findings are expected and the contribution to the project stated goals? What are the implications to the study? How does it aid suggested recommendations and conclusions?

8. Time Frame (schedule)

It gives approximate period the study will take to get to the conclusive end. The timeframe should schedule a realistic time for key aspect of the research work. This is illustrated in box 3.

9. Budget

The budget is an important part of the study. It spelt out the resources that would be required to complete the project. The budget will cover whatever consumables items such as chemicals, field work, and other discipline-specific needs.

10. References

This is the listing of all literature that was referred in the proposal.

11. Presentation

After careful articulation of the above components of the proposal, the next stage is to prepare draft of the report. Tools to check spelling and grammar are also available and should be utilized. Proposal word length varies depending on discipline and institution guidelines. However it should not be more than 2500 words and structure as indicated in Box 2.

Box 3: Extract from a Ph.D time-frame

Task	2012			
	October	November	December	January
Registration for PhD studies				
Pre -Admission Proposal Presentation				
Literature review of Reservoir Sedimentation Studies				
Proposal Presentation				
Pre-Survey Preparation/Acquisition of Equipment				
Bathymetric Survey of Jebba Hydro Reservoir				
Processing of acquired data using surfer and arcinfo software				
Collection and preparation of suspended sediment and other required data for the modelling exercise				
Model Schematization				
Development of SWAT Model and System Analysis				
Application of developed Model to case study area				
Sensitivity analysis and Model validation				
SWAT Workshop				
Seminar Presentation				
Report Writing				
Preparation for Oral Examination/Final PhD Defense				

WRITING FULL THESIS REPORT

Introduction

The structure of a report is typically made up of three main divisions: (1) preliminary, (2) body and (3) supplementary (Table 1). Each of the sections contains a different kind of content as indicated in the Table 2. The thesis text should be organized and presented in logical manner with headings and subheadings listed in the Table of Contents section. A separate page is required for listing of tables, figures, notation and appendix in the report. See boxes 4, 9,10,11,12, and 13 respectively for illustrative examples.

Table 1: Divisions and sections of a report*

Broad Divisions	Individual Sections
Preliminary material	<ol style="list-style-type: none">1. Title of Report2. Table of contents3. Abstract
Body of Report	<ol style="list-style-type: none">1. Introduction2. Literature Review (sometimes included in the introduction)3. Methodology4. Results5. Discussion6. Conclusion7. Recommendations (sometimes included in the conclusion)
Supplementary material	<ol style="list-style-type: none">1. References or Bibliography2. Appendices

Table 2: Content of individual section*

• Title of Report	Concise heading indicating what the report is about
• Table of contents	List of major sections and headings with page numbers
• Abstract	Concise summary of main findings
• Introduction	Why and what you researched
• Literature Review (sometimes included in the introduction)	Other relevant research in this area
• Methodology	What you did and how you did it
• Results	What you found
• Discussion	Summary of results/findings
• Recommendations (sometimes included in the conclusion)	What needs to be done as a result of your findings
• References and Bibliography	All references used in your report or referred to for background information
• Appendices	Any additional material which will add to your report

*Learning Guides (2008) Writing Centre. The University of Adelaide, Australia.
www.adelaide.edu.au/writing-centre/

Box 4. Extract from a thesis table of contents

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1. Title

This is a short and informative description of the study. It should contain simple and short description of the proposed work and must not be ambiguous more so that title is often used for electronic library searches and therefore should accurately reflect the contents of the thesis. There are some phrases that must be avoided. These include “A study of . . .”, “An investigation of . . .”, or “A research on . . .” This title albeit tentative at the beginning may be modified until a final title is settled upon in consultation with the student supervisor.

Some examples of thesis title that have seen the light of the day are listed below. It should be noted that each of the title is clear on the direction of the study but also indicate discipline-specific. The title given in 1 indicates a Transportation Engineering project.

