

Preparing your Dissertation at a Distance: A Research Guide



S. Modesto Tichapondwa
Editor

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FOREWORD

Preparing Your Dissertation At A Distance: A Research Guide

Edited by S. Modesto Tichapondwa

It is exhilarating to present the Foreword for such an amazing volume, which represents unity in the diversity of academic intentions. The confluence of purposefulness by the scientists, all of them researchers and practitioners, is typically a hallmark of empiricism. The Lecturers, Directors, Deans, Vice Chancellors, and Professors bring unparalleled wealth of experience to bear on research guidance. They have, as their common denominator, illustrious and variegated didactic backgrounds. Reading through the biosketches, the audience is struck by the broadened range of contributing authors and their expertise: educationists, planners, applied linguists, open and distance learning specialists, psychologists, counsellors, business administrators, specialists in educational technology, agriculturists, rural and urban planners, project managers, literary philosophers, natural scientists, quality assurers, and economists. One cannot help exclaiming: "Here is God's Plenty!!"

In 2011 the Virtual University for Small States of the Commonwealth (VUSSC) published *Open and Distance learning Practices in Southern Africa: Collaborative Initiatives*. That volume reinforced *Strategies for Sustainable Open and Distance Learning*, a book that articulated the Commonwealth of Learning's (COL's) objective of increased contribution to knowledge among a community of practitioners. The volume ***Preparing Your Dissertation At A Distance: A Research Guide***, epitomises unrelenting progress in fulfilling the quest for access to tertiary education research-based programmes through open and distance learning mode. The COL is exceptionally delighted to welcome this new initiative from Southern Africa, particularly because of its potential to influence sustainable and quality programmes in the sub-region, the Small States of the Commonwealth, and beyond.

The impressive resumes of contributors reflect a heterogeneity of scholarship, talent, and expertise consciously directed to the critical matter of research. Statistics place the aggregate contribution of African countries to research at 7%, compared to 40% of developed countries. Indeed this is very low. It is hoped that this didactic volume will take researchers through fundamentals of research, thus enhancing the capacity of researchers to engage in more meaningful and demand-driven research, which will influence quality, productivity, and motivation at all levels of the education system. In turn, this is a major contribution to international research aggregate.

The debate about the quality and credibility of qualifications obtained through open and distance learning remains lively and inconclusive, and at times, justifiably so. In many developing countries, DE students embark on research-based postgraduate studies with a great deal of verve and enthusiasm, but with minimised support base in terms of skills and knowledge of fundamentals of research. This is exacerbated by transactional distance between the promoter and the student. Although there is cogent argument that technology can be mitigatory, it is not all aspiring candidates who have access to technology, to say nothing of their competence to use such technology when it is available. Against this background, the present volume comes as a perfect technology for research situations characterised by apartness.

The volume serves as a remarkable contribution to the VUSSC's monitoring and evaluation (M&E) drive. By its very nature, engagement of research from title formulation through to the final write-up, entails monitoring and evaluation. It is incumbent upon both the

supervisor and supervisee to assess progress on the basis of specified success indicators of the ongoing development and achievement of research objectives. Similarly, as they come towards the end, they, of necessity evaluate the credibility and usefulness of the thesis to the varied audience.

The volume is a clear statement of what often was thought, but never so well expressed. The writers have said what needs to be said unambiguously. They bring out commonalities in terms of expectations in the different chapters of a research. These are articulated in order to bring a shared understanding among supervisors and their students. In that respect, the book adds strength to the VUWSC's Transnational Qualifications Framework, and the framework currently being developed for SADC countries. A qualifications framework is an instrument for the classification of qualifications according to a set of criteria, aimed at, among other things, increasing transparency, access and integration of qualifications. It is overtly clear, reading through the chapters, that the volume spells out criteria for this highest qualification across the education systems, and is, *ipso facto*, a catalyst for alignment of qualifications.

Chapters on the nature of academic research, academic standards and research ethics, data handling analysis and interpretation, which have been referred to as enhancers, indeed enhance self reflection before delving into the more core issues of structuring a proposal and the writing of specific chapters. In terms of strengthening credibility, the rigour through which candidates are taken, should eventuate in a student's thesis, which makes a substantial and original contribution to knowledge in the form of either new knowledge or significant and original adaptation, application, and interpretation of existing knowledge.

The volume, through its vibrant discourse, adds insight and quality to the dynamic terrain of distance education in general; and to the often sidelined aspect of research, in particular. The voices of scholarship from Southern Africa immortalise research guidance. This epitomises significant contribution that is set to remain impactful in promoting open and distance learning praxis. We urge research students and researchers to take advantage of this invaluable resource.

John Lesperance
(Education Specialist, COL)

PROLOGUE

Research, the quest and search for answers to a problem, is as old as university education. The practice in conventional universities is that students from all over a country, or countries leave their respective communities to go to some four- wall lecture room, away from where the problems are. This means attempting to find solutions away from source.

Open and distance learning (ODL), on the other hand, reverses conventional research practice. The researcher remains in the community to solve the identified problem or generate knowledge, which can be readily applied to improve community welfare. Logically, the researcher would require guidance by way of induction seminars and short research methodology courses. This privilege is readily available in conventional universities, but not so for students doing their master's or doctorate studies through the ODL mode. This lack of support, largely caused by transactional distance between supervisors and supervisees, represents a critical gap.

This ground breaking volume: *Preparing Your Dissertation at a Distance*, bridges this gap in a significant way. Closely connected to the initiative are objectives of the ongoing ODL capacity building coordinated by the SADC Secretariat for the SADC Region as a whole. The Project seeks to establish the Region as a powerhouse for provision and development of ODL in pursuit of the often elusive ideal of ensuring equity in and access to education for socio-economic prosperity. Standardising the quality of doctoral/master's supervision would, no doubt, add value to the process of harmonising the provision of ODL qualifications at the highest level, and ensure parity of standards across member states.

For the first time in the SADC institutions of higher learning, research aspirants, whether in conventional or in open universities, will have a practical guide, written by experienced practitioners in the area of research. In more ways than one, the volume is a convergence of scholarship, thus it represents seminars, and compulsive interventions of superlative academic import. For this entrepreneurial innovation, attribution goes to the institutions which, in their own different but collaborative ways, contributed to the incarnation of the research guide. More importantly, I wish to acknowledge the stirring work by the authors of the volume for elevating academic thrust in Southern Africa.

I have the least doubt that this innovation will lead to more effort, which will shed light to the international academic community at large. Congratulations!

Dr. Thomas Salomao
SADC Secretary

Acknowledgements

Academic writing, especially in the domain of research, can make exacting demands on authors. The enthusiasm, temporal consciousness, and level of commitment by contributors exceeded expectation, and remains episodic. To these professionals, our primary accolades are attributed. As ambassadors of the sixteen institutions:

Zimbabwe Open University (ZOU), Botswana College of Distance and Open Learning (BOCODOL), Great Zimbabwe University, Mopato Education Centre (Botswana), Africa University, University of Fort Hare, University of Limpopo, University of Zimbabwe, Copperbelt University, Reformed Church University, University of South Africa (UNISA), Women's University in Africa, Lupane State University, Southern African Institute for Distance Education, University of Swaziland, and North West University;

they have done their institutions proud. The institutions are, in the same breadth, resoundingly acknowledged. Most notably, profound thankfulness proceeds to the ZOU, whose team of scholars and supervisors account for the success of the project. The volume is based on the foundation of ZOU's initiative to introduce postgraduate degrees by distance mode. In the absence of that launch pad, there would have been no mitigatory dialogue among the key interactants – research supervisors and supervisees. We thank the ZOU leadership for the perspicacious vision. In the same vein, the initiative by BOCODOL to coordinate the project, remains illustrious, and is accorded due acknowledgement. Above all, there would be no volume to talk about were it not published. Our publisher, the Virtual University for Small States of the Commonwealth (VUSSC) – an arm of the Commonwealth of Learning (COL)- have given the volume international projection. We acknowledge their collaborative and visionary leadership. The support affords opportunities to developing nations by enabling them to access quality knowledge at minimum cost. In terms of quality assurance, we acknowledge the contribution made by peer reviewers, who made the volume more accessible and uniquely scholarly. Last but not least, recognition is given to friends, partners, and spouses of the contributors for rendering their moral support.

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Abbreviations

AL Applied Linguistics
APA American Psychological Association
BOCODOL Botswana College of Distance and Open Learning
BUSE Bindura University of Science Education
CEO Chief Executive Officer
COL Commonwealth of Learning
DE Distance Education
DEASA Distance Education Association of Southern Africa
EPA Environmental Protection Agency
FDA Food and Drug Administration
FFP Fabrication, Falsification, or Plagiarism
GTC Gweru Teachers' College
HIT Harare Institute of Technology
ICTs Information Communication Technologies
M&E Monitoring and Evaluation
MSU Midlands State University
NIH National Institutes of Health
NSF National Science Foundation
ODL Open and Distance Learning
PD Parkinson's disease
RCU Reformed Church University
SADC Southern Africa Development Community
SMEs Small to Medium Enterprises
UB University of Botswana
UFH University of Fort Hare
UNISA University of South Africa
USDA United States Department of Agriculture
UZ University of Zimbabwe
VUSSC Virtual University for Small States of the Commonwealth
ZOU Zimbabwe Open University

PREFACE

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There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows and in miseries,
On such a full sea are we now afloat,
And we must take the current when it serves,
Or lose our ventures
(*Julius Caesar* Act iv. 3 lines 18-24)



Introduction

The contributors to this volume have identified three gaps, which have motivated them to take action towards more qualitative supervision of dissertations, namely:

1. Students who pursue research postgraduate studies have limited grounding in the fundamentals of research, and often show a lack of clarity what is expected in research, and in the dissertation chapters. Hence the need for them to read as widely as possible before and during engagement with their research (See cartoon above).
2. The supervisors of students, though most are experts in their respective fields, do not seem to have a shared understanding of what is expected in each of the five or six chapters of the write-up.

3. Literature on the conduct of research, especially research conducted through distance education (DE), mode seems to be scarce in the Southern Africa sub-region.

Against this background, institutions of higher learning have escalated the effort to democratise higher learning through DE. In particular, the Zimbabwe Open University (ZOU) recently became part of this tide, and the need for ensuring quality PhD and Master's degrees has been motivational to the writing of the present volume. It is the tide at its flood, which the contributors have taken. If the three gaps are legitimate concerns, our operations as institutions cannot be business as usual. It is, therefore, logical to create intervention measures that could move research in the direction of quality.

Institutions of higher learning do provide guidance in the form of handouts, which vary from one institution to another. The commendable effort by the different offices in charge of research-based postgraduate degrees to share such guidelines, does not go unnoticed. It is, however, noteworthy that in the Sub-Saharan Region, as well as in other parts of the world, the drive and quest for higher qualifications is on the ascendancy. This drive is evidenced by increasing enthusiasm by many potential candidates to enroll for Master's or Doctorate programmes. Unfortunately, this enthusiasm does not seem well matched with clarity of how to go about the dissertation/thesis. The situation is exacerbated by distance, especially for those aspiring students who are doing their research and are supervised through the DE mode.

The ideal scenario would be to have a face-to-face induction at the initial stages, to ground students in the foundations of research, and probably hold occasional formal meetings from inception of a given study to its logical conclusion. Unfortunately, this is not often possible in a distance learning set up, and our experience is that quite many candidates go through or bow out of their studies through frustration without 'seeing' their supervisor physically. Communication is mostly through e-mail, except when there are isolated and sporadic instances when supervisor and supervisee meet. Reality has shown that contriving such meetings is often not an easy feat to accomplish due to an entire array of reasons: distance, financial incapacity, work and other commitments by both parties.

Let us clarify some words, which are commonly used in the subsequent discussion. Simply because this volume is expected to be valuable to many academics, we shall not confine ourselves to doctoral qualifications only. The term **Project** shall be used to refer to research conducted at diploma level. In the United Kingdom it is usual to use the term **Dissertation** for a relatively long piece of work over and above the length of the extended essay. Students studying for the first degree or Master of Arts degree, usually complete a dissertation in partial fulfilment of their target qualification. We shall, therefore, use the term in that sense. We should, also not forget the confusion surrounding use of this term. The term 'dissertation' is used in countries such as the US and Germany to refer to a doctoral thesis. On the other hand, **Thesis** refers to a large body of written work necessary for gaining a PhD or MPhil. The latter usually requires a work of between 80 000 and 120 000 words, whereas the former usually requires between 20 000 and 60 000 words (cf. Grix, 2004).

The words **supervisor**, **supervisee**, and **promoter** will require clarification. The term 'supervisor' is more generic than promoter and is used to refer to anyone who guides the student through the project/dissertation/thesis. 'Supervisee' refers to the student or candidate under a supervisor. Some universities, e.g. the University of South Africa (UNISA) make a distinction, and call the supervisor of either an MPhil or PhD degree, a 'Promoter'.

Since this is not a commonly used term, we shall use the more generic one, namely, **'Supervisor'** during our interaction.

The Background

The context of the present volume is Southern Africa, where research praxis in single mode and dual mode colleges and universities is objectified. Although ideas discussed in the fifteen chapters are applicable to any higher education provider, the primary focus is on institutions preparing students working on the project/dissertation/thesis at a distance. For that reason, you will find that chapter contributors will occasionally make mention of distance education experiences.

From observation and experience, there has been a clarion call from governments in the sub region for citizens to attain higher qualifications, and this has been heeded with the seriousness it deserves. Some very enterprising departments have been created (in universities) to exclusively drive the agenda of research degrees. Towards that end, a pool of highly qualified academics has been put in place for purposes of supervising MPhil or PhD studies, and such a pool is regularly updated. A given Directorate, within an institution, does the linking and networking with academics, and in turn, the academics link up with their allocated candidates.

However, there are two opportunities that are difficult to create, namely:

- i. Causing Supervisors/Promoters to meet among themselves to share experiences on guiding students through the proposal and the usual five chapters (Introductory chapter, the Literature Review chapter, the Methodology chapter, the Results/Findings chapter, and the Discussion chapter). Experience speaks very loudly that out of the five chapters, the strengths of individual supervisors are not spread uniformly across all chapters.
- ii. Causing Candidates to meet formally with their supervisors. Such meetings make accomplishment of research-based degrees more feasible in conventional universities. If anything, distance education students are likely to need this kind of exposure even more than their counterparts.

The main question, also dictating the direction of the present volume, is: What initiatives can be undertaken to assist both supervisors and supervisees to develop a shared understanding about the research process, which leads to an academic qualification? What readily comes to mind is that supervisors should regularly converge at a central place to discuss research matters of mutual interest. Added to that, the individual supervisor should meet his/her allocated students face-to-face regularly. Easier said than done? However, wishes not being horses, none of us can have a ride.

Most fortunately, however, technology has come to our rescue and that is why we are able to talk to each other in this volume. Who would have thought that somebody at Fort Hare would be able to link with somebody at the Zambian Copperbelt University, or the Zimbabwe Open University in a matter of seconds? For a start, we can hold didactic dialogue with each other and with our students through this volume. True to say that we are experts in our own respective areas, experience has shown that a word, just one word from a colleague, can open up a whole insightful perception, which would not have been the case had you been dialoguing with your individual self. This is even more relevant for the student, who will experience the instructive chapters as a series of seminar workshops towards a

better conceptualisation of what is at stake when embarking on the noble journey towards the desired qualification through research.

In a typical conventional institution, face-to-face tutorials between supervisor and supervisee are readily facilitated, but this is not so for the single mode institutions, which conduct business via the distance mode. Some of these are the University of South Africa (UNISA), the Botswana College of Distance and Open Learning (BOCODOL), which is transforming into the Botswana Open University; the Zimbabwe Open University (ZOU), and the Open University of Tanzania (OUT). It is also noteworthy that there are some dual mode institutions, which offer research-based degrees through distance. The National University of Science and Technology (NUST) (Zimbabwe), and the University of Pretoria readily come to mind.

Against this background, enrollees for the programmes are from different countries in the sub region, and abroad, while supervisors are also from different institutions. It is through the office of the Director (Higher degrees) that coordination for a given university is conducted. The task of the office is mainly to:

- enrol and allocate students to supervisors;
- recruit qualified supervisors;
- connect supervisor and student;
- provide study guides and administrative handouts;
- monitor individual progress;
- arrange panels for *viva voce* interviews; and
- motivate both supervisors and students.

The Director's office is, therefore, the distribution and redistribution nerve centre for students and supervisors who, in practice, reside vast distances apart. In some instances, these distances amount to thousands of kilometres.

Objectives of the initiative

The current reality, noted above, has motivated this project. Dialogue among supervisors has revealed interesting viewpoints arising from the experience of guiding the student from the proposal stage, through all the chapters up to the write-up. In particular supervisors have admitted that while possession of a higher degree constitutes a platform to supervise, it is not automatic to become a competent supervisor until one engages with ideas about academic research commonly shared among the fraternity of scholars. Some of the views aligned to the expressed thoughts by supervisors were:

- i. Supervisors do not often seem to have a total concurrence on expectations about issues and procedures in the different chapters, notwithstanding the widely circulated documents.
- ii. The majority of supervisors tend to be more comfortable guiding and marking a particular chapter of the study. As an example, one may find it smooth sailing when dealing with Chapter 2, the literature review, than with the data analysis chapter, and vice versa.
- iii. The discourse of research has been singled out by supervisors as being problematic, raising some degree of divergence among experts. Examples include definitions of terms such as the distinction between *method* and *methodology*, *method* and *technique*, *approach* and *paradigm*, to cite but a few.