1. Strategies to maintain optimum asset value of pave federal roads originating from Ilorin Township, Nigeria
2. Determination of settling characteristics of suspended particles in surface water sources
3. Computer Aided Design of A Steel Lattice Communication Tower Subject To Stress And Buckling Constraints
4. Characteristics of aquifer within Ilorin West Local Government area, Kwara State, Nigeria
5. Evaluation of the effectiveness of Oyun regional water supply scheme, Kwara state
6. Evaluation of climate change impacts on streamflow in the kainji lake basin using statistical and artificial neural network (ANN) methods

2. Introduction

Introductions gives general background information and knowledge on the thesis topic and subsequently narrow down to the specific topic. All important concepts are explained and key terms defined. Introduction also discussed the previous work on the subject and explains what, why and how this study will address the problem. The section finally gives insights into the motivation and justification to embark on the study and the important of the problem so stated. It should explain how the findings may contribute to literature, research, study, industry, citizenry and government policy. A good introduction is a clear statement of the problem or project and the reason for conducting the study ie justification. Most civil engineering study focuses on a physical domain. That is a geographical entity. It is therefore imperative to discuss the description of the area. The introductory chapter 1 normally encapsulates the headings as listed in box 4.

3. Aim and Objectives

The aim of the project must be clearly stated. This is fundamentally the project goal statement; and should adequately explain or capture its essence. There may also be specific objectives to accomplish the aim (main objective) of the project as shown in Box 5e. More illustrations from the past MSc theses objectives are presented in boxes 5a to 5d for your reflection

Box 5a. Objectives of this study

The main objectives of this study consist of:

1. A study of appropriate strategies for road maintenance to maintain the roads at their highest asset values.
2. Proposing a good strategy to maintain the roads at optimum asset values and keep driving comfort and safety at their best level.

These objectives are to be met by specifically concentrating on roughness determination, strength of subgrades, and construction cost of a new road as well as required maintenance.

Box 5b: Study Objectives

The aim of this work was to conduct a series of laboratory experiments on water samples from Asa Moro and Oyun to:

1. Determine the settling behaviour of suspended solids in suspension,
2. Generate Iso-percentage curves and suggest the type of settling occurring and
- 3 Evaluate the performance of settling tanks of treatment plants abstracting raw water from sources.

Box 5c: Aim and Objectives of the Study

The aim of this work is to come up with a robust framework of computerized model and programme capable of analyzing and designing a communication tower.

The objectives of the study are:

1. to calculate wind speed data suitable for our climatic conditions
2. to use finite element method to define all necessary inputs in matrix-based software 3. environment.
3. to have a programme that a user can explicitly define parameters following the desired standards and can browse through design calculation.
4. to have a programme suitable for checking whether the member passes stress and buckling load constraints and make recommendation on the section to be used for design

Box 5d : Aims And Objectives Of The Study

The aim and objectives of this study include mainly:

1. To assess the effectiveness of regional water supply scheme in terms of degree of service vis-à-vis coverage area, reliability of supply, quality, quantity and duration of supply.
2. To assess level of scheme sustainability, willingness to pay, perception of service and possible improvement through economic charging rate, commercialization and management strategy.
3. To assess the need for complementary input such as public awareness campaign and community participation in the supply scheme towards sustainability.

Box 5e: Aim and Objectives of the Study

The main aim is to evaluate climate change impact on the stream flow in the Kainji Lake basin. The objectives required to achieve the main aim are as stated below:

1. to assess the impact of climate variability on the Kainji Lake basin.
to assess the trend of hydro-meteorological variables over years in the selected locations using SAls and MKA.
2. to assess the fluctuation in the hydro-meteorological variables in the study area using SAls.
3. to establish the relationship between runoff and meteorological variables such as precipitation, temperature and evaporation using MRA.
4. to model hydro-meteorological parameters and predict future runoff in some selected locations using Artificial Neural Network (ANN) model.
5. to suggest measures to alleviate the anticipated consequences.

4. Scope of Work

The scope of the work is a self-imposed limitation in which the study will not transcend. This is necessary because of dynamic nature of any studies. It simply implies doing your very best that is meaningfully conclusive and then leaves the rest suggestively for further studies. Let us consider a sample in box 6a. Due to many reasons among which may include time-frame, logistic, funding, data type/availability among others, the study was limited to only five among many federal roads in Kwara state. In addition, the work took cognizance of the road that originated ONLY from the state capital. By this boundary definition, the study foreclosed any other federal roads and wherever points of origination in the state. The other scope of works in the box 6b to 6e lend credence and better understanding of scope of work.