- iv. There seems to be no consensus regarding the sequencing of sections, especially in the Proposal, and in Chapter 1. The latter is normally an expansion of the former. A simple example is: In what sequence should the *problem statement*, *methodology*, *research questions*, *the background*, and *research objectives* be presented? Definitely, there is some order in the sequence, and this too should be agreed upon.
- v. In quite a few instances, supervisors may not be certain how referencing systems (APA, Harvard, or Chicago) should be operationalised. Evidence of this gap is often observed in the referencing inconsistencies of a supposedly completed student write-up.
- vi. Though minor, there are areas like supervisor's awareness of American versus British orthography; the difference between diagram and figure; and language lapses.

What this implies is that when supervisors, the experts, experience such challenges, it does not take intensive imagination to picture the magnitude of those problems to research initiates, the students.

In light of the foregoing, therefore, the objectives of this volume include, but are not limited to the following:

- Creating a resource, which serves as a repository of expert information on fundamentals of research for distance education scholars.
- Mitigating transactional distance between the supervisor and supervisee through user-friendly dialogue and activities that demystify the jargon of scholarship.
- Providing an accessible forum of purposeful engagement for supervisors and students, towards the lessening of cognitive load during the research process.
- Coaching and mentoring aspiring researchers on key areas of research, thereby making the activity a joyful rather than a stressful enterprise.
- Increasing the completion rate of enrolled candidates, and in the process minimising drop-out rate.
- Enhancing supervision skills by promoting a shared understanding of what is expected in each chapter of the research write-up.
- Promoting scholarship.

Contributors to the present compendium have unanimously recognised the gaps inherent in the current supervision situation. Equally, they strive to meet the objectives delineated above. In order to address a given research issue, every chapter is structured in a systematic way.

The Structure of a Chapter

Every chapter has been written in simplified language, without necessarily watering down scholarship – bringing knowledge from the library shelves to the living room. The ultimate goal is comprehensibility on the part of both supervisor and supervisee. Every writer makes a conscious allusion to the DE scenario as and when need arises. Supportive illustration and exemplification will characterise presentation, thereby grounding the audience in reality. The chapters adopt a didactic tone to strengthen instructional and interactive poise, which leads to ease of assimilation and accommodation of research concepts. In a number of cases, one chapter is co-authored by two scholars, whose vision is amalgamated in a manner that best fulfils rigorous speculation. The following structural features of each chapter will

be followed, and inevitable variations will be reflected where the chapter dictates otherwise.

- Title of chapter
- Name(s) of author(s)
- Abstract
- Introduction
- Chapter objectives
- The background (highlighting perceived DE gap)
- The detailed didactic content (the body, including interactive activities)
- Summary
- Lessons learnt by supervisors regarding students' work in connection with a given chapter
- References

Preparing the dissertation or thesis at a distance

The immediate question that comes to mind is: Why is distance an issue? Part of the response probably comes from a contrast between the research process conducted in the conventional campus-based university, and that carried out in an open university. In particular, due recognition is made for emerging open universities in developing countries, where, characteristically, there is a shortage of everything except human beings. Below is a table showing some of the differences between the two educational modes concerning research.

Table 1 Contrasting Conventional and Open University

Conventional University	Open University
1. Normally, face-to-face induction lectures are conducted.	It is not on many occasions that face-to-face lectures are conducted to ground students.
2. Meetings between supervisor and supervisee can readily be scheduled.	In the majority of cases apartness makes scheduling of meetings not feasible.
3. There are library resources to support the candidate's research effort.	Operating in isolation, the DE student has no assured resources to support research effort.
4. Most conventional universities have internet facilities, which enable students to access pertinent websites.	Access to internet is variable. Some students have access, while others do not. Access for many, comes at a cost.
5. Computer literacy is easier to develop where facilities and instructors are readily available.	Computer illiteracy can be rampant, with some students having to hire someone to type the chapters. This too comes at a cost.

The points do paint a somewhat dismal picture for the DE researcher. Without any question, therefore, the present initiative (the research guide) is set to go some way in easing constraints imposed by transactional distance. While the volume does not claim to have the capacity to improve technology skills, it brings voice where there was none before, by teaching and mentoring on fundamentals of research. In essence, the volume mitigates the absence of face-to-face interventions characteristic of classroom-based institutions. Ultimately, this removes isolation to a considerable extent by fostering dialogue with significant others.

Some guiding thoughts about Distance Education

DE as a mode of educating people has been defined variously *ad infinitum*. The definition is, therefore, not anything new to supervisors. It may, nevertheless, be new to the student

who is the primary audience of our volume. The brief explanation that follows is merely to refresh our minds as the basis for the way forward.

Obviously distance education, in comparison with conventional or traditional education, is a wider system in both terms of connotation and denotation. This is because it is practised in situations where many factors remain indeterminate and inchoate. It has many critics and enthusiasts, advocates and detractors (cf. Keegan, 1986; Roushanzamir, 2004), and therefore, remains imprecise in its definition. Holmberg's (1981) definition probably captures all essences, including ideas already shared above.

A summary of his definition is that distance education refers to the various forms of study at all levels, which are not under continuous, immediate supervision of tutors present with their students in lecture rooms on the same premises, but which, nevertheless benefit from the planning, guidance and tuition of a tutorial organisation.

In our opinion, this definition seems to match what happens when, for example, a student in Swaziland registers to do a doctoral degree with ZOU. In turn ZOU identifies a supervisor at the Open University of Tanzania, and links the two so that they engage in the research process. If planning, guidance, and tuition are acknowledged as ingredients of successful research, then the present volume is groundbreaking in that it addresses key empirical issues perceived to be critical by stakeholders. The volume expresses what often was thought but never so well expressed in broadest terms, including interactivity and communication at a distance; and how words are used to promote thinking. Recent studies on interactive communication, including communication in the DE scenario, accentuate the sociocultural view of using words to accomplish cognitive intentions. To that effect, Mercer (2004:139) has made the following observation regarding how thinking is based on ways with words:

A sociocultural perspective highlights the possibility that educational success and failure may be explained by the quality of dialogue, rather than simply in terms of the capability of individual students or the skill of their teachers.

On this note our final word is on the more productive ways of using this Guide.

How to use this book

In the hands of supervisors, who are experts in the field, there is little point making any extensive guidance, except making briefest comments.

To the Supervisor

Personal experience has shown that soon after a student is allocated to you, the next step is to get to know the candidate's research topic, and equally importantly, his/her profile. This gives an idea what area will be studied, and the background of the candidate. As it is often said, 'the supervisor immediately becomes a student along with the student'. So, there will be need to brush up your knowledge about a given topic and related concepts, to update them so that there is consonance in the supervision responsibility. The thinking is that reading the chapter you have contributed, together with those chapters contributed by colleagues, will promote what we as supervisors require: a shared understanding of expectations.

In a situation where you are requested to serve as external examiner, the different chapters of this volume remain just as important. However, the critical point is to revisit what is expected in each chapter, which the student writes, by going through the corresponding chapter in this volume, then do the actual marking. In the absence of guiding ideas at the back of the mind, the tendency is to try and scrutinise everything, including aspects that may not matter in a given chapter. This may defray focus.

To the Student

It is to the student that closest familiarisation with practically all the chapters in this book is mandatory. For a fact, the supervisor can actually get on with his/her task of supervision without necessarily reading chapters in the present volume. This is because supervisors have gone through the research process, and so possess background knowledge.

On the other hand, the student will require a visit or revisit of foundations of research, notwithstanding the fact that he/she has done a research project of some kind before. The fact that a new topic is being investigated is a loud proclamation that one needs to update one's knowledge on the nature of academic research, how to get started in research, and what academic standards apply (See the first three chapters). After that, work on the Proposal can begin, supported with insights from Chapter 8 of our volume. Ideas from these first four chapters will make dialogue with the supervisor easier, leading to the crafting of the Proposal, your driver of the entire study. Having the Proposal in place really simplifies everything since, for example, one can move on to tackle Chapter 1. To avoid a hit-or-miss approach, that chapter is best written after a thorough reading of the corresponding chapter of this volume, namely, Chapter 5 in which research approaches are discussed..

The same applies to the different chapters of the write-up. What is expected and how information should be presented, are issues explained in the different chapters. When both the supervisor and the supervisee read the guidelines, academic life becomes relatively easy because progress and a sense of direction are enhanced.

Overview of Chapters

Altogether, the volume comprises 15 chapters. A brief summary of each one is given below.

Chapter 1 (*The nature of academic research*). Dr. Zivenge makes an attempt to answer the critical question: What is research? then, among other things, clarifies the nuts and bolts of research.

Chapter 2 (*Getting started in research*). Dr. Charema discusses research types and research paradigms, including how to choose your research topic.

Chapter 3 (*Academic standards, plagiarism, and research ethics*). Dr. Mhute draws the researcher's attention to issues of quality and ethics.

Chapter 4 (*Student/Supervisor roles*). Dr. Chabaya and Dr. Chataika define roles played by key players as a critical element of successful research.

Chapter 5 (*Quantitative and Qualitative approaches to research*). Dr. Nyaruwata dwells on explanation of the two approaches at the heart of any research project, then explains how a combination of the two can be used to good effect.

Chapter 6 (*Research Designs*). Dr. Tshuma and Dr. Mafa give describe different research designs and the range of research methods commonly used in research, showing their alignment to the quantitative, qualitative and mixed methods approaches.

Chapter 7 (*Data handling, analysis, and interpretation: Hints and caveats*). Prof. Shumba draws the attention of students to the critical research aspect of data handling, highlighting some of the pitfalls to be avoided.

Chapter 8 (*Writing the Proposal*). Prof. and Mrs Magwa define ‘Proposal’ and take the student through the various steps of preparing one.

Chapter 9 (*Chapter 1- Introduction*). Mr. Mapfumo takes the researcher through the stages of the introductory chapter, and explains supervisor expectations.

Chapter 10 (*Chapter 2- Review of related literature*). Prof. Chireshe and Dr. Makura provide guidance on what review of related literature entails, as well as its significance in a given investigation.

Chapter 11 (*Chapter 3 – Methodology*). Dr. Ncube explains the research design used in a given study, as well as explaining the constitutive elements of the Methodology chapter (sampling procedures, the population, methods, research instruments).

Chapter 12 (*Chapter 4 – Results/Findings*). Prof. Shumba and Dr. Mhlanga explain how data are presented, interpreted, and analysed *as the basis for drawing conclusions*, relative to the research problem.

Chapter 13 (*Chapter 5 - the discussion*). Dr. Chakanyuka and Prof. Modesto explain that the discussion chapter is regarded as a dialogue between findings and theories, leading to explanation of the contribution of the study, and formulation of recommendations.

Chapter 14 (*The dissertation write-up*). Dr. Tau gives hints on how to present the final write-up before handing it in for examination.

Chapter 15 (*Challenges experienced by supervisors and students*). Dr. Chikasha gives typical examples of the process of supervising, and that of being supervised. It underscores the significance of harmonious psychological and emotional relations between supervisor and supervisee.

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CHAPTER 1 THE NATURE OF ACADEMIC RESEARCH

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Abstract

This chapter begins by locating research in the general context of education, explaining the concept of humanism (*unhu/Ubuntu/botho*). After defining academic research, the discussion proceeds to the systematicity of research, coupled with the insightful elucidation of the quantitative and qualitative approaches to research. Two critical essences of research are dwelt on, namely, validity and reliability. The different classes of research are highlighted as a way of initiating the potential researcher to have some functional understanding. Five variables are explained so that as the researchers embark on their studies, they possess awareness about the concept of research. The chapter concludes with lessons learnt by supervisors regarding the nature of research, while interacting with postgraduate candidates. In sum, this signifies the nature of research towards the attainment of the desired qualification as reflected in the image below.



1.1 Introduction

By its very nature “education” is target-specific, context-specific, purpose-specific and value-specific. It does not mean the same to everyone. It is never meant to be so, but this does not mean that there are no elements or characteristics of education, which are universally shared. Research in education is one such typical element. There are certain aspects of research in education, which invite universal appeal; and this is synchronous with the scientific nature of education in general. This chapter focuses on the nature of academic research, but first it examines the nature of education for it is within this intellectual and philosophical purview that academic research should be understood. It is the contention of this chapter that a clear understanding of the theoretical and philosophical underpinnings of any educational system should guide, not only the nature, but also the conduct of academic research.

1.2 Objectives

After working through this chapter, you should be able to:

- explain the link between academic research and education in general;
- come up with a more personalized definition of research after exposure to some of the definitions by scholars;
- interpret, with clearer understanding, why academic research is regarded as systematic;
- define validity and reliability and apply to typical research topics;
- classify research types according to quantitative and qualitative approaches;
- distinguish between five variables, which are commonly operationalized in research;
- explain specialist terms used in research discourse; and
- draw benefit from the lessons from your supervisors about the nature of academic research.

1.3 Situating Academic Research in Education

Ideally, education is a key to the success of any society; and yet in the entire Continent of Africa there seems to be no clue as to what education means to the people. Some take education to be a system where young people pass through various institutions of learning in order to get papers that certify them to be employed or to be recognized in society, what Dore (1976) calls “diploma disease”, that uninformed chase after certificates for their sake. Unfortunately this seems to be the case in most African countries.

Scholars such as the aforesaid Dore (1976) have made significant observations about many of today’s economic, social and political problems pitted against the rise in academic qualification. He states that this phenomenon has resulted in detrimental outcomes, which have negatively impacted upon the employability status of individuals, the social fabric of various countries, and the overall health and well-being of mankind. He further argues that this phenomenon is present throughout both the developed and the developing world, but is most detrimental within the developing countries. This is because it serves to enhance the dualistic developmental patterns already present within the fragile ‘third’ world school systems.

The current thrust of education focuses on institutionalized formal transmission of knowledge and values in schools, colleges and universities. But how many times have we ever asked ourselves: Whose knowledge and whose values? In the current set-up that has enjoyed uncritical acceptance since colonial days, formal education teaches a prescribed curriculum, which is basically a set of courses including their content and pedagogical tools. This sounds pretty convincing, doesn’t it? But the question to ask about our situation is: Have our needs been the basis of such curriculum processes?

The curricular structures of our primary schools, secondary schools and colleges have remained essentially the same since colonial days, for most countries in Southern Africa. And yet are we aware why the colonial regime designed them so? Perhaps this is where we have all lost it. This question begs the intervention of serious academic research. One of the commonest questions which the colonial education asked early primary school children was: “What do you want to do when you grow up?” It was never: “What do you want to be when you grow up?” Not surprisingly the answers to the loaded question all pointed towards servitude – “When I grow up I want to be a driver, a teacher, a messenger, and so on” – all positions of subordination as “employees”; never as “employers”.

Today the question is still much the same with slight variations to the answers: “engineer, pilot, manager or computer ‘engineer’” who for all practical purposes is in fact ‘computer operator’ for the curriculum never trains him to produce a computer. On the whole these are still “employees” with newer and more modern career options and ambitions. Is it not ironic that our universities continue to churn out fitters and turners in all fields, routine employees who are incapable of creating, naturalized recipients rather than designers, importers rather than exporters? This is all coming from embracing the colonial master’s conceptualization of education, which was clearly meant to create servants who are forever thankful to their colonial master (for they still remain so years after independence) for providing and continuing to generate knowledge through books and other western-centred educational media. Academic research in Africa must address these concerns.

The colonial concept of education taught that literacy and numeracy are about ability to read the “word” and make simple additions. In African philosophy and worldview, however, literacy is also about reading the “world”, and not just the “word”. Similarly, education is not about paper chase, but about the pursuit of wisdom. Education is the process of transmitting skills and values for the enhancement of society. In this sense, schools, colleges and universities are supposed to be extensions of families and communities, which are the agents of primary socialization. Put simply, the entire network of family kinships and community values has been the sources of life skills and wisdom. Every child was taught skills to become a useful member of society (cf. Castle, 1964). This is the philosophy underpinned by *unhu/ubuntu/botho*, the controlling ideology of the African people. The physical structures of former colonial institutions can still be used to teach our philosophy and not the western values they were initially erected to transmit.

Unhu/Ubuntu/botho should be the driving philosophy of all African education if it is to become a conduit to sustainable development for Africans. Let me briefly explain this philosophy for without a clear understanding of it we cannot comprehend what kind of education we expect our institutions of learning to deliver. The Shona word “munhu” is loosely translated as “person” in English. And yet in English the conceptualisation of “person” is diametrically different from that of *vanhu*. While for *varungu*, “person” simply refers to the biological entity. We Africans distinguish “munhu” (the biological form) from “unhu” (the value content or quality of being both human and humane). When African/Shona people say *unhu* (*ubuntu* in Ndebele, and *botho* in Setswana) they acknowledge that their ancestors “knew . . . from the beginning, that the change from animal to the ‘awareness of being’ is really the process of achieving a higher level of consciousness” (Rukuni, 2009: 32).

Describing *ubuntu* as an African ethical vision, Shutte (in Gikandi, 2009: 37) says:

...the human person is “a live electric wire which is ever exuding force or energy in all directions... it is like an aura around the human person, an invisible shadow or cloud or mist forming something like or radar field...while physically its seat is understood to be inside the human body, in the blood, its source is beyond and outside of the human physical body.

In other words *munhu* is to be understood as part of the forces that make the Universe. These forces are what we commonly call life, which is essentially living energy. Samkange (1980) emphasized three maxims which shape the philosophy of *unhuism*; namely:

- to be human is to affirm one's humanity by recognizing the humanity of others and, on that basis, establish respectful human relations with them;
- if and when one is faced with a decisive choice between wealth and the preservation of the life of another human being, then one should opt for the preservation of life; and finally
- the leader owes his status, including all the powers associated with it, to the will of the people under him (Samkange, 1980: 2).

Viewing the Universe this way has important implications for how one sees humans (*vanhu/abantu/batho*), and consequently how academic research can improve the lot of humanity. Indeed there are many problems that academic research should help solve in life. The noteworthy point is that *unhu/ubuntu/botho* permeates all spheres of human endeavor and the various disciplines constitutive of research areas (physics, commerce, mathematics, entrepreneurship, geography, to name a few).

Academic research is the cornerstone of meaningful education for self-reliance in any of the fields mentioned above. In one of his seminal papers on "Education for self-reliance" Nyerere (1967:3) has this to say:

. . . we have not until now questioned the basic system of education which we took over at the time of independence. We have never done that because we have never thought about education except in terms of obtaining teachers, engineers, administrators, etc. Individually and collectively we have in practice thought of education as training for the skills required to earn high salaries in the modern sector of our economy. It is now time that we looked again at the justification for a poor society like ours spending almost 20 per cent of its Government revenues on providing education for its children and young people, and begin to consider what that education should be doing. . . The educational systems in different kinds of societies in the world have been, and are, very different in organization and in content. They are different because the societies providing the education are different, and because education, whether it be formal or informal, has a purpose. That purpose is to transmit from one generation to the next the accumulated wisdom and knowledge of the society, and to prepare the young people for their future membership of the society and their active participation in its maintenance or development.

Indeed the fact that pre-colonial Africa did not have formal schools does not mean that the children were not educated. Nyerere is correct to observe that pre-colonial African children learned by living and doing. In the homes and on the farms they were taught the skills of the society, and the behaviour expected of its members. They learned the kind of grasses, which were suitable for which purposes, the work which had to be done on the crops, or the care which had to be given to animals, by joining with their elders in this work. They learned the tribal history and the tribe's relationship with other tribes and with the spirits, by listening to the stories of the elders. Through these means, and by the custom of sharing to which young people were taught to conform, the values of the society were transmitted in the spirit of *ubuntu*. Academic research should therefore seek to situate discovered knowledge within the trajectory of African history and life philosophy. What is your view about the foregoing? Work on Activity 1.1 to share that view with fellow researchers.

Activity 1.1

- a. What do you consider to be the significance of this general background to you as you embark on your postgraduate research?
- b. How does unhu/ubuntu/botho influence the way research should be conducted in the post-colonial era?

In my opinion, many students rarely think of situating their studies within the general education context, yet in one way or the other, the intention to educate is fundamental. This response to the first question closely links with the second question. At the heart of any study should be humanism as the general concern to carry out studies that are for the glory and benefit of humankind. Bear this in mind as we move a step further to defining academic research in the next section.

1.4 Defining Academic Research

Given the above imperatives on academic research, it follows that even the definition of academic research cannot be seen to defy borders of defining ethos. According to Thomas (2009:21) academic research differs from non-academic pursuits such as journalism in that it is governed by a number of expectations. There is the expectation that academic research will:

- aim to find new knowledge,
- be thorough,
- be balanced,
- be fair, and
- be ethical.

From Thomas' criteria one can generally define academic research as a detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding.

The word "research" is used to describe a number of similar and often overlapping activities involving a search for information. Several activities may involve some form of search; but the differences between academic and non-academic searches are massive and worth examining. The following aspects distinguish academic or scholarly research from non-academic research:

- It is empirical
- It takes a variety of forms
- It should be valid
- It should be reliable
- It should be systematic
- It must be directed by ethical considerations

(cf. Thomas, 2009)

Empirical means that knowledge derived from research is based on data collected by the researcher. **Variety** means that academic research takes different forms and adopts different methodologies depending on the imperatives of particular disciplines. Yet even as disciplines are different, they are all expected to adhere to the demands of validity, reliability and systematicity criteria. Apparently it is the latter principle that in fact yields both validity and reliability as explained below. But before the explanation, it is instructive to share what research is not.

- Research is not mere information gathering (Research is not about a Grade 2 child being sent by her teacher to get information on a few facts. It is much more serious than that. It is systematic)
- Research is not merely about getting information and writing it neatly in a paper (i.e. transcription of facts from one location to another). The essence of research is in interpretation resulting in drawing conclusions pertinent to the needs of humanity.
- Research is not merely about looking at records that exist
- Research is not a catchword used to get attention

1.5 The Systematic Process of Academic Research

From the foregoing, we are unambiguously informed that research is systematic. According to the *Standard College Dictionary*, the adjective 'systematic' means "carried out with organised regularity". This follows that academic research follows a recognized order or pattern. It is a step-by-step scholarly undertaking. The most prominent steps or series of activities to be followed are:

- Identification and definition of the research problem
- Reviewing of related literature
- Collection and collation of relevant data
- Discussion and analysis of findings (data analysis)
- Drawing conclusions and making recommendations based on results of analysis

The activity below requires that you reflect on the systematic nature of research.

Activity 1.2

- a. Give a definition of 'research' in your own words.
- b. Identification and definition of a research problem requires you to be systematic. What difficulties have you experienced in trying to do that?

You will agree that there are many definitions of the concept of research. In many instances, they have commonalities. It is to your advantage to examine those definitions and come up with a personalized one in words you understand. One of the most difficult stages for the researcher is identification of a research area and specifying the problem. One of the major difficulties is the ability to isolate one particular problem out of the several you may have. When starting on research, answers to these questions about the nature of research should be asked.

- Why carry out the research?
- What information is needed?
- What are the variables?
- Who will provide the information?
- What studies have been conducted already?
- What resources are needed for the study?
- How will the results be analyzed?
- How will the results be used?

Effectively, answering the questions will make the exploration of a given topic more systematic.

Two key considerations are validity and reliability of whatever research you determine to conduct. These are discussed in the next section.

1.6 The Validity of Academic Research

When we talk about validity in academic research we need to make a clear distinction between validity in quantitative research and validity in qualitative research. In quantitative research there are two types of validity, namely: internal validity and external validity. Internal validity is the extent to which research results can be accurately interpreted while external validity is the extent to which research results can be generalized to populations and conditions. Note, however, that internal validity is generally a prerequisite to external validity.

In qualitative research validity is measured in terms of truthfulness of findings, comparability of results and, to some extent, translatability. Truth value or credibility refers to the accurate representation of information from the researcher's perspective and substantiating evidence. Comparability, on the other hand, is the extent to which the characteristics of the research are described so that other researchers may use the results to extend knowledge. Furthermore, translatability refers to the extent to which theoretical constructs and research procedures are used in such a way that other researchers can interpret the results in like manner. In all these situations, however, it must be stressed that validity is always relative. It is inconceivable to have perfect internal and external validity in qualitative research although is in fact the desired norm in quantitative research. In qualitative research the researcher must always seek a useful balance between internal validity (ability to interpret results with reasonable certainty) and external validity (ability to generalize information obtained).

1.7 The Reliability of Academic Research

What we have said about validity in qualitative and quantitative data analysis applies to reliability as well. In quantitative research reliability refers to the repeatability, replicability and consistency of research, that is, the extent to which it can be reproduced. Reliability can be measured internally or externally. Internal reliability is the extent to which data collection, analysis, and interpretation are consistent given the same conditions while

external reliability is the extent to which independent researchers can replicate studies in the same or similar conditions.

On the other hand, in qualitative research reliability is measured in terms of dependability, confirmability and observer agreement. Dependability refers to adequacy of describing the changes in context during the study including the appropriateness of the method used to arrive at results. Confirmability is measured according to the extent to which others can confirm study results. Similarly, observer agreement is the extent to which two or more observers of the same event concur on the findings. Now work on Activity 1.3 to demonstrate your understanding of the research concepts discussed above.

Activity 1.3

Many students have difficulties distinguishing validity from reliability. Briefly explain each of the two to show the distinction.

The best way is to revisit the definitions above, and express your understanding to colleagues. Further, it helps to relate such understanding to the study you are either doing or are planning to embark on. We now examine threats to validity.

1.7.1 Threats to validity

For the knowledge generated through research to be acceptable, the design that generates the knowledge should have acceptable internal and external validity. Internal validity is the extent to which observed changes (dependent variables) have been caused by the manipulated (independent) variables. External validity is the extent to which variable relationships can be generalised to such similar situations elsewhere. Validity is, however, susceptible to various threats.

i. Threats to internal validity

The threats to internal validity are:

- Effects of maturation;
- Effects of history;
- Effects of testing;
- Poor sampling;
- Experimenter bias;
- Poor instrumentation;
- Poor definition of variables; and
- Experimental mortality.

ii. Threats to External Validity

The threats to external validity are:

- Interference of prior treatment;
- Artificiality of experimental set up;
- Extent of treatment verification;
- Interaction effect of testing; and
- Interaction of selection and treatment.

It is, therefore, imperative that whenever you are conducting your research, using a particular design, you should be awake to threats to either validity.

Let us now turn our attention to the way research can be classified.

1.8 Classification of Academic Research

Academic research can be classified in various ways. But for the purposes of introduction and simplicity it suffices to look at two broad categories of ***type*** and ***design***. Three main types are critical here: basic research, applied research and action research.

i. Basic research is conducted in order to add to the existing body of knowledge in any discipline.

ii. Applied research is conducted to solve an immediate practical problem; and

iii. Action research is conducted by a practitioner, who may be an academic, to aid in decision-making at the level of any institution.

These three fall under broad types of academic/scholarly research.

In contrast, *design classification* has several classifications all within *quantitative* or *qualitative* categories.

Qualitative research is designed to guide the researcher towards understanding certain attributes of social phenomena. Researches that yield qualitative data include *historical research*, *biographical research*, *phenomenological research*, *grounded research* (which makes use of snowballing), *ethnographic research* and *case study*.

Historical research is the study of a problem, which occurred in the past and requires collecting information from the past to serve as the data to be interpreted. It consists of describing what was, rather than what is.

Biographical research is exploration of the life or activities of an individual. It is a form of historical research that focuses on a particular individual's life history.

Phenomenological research involves understanding the essence of experiences related to a phenomenon or situation. It often utilizes in-depth interviews with appropriate subjects to understand the phenomenon being studied.

Ethnographic research is research consisting of an in-depth, analytical description of a specific cultural (or educational) situation. Ethnography relies heavily on observation, description, and qualitative judgments or interpretations of phenomena occurring in natural settings (as with case studies).

A *Case Study* is an in-depth analysis of a single case or a few multiple cases. Case studies utilise a variety of information sources to obtain an in-depth understanding of the case under study.

Qualitative research is closely associated with grounded theory. *Grounded* theory is the basis of grounded research. It involves development of a theory (theories) based on data collected from the field through qualitative methods, especially snowballing. Usually it utilizes multiple interviews to obtain the data leading to the formulation of a theory after a series of hypotheses testing and establishment of confirmed emerging patterns about relationships between phenomena.

Another set of design-related academic research typologies falls under quantitative framework whose purpose is to determine causal linkages. The research types, which fall under this category are: experimental, quasi-experimental, causal-comparative, correlational and survey researches.

Experimental research is one in which, at least one variable, the experimental variable, is deliberately manipulated by the researcher to determine the effects of the variation.

Quasi-experimental research is similar to experimental research except that intact groups are used as subjects of the research (rather than subjects randomly assigned to experimental conditions).

Causal-comparative research attempts to establish cause-effect relationships involving group comparisons. Unlike experimental research, however, the alleged causal variable is not manipulated by the researcher; it is studied as it occurred at some time in the past.

Correlational research attempts to determine whether, and to what degree, a relationship exists between two or more variables. The purpose of correlational research is to establish a relationship (or lack of a relationship); or use an established relationship to make predictions.

Survey research deals with the incidence, distribution, and relationships of educational, psychological, and sociological variables. Variables are studied as they exist in the situation. Quite often, survey research describes how things are.

All in all research requirements dictate whether the methodology will be primarily qualitative or quantitative, or a combination of both. We now revisit the two research design types in the next activity.

Activity 1.4

- a. Read the foregoing text, dealing with the quantitative and qualitative research types.
- b. Without looking at the text, in your own words, fill in what you think each type (listed in the first column) entails.

Research Type	What it entails
Historical research	
Phenomenological research	
Case study research	
Quasi experimental research	
Correlational research	
Survey research	

This activity aims at ensuring that you are capable of distinguishing one research type from others. Further, it gives you grounding in research types, thus enabling you to consciously make choices whenever deciding what type of research to work on. In the next section we discuss ‘variables’.

1.9 Research Variables

You will have noticed that we made references to ‘variables’ of a given study. What are research variables? Though this may sound an obvious question, our experience with students is that many have problems defining the variables of the study they will be doing. Tuckman (1994: 36-47) discusses five variables, namely: Independent, dependent, moderator, control, and intervening variables. It is noteworthy that your problem statement usually shows the relationship between variables, as explained immediately after the brief definitions below.

The Independent Variable

- It is the input or stimulus variable
- It is manipulated to cause a change in other variables
- An antecedent condition preceding a particular consequence.

The Dependent Variable

- It is the output or response variable
- It is the observed aspect of behaviour of the organism that has been stimulated
- It is measured and observed to determine the effect of the independent variable

The Moderator Variable

- A secondary independent variable
- Selected to determine if it affects the relationship between the primary independent variable and the dependent variable

The Control Variable

- All those variables in a situation that cannot be studied at the same time
- Factors controlled in order to cancel or neutralize any effect on the dependent variable

The Intervening Variable

- A factor which theoretically affects the dependent variable but cannot be seen, measured or manipulated
- Its effect must be inferred from the effects of the moderator variables on the dependent variable

To exemplify, we use the research topic:

The effects of ideas about course development on written open and distance education study materials.

Independent Variable = the course ideas used to guide the writing of the module by the writer.

Dependent Variable = quality study materials, which are the direct result of correctly applied ideas.

Moderator Variable = the past experience of the module writer which might be influential on the quality of the material.

Control Variable = maturation / history of the module writer.

Intervening Variable = the level of motivation of the writer to learn new ideas.

Activity 1.5

Look closely at the five variables. Taking the research topic you are researching on or you intend to work on, spell out the independent and dependent variables.

Ability to spell out these two variables, in particular, helps you work more meaningfully and systematically on your topic.

It is the nature of research that it has specialist vocabulary, what we may term the discourse of research. Researchers constitute a community with a purpose, and there are words and expressions you should be familiar with as a researcher. Below, are four such terms, which you will constantly interact with. In the columns and rows after those which have been defined for you, add as many as you can, and establish their meaning and relevance.

1.10 Basic Concepts in Research

Concept	Meaning	Relevance
1. Theory	A set of explanatory concepts	Provides impetus for research
2. Hypothesis	A testable proposition/ an expectation of the outcome of the study	Can be confirmed or disconfirmed
3. Methodology	A general approach (consisting of the controlling philosophy and principles) which informs the research.	Establishes how one will go about studying any phenomenon
4. Method	A specific way of carrying out the study	More or less useful depending on its fit with theories and methodologies
5. Approach		
6. Paradigm		
7.		
8.		
9.		
10.		

Make certain that you cultivate closest familiarity with them, and consciously apply them when working on the different parts of the study.

1.11 Lessons Learnt from students' work

Supervisors have drawn a number of lessons in their interaction with postgraduate students regarding the nature of research.

- It is often a struggle for students to arrive at a researchable topic.
- Many students either completely fail to define their variables, or define them vaguely.
- Many students tend to embark on a study for the sake of obtaining academic qualifications, without giving due consideration to *unhu/ubuntu/botho*.
- There are many research terms, which are used interchangeably even when they do not mean the same.
- At times students do not follow the steps which make research systematic.