Box 6a: Scope of Work

The study area is limited to the five main paved Federal roads originating from Ilorin, Kwara State of Nigeria. The conceptual framework adopted for this study consists mainly of laboratory analysis of soil properties, visual survey data analysis, traffic data analysis, construction and maintenance cost data analysis and assessment of strategies to keep the roads at their highest asset value

6b: Scope of Work

The scope of the work is analysis and design of tower as a 2-dimensional case with the assumption that the hinge connection can only transmit forces from one member to another but not moment, each node of the member can only have two displacements, one along x-axis and another along y-axis, the accuracy of this result is guaranteed to conform to standards. A prototype tower of 36m, 3-legged self supporting communication tower is adopted to illustrate how the model works. The load acting on the tower considered in this work has been wind load only, since according to Universal Basic Code (UBC Code), the seismic zone in Nigeria is considered to be '0' therefore the earthquake effects shall be ignored. The geographical location of the study area is Port Harcourt which is on latitude $04^{\circ}.51'N$ and longitude $07^{\circ}.01'E$. Nigerian Communication Commission, (NCC, 2009).

Box 6c: Study Limitation

This research work is limited to the determination of settling characteristics of suspended particles in water of the three sources under different operational and pre-treatment conditions. The operational and pre-treatment parameters are: detention time, settling depth, mixing time, coagulant dosage and initial turbidity of suspension.

Three sets of experiments are involved in the study:

1. The first set of experiments is used to assess the effect of mixing on the process of sedimentation,
2. In the second set of experiments, the effect of different mixing time on sedimentation is investigated,
3. The third set of experiments is used to evaluate the effect of coagulation using aluminium sulphate (alum) on the settling of suspended particles.

Iso-percentage curves generated are used to evaluate the performance of sedimentation tanks of existing treatment plants on the rivers based on data collected at various plants and analysed for settling depth, detention time and alum dosage

Box 6d: Scope of the study

The scope of study will be limited to an existing water supply scheme which is regional in service. The existing general conditions of the scheme will be investigated. The technical and administrative aspects of the scheme will be given more emphasis, since the success of any water supply scheme anchors on these factors. The technical aspect deals with the operations and maintenance of the scheme while the administrative aspect covers manpower, commercial services, finance and management practices.

Box 6e: Scope of the Study

This study is limited to the evaluation of climate change impacts on the Kainji lake basin using statistical and artificial neural network (ANN) methods. The hydro-meteorological data required for the study are: precipitation (mm), runoff (m^3/s), minimum and maximum temperature ($^{\circ}C$) for some selected locations along river Niger Basin such as Sokoto, Gusau, Yelwa, Minna, Lokoja, Kainji, Ilorin and upstream countries. The hydro-meteorological data chosen for the analysis are very important parameters to the effect of climate change on water resources (Odjugo, 2010). Analysis of data such as statistical, trend and modelling with Artificial Neural Network (ANN) tools were employed for the study.

5. Methodology

This is a systematic description of the methods adopted to do the work and the justification for its adoption. It is also acceptable to have materials and methods in lieu of methodology. It is important to note that it is not a step by step chronology of the adopted process or a set of instructions. Rather the section should include the description of field work, experimentation, equipment, sampling, data collection, design and administration of questionnaire, statistical analysis, and computer programme are normally brief under the "Introduction" Chapter 1 (Box 4) and full detail are discussed under "Methodology" Chapter 3 (Box 4). If parts of the experiment have been described elsewhere, then the author may reference it. In a study that is laboratory based, the methodology should succinctly give exposition of the material and procedure also briefly as shown in box 7b under chapter 1(Box 4) and full detail in chapter 3 (Box 4). The style in writing is past tense. Depending on the type of study, the methodology may also contain theoretical background of the study.

Box 7a: Study Methodology

This involves carrying out of subgrade strength studies, visual condition surveys, traffic studies, average travel speed studies, obtaining construction and maintenance cost data from existing contracts and determination of roughness.

Box 7b: Methodology

Laboratory studies were conducted to investigate the settling characteristics of suspended particles in raw surface water using a cylindrical column 100 mm internal diameter and 2.7 m long with sampling ports at 0.6 m intervals starting from the top open end. The suspension was mixed thoroughly and allows to settle in a quiescent manner. Samples were drawn at various selected time intervals from different depths after allowing the suspension to stand for five minutes to allow for damping of eddy currents generated while filling the column. The concentration of particles was determined from this portion and the information used to compute the percentage of material removed or settled. The actual value of fraction removed was then plotted to yield iso-concentration lines. Turbidity measurements obtained from an electronic laboratory package, the Hach kit, were used to estimate the suspended particle concentration.

Three sets of experiments were conducted on raw surface water at different initial water quality conditions to investigate the sensitivity of the process of sedimentation to some operation/pre-treatment parameters: depth of settling column and detention time; the effect of different mixing times and alum coagulant dosage.