1.12 Summary

In his book entitled *Fundamentals of Educational Research*, Gary Anderson has outlined ten characteristics that can be used to further understand what the field of academic research entails:

- Educational research attempts to solve a problem.
- Research involves gathering new data from primary or first-hand sources or using existing data for a new purpose.
- Research is based upon observable experience or empirical evidence.
- Research demands accurate observation and description.
- Research generally employs carefully designed procedures and rigorous analysis.
- Research emphasizes the development of generalizations, principles or theories that will help in understanding, prediction and/or control.
- Research requires expertise—familiarity with the field; competence in methodology; technical skill in collecting and analyzing the data.
- Research attempts to find an objective, unbiased solution to the problem and takes great pains to validate the procedures employed.
- Research is a deliberate and unhurried activity which is directional but often refines the problem or questions as the research progresses.
- Research is carefully recorded and reported to other persons interested in the problem.

In conclusion and in line with *ubuntu* ethos, academic research should take into account several ethical considerations. Furlong and others (2000; 27) identify the following six general principles: competence integrity, professional and scientific responsibility, respect for people's rights and dignity, concern for the welfare of others and social responsibility. This chapter has emphasized that scholarly research should be guided by the worldview and needs of the larger community. Also pertinent to academic research is the quality of *systematicity* and *scientificity* which yield validity and reliability of results. These are the attributes of academic research, which give it international acceptability. Such is the nature of academic research.

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CHAPTER 2 GETTING STARTED IN RESEARCH

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Abstract

This chapter builds on the first chapter, and discusses how to get started in research work, leading the researcher to understand research and its purpose, thereby guiding him/her towards choosing the area of study. It is paramount that researchers use a variety of appropriate research books or materials. First and foremost there should be wide reading in the researcher's area of interest, in order to gain knowledge and understanding of possible topics and theories that can be of use in the research project. The next step requires the researcher to indicate questions that have not been answered and then to identify the topic for the study. This gives guidance to the experiment as purported in the image below.



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2.1 Introduction

After reading chapter one you are expected to have a full understanding or at least a good idea of what research is all about. However, this chapter will continue to reflect on research in order to consolidate your gained knowledge and understanding. We will take you on the memory lane of research and lead you to choosing an appropriate research topic.

It is interesting to note that most graduate research students whether undergraduate or postgraduate, rush into choosing research topics without full understanding of what is involved. There is need for student researchers to first understand the different types of research, their purpose and what they entail. The purpose of research is to generate and test theories, often produced through scientific methods using scientific tools and applying them to real life situations. It is an ongoing process of correcting and refining hypotheses or questions, which lead to acceptable scientific truths. Whilst no scientific proof can be accepted as ultimate fact, rigorous testing ensures that proofs can become presumptions built upon gradually on the accumulation of knowledge. Research leads to organised learning, looking for specific information to add to one's store of knowledge. It is, therefore,

necessary to read widely in your area of interest before you can think of a topic to research on. This chapter seeks to explain what is necessary to understand and the steps to take before you start on a research project. There is need to understand what type of research to engage in, appropriate materials to read, theories and literature in one's area of interest, variables and the availability of professional personnel within the area of study. Having taken all these into consideration, one is likely to come up with an informed researchable topic.

2.2 Objectives

After working through this chapter, you should be able to:

- define research
- state the purpose of research
- explain why it is necessary to read widely in one's area of research interest
- choose a researchable topic
- write a clear topic or question in a few words

2.3 Research and its attributes

Before going very far we would like to refresh your mind from what you read in Chapter 1. It is worthy emphasising the importance of understanding research and what it entails. What is research? Gliner, Morgan & Leech (2009) take research to be:

- (a) a systematic method of gaining new information
- (b) a persistent effort to think straight
- (c) a systematic collection of data that develops or contributes to generalisable knowledge.

Hall & Hall (1996) posit that research involves engaging with the world finding out causes and effects. And yet Blaikie (1995: 106 -10) defines it in terms of: exploring, describing, understanding, explaining, predicting, changing or evaluating some aspects of the social world. Cohen and Manion (1989) define research as a systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. In this case it is clear (as pointed out by these authors) that research has three distinct but related elements that distinguish it from other means of problem solving, namely:

- (a) Research is systematic and controlled irrespective of the method chosen to carry it out
- (b) It is empirical such that subjective beliefs must be checked against objective reality. In other words the researcher's notions must be subjected to experimental inquiry and test.
- (c) Research is self- correcting in that the researcher's procedures and results are open to scrutiny by fellow professionals.

Smith (1981) suggests that research should be equated to disciplined inquiry which: must be conducted and reported so that its logical argument can be carefully examined; such that it does not depend on surface plausibility or the eloquence, status, or authority of its author; with a mechanism to avoid error; where aspects of evidential test and verification are valued; the dispassionate search for truth is valued over ideology. Every piece of research or evaluation, whether naturalistic, experimental, survey or historical must meet these standards to be considered disciplined (p585). The next activity requires that you share your view about what we have discussed above.

Activity 2.1

Having gone through the definitions cited above, create your personal definition of research, and write it in the space below. Research refers to:

That is a good starting point. Definitions by other scholars remain theoretical until and unless we personalize them. So, as you read on, and as you work on your own research, bear in mind the definition you have coined.

Considering the above definitions, as well as the one you created, it is very clear that research is an inquiry carried out with a clear thought in a systematic and disciplined way to gather data on a particular subject in order to contribute new information to the existing body of knowledge. In an oversimplified way, research is similar to a process of three steps:

- pose a question,
- collect data to answer the question, and
- present an answer to the question (Creswell, 2008).

This answer or information can be tested and verified for authenticity. It does not matter what paradigm the researcher chooses, there must be clear underlying guidelines on how research is to be carried out. It should not matter who carried out the research, how well it might have been articulated or written, even the importance and the nature of the problem under investigation should be examined. Research must stand on its own merit. If the research has been carried out systematically following guidelines within a particular research paradigm, disseminated within a particular discipline, then that research could be tested or verified by others (Gliner, et al., 2009). While there are many definitions of research and numerous attempts to explain it, we feel this explanation or definition includes key components of the concept.

Research is regarded as one of the most reliable and successful approaches to the discovery of truth and new knowledge, particularly with regard to natural sciences. Before embarking on a study one must know what one is investigating and understand how to go about it. It is important for one to read and investigate the area before making a concrete decision. This helps the researcher to establish the practicalities of collecting and analysing data, controlling the variables involved and the availability of supervisors in the area, the availability of literature and where to source it from. The researcher must have a complete imaginative picture of the whole process and outcome of the study before embarking on the study.

2.4 Types of research

There are generally three types of research, namely: pure, secondary and original research (Taflinger, 1996). The main objective of each type of research is to find out information and in some cases evidence. The difference is found in the strategies employed in achieving the objectives. Let us briefly explain each one.

2.4.1 Pure research

Pure research is carried out simply to find out information by examining anything. A researcher may want to discover properties possessed by various materials for example water. Knowing the properties of water may only be for the sake of knowledge and not for application. This type of research is just for acquiring information, not for solving problems.

2.4.2 Secondary research

Secondary research is finding out what others have researched and discovered through original research and trying to reconcile their results, may be in form of conflicting information, opinions, viewpoints and conclusions. This may lead the researcher to finding out new relationships between non-related research and his/her own conclusions based on other people's work. Secondary research can generate insights, new ideas and useful viewpoints harvested from original research drawn from various areas. In some cases secondary research has provided clearer understanding of research evidence without the influence of the original researcher's prejudices and preconceptions. Secondary research can be used to solve a problem, therefore, it may also be referred to as applied research.

2.4.3 Original research

Original or primary research (also known as basic research) is the investigation of information that is not yet known or perceived not to be known by anybody. This information is obtained through the following, but not limited to carrying out tests and experiments, observations, interviews and surveys. Original research requires four aspects.

- having the background of the subject under investigation;
- knowing what has already been discovered in the area;
- formulating a method to find out what one wants to know; and
- having the necessary tools to carry out the research

Students studying for an academic degree through research normally undertake secondary and or original research. To reflect on the foregoing, work on this activity.

Activity 2.2

a.

Type of research	Explain and indicate the Benefits
Pure research	
Secondary research	
Original research	

b. Indicate the type of research you are carrying out and give reasons why.

A good response will depend on proper understanding of information shared above, and based on that, you should be better positioned to indicate the research you are engaged in, and its justification.

2.5 Choosing a research book

In order to conduct a successful operation, irrespective one's field, a practitioner needs correct tools and the same goes for research. Among a variety of books there are three common books on research methods.

The first guides the reader through the stages of research in a logical sequence that should be followed in order to take the researcher on a reliable path of research.

The second type supports one approach in opposition to others. The researcher must be aware that there are a variety of approaches from different research books with some similarities and differences. Researchers are encouraged to make an attempt to read widely in order to engage the most suitable way to collect research evidence.

The *third* type of a book introduces the reader to a variety of research methods so that they can choose the most appropriate method suitable for their design.

The most suitable research books would be very simple and easy to follow. They should have clearly laid down guidelines with research stages indicating how a researcher should:

- choose his/her area of study;
- choose a topic and theoretical frame work;
- formulate a research question or hypothesis;
- establish the statement of the problem and the purpose of the study;
- develop the instrument;
- choose the methodology to use; and
- analyse data and how the write-up and all its components should be presented.

The advice is that in order to get started, you need to read good guides or manuals about research. The internet can give such books. Turn to the activity below to further our discussion.

Activity 2.3

- a. Which of the three book types did you find appropriate to your study? Support your choice with convincing arguments.
- b. The quality of your work is largely influenced by the materials you read. What are your views on this? Explain.
- c. If all research components were to be included in one book, what would it entail?
- d. In your own view what aspects do you find very useful in this book?

The choice is yours, and you have to present your points lucidly. It might also be your experience that a combination of all suggested types will illuminate your research better. You might also want to discuss item number three with your colleagues. The responses you give help you to get started.

2.6 The purpose of research

Research serves many purposes. Three of the most common and useful purposes are exploration, description and explanation (<http://sociology.about.com/od/Research/a/Purposes-Of-Research.htm>). However, it is worth noting that many studies can and often have more than one of these purposes but with different implications. Exploratory studies are normally carried out for three purposes:

- *to satisfy the researcher's curiosity* and desire for more knowledge and understanding;
- *to test the feasibility* of undertaking a more extensive study; and
- *to develop the methods* to be employed in any subsequent studies (<http://sociology.about.com/od/Research/a/Purposes-Of-Research.htm>).

The second purpose is **to describe situations** and events. In this case the researcher observes and describes accurately in detail several characteristics of the subjects under study. For example describing the rate of violence in different townships including the

computation of age and gender profiles of the population involved. In order to gain more information researchers would go on to examine why the observed patterns exist and their implications.

The third purpose **is to explain things**. While descriptive studies attempt to answer the what, when, where and how, explanatory studies attempt to answer the why. A good example would be identifying the variables that explain why some townships in a particular city have higher rates of violence than others. This involves explanations just like one might want to find out why some people attend church while others do not. It is important to note that while there are three distinct but related purposes of research, most studies will have elements of all three. This leads us to the importance of research.

Just to enhance the information you already have from chapter one, why do we carry out research? Although this may sound too obvious a question, there are many students, especially those working on their dissertations as distance education

learners, who wonder why do a doctorate through research instead of coursework. For that reason, we share ideas below.

In most cases, research is triggered by the following:

- the urge to find out or to know more about something;
- challenges that seem to persist;
- questions that seem not to have answers;
- wanting to verify or authenticate information;
- to increase the knowledge base of the discipline;
- to increase self-knowledge as a professional consumer of research;
- to understand new developments within a discipline;
- confirming or disconfirming a theory; and
- coming up with own theory.

There are many ways of increasing the knowledge base. Research can support a theoretical basis of the discipline or can end up developing or testing a theory. Through research, new developments and discoveries can enhance existing knowledge. There are many challenges in the education system today. For example, the practicality of the inclusion of students with special needs in any school nearest to their home area in the mainstream provision, the integration of AIDS education in the school curriculum, and many others. Research plays an important part in addressing these issues and it also improves practice for professionals in different fields, including education, nursing, agriculture, to name a few. Some of the purposes of research include development of theories, research tools and practical applications.

A theory presents interrelated concepts, definitions and propositions that provide a systematic view of phenomena and identify relationships among variables. Another way to increase knowledge within a discipline involves creating methods to access behaviours (Gliner, Morgan & Leech, 2009). For example researchers could develop a new standardized testing procedure and a set of tests to use. Wide reading is encouraged to acquire knowledge from different sources. Through reading different research reports, professionals improve their practices. Research reports inform policy makers and administrators of different institutions in making informed decisions. However, there is need for guidance in

order for the researcher to choose a researchable topic that can yield new information. Reflect on the foregoing as you work on the next activity. After reading the foregoing, what purpose does your research fulfill in the advancement of knowledge? Now work on this activity.

Activity 2.4

Explain in your own words ways in which research fulfills what is listed in the first column.

Trigger of research	Explanation
Answering questions that seem not to have answers	
Increasing the knowledge base	
Increasing self-awareness	
Confirming or disconfirming a theory	
Coming up with own theory	

Responding to this activity is a more positive way of advancing personal reasons, which will enhance the conduct of your own study whether as an open and distance learning student or as a student in a conventional university. To really get started, let us examine the issue of a research topic.

2.7 Choosing a topic

Surprisingly, one of the most excruciating experiences for the research student is coming up with a topic or title of study that is researchable. Choosing an appropriate subject is a critical stage in the success of your research project and selecting a topic is possibly one of the most difficult parts in carrying out research. Questions that come to one's mind are:

- Is the topic too wide? Is it too narrow?
- Will I be able to find enough material to use?
- Is there any documented research in this area?

Once you have ideas consider ways to refine, direct and narrow your ideas to, at least, three topics. Remember this complex process appears so easy and yet it involves many interrelated ideas, competing interpretations of facts and interdependent causes and effects (<http://alinks.wordpress.com/2009/05/09/how-to-choose-a-research-topic/>). You need to refocus your topic several times before you finalise it. Take into consideration the following hints:

- A topic should be a simple and clear statement, later reduced to research questions of reasonably few words. The usual guide is plus or minus 12 words.
- It should not be too long, otherwise it loses meaning.
- Identify key words and important components that form your topic. These are your key constructs.

- Consider selecting a topic in an area that is not over-researched but interesting and ready to be explored. The area must be challenging and enticing to know more about, in order to expand the body of knowledge.
- Think of topics and theories of interest in areas you have studied or areas of your programme.
- Are there any problems or challenges in your area of study that do not seem to have answers from the existing body of knowledge?
- If so, do you carry out the study by formulating a guiding research question or hypothesis? Research is about exploring, discovering, testing of hypotheses and of ideas. Most researches start with a hypothesis or a research question. A hypothesis or research question gives direction to research, especially where cause-and-effect relationships are being investigated.

Typically, in order to arrive at a topic is a process, which involves a great deal of trial and error in terms of playing around with numerous ideas and possible areas for research. It goes something like this:

Stage 1:	Having three, or even more general areas
Stage 2:	Settling on one general area
Stage 3:	Formulating two or three possible topics in that area
Stage 4:	Settling down on one topic, which is narrowed down to specifics
Stage 5:	Pilot testing the topic with peers and supervisor. Here you would be checking on whether the key words sufficiently direct the research; whether there are clear variables implied in the topic; and whether the topic is not ambiguous.
Stage 6:	Stage 6: Final decision on the topic

Narrowing the topic down to specifics is concomitant with view that it is better to choose a topic where you say a lot about a little, than one where you say a little about a lot. Here are two examples:

Topic 1

The significance of policies on special education in the provision of special education in the SADC countries

Topic 2

The significance of policies on special education in the provision of special education in Botswana.

Base your response to the next activity on the two topics and the foregoing discussion.

Activity 2.5

- Which of the two topics is more specific?
- Bearing the two topics in mind, comment on them with the help of the statement, "...where you say a lot about a little, than one where you say a little about a lot

I am certain you have correctly noted that the first topic is too broad, and it is beyond imagination to work on all policies of the 14 SADC countries. Also, even if you boldly decided

to tackle the first topic, your contribution will be nothing more than just a string of statements about each country. Yet, if you were to work on the second topic, there would be specificity and depth. Your audience would be encouraged to learn new knowledge about what happens in Botswana regarding the impact of policy protocol on the dispensation of special education.

Note that in this process, there is some element of **restlessness** on your part as you engage with a number of questions regarding researchability of the topic. Some of the questions include:

Who would be my research population?
Would I have access to the sort of literature required to address the perceived problem?
Would the topic be of interest to my audience?
Is the field not over-researched?
What contribution will I make to the corpus of knowledge in the field?

These and other considerations, you will be familiar with as a budding researcher, are simple but powerful tools for the advancement of knowledge since they enable you to see and analyse phenomena critically from a scientific viewpoint. All advances of scientific understanding, at every level, begin with a speculative adventure, an imaginative preconception of what might be true but should be logical (Cohen & Manion, 1989). It is about the establishment of facts and truth through enquiry and exploration. The intended outcome of research is new knowledge leading to improved understanding of mechanisms and the development of new and improved procedures. Your topic is then subjected to criticism and scientific reasoning which is a dialogue between the possible and the actual, the proposal and the disposal between what might be true and what in fact is the case. Before finalising your topic, it is important to think through the methodology to use, data collection and analysis. This process helps you to be organised, to map your direction and enables you to understand the problem with greater clarity. It provides a framework for collecting, analysing and interpreting data. Remember the final draft of your topic should always be taken as a working title, which you will continue to shape and perfect as you develop the study. Here is an activity to help you reflect on what you read so far.