In the first experiment, the column was filled with the suspension and then allowed to settle under quiescent conditions. In the second tests the suspension was subjected to different mixing times, fed into the settling column and then allowed to settle under quiescent conditions. For the third set of experiments, the suspension was thoroughly mixed for the same mixing time under different coagulant dosages and then allowed to settle under quiescent conditions.

Box 7c: Methodology

The evaluation work involves field data collection and analysis. Data sourcing and collection of information from the state water corporation and zonal office of the regional water scheme from the main study tasks. This was mainly through interview of staff at all necessary levels of administration and studying of relevant documents on finance, chemical and personnel. The field studies involved actual investigation of existing water supply scheme in the study area.

This comprised administration of questionnaires, informal interviews and observations/investigations. Emphasis and efforts were directed at observation of actual situations, checking and confirmation of records and interviewing people privately and informally. This was very important since most of the data and information on which recommendations would be drawn were to be derived from the field study.

The study took cognizance of exogenous factors outside the control of water supply agency such as government policy, degree of autonomy, availability of materials and supplies, general shortage of materials. The endogenous factors are poor administrative procedures, dearth of skilled personnel, transport, etc.

6. Literature Review

This section discusses past similar works relevant to the project topic along with in-text references. It should be general and then narrow down to student own specific-topic. The goal of literature review is to demonstrate “the logical continuity between previous and present works” (APA, 1994, P.11) A literature review is not a summary, and it is not a list. Citing the studies that have been done and obtained results without evaluation is nothing more than a book report. The literature review should be exhaustive in the full thesis report (chapter 2: box 4).

One of the hardest parts of a literature review is analyzing studies done by others. First students must be able to evaluate the adopted methods, results obtained, drawn conclusions and then apply the evaluation to own study. A literature review surveys research done by others in a particular area. It shows how your work relates to the research of others. A literature review serves the following important functions and can be used as follows (Emerson and Hampton, 2005):

1. to enable the researcher define the frontiers of the field
2. to enable the researcher to develop an understanding of theory in that field and enable the research question to placed in perspective
3. to identify the procedures and instruments that have proved useful in the past and to identify those that seem less promising.
4. to avoid unintentional replication of previous studies
5. to place the researcher in a better position to interpret the significance of the results obtained

7. Result and Discussion

This section presents the results from the study highlighting the significant interest. The crux of the report is in its analysis and interpretation. The discussion should interpret the findings in respect of the results obtained. This section attempts to answer questions such as: What results or findings are expected? How has it contributed to the project stated goals? What are the implications to the study? How does it aid suggested recommendations and conclusions? However, results should be in past tense and presented with clarity and precision. If there are previously published findings, they should also be written in past tense.

The relevant data, deductions, inferences and finding are summarized. Tables, Figures, charts and Equations are used to present results meaningfully. It is imperative to make use of tables and figures in this section. The essence of table and figure is to prevent double presentation of result.

8. Figures and Tables

Figures and tables should appear in numerical order, be described in the body of the text and be positioned close to where they are first mentioned. Make sure all figures and tables will fit inside the text area. Tables and figures are meant to introduce new information and not to duplicate text itself. They should be numbered consecutively and include a short but descriptive caption. The standard format of table is devoid of vertical and horizontal lines as depicted in Box 9. Tables should be self-explanatory without reference to the text. All equations should be written with Microsoft Equation 3.0 with typical example is as shown in box 9 also.

9. Conclusion

The conclusion actually round up the thesis report by summarizing the salient findings in line with the thesis objective and also give the direction the future work should take. Practical inference and deductions are drawn.

10. Abstracts

A good abstract is concise, readable, and quantitative. Abstract is the piece of the study that represents the researcher on bibliographic search engines and it may be all that many readers know of the work (Burnard, 2004). This is usually done at the end of study by virtue of its purpose. Abstract is the summary of the study objectives, major results, findings; implications, conclusion and recommendation drawn. An abstract should be complete without specific reference to the main thesis text, figures or tables. The third person should be used and the text written in past tense.

11. References

All the in-text citations must be collated and listed in acceptable format under the references list. All references cited in the text must be listed at the end of thesis report. There are various format of listing references. Reference listing is very important in any scholarly report. What to note are:

1. If the source is a textbooks, Peer-reviewed Journals, Conference Proceedings, Final Year Projects, Dissertations and theses , Public Lectures, Public Symposiums, Workshops etc.
2. Then note the date, the source, the publisher's name & place, Journal name, open access publication and accessed date etc.