Activity 2.5

Cast your mind back to the time before you decided on the topic of the study.

- a. Explain the extent to which the stages outlined above, helped you in making the important decision.
- b. What other stages, not included in the list, did you follow?
- c. Did you, at all, ask yourself some of the questions listed above during the decision-making process?
- d. What did you consider to be the most important aspects in choosing a topic?

Students have different experiences, but usually, there are commonalities. Your response seeks to assist you grasp some of the expectations in preparing for the study, what we referred to as getting started.

2.8 Other considerations

We have no doubt that you have experienced what it means to make a choice of the topic you may be working on. We also believe that the foregoing has helped you to get started. However, before moving to the next chapter, here are a few further considerations to get you started.

1	Establish the area of study
2	Ask the question: What are the challenges or questions unanswered in your area of study?
3	Think about topics and theories of interest in your area of study
4	Formulate a question or hypothesis
5	Read widely (prior research and literature) in the area and then collect relevant information to the topic and its theoretical framework
6	Have a clear picture of the statement of the problem and the purpose of the research.

2.9 Lessons learnt from working with students in this area

- Students choose topics that are too wide to cover within their time of study and fail to meet deadlines for completion and submission of their projects.
- It has also come to our notice that students choose a topic without being sure of the availability of literature. This is a common hazard that wastes a student's time and disrupts his/her mental flow and confidence. It is better for a student to give up a topic at the initial stage than back tracking after investing a lot of valuable time.
- Some topics are not researchable either due to complex issues involved and or lack of access to participants or information or due to ambiguities, while others are over researched such that too many people duplicate the same research topics.
- We have also experienced that some students choose topics with too many uncontrolled variables.

- Sometimes students choose topics they do not fully understand due to no or little background reading or research.
- In some cases students choose topics without any idea of how they would collect and analyse data thinking they will see what to do when they get to the stage.

2.10 Summary

Research is best conceived as the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis, and interpretation of data. It is the most important tool for advancing knowledge, promoting progress, and for enabling man to relate more effectively to his environment in order to accomplish his purposes and resolve his conflicts. It must be written such that the results presented can be validated and form the basis for further investigations. Procedures adopted must be justified; claims and conclusions must be supported by experiments or reasoned arguments and deductions. All the steps must be clear and precise and build towards a scientific inquiry that yields facts or truths that can be verified and justified. This chapter has explained research and its purpose. It further takes the researcher through the steps to follow in order to choose an informed clear researchable topic.

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CHAPTER 3

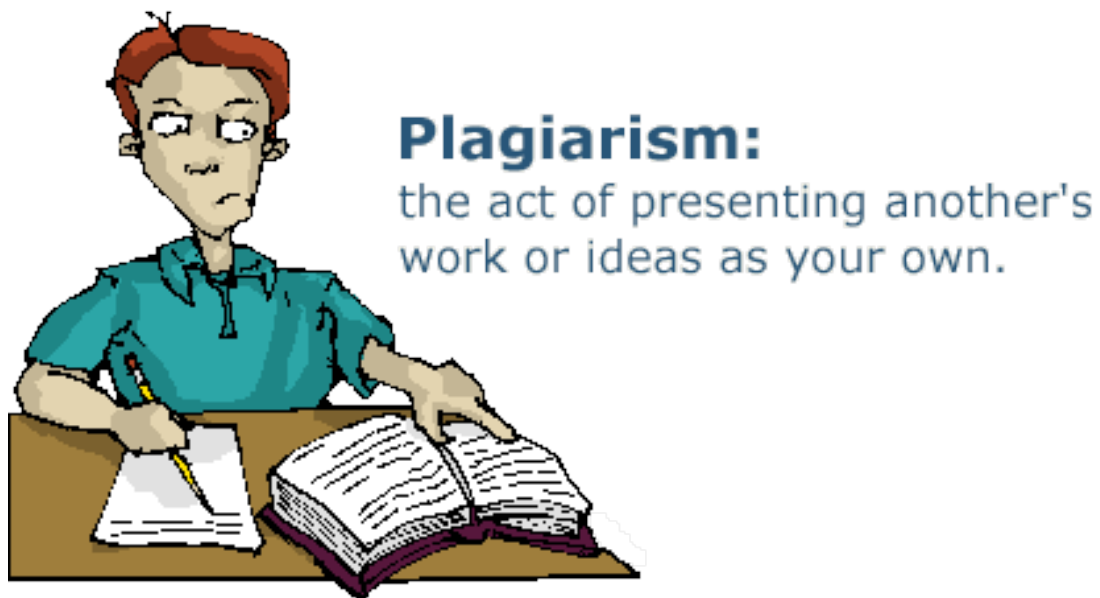
ACADEMIC STANDARDS, PLAGIARISM, AND RESEARCH ETHICS

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Abstract

Now that awareness about the nature of research has been discussed, and you are getting started, the present chapter deals with the critical issue of standards. It explains what academic standards are, in the context of postgraduate research, and brings to the reader's attention how breach of standards can occur. Plagiarism, reflected in the image below, is one of the malpractices that prejudices standards. A comprehensive discussion of plagiarism is proffered. Linked to standards and plagiarism is the issue of ethics. Postgraduate research without proper ethical considerations is both unthinkable and unsustainable. The chapter draws attention to this aspect.



3.1 Introduction

By its very nature, the conduct of research is an academic activity, hence the heading of the present chapter. Our discussion focuses on principles and standards for quality research, the basis for these standards, and strategies for reporting quality research. Plagiarism and research ethics are critical aspects of academic standards. Research evidence has it that a number of upcoming academics often ask themselves why they are supposed to reference. As you are advancing with your studies, it is important to know that every community has its own rules and regulations. Academics make up a community whose work involves the fundamental process of critically engaging with the work of others. For most academic research tasks, you will be required to work with different sources. Besides searching for the sources, the early part of the research process will involve:

- evaluating various works,
- assessing their relevance,
- testing their reliability,
- looking for similarities or differences between them, and
- making connections.

Following this stage, you will then move into the most important part of the research process, that is, forging some relationships for your own purpose (Fowler and Aaron, 2001). This means the development of some new and original understanding based on the connections that you make between diverse sources. This is how almost all academics have come to develop their own research grounds. The major highlight of the chapter is that whilst awareness of other people's ideas and findings evidences good scholarship skills, plagiarism is an offence. The chapter presents ways through which one may make use of personal as well as other people's ideas without committing the crime of plagiarism. This is done through acknowledging the sources used. You must, therefore, read this and every other chapter in this book with the aim of knowing how to do away with plagiarism at the same time becoming a good academic equipped with the proper ethical standards.

3.2 Objectives

After working through this chapter, you should be able to:

- explain and apply academic standards to research studies
- use various sources to develop personal researches;
- explain what plagiarism is;
- apply ways of doing away with plagiarism in all its possible forms; and
- carry out your study guided by research ethics.

3.3 What is quality research?

The website source (<http://www.ncddr.org/kt/products/focus/focus9/>) is lucidly informative about the issue of quality. While we are concerned with the issue of quality *research*, it is important to differentiate it from quality *evidence*. The term *evidence* or *evidence-based*, as it relates to research-based knowledge, pertains to the summative collection of research on a specific topic that answers specific and important questions (e.g., questions regarding relationships, why problems exist or persist, or what is the best decision for policymaking) (Raudenbush, 2002; Shavelson & Towne, 2002). While research quality pertains to the scientific process, evidence quality pertains more to a judgment regarding the strength and confidence one has in the research findings emanating from the scientific process (Mosteller & Boruch, 2002; Shavelson & Towne, 2002). According to Lohr (2004), "The level of confidence one might have in evidence turns on the underlying robustness of the research and the analysis done to synthesise that research." Commonly cited criteria for evaluating systems to rate the strength of bodies of evidence include (West, King, & Carey, 2002):

- Quality: the aggregate of quality ratings for individual studies, predicated on the extent to which bias was minimized in the study designs
- Quantity: the number of studies, the sample size, the study design's statistical power to detect meaningful effects, and magnitude of the effects found or the effect size
- Consistency: for any given topic, the extent to which similar findings are reported using similar and different study designs

Thus, more often than not, quality research is a precursor to quality evidence. Typically, the overall study design, the specific research questions, methods, coherence, and consistency of findings influence the type and quality of evidence produced. By now you will probably be asking relevant questions about standards. Respond to the activity below before reading on.

Activity 3.1

- a. What insights do we get from literature regarding quality standards in research?
- b. What criteria are at the disposal of the research student to determine the extent to which his/her research is up to standard?

There is abundant literature on quality standards, but you have to be judicious and select that which pertains to research. Also, there are criteria you could access while working on your research, and the following discussion gives some insight.

3.4 Standards for Quality Research

Quality research most commonly refers to the scientific process encompassing all aspects of study design. In particular, it pertains to the judgment regarding:

- the methods and questions,
- selection of subjects,
- measurement of outcomes, and
- protection against systematic bias, nonsystematic bias, and inferential error.

(Boaz & Ashby, 2003; Lohr, 2004; Shavelson & Towne, 2002).

Principles and standards for quality research designs are commonly found in texts, reports, essays, and guides to research design and methodology. Some scholars, however, suggest the philosophical underpinning and purpose of research methods that are designed specifically to generate rich qualitative data calls for a different characterisation of these standards (Spencer, Ritchie, Lewis, & Dillon, 2003).

Scholars (Gersten et al., 2000; Greenhalgh, 1997; Ragin et al., 2003) have described standards that shape scientific understanding and that are frequently used to frame the discourse on the quality of research. This has led to the term *scientifically based research* being used in some settings to address research quality. Frequently mentioned standards for assessing the quality of research include the following:

- Pose a significant, important question that can be investigated empirically and that contributes to the knowledge base
- Test questions that are linked to relevant theory
- Apply methods that best address the research questions of interest
- Base research on clear chains of inferential reasoning supported and justified by a complete coverage of the relevant literature
- Provide the necessary information to reproduce or replicate the study
- Ensure the study design, methods, and procedures are sufficiently transparent and ensure an independent, balanced, and objective approach to the research
- Provide sufficient description of the sample, the intervention, and any comparison groups
- Use appropriate and reliable conceptualisation and measurement of variables
- Evaluate alternative explanations for any findings

- Assess the possible impact of systematic bias
- Submit research to a peer-review process
- Adhere to quality standards for reporting (i.e., clear, cogent, complete)

After going through the standards, read a complete write-up of a study, and evaluate the extent to which it meets the criteria above. You may then move on to the discussion about plagiarism, which is closely linked with quality research standards.

3.4.1 What is plagiarism?

As you venture into the high levels of academic writing, it becomes very important to understand what plagiarism is to ensure you do not commit it. Plagiarism is the taking of another person's ideas, writings or inventions and using them as your own. It may, therefore, be referred to as **academic theft**. This is a serious offence and must be taken seriously as different academic institutions have their own ways of dealing with it. It includes re-wording / paraphrasing another person's work without citing the source. All paraphrased material must, therefore, be acknowledged. Infringing this requirement, whether deliberately or not is plagiarism. It is important that you make sure that every piece of work you submit for assessment is your own. If you try to pass off the work of others (even those at the same level with you) as your own you will be committing plagiarism.

Put in other words, plagiarism refers to any work of others that you use as yours, whether published or not. Any quotation from the published or unpublished works of other persons, including other doctorate or masters' candidates, must be clearly be identified as such and a full reference to their sources must be provided in proper form. It is also important to note that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as does a single unacknowledged long quotation from a single source. Every quotation must thus be placed properly within quotation marks or indented and must be cited fully. To reflect on the seriousness of plagiarism, work on this activity.

Activity 3.2

Go through the literature review section of either a journal article or chapter of a study, which you have written, or which has been written by someone else. What evidence of plagiarism can you identify?

This activity is meant to make you vigilant of plagiarism as a researcher. Therefore, there is no prescribed answer. The important thing is for you to bear in mind foregoing definitions of plagiarism and apply to typical situations.

3.4.2 What does plagiarism look like?

The most obvious form of plagiarism you may do is to use someone else's words, diagrams, or photos to support your argument without any acknowledgment whatsoever (<http://www.lib.berkeley.edu/instruct/guides/citations.html>). However, you must note also that inadequate referencing can result in plagiarism. For example, inserting a section of text from someone else's work in to your own without quotation marks would be plagiarism even if the source was acknowledged in a precise reference. If you use words from other sources it must both be in quotation marks or indented and precisely referenced with page numbers. A rule of the thumb is that:

- Where you cite the exact words, the author, the year of publication, and the page reference, must be reflected.
- However, if you paraphrase the words of the author, only the author's name and year of publication should appear.

Whenever you refer to the work of other people, there should always be an acknowledgement. Please note that plagiarism can also arise from failing to acknowledge material obtained from internet sources as well as from books, or articles.

3.4.3 Self-plagiarism

You must note that every piece of work you produce may only be submitted for assessment or publication once. Submitting the same piece of work you have produced twice will be regarded as an offence of self-plagiarism. However, earlier essay work may be used as an element of a dissertation, provided that the amount of earlier work used is specified by the department and the work is properly referenced. Referencing would serve to indicate that you have for sometime been a member of the academia and thus earn you the faith of your readers. Spend time on the following activity, then move on.

Activity 3.3

Look through your previous writings and assess the way you have been handling other people's ideas and findings in the light of plagiarism.

The essence of this activity is to help you reflect on your own prior practice. You may find that your consciousness about referencing was somewhat limited. Now, refresh your mind by answering the question about referencing.

3.5 What is referencing?

Referencing is critical in research, and as clearly explained on the website <http://www.reading.ac.uk/internal/studyadvice/Studyresources/Reading/sta-references.aspx>, this is the action of referring to a source of information. In academic writing, each time somebody's ideas, point of views or arguments are used, the reference must be put in place. Failure to do so, as indicated earlier, would be treated as an act of plagiarism. Besides the fact that plagiarism is an offence dealt with seriously by different institutions, it is just not an ethical practice in the academic community for one to use other people's material without acknowledging them. You are, therefore, encouraged to join the academia knowing that it is your duty to uphold proper standards characterising the community. Experience shows that some candidates doing their dissertation at a distance think it is not necessary to cite references.

It should be noted that the absence of references in your writings would be regarded as poor writing standard. Why do you think academics think that way? The next section highlights some of the importance of referencing.

3.6 Why reference?

The appropriate citation of sources is an important academic and ethical practice and the responsibility for learning the proper forms of citation lies with the individual student. It is very unlikely that as an upcoming academic you may venture into a writing ground that nobody has ventured into before and as such, below are some of the reasons academics must reference (Australian National University, 2009):

- To distinguish your own ideas from those of someone else.

- To cite different points of view.
- To validate what you are writing, by referring to documented evidence. Published work for instance can be used to support your argument and add credibility to your writing.
- To inform readers of the scope and depth of your reading.
- To integrate information by assessing, comparing, contrasting or evaluating it, to show understanding.
- To emphasise a position that you agree or disagree with.
- To refer to other research that leads up to your study (that is, to anchor your work into previous research).
- To highlight a pertinent point by quoting the original.
- To enable readers to consult the original source independently. For instance, to cross check if the interpretation you give is really the one intended in the original source.

All these aspects make your own piece of work valid and well rooted in the culture of academic writing.

3.7 When to reference?

When writing an academic essay or a report, you will invariably draw upon the research of others, directly or indirectly, and incorporate it into your own work. For example, you may choose to quote an author, paraphrase a section of an author's work, or simply use an idea or information from a text. In producing an essay, report, or dissertation, whenever you quote directly from another writer, paraphrase or summarise a passage from another writer or use material (for example, an idea, facts, statistics) directly based on another writer's work; it is your responsibility to identify and acknowledge your source in a systematic style of referencing" (Clanchy and Ballard, 1997). By doing this, you are acknowledging that you are part of the academic community. It is important to do this so that your reader or the person assessing your work, can trace the source of your material easily and accurately (Clanchy and Ballard, 1997). The reader may want to know where your evidence or support for your argument comes from. Using the work of others each time you write, as long as it is acknowledged, is an encouraged and accepted practice in academia.

3.8 Referencing systems

There are a number of referencing systems that are commonly used for academic purposes today. These include: the Chicago referencing system; the American Psychological Association (APA); and the Harvard System. The latter two are the most commonly used in Southern African universities and institutions of higher learning. There are systems that use footnotes and endnotes, and although in fewer cases, these continue to be used, they are no longer common. Presently we shall share the APA and the Harvard Systems in some detail.

Today, in order to maintain high academic standards in research, you are expected to select a particular referencing system and maintain its use consistently. We shall borrow the 6th edition of the APA system from the University of Waikato.

3.8.1 APA Referencing System

This is a quick guide to the APA referencing style (6th edition) drawn from www.waikato.ac.nz/go/apa.

- The **American Psychological Association** reference style uses the Author-Date format.
- Refer to the *Publication Manual of the American Psychological Association* (6th ed.) for more information. Check the Library Catalogue for call number and location(s).
- When quoting directly or indirectly from a source, **the source must be acknowledged in the text** by author name and year of publication. If quoting directly, a location reference such as **page number(s)** or **paragraph number** is also required.

3.8.2 In-Text

Direct quotation – use quotation marks around the quote and **include page numbers, e.g.** Samovar and Porter (1997) point out that "language involves attaching meaning to symbols" (p.188). Alternatively, "Language involves attaching meaning to symbols" (Samovar & Porter, 1997, p.188).

Indirect quotation/paraphrasing – no quotation marks, e.g. Attaching meaning to symbols is considered to be the origin of written language (Samovar & Porter, 1997).

N.B. Page numbers are optional when paraphrasing, although it is useful to include them (Publication Manual, p. 171).

Citations from a secondary source

As Hall (1977) asserts, "culture also defines boundaries of different groups" (as cited in Samovar & Porter, 1997, p. 14).

- At the end of your assignment, you are required to provide the full bibliographic information for each source. References must be listed in alphabetical order by author.

3.8.3 Examples of references by type

In a reference list	In-text citation
1. Book with one author King, M. (2000). <i>Wrestling with the angel: A life of Janet Frame</i>. Auckland, New Zealand: Viking. N.B. The first letter of the first word of the main title, subtitle and all proper nouns have capital letters.	(King, 2000) or King (2000) compares Frame ...
2. Book with two to five authors (see Library APA referencing webpage for six or more authors) Krause, K.-L., Bochner, S., & Duchesne, S. (2006). <i>Educational psychology for learning and teaching</i> (2nd ed.). South Melbourne, Vic., Australia: Thomson. N.B. Use & between authors' names, except when paraphrasing in text. When a work has three, four or five authors, cite all authors the first time, and in subsequent citations include only the first author followed by et al.	(Krause, Bochner, & Duchesne, 2006) then (Krause et al., 2006)
3. Book or report by a corporate author e.g. organisation, association, government department University of Waikato. (1967). <i>First hall of residence</i> (Information series No. 3). Hamilton, New Zealand: Author. N.B. When the author and the publisher are the same, use Author in the publisher field.	(University of Waikato, 1967) Some group authors may be abbreviated in subsequent citations if they are readily recognisable.

4. Book chapter in edited book Helber, L. E. (1995). Redeveloping mature resorts for new markets. In M. V. Conlin & T. Baum (Eds.), <i>Island tourism: Management principles and practice</i> (pp. 105-113). Chichester, England: John Wiley. N.B. Include the page numbers of the chapter after the book title.	(Helber, 1995) or Helber (1995) compares luxury resorts ...
5. Conference paper online - (see Library APA referencing webpage for alternative formats) Bochner, S. (1996, November). <i>Mentoring in higher education: Issues to be addressed in developing a mentoring program</i>. Paper presented at the Australian Association for Research in Education Conference, Singapore. Retrieved from http://www.aare.edu.au/96pap/bochs96018.txt	(Bochner, 1996) or According to Bochner (1996) ...
6. Course handout/Lecture notes Salter, G. (2007). <i>Lecture 3: SPLS205-07A</i> [PowerPoint slides]. Hamilton, New Zealand: University of Waikato. N.B. Put format in square brackets - e.g. [PowerPoint slides] [Lecture notes]	(Salter, 2007)
7. Film – (see Library APA referencing webpage for music and other media) Zhang, Y. (Producer/Director). (2000). <i>Not one less</i> [Motion picture]. China: Columbia Pictures. N.B. For films, DVDs or videorecordings use [Motion picture] in square brackets. Give the country of origin and the name of the motion picture studio.	(Zhang, 2000)
8. Journal article – academic/scholarly (electronic version) Hohepa, M., Schofield, G., & Kolt, G. S. (2006). Physical activity: What do high school students think? <i>Journal of Adolescent Health</i>, 39(3), 328-336. doi:10.1016/j.jadohealth.2005.12.024 N.B. A capital letter is used for key words in the journal title. The journal title and volume number are italicised, followed by the issue number in brackets (not italicised).	(Hohepa, Schofield, & Kolt, 2006) then subsequently, if 3-5 authors (Hohepa et al., 2006)
9. Journal article - academic/scholarly (print version) Gibbs, M. (2005). The right to development and indigenous peoples: Lessons from New Zealand. <i>World Development</i>, 33(8), 1365-1378.	(Gibbs, 2005) or Gibbs (2005) contradicts ...
10. Magazine article – popular/trade/general interest Goodwin, D. K. (2002, February 4). How I caused that story. <i>Time</i>, 159(5), 69. N.B. Full date is used for weekly magazines; month and year for monthly magazines	(Goodwin, 2002) or Goodwin (2002) defends ...
11. Newspaper article – (Print version) Hartevelt, J. (2007, December 20). Boy racers. <i>The Press</i>, p. 3. N.B. Include p. or pp. before the page number – for newspapers only, not magazines	(Hartevelt, 2007)

12. Newspaper article with no author Report casts shadow on biofuel crops. (2007, October 16). <i>Waikato Times</i> , p. 21. N.B. Article title comes first. In the text, abbreviate title and use double quotation marks	("Report Casts Shadow," 2007)
13. Thesis – print version - outside the US (NEW) Dewstow, R. A. (2006). <i>Using the Internet to enhance teaching at the University of Waikato</i> (Unpublished master's thesis). University of Waikato, Hamilton, New Zealand.	(Dewstow, 2006) or Dewstow (2006) identified ..
14. Webpages (When multiple webpages are referenced, reference the homepage) Statistics New Zealand. (2007). <i>New Zealand in profile 2007</i> . Retrieved from http://www.stats.govt.nz N.B. Author (could be organisation), date (either date of publication or latest update), document title, date retrieved if contents are likely to change, URL	(Statistics New Zealand, 2007)

3.9 Harvard Referencing System

The summarized Harvard style has been drawn from <http://www.lc.unsw.edu.au/olib.html>.

3.9.1 In-Text Citations

How to Cite 'In-Text'

Citations may be placed at the end of a sentence (before the concluding punctuation) in brackets:

The theory was first developed by Browne (Gibbs 1981).

Another way of including a reference in your text is to integrate the author's surname into your sentence, followed by the year of publication and page number, in parentheses:

Gibbs (1981, p. 89) states that Browne was the first to develop the theory of...

The following extract is an example of a paragraph using the Harvard system:

Criticisms aside, Durkheim's work was an extraordinary contribution to the sociology of religion, perhaps more specifically to a greater understanding of the origins of collective morality. Gardner (1987, p. 74) makes an extremely important point about Durkheim when he writes "Durkheim had a lifelong interest in morality . . . For Durkheim morality was the centre and end of his work and society itself was the end and source of morality" . For Durkheim, the nature of morality was the nature of social solidarity. In *The Elementary Forms* Durkheim defined religion as the main expression of the deep moral sentiments inspired by society in individuals. His interest in the moral substratum of the modern social order expressed concern with the moral consequences of modernisation (Toles 1993).

To cite a direct quotation

Write the text word for word and place quotation marks at the beginning and end of the quotation. The author, date and page number must be included.

"Australia is a settler society" (Hudson & Bolton 1997, p. 9).

To cite a paraphrase or a short summary of an author's words or ideas

Restate the original words/ idea in your own words. The author, date and page number(s) must be included.

Wartime textile rationing was imposed through a coupon system, which meant garments now had two costs: their value in monetary units and in coupons (McKernan 1995, p. 152).

To reference the overall content of a work

You do not need to include page numbers because it is the entire work you are referring to: Larsen and Greene (1989) studied the effects of pollution in three major cities...

3.9.2 List of References

The List of References in the Harvard system is a single list of all the books, journal articles and other sources you have referred to throughout your assignment.

1. A list of references should be laid out alphabetically by author surname.
2. If bibliographic information exceeds one line of text, then the following lines should have a hanging indent.
3. The title of a book should be in italics. Minimal capitalisation is recommended (e.g. only capitalise the first word of a title's heading/ subheading and any proper nouns).

3.9.3 Citing different sources

To cite a book	
In the text A page number is required if you are paraphrasing, summarising or quoting directly: (Karskens 1997, p.23) Ward (1966, p. 12) suggests that ... If you are only citing the main idea of the book: (Karskens 1997)	In the List of References Karskens, G 1997, <i>The Rocks: life in early Sydney</i> , Melbourne University Press, Carlton. Ward, R 1966, <i>The Australian legend</i> , 2nd edn, Oxford University Press, Melbourne. Present full bibliographic details in the following order: 1. author's surname and initial(s) 2. year of publication 3. title of publication (in italics and with minimal capitalisation) 4. edition (if applicable. Abbreviated as 'edn') 5. publisher 6. place of publication
To cite a journal article	
In the text If the page number is required, as it is for summarising, paraphrasing and direct quoting: (Kozulin 1993, p. 257) If you are citing the main idea of the article only: (Kozulin 1993)	In the List of References Kozulin, A 1993, 'Literature as a psychological tool', <i>Educational Psychologist</i> , vol. 28, no. 3, summer, pp. 253-265. Place the information in the following order: 1. author's surname and initial 2. year of publication 3. title of article (between single quotation marks and with minimal capitalisation) 4. title of journal or periodical (in italics, using maximum capitalisation)

	5. volume number, if applicable 6. issue number, month or season (if applicable) 7. page numbers of the article
To cite an article from a book collection	
A book collection consists of a collection of articles or chapters, each by different authors, but compiled by editor(s). If you want to cite a particular article/chapter, cite the author(s) of the article in the text: (Curthoys 1997, p. 25)	In the List of References When you use an article or chapter from a book collection, the title of the article appears in quotations. The title of the book is italicised. For example: Curthoys, A 1997, 'History and identity', in W Hudson & G Bolton (eds), <i>Creating Australia: changing Australian history</i>, Allen & Unwin, Sydney, pp. 23-38. Place the information in the following order: 1. author's surname and initial 2. year of publication 3. name of article (between single quotation marks and with minimal capitalisation) 4. in 5. initial(s) and surname(s) of editor(s) 6. (ed.) or (eds) 7. name of collection (the name on the title page) in italics and minimal capitalisation 8. publisher 9. place of publication 1 10. page range
To cite a book collection	
If you want to cite the entire book, refer to the editors(s) of the collection in the text: (Hudson & Bolton 1997)	To cite the entire book: Hudson, W & Bolton, G (eds) 1997, <i>Creating Australia: changing Australian history</i>, Allen & Unwin, Sydney.
To cite a quotation or idea from an author who attributes it to another source	
You must acknowledge both sources in your text: Graham Gibbs, in his 1981 study into student learning wrote that "because students are aware of their tutor's mastery of the subject matter, it is quite common for them to assume that their reader has no needs at all" (Gibbs 1981, p. 39, cited in Bowden & Marton 1998, p. 35).	In the List of References, record the book that you actually sourced: Bowden, J & Marton, F 1998, <i>The university of learning</i>, Kogan Page, London.
To cite more than one author	
Include both names in the order in which they appear on the title page: (Gerster & Basset 1987) or: Gerster and Basset (1987) assert that ...	In the List of References: Gerster, R & Bassett, J 1991, <i>Seizures of youth: the sixties and Australia</i>, Hyland House, Melbourne.

To cite more than three authors	
Use the surname of the first author and et al. ('and others') in the text: Leeder et al. (1996, p. 78) argued ... or: (Leeder et al. 1996)	In the List of References: Leeder, SR, Dobson, AJ, Gibbers, RW, Patel, NK, Mathews, PS, Williams, DW & Mariot, DL 1996, <i>The Australian film industry</i> , Dominion Press, Adelaide. Don't use et al. in the list of references. List all authors in the order in which they appear on the title page
To cite more than one work by the same author	
Arrange citations in chronological order: (Smith 1981, 1984, 1985)	Each source will require a separate reference list entry.
To cite authors with the same family name who have published in the same year	
Use their initials to indicate different people: The theory was first developed early this century (Smith, A K 1979) but later many of its elements were refuted (Smith, J A 1979).	Each source will require a separate reference list entry.
To cite an author who published more than one work in the same year	
Attach an a, b, c, d etc. after the year: Dawkins (1972a, 1972b) completed a number of studies on...	Each source will require a separate reference list entry.
To cite a part of a publication contributed by someone other than the main author	
For example, a preface, introduction or foreword contributed by someone other than the author of the publication: Drabble (in Bronte 1978) suggests	In the List of References, provide the details of the publication to which the contribution was made: Bronte, E 1978, <i>Wuthering Heights and poems</i> , H Osborne (ed.), Orion Publishing Group, London. Introduction by Margaret Drabble.
To cite unpublished material (thesis, a manuscript, an unpublished paper)	
In the text (Ballard 2003, p. 132) (Fitzsimmons 2005)	When citing a thesis in the List of References: 1. put the title between quotation marks and do not use italics. 2. acknowledge the university where the thesis was undertaken Ballard, BA 2003, 'The seeing machine: photography and the visualisation of culture in Australia, 1890-1930', PhD thesis, University of Melbourne. An unpublished conference paper:

	Fitzsimmons, D 2005, 'Who chooses who belongs: tactics and strategies and migrant literature', paper presented at the AULLA & FILLM conference, James Cook University, Cairns, 15-19th July.
To cite from newspapers and magazines	
In the text If there is no author, list the name of the newspaper, the date, year and page number: (<i>Sydney Morning Herald</i> 7 March 1994, p. 8) If there is an author, cite as you would for a journal article: (Donaghy 1994, p. 3)	List of References An unattributed newspaper article: 'UNSW gains top ranking from quality team', <i>Sydney Morning Herald</i> , 30 February, 1994, p. 21. A newspaper article with a named author: Donaghy, B 1994, 'National meeting set to review tertiary admissions', <i>Campus News</i> , 3-9 March, p. 3.
Government Publications	
If there is no obvious author or editor, cite the sponsoring agency as the author: (Department of Education, Science & Training 2000)	Give the name of the ministry or agency that has issued the document Department of Education, Science & Training 2000, <i>Annual Report 1999-2000</i> , AGPS, Canberra.

You would now be familiar with the two most commonly used styles of referencing. As observed earlier, there are other styles. You are better off familiarizing yourself with the one preferred by your institution or department. For now, either of the two will be useful. Work on the next activity to share your views.

Activity 3.4

- Of the two systems – APA and Harvard – which one do you prefer?
- Suggest two or three reasons to support your preference.

This is a personal choice. However, a major determining factor will be the recommended one by the institution through which you are doing your research.

3.10 Research ethics

Resnik (<http://www.niehs.nih.gov/research/bioethicist.cfm>) notes that "When most people think of ethics (or morals), they think of rules for distinguishing between right and wrong, such as the Golden Rule ("Do unto others as you would have them do unto you"), a code of professional conduct like the Hippocratic Oath ("First of all, do no harm"), a religious creed like the Ten Commandments ("Thou Shalt not kill...")" and defines this as the most common way of defining "ethics". Ethics are the norms for conduct that distinguish between acceptable and unacceptable behavior. Each community has its own definition of what is acceptable.

One may also define ethics as a method, procedure, or perspective for deciding how to act and for analysing complex problems and issues (<http://www.niehs.nih.gov/research/bioethicist.cfm>). For instance, in considering a complex

issue like global warming, one may take an economic, ecological, political, or ethical perspective on the problem. While an economist might examine the cost and benefits of various policies related to global warming, an environmental ethicist could examine the ethical values and principles at stake. Many different disciplines, institutions, and professions have norms for behavior that suit their particular aims and goals. These norms also help members of the discipline to coordinate their actions or activities and to establish the public's trust of the discipline. For instance, ethical norms govern conduct in medicine, law, engineering, and business. Ethical norms also serve the aims or goals of research and apply to people who conduct scientific research or other scholarly or creative activities. There is even a specialized discipline, research ethics, which studies these norms.

Sales and Folkman (2000) note several reasons why it is important to adhere to ethical norms in research.

- First, norms promote the aims of research, such as knowledge, truth, and avoidance of error. For example, prohibitions against fabricating, falsifying, or misrepresenting research data promote the truth and avoid error.
- Second, since research often involves a great deal of cooperation and coordination among many different people in different disciplines and institutions, ethical standards promote the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness. For example, many ethical norms in research, such as guidelines for authorship, copyright and patenting policies, data sharing policies, and confidentiality rules in peer review, are designed to protect intellectual property interests while encouraging collaboration. Most researchers want to receive credit for their contributions and do not want to have their ideas stolen or disclosed prematurely.
- Third, many of the ethical norms help to ensure that researchers can be held accountable to the public. For instance, federal policies on research misconduct, conflicts of interest, the human subjects protections, and animal care and use are necessary in order to make sure that researchers who are funded by public money can be held accountable to the public.
- Fourth, ethical norms in research also help to build public support for research. People more likely to fund research project if they can trust the quality and integrity of research.
- Finally, many of the norms of research promote a variety of other important moral and social values, such as social responsibility, human rights, animal welfare, compliance with the law, and health and safety. Ethical lapses in research can significantly harm human and animal subjects, students, and the public. For example, a researcher who fabricates data in a clinical trial may harm or even kill patients, and a researcher who fails to abide by regulations and guidelines relating to radiation or biological safety may jeopardize his health and safety or the health and safety of staff and students.