Most sciences and engineering disciplines adopt the conventions' of the American Psychological Association (APA) for in-text citation and general reverence listing styles. This style uses in-line acknowledgement of sources without footnotes and endnotes common in arts and Humanities.

All peer review journal have their form and style of in-text citation and reference listing in which prospective authors are guided. What is important in your full theses report references listing is consistency in the usage of any reputable style adopted. References are very important and therefore carelessness that may cause unintentional plagiarism MUST be avoided. Hence keep track of all sources of literature information. On listing style, consider illustration in Box 8. This paper published by IWA is listed using different styles to give you insights into the need for consistency emphasis.

11.1 Citations in text

In the text, a reference identified by means of an author's name should be followed by the date of the reference in parentheses. Use surname of author and year of publication: Gafar (2002) or (Gafar, 2002).

When there are more than two authors, only the first author's name should be mentioned, followed by 'et al' : Okeola, et al., (2008)

In the event that an author cited has had two or more works published during the same year, the reference, both in the text and in the reference list, should be identified by a lower case letter like 'a' and 'b' after the date to distinguish the works. For example: Brown (2003a, 2003b).

Two or more years in parentheses following an author's name are cited in ascending order of year. For example: Adedeji (1999, 2002).

Different references cited together should be in date order, for example: (Smith, 1959; Thomas and John, 1992; Solagberu, 1999).

If a paper has been accepted for publication but has not been published the term "(in press)" should be used instead of a date. For example: Salami (in press)

Box 8: Reference listing format

Journal name: Water Science and Technology: Water Supply

Paper title: Measuring Willingness to Pay for Improved Urban Water Supply in Offa City, Kwara State. Nigeria.

Authors: B.F. Sule and O.G. Okeola

Year of Publication: 2010; Volume 10; Number 2; and Pages it appeared: 933- 941

Format Styles for above same paper:

B.F. Sule and O.G. Okeola Measuring willingness to pay for improved urban water supply in Offa city, Kwara State. Nigeria. *Water Science and Technology: Water Supply*. 2010; (10)2, 933-941.

Sule, B. F. and Okeola, O. G. 2010 Measuring willingness to pay for improved urban water supply in Offa city, Kwara State. Nigeria. *Water Science and Technology: Water Supply*. 10(2), 933-941.

B.F. Sule and O.G. Okeola (2010) "Measuring Willingness to Pay for Improved Urban Water Supply in Offa City, Kwara State. Nigeria". *Water Science and Technology: Water Supply*. (10)2, 933-941.

Sule, B.F. and Okeola, O. G. 2010 " Measuring Willingness to Pay for Improved Urban Water Supply in Offa City, Kwara State. Nigeria". *Water Science and Technology: Water Supply* 10, No. 2: 933-941.

11.2 List of references

References should be listed alphabetically at the end of the thesis report. Although "et al." is preferable in the text, in the list of references all authors should be given. For example Okeola, et.al, (2009) in the list would be Okeola, O.G., Salami, A. W. and Sule, B. F. (2009)

11.2.1 Journal reference style:

1. Thirunavukkarasu, M. and Khairavan, G. (2006) Predicting the probability of conception in artificially inseminated bovines –A logistic regression analysis. *Journal of Animal and Veterinary Advances*. 5(6): 522-527
2. Hranova, R.(2010) Application of a system approach and optimization of different alternatives in the practice of decentralized wastewater reuse.*Civil Engineering and Environmental Systems*.(27)4: 281-294
3. Kheireldin, K. and Fahmy, H. (2001) Multicriteria approach for evaluating long term water strategies. *Water International*. (26)4: 527-535
4. Riddel, M.(2001) Simulated maximum likelihood for double-bounded reference models. *Journal of Agricultural and Resource Economics*. (26)2:491-507
5. Loomis, J.B., Le, H.T. and Gonzales-Caban, A. (2005) Testing transferability of willingness to pay for forest fire prevention among three states of California, Florida and Montana. *Journal of Forest Economics* (11):125-140

11.2.2 Thesis references:

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12. Appendices

Appendices are supplementary illustrative material that are referred to in the main report such as administered questionnaires, program code, model output etc

13. Others

13.1 Useful web sites

www.criticalthinking.org (Provides excellent resources to aid critical thinking)
www.edu.salford.ac.uk/academic-learning-skills/report-writing/
www.plainenglish.co.uk/reportsguide.pdf

Bibliographic software packages:

Endnotes: www.niles.com

Reference manager: www.risnc.com

13.2 Ethics

It is instructive to know that there are other contemporary and ethical issues in research study and reporting that are very important though discipline and methodological specific which are outside the scope of this Guide.

Box 9: Illustrative samples of table, figure and equation

Table 3 Estimation of Urban Water Demand for Offa, Kwara State

Year	Pop	Daily Demands in cubic meters				Total	Annual Demand in MCM.
		Dom	Comm	Inst	Ind		
1997	87123	12546	3599	979	131	17255	6.2
1998	89588	12901	3599	979	131	17610	6.3
1999	92124	13266	3599	979	131	17975	6.5
2000	94731	13641	3599	979	131	18350	6.6
2001	97412	14027	3599	979	131	18736	6.7
2002	100168	14424	3671	2328	137	20561	7.4
2003	103003	14832	3671	2328	137	20969	7.5
2004	105918	15252	3671	2328	137	21388	7.7
2005	108916	15684	3671	2328	137	21820	7.9
2006	111998	16128	3671	2328	137	22264	8.0
2007	115167	16584	3691	2557	149	22981	8.3

Pop: Population, Ind : Industry, Inst : Institution, Comm : Commercial, Dom : Domestic

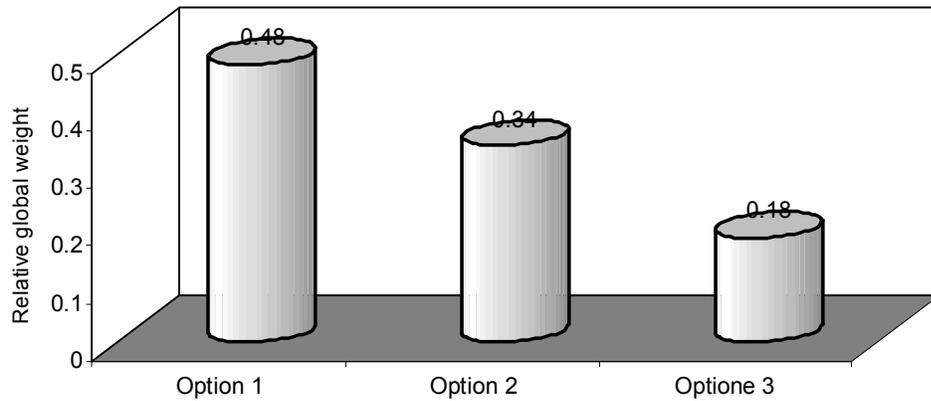


Fig 4.13 Relative global weights for the 3 options

$$U_{wd} = \gamma \left(x \left(P_t (1+r)^n \right) + \sum_{j=1}^m \sum_{i=1}^k q_{ji} b_i \right)$$

Eq. 4.12

All terms defined

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Box 12: Notation

Notations

ADB	Asian Development Bank
AHP	Analytical Hierarchy Process
AMCOW	Africa Ministerial Conference on Water
BWR	Basic Water Requirement
BOT	Build-Operate-Transfer
db-DCF	double-bounded Dichotomous Choice Format
CVM	Contingent Valuation Methods
DSS	Decision Support System
DCF	Discounted Cash Flow
EEC	European Economic Commission
EFCC	Economic and Financial Crimes Commission
FEPA	Federal Environmental Protection Agency
FMWRRD	Federal Ministry of Water Resources and Rural Development
ICPC	Independent Corrupt Practices Commission
IRR	Internal Rate of Return
JICA	Japan International Cooperation Agency
MCDA	Multicriteria Decision Analysis
MCM	Million Cubic Metres
MLD	Million Litre Day
NAFDAC	National Agency for Drugs Administration and Control
NWRP	National Water Rehabilitation Project
NPC	National Population Commission
PIs	Performance Indicators
PMs	Performance Measures
RWSA	Rural Water Supply Agency

Box 13: Appendix

Appendix	Title
A	Typical Demand Figure for Commercial and Institution Establishments in Urban Areas
B	Water Consumption in Developing Countries and Areas
C	C++ Program for Computing Population and Water Demand Projections
D	Questionnaires on Contingent Valuation (CV) survey
E	Questionnaires on Analytic Hierarchy Process (AHP) Model

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