3.10.1 Codes and Policies for Research Ethics

According to Resnik (<http://www.niehs.nih.gov/research/bioethicist.cfm>), due to the importance of ethics for the conduct of research, many different professional associations,

government agencies, and universities have adopted specific codes, rules, and policies relating to research ethics. Many government agencies, such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and the US Department of Agriculture (USDA) have ethics rules for funded researchers. Other influential research ethics policies include the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (International Committee of Medical Journal Editors), the Chemist's Code of Conduct (American Chemical Society), Code of Ethics (American Society for Clinical Laboratory Science) Ethical Principles of Psychologists (American Psychological Association), Statements on Ethics and Professional Responsibility (American Anthropological Association), Statement on Professional Ethics (American Association of University Professors), the Nuremberg Code and the Declaration of Helsinki (World Medical Association).

Shamoo and Resnik (2009) provide the following summary of some ethical principles that various codes address:

Honesty

Strive for honesty in all scientific communications. Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data. Do not deceive colleagues, granting agencies, or the public.

Objectivity

Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.

Integrity

Keep your promises and agreements; act with sincerity; strive for consistency of thought and action. Follow informed-consent rules. When done properly, the consent process ensures that individuals are voluntarily participating in the research with full knowledge of relevant risks and benefits.

APA's Ethics Code (<http://www.apa.org/ethics>) mandates that psychologists who conduct research should inform participants about:

- The purpose of the research, expected duration and procedures.
- Participants' rights to decline to participate and to withdraw from the research once it has started, as well as the anticipated consequences of doing so.
- Reasonably foreseeable factors that may influence their willingness to participate, such as potential risks, discomfort or adverse effects.
- Any prospective research benefits.
- Limits of confidentiality, such as data coding, disposal, sharing and archiving, and when confidentiality must be broken.
- Incentives for participation.
- Who participants can contact with questions.

If research participants or clients are not competent to evaluate the risks and benefits of participation themselves--for example, minors or people with cognitive disabilities--then the person who's giving permission must have access to that same information, says Koocher.

Remember that a signed consent form doesn't mean the informing process can be glossed over, say ethics experts. In fact, the 2002 APA Ethics Code says psychologists can skip informed consent in two instances only: When permitted by law or federal or institutional regulations, or when the research would not reasonably be expected to distress or harm participants and involves one of the following:

- The study of normal educational practices, curricula or classroom management methods conducted in educational settings.
- Anonymous questionnaires, naturalistic observations or archival research for which disclosure of responses would not place participants at risk of criminal or civil liability or damage their financial standing, employability or reputation, and for which confidentiality is protected.
- The study of factors related to job or organization effectiveness conducted in organizational settings for which there is no risk to participants' employability, and confidentiality is protected.

Carefulness

Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.

Openness

Share data, results, ideas, tools, resources. Be open to criticism and new ideas.

Respect for Intellectual Property

Honor patents, copyrights, and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit where credit is due. Give proper acknowledgement or credit for all contributions to research. Never plagiarize.

Confidentiality

Protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records. Respect confidentiality and privacy. Upholding individuals' rights to confidentiality and privacy is a central tenet of every psychologist's work. However, many privacy issues are idiosyncratic to the research population, writes Susan Folkman, PhD, in "Ethics in Research with Human Participants" (APA, 2000). For instance, researchers need to devise ways to ask whether participants are willing to talk about sensitive topics without putting them in awkward situations, say experts. That could mean they provide a set of increasingly detailed interview questions so that participants can stop if they feel uncomfortable.

Since research participants have the freedom to choose how much information about themselves, they will reveal and under what circumstances, psychologists should be careful when recruiting participants for a study, says Sangeeta Panicker, PhD, director of the APA Science Directorate's Research Ethics Office (<http://www.apa.org/ethics>). For example, it's inappropriate to obtain contact information of members of a support group to solicit their participation in research. However, you could give your colleague who facilitates the group a letter to distribute that explains your research study and provides a way for individuals to contact you, if they're interested.

According to American Psychological Association (2002), the other steps researchers should take include:

- ***Discuss the limits of confidentiality.*** Give participants information about how their data will be used, what will be done with case materials, photos and audio and video recordings, and secure their consent.
- ***Know federal and state law.*** Know the ins and outs of state and federal law that might apply to your research. For instance, the Goals 2000: Education Act of 1994 prohibits asking children about religion, sex or family life without parental permission.
- If psychologists are precluded from obtaining full consent at the beginning—for example, if the protocol includes deception, recording spontaneous behavior or the use of a confederate—they should be sure to offer a full debriefing after data collection and provide people with an opportunity to reiterate their consent, advise experts.

Responsible Publication

Publish in order to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.

Responsible Mentoring

Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.

Respect for colleagues

Respect your colleagues and treat them fairly.

Social Responsibility

Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.

Non-Discrimination

Avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.

Competence

Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science as a whole.

Legality

Know and obey relevant laws and institutional and governmental policies.

Animal Care

Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments.

Human Subjects Protection

When conducting research on human subjects, minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly. Take practical security measures. Be sure confidential records are stored in a secure area with limited access, and consider stripping them of identifying information, if feasible. Also, be aware of situations where confidentiality could inadvertently be breached, such as having confidential conversations in a room that's not soundproof or putting participants' names on bills paid by accounting departments.

Think about data sharing before research begins. If researchers plan to share their data with others, they should note that in the consent process, specifying how they will be shared and whether data will be anonymous. For example, researchers could have difficulty sharing sensitive data they've collected in a study of adults with serious mental illnesses because they failed to ask participants for permission to share the data. Or developmental data collected on videotape may be a valuable resource for sharing, but unless a researcher asked permission back then to share videotapes, it would be unethical to do so. When sharing, psychologists should use established techniques when possible to protect confidentiality, such as coding data to hide identities. "But be aware that it may be almost impossible to entirely cloak identity, especially if your data include video or audio recordings or can be linked to larger databases," says Merry Bullock, PhD, associate executive director in APA's Science Directorate.

3.10.2 Ethical Decision Making in Research

Shamoo and Resnik (2009) note that although codes, policies, and principals are very important and useful, like any set of rules, they do not cover every situation, they often conflict, and they require considerable interpretation. It is, therefore, important for

researchers to learn how to interpret, assess, and apply various research rules and how to make decisions and to act in various situations. The vast majority of decisions involve the straight forward application of ethical rules. For example, consider the following cases adopted from Shamoo and Resnik (2009):

Case 1:

The research protocol for a study of a drug on hypertension requires the administration of the drug at different doses to 50 laboratory mice, with chemical and behavioral tests to determine toxic effects. Tom has almost finished the experiment for Dr. Q. He has only 5 mice left to test. However, he really wants to finish his work in time to go to Florida on spring break with his friends, who are leaving tonight. He has injected the drug in all 50 mice but has not completed all of the tests. He therefore decides to extrapolate from the 45 completed results to produce the 5 additional results.

Many different research ethics policies would hold that Tom has acted unethically by fabricating data. If this study were sponsored by a federal agency, such as the NIH, his actions would constitute a form of research misconduct, which the government defines as "fabrication, falsification, or plagiarism" (or FFP). Actions that nearly all researchers classify as unethical are viewed as misconduct. It is important to remember, however, that misconduct occurs only when researchers intend to deceive: honest errors related to sloppiness, poor record keeping, miscalculations, bias, self-deception, and even negligence do not constitute misconduct. Also, reasonable disagreements about research methods, procedures, and interpretations do not constitute research misconduct. Consider the following case:

Case 2:

Dr. T has just discovered a mathematical error in a paper that has been accepted for publication in a journal. The error does not affect the overall results of his research, but it is potentially misleading. The journal has just gone to press, so it is too late to catch the error before it appears in print. In order to avoid embarrassment, Dr. T decides to ignore the error.

Dr. T's error is not misconduct nor is his decision to take no action to correct the error. Most researchers, as well as many different policies and codes, including ECU's policies, would say that Dr. T should tell the journal about the error and consider publishing a correction or errata. Failing to publish a correction would be unethical because it would violate norms relating to honesty and objectivity in research.

There are many other activities that the government does not define as "misconduct" but which are still regarded by most researchers as unethical. These are called "other deviations" from acceptable research practices and include:

- Publishing the same paper in two different journals without telling the editors
- Submitting the same paper to different journals without telling the editors
- Not informing a collaborator of your intent to file a patent in order to make sure that you are the sole inventor
- Including a colleague as an author on a paper in return for a favor even though the colleague did not make a serious contribution to the paper

- Discussing with your colleagues confidential data from a paper that you are reviewing for a journal
- Trimming outliers from a data set without discussing your reasons in paper
- Using an inappropriate statistical technique in order to enhance the significance of your research
- Bypassing the peer review process and announcing your results through a press conference without giving peers adequate information to review your work
- Conducting a review of the literature that fails to acknowledge the contributions of other people in the field or relevant prior work
- Stretching the truth on a grant application in order to convince reviewers that your project will make a significant contribution to the field
- Stretching the truth on a job application or curriculum vita
- Giving the same research project to two graduate students in order to see who can do it the fastest
- Overworking, neglecting, or exploiting graduate or post-doctoral students
- Failing to keep good research records
- Failing to maintain research data for a reasonable period of time
- Making derogatory comments and personal attacks in your review of author's submission
- Promising a student a better grade for sexual favors
- Using a racist epithet in the laboratory
- Making significant deviations from the research protocol approved by your institution's Animal Care and Use Committee or Institutional Review Board for Human Subjects Research without telling the committee or the board
- Not reporting an adverse event in a human research experiment
- Wasting animals in research
- Exposing students and staff to biological risks in violation of your institution's biosafety rules
- Rejecting a manuscript for publication without even reading it
- Sabotaging someone's work
- Stealing supplies, books, or data
- Rigging an experiment so you know how it will turn out
- Making unauthorized copies of data, papers, or computer programs
- Owning over \$10,000 in stock in a company that sponsors your research and not disclosing this financial interest
- Deliberately overestimating the clinical significance of a new drug in order to obtain economic benefits

These actions would be regarded as unethical by most scientists and some might even be illegal. Most of these would also violate different professional ethics codes or institutional policies. However, they do not fall into the narrow category of actions that the government classifies as research misconduct. Indeed, there has been considerable debate about the definition of "research misconduct" and many researchers and policy makers are not satisfied with the government's narrow definition that focuses on FFP. However, given the huge list of potential offenses that might fall into the category "other serious deviations," and the practical problems with defining and policing these other deviations, it is understandable why government officials have chosen to limit their focus.

Finally, situations frequently arise in research in which different people disagree about the proper course of action and there is no broad consensus about what should be done. In these situations, there may be good arguments on both sides of the issue and different

ethical principles may conflict. These situations create difficult decisions for research known as ethical dilemmas. Consider the following case:

Case 3:

Dr. Wexford is the principal investigator of a large, epidemiological study on the health of 5,000 agricultural workers. She has an impressive dataset that includes information on demographics, environmental exposures, diet, genetics, and various disease outcomes such as cancer, Parkinson's disease (PD), and ALS. She has just published a paper on the relationship between pesticide exposure and PD in a prestigious journal. She is planning to publish many other papers from her dataset. She receives a request from another research team that wants access to her complete dataset. They are interested in examining the relationship between pesticide exposures and skin cancer. Dr. Wexford was planning to conduct a study on this topic.

Dr. Wexford faces a difficult choice. On the one hand, the ethical norm of openness obliges her to share data with the other research team. Her funding agency may also have rules that obligate her to share data. On the other hand, if she shares data with the other team, they may publish results that she was planning to publish, thus depriving her (and her team) of recognition and priority. It seems that there are good arguments on both sides of this issue and Dr. Wexford needs to take some time to think about what she should do. One possible option is to share data, provided that the investigators sign a data use agreement. The agreement could define allowable uses of the data, publication plans, authorship, etc.

The following are some steps that researchers, such as Dr. Wexford, can take to deal with ethical dilemmas in research:

i. What is the problem or issue?

It is always important to get a clear statement of the problem. In this case, the issue is whether to share information with the other research team.

ii. What is the relevant information?

Many bad decisions are made as a result of poor information. To know what to do, Dr. Wexford needs to have more information concerning such matters as university or funding agency policies that may apply to this situation, the team's intellectual property interests, the possibility of negotiating some kind of agreement with the other team, whether the other team also has some information it is willing to share, etc. Will the public/science be better served by the additional research?

iii. What are the different options?

People may fail to see different options due to a limited imagination, bias, ignorance, or fear. In this case, there may be another choice besides 'share' or 'don't share,' such as 'negotiate an agreement.'

iv. How do ethical codes or policies as well as legal rules apply to these different options?

The university or funding agency may have policies on data management that apply to this case. Broader ethical rules, such as openness and respect for credit and intellectual property, may also apply to this case. Laws relating to intellectual property may be relevant.

Activity 3.5

a. After going through this section, make a review of the ethical standards that did not uphold as you conducted research in the past.

b. How would you correct your mistakes?

Your review will help inform about ethical standards you did not observe. This will help you in future to correct any such mistakes when you see them arising.

3.11 Lessons learnt by supervisors about standards, ethics and plagiarism

Some of the lessons learnt from supervising students include:

- Failure to acknowledge ideas by authors and treating them as if they are the student's own.
- Referring to secondary sources as if they are primary sources.
- Inability to cite following one particular referencing system
- In some cases, failure to link citations with the argument or point being raised.
- Failure to take into account ethical issues affecting students.

3.12 Summary

The chapter has presented the major aspects that characterise an ethical academic behaviour. It has been demonstrated that, although it is pivotal that academics interact with others' ideas and findings, plagiarism is a crime. It has been emphasised that upcoming academics avoid it at all cost as different institutions have their own ways of dealing with it. The chapter has also presented the various reasons academics must reference. An effort was made as well to show the various ways through which referencing may be done. These include within and outside the text. Emphasis has however been made that writers familiarise themselves with the style that would have been recommended by their own department and institution since different departments in different institutions prefer different styles.

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CHAPTER 4

ROLES AND RESPONSIBILITIES OF SUPERVISORS AND RESEARCH STUDENTS

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Abstract

This chapter presents the roles and responsibilities of both the supervisor and the student in their interaction during postgraduate research supervision, as reflected in the image below. As a research student (be it at doctoral, Master's or undergraduate level), you should realise that the student-supervisor relationship is of utmost importance, based on your appreciation of issues raised in the first three chapters. In fact, the success or failure of your study could be determined by the quality of the student-supervisor relationship. In this chapter, we also outline what should be done before, during and after the supervision meeting, and other aspects that are crucial in promoting a healthy supervisor-student relationship. As you read this chapter, you are urged to read it in conjunction with other relevant chapters of this book in order to cultivate a more positive and professional supervisor-student relationship.



4.1 Introduction

Many research students struggle to complete a dissertation or thesis. Regrettably, this is often the result of an unproductive relationship between the supervisor and the student. Sometimes, both parties contribute to the stagnation or breakdown of the supervisor-student relationship. To this effect, a lasting solution to both parties is needed in order to work actively to building a successful relationship. The positive relationship between supervisors and students would thrive if both of them know their roles and responsibilities, right from the onset, which they have to religiously fulfil throughout the research journey. This chapter, therefore, provides the mutual roles and responsibilities of supervisors and students. The aspects, however, should not be seen as prescriptive but indicative; and the chapter does not intend to replace the research regulations set out in your university research regulations; instead, they play a complementary role.

4.2 Objectives

By the end of this chapter, you should be able to:

- identify the roles and responsibilities of the supervisor ;
- clarify the roles and responsibilities of the student;
- establish the dynamics of an effective student-supervisor relationship; and
- increase your chances of completing your dissertation or thesis on time.

4.3 Background

Chiome and Chabaya (2012) conducted a study that examined the views of postgraduate students on factors contributing to quality in postgraduate research supervision in the Zimbabwe Open University. They identified quality research supervision as one of the main concerns among institutions and stakeholders, particularly those dealing with open and distance learning. The study also reported that while students preferred to be supervised by effective, efficient, dynamic, reflective, results and quality oriented supervisors, they still needed to be accorded respect as scholars and colleagues in research. Along the same lines, Chireshe (2012)'s study sought to establish post-graduate students' experiences with regard to research supervision in South Africa. The author reported that respondents gave bad supervision experiences that had to do with the characteristics of the supervisors and how they managed the supervision process. Some of the respondents did not enjoy the lack of expertise in their research areas displayed by some of the supervisors. The respondents had difficulty carrying out their research work because of lack of guidelines from the supervisors. In addition, respondents pointed out that they were also uncomfortable with unapproachable supervisors and also those supervisors who harassed (verbally and sexually) and discouraged them. Respondents had also experienced challenges with supervisors who were not always available for them. Some of the supervisors provided delayed feedback, continuously changed instructions, lost students' work and sometimes returned students' work without comments. Other students received conflicting feedback from co-supervisors (Chireshe, 2012). Needless to say, most of the highlighted challenges emanate from the poor relationships between supervisors and research students. If we were to explore supervisors' experiences, another gloomy picture would be portrayed. It is against this background that we outline the roles and responsibilities of supervisors and students in the supervision process.

4.4 Specific practices that underpin good postgraduate supervision

Postgraduate supervision is doubtless one of the more complex forms of teaching in higher education. Few academics would agree on a formula, recipe or do's and don'ts checklists for successful supervision. Nevertheless, there are certain time-honoured practices which may be of help to many supervisors. Such practices are underpinned by the following principles:

- Supervision involves the fundamentals of good teaching and among them, concern for students, interest in their progress and the provision of thoughtful and timely feedback. Good supervisors exemplify the characteristics of good teaching in any setting.
- Supervision is an intensive form of teaching in a much broader sense than just information transfer. The most sustained complexity of supervision involves much time and energy. Good supervisors are aware of the professional commitment necessary to every student they agreed to supervise.
- The supervisory relationship has a particular personal dimension, especially when students face crisis of confidence or personal problems.

It should be noted that research students are heterogeneous. They have different preferences, expectations of the relationship and approaches to study; some of which may be related to their cultural and religious backgrounds. Good supervisors recognise this diversity and adjust their own practices accordingly. Thus:

- Good supervisors extend their students well beyond what those students thought possible, by setting high but realistic standards. They encourage independence by building students' confidence in their personal research capabilities.
- Finally, good supervisors are conscious of their mentoring role. They aim to be role models for first-rate scholarship.

4.5 Types of supervisors

Studies show that the quality of supervisory relationship is a key factor in the successful completion of postgraduate research studies (Shulze, 2011). Variations in the relationship may occur due to differences between disciplines and academic departments and differences of style among supervisors. Another reason that determines the supervisory relationship is the fact that students themselves do differ so much. They differ in terms of their degree of independence and expertise in research, maturity, motivation and commitment to research studies. Some students are able to articulate their needs and expectations clearly from the beginning; which may assist the supervisor in meeting the student's supervision needs. Other students start off not being clear about the direction of their studies, what they require and how to articulate this. Such students usually need more guidance and support and are only able to work independently much later in the research process. In spite of these differences, there are a number of core functions that characterize the nature of supervision. There is widespread consensus in literature that the supervisory role implies at least 4 different responsibilities or roles on the part of the supervisor. Mouton (2011) outlines these roles as to:

- advise the student; to guide the student;
- ensure scientific quality in the student's work; and
- provide the required emotional and psychological support.

The supervisor is expected to have the wisdom to know when to take each of these roles. It is, therefore, important for you, as a student, to realise that supervisors vary on what they emphasise in the research process at certain stages in your supervision relationships. Below, we take you through these different types of supervisors in detail.

4.5.1 Supervisor as an advisor

During the early encounters with the postgraduate student, the supervisor is required to advise the student on a number of issues that really concern their studies such as time-management, resources required, funding, access to information, issues of research ethics and institutional requirements. In other words, it is to provide the student with advice that will help him/her in research planning and effective work process.

4.5.2 Supervisor as expert guide

These types of supervisors are of high intensity, business-like and process oriented. Supervisors taking this position keep a distance towards their candidates as far as personal elements are involved. Some of them do not want to know about the family backgrounds of their candidates and never visit them at home. They see their role mainly as stimulating a process of work improvement and help their students to 'grow' as scientists. The supervisor's role first and foremost, is to guide the student through the research process. The process of carrying out the research is given high preference. This role focuses on the intellectual and scientific aims of the postgraduate degree. In this sense, the primary role of the supervisor is to guide the student in methodological matters, including the development of research proposal, formulation of research problem, choice of appropriate research design and theoretical framework and finally through all the technical stages of the research process (Mouton, 2011). The student could expect the following specific guidance:

- Assistance with selection of thesis topic
- Guidance to relevant literature
- Assisting the student in deciding on a theoretical framework for the study
- Guiding the student in developing the research proposal.
- Training the student on the use of specific research methods or referring the student to courses on research methodology where necessary.

4.5.3 Supervisor as quality controller

This group of supervisors are best described as high intensity, business-like and product oriented. They are mainly concerned about the written products of their candidates, for example a completed chapter, a complete proposal or article to be published. During the research process, such supervisors see their role as to read the student's work at various stages to ensure that the work fulfils the expected standard. In the first stages of the research process, the supervisor provides the student with constructive criticism. When

providing comments on draft chapters, the role of the supervisor is to ensure that the quality (scientific and technical) of what the student produces meets generally accepted standards of academic theses (Mouton, 2011). They will always stimulate their students to publish articles in journals and go to conferences in their fields. When a complete thesis has been finally handed in for examination, the supervisor takes on a different quality control function when he /she has to examine the end product and deliver judgement on the overall scientific merit of the thesis. Quality controllers can become extremely annoyed if candidates do not work according to the agreed schedule. In particular, this role includes:

- Monitoring student's, research work in accordance with agreed schedule and provide constructive criticism.
- Discuss with the student issues of progress or lack of it at regular intervals.
- Discussions that could cover aspects of the research study such as performance in seminars, the agreed timelines and deadlines, access to relevant sources.
- Commenting on the content of draft chapters of the thesis.

4.5.4 Supervisor as pastor or friend

The supervisory role involves the supervisor in various forms of emotional and motivational support (Mouton, 2011). The focus is largely on personal matters. During meetings personal circumstances and emotions of the student get a lot of attention. To the student, the supervisor acts as a sounding board for his/her ideas, hypotheses and provisional decisions. A good supervisor should understand when private matters impede the student's good progress in the study; when family and professional concerns interfere with the research process. Thus, a good supervisor should have the wisdom to know when to listen and provide appropriate emotional support as well as when to focus on the intellectual challenges of the project.

4.5.5 Supervisor as delegator

Supervisors who delegate are of low intensity and business-like. These supervisors are people who have other high profile responsibilities in the institution or elsewhere. They are approached to supervise postgraduate students because of their prestige in funding circles or because of their professional expertise. However, they do not really have time to be fully engaged in the actual task of supervision. Delegators often tend to manage a research empire in which the real work of supervision is left to others such as mentors or secondary-supervisors. On paper, delegators are accountable to the funding agent, and when candidates graduate, they play a role and they are also formally responsible for the progress and for the final reports to funding agents.

In general, the above qualities of supervisors may entail different approaches to the supervision role. However for the supervision relationship to yield positive results, every supervisor should bear in mind that he/she is expected to:

- be alert to the personal strengths as well as limitations of the student so as to be able to identify situations that require additional assistance;

- be committed to the student's studies throughout the duration of the research process; and
- always show interest in what the student is doing and be supportive where required.

The first encounter with the research student is very important in building a lasting amicable relationship with the student. Some of the crucial aspects to attend to during the first encounter with a student are presented below.

4.6 First meeting with the supervisor: Laying ground rules

A good relationship between the student and supervisor is vital in the process of research supervision, since an effective working relationship is usually associated with positive results (Chireshe, 2011; Waghid 2006; Zhao, 2001). As such, successful postgraduate supervision requires not only being knowledgeable in the field, but establishing an effective professional relationship with the student.

4.6.1 Get to know students and carefully assess their needs

Research supervisors must make a thorough assessment of students' needs in the early stages. These assessments could be in two dimensions namely, academic and psychological as they do influence one another. As a supervisor you need to know:

- what knowledge and skills students bring to the project;
- the area in which they need special assistance; and
- how they are likely to approach their research.

Clear understanding of the knowledge and skills and needs of students will help the supervisor to provide appropriate research training or refer the students to some relevant training sessions provided in the institution. Some of the areas that must be probed are:

- Knowledge of the theoretical base.
- Understanding of methodological procedures and options.
- Necessary technical skills e.g. statistical analysis, analysis of quantitative and quantitative data, use of laboratory equipment etc.
- Understanding of qualitative research methods, analysis and interpretation
- Necessary computer skills
- Writing skills.

See the relevant chapters of this volume, which deal with these research aspects in some detail.

However, such assessment should not focus purely on remediation, but just as a way to identify students' strengths and areas that need support.

Students' psychological needs can be more difficult to assess than academic needs. For example, some students may refuse to open up until sometime down the track when

he/she fails to collect data. Therefore one may find some of these psychological needs surfacing as the research work progresses. This tends to be more problematic in the distance education (DE) set up where the supervisor and student are separated by transactional distance.

Activity 4.1

1. List your needs which you may require the supervisor to know in terms of:
 - Knowledge and theoretical base you have in relation to your study
 - Your understanding of research methodologies
 - Computer skills
 - Research writing skills
2. Why is it important for your supervisor to know your needs you listed above?

This activity helps you to self-reflect. In those few opportunities when you meet your supervisor, prepare questions related to all those items listed in the activity. Note that your supervisor will only be able to assist if s/he is aware of your needs.

4.6.2 Establish reasonable, agreed upon expectations

The most rewarding supervisory relationships are those in which the lines of communication between student and supervisor are established early. The most frustrating experience is when the supervisor and the student are working at cross-purposes. For example, messages are misinterpreted, the student gets confused and resentful about not knowing what the supervisor really wants. The supervisor in turn, becomes disappointed with the student's work or attitude. Some of the areas in which expectations need to be articulated and negotiated are:

- The extent and nature of direction from the supervisor.
- The degree of independence of the student
- Procedures for consultation—frequency, preparation, conduct—including where appropriate, the degree of support in the laboratory
- Submission of written work—progress reports
- The nature and timing of response from the supervisor.
- The appropriate role of the supervisor in editing
- How ideological differences are going to be handled.

Some of the expectations above evolve over time, hence may be discussed more than once.

4.6.3 Encourage students to write early and often

The kind of writing required in research degrees varies between disciplines. However, it does seem that across all disciplines, early writing and regular presentation of work to the supervisor is very beneficial. It helps to prevent a psychological pattern in which writing up becomes more and more daunting as data and ideas are accumulated.

4.6.4 Initiate regular contact and provide high quality feedback

Many experienced supervisors believe that frequent and regular contact is one of the most important factors in successful supervision. Contact with the student may take various forms apart from the physical contact, such as through email, sms, telephone, skype, whatsapp and many others. The responsibility for maintaining contact rests with both the supervisor and the student. Some students and their supervisors favour a regular appointment, say fortnightly or monthly. The frequency may differ, for example, certain students may thrive in the structure provided by regular meetings while others may prefer to meet only when the need arises. Unfortunately, the frequency of meetings in DE is compromised by distance.

How the supervisor manages the relationship is more important. In an effective relationship, students are most likely to approach the supervisor freely and happily, implement his or her suggestions while the supervisor can also easily accommodate the student's views. Therefore it is vital to ensure the establishment of this conducive relationship on the very onset of the meeting between the supervisor and the student. Below is a check list of some common issues that should be clarified during the first meeting between supervisor and the research student.

Table 4.1: Checklist for the first meeting between supervisor and student

Supervisor	What does supervision mean?
	What are the stages of supervision?
	What are the student's and supervisor's responsibilities
	What sort of feedback will the supervisor give? How often, how much and in what form?
	What sort of feedback does the student prefer or benefit from, find helpful or unhelpful?
	What can be done if there is conflicting feedback between supervisors, consultants etc?
Project Management	What is involved in the development of the research proposal?
	What research skills, statistical analysis or other technical skills are required for the research?
	Is a research method course available? How does a student enrol for such a course?
	Who has ownership of material arising from the research, authorship of papers and so on?
	What is the appropriate length, structure and presentation of the research proposal? (A student should be encouraged to look at other theses or projects in the discipline).

	What are the stages of the research process? (A rough guide to the time that should be allowed for each stage).
	What is an acceptable or average time-frame for completion? What are the implications of not finishing within the expected time?
Meetings	Frequency, duration, structure and location of meetings
	What type of access does the student have to the supervisor apart from scheduled meetings?
	Whose responsibility is it to schedule meetings?
	If someone cannot attend a scheduled meeting, what is the correct procedure to follow?
	How will meetings be structured and what time will be available for such meetings?
Thesis	The writing process, supervisor's expectations, preferred style, when to begin?
	What would be a realistic completion date to aim for, given all the information discussed?
	What is required with regard to the editing of chapters?
	What are the requirements regarding basic referencing and the skills required?
	What are the minimum requirements regarding draft chapters?
	What can the student expect in terms of feedback? – What timeframes are involved? Will the feedback be in written form? Etc.

(Adapted from: Mouton 2011:23-24)

This checklist is informative, and we need to pose a while and reflect on it as we work on this activity.

Activity 4.2

From the checklist:

- a. identify any five questions of critical interest to you.
- b. Suggest ways of answering those questions to ensure success in your research.

This activity calls for personal evaluation, and identification of the questions. These will differ from one student to student. Similarly, you should personally determine ways that will work best for you.

4.7 Detecting and dealing with warning signs in research supervision

It is always the aspiration of a supervisor to see his/her students completing the research work within the stipulated time. However, the case is not always so in some cases due to a number of factors. Lovitts (2001) identified two sets of issues affecting completion of research studies namely: (i) student factors including characteristics and situation; (ii) university factors including the quality of both the research climate and supervision. In a similar note, Manathunga (2005) in her research identified the following warning signs exhibited by a student who is experiencing challenges in his/her research studies:

i. Constantly changing the topic or planned work - Such a sign could manifest in the form of a type of behaviour where a student decides to broaden or alter the proposed topic of research particularly after going through a confirmation of the candidature process. It also

includes using changes as an excuse for not producing work that the student and supervisor had planned and agreed upon.

ii. Avoiding all forms of communication with the supervisor - Avoiding communication with the supervisor has been found to be one of the warning signs of difficulties with research work. Lack of communication includes failing to meet appointments, not responding to communications and generally avoiding contact with the supervisor. Avoiding communication could also extend to not communicating with other students.

iii. Avoiding submitting work for review - Avoiding submitting work for review mainly involves finding many excuses for delays.

4.8 Supervision of Distance Education and part-time students.

Distance education students are usually those students who are enrolled at a distance education institution for a particular programme. Their face-to-face interaction with instructors is generally limited. Similarly, some face-to-face institutions may enrol part-time students who may also have limited face-to-face interaction with instructors. Hence, in a research supervision relationship, both distance education research students and part-time students may have similarities in that they do not meet their supervisors as often as the full-time students. Therefore the next section refers to supervision of both distance education students and part-time students.

4.8.1 Distance education research student: the nature and challenges

The supervision of a distance education postgraduate student is a long-term academic enterprise requiring stamina both on the part of the supervisor and the student. Because of the fragmented student identity of the distance education and part-time postgraduate student, who is usually balancing a range of work, study and family commitments, strategies to support their progress have to be proactive, well planned and sensitive to the individual circumstances. Distance education and part-time students, however, cannot be seen as a unitary group as their learner motivation, personal circumstances and support needs are highly individual (Watts, 2008). Distance education students tend to be older than their full-time counterparts often balancing a range of professional and personal commitments that will influence both their study habits and development as a researcher. Watts (2008) points out that one of the main challenges for part-time students is the strain of having to make the psychological adjustment of constantly switching from one mind set to another. By the very nature of their status, part-time and distance education students have very minimal face-to-face contact with their supervisors and hence, getting to know the student, let alone developing a productive and engaged supervisory relationship can be very challenging both for the student and the supervisor. Such limitations may have an impact on the progress of part-time postgraduate students. For many part-time research students the issue of **disconnection** from the research culture and a resulting sense of **isolation** can act as a barrier to their progress (Watts, 2008). In Activity 4.3, reflect on the two concepts highlighted in bold in the foregoing text.

Activity 4.3

- a. To what extent and effect have disconnection and isolation impacted on your research?
- b. What suggestions would you make to your supervisor or your institution to address the matter?

We are certain that you have given your view in an open manner. Bear that in mind and see whether the following discussion can give further insight.

4.8.2 Supervision approach with distance education students and part-time students

Suggestions for effective supervision practice for distance education and part-time students fall broadly into three categories namely; communication, planning and empathy (Watts, 2008).

i. *Communication* with distance education and part-time students can be difficult especially with respect to striking a balance between support and harassment. However, email or telephone contact every month during the first stages of the research process could be appropriate for a student trying to develop a pattern of integrating doctoral studies with the rest of life. In later stages of the research process, increasing the frequency of contact and communication would then be dictated by the stage of the research process as well as the degree of study independence the student may have. The issue of who initiates the communication would depend on the contract they will have come up with during the initial meetings because the contracts set out the roles of both the supervisor and the supervisee. However, supervisor instigated contact that aims to keep the student connected to research enterprise demonstrate engaged interest in the student's progress.

ii. *Scheduling and planning* as an instrumental support for distance education as well as part-time research students has been found to be quite important in promoting directed research progress. Breaking down tasks into achievable short term steps to make the whole research process more manageable and accessible has been found to make the part time student experience "small success' as he/she works and this tends to motivate the student as he/she sees that he/she is going somewhere. Assigning specific writing tasks is one example of this approach that develops students' critical writing skills in an incremental ongoing way (Manthunga, 2005).

iii. *Empathy*: One characteristic of distance education and part-time students is that they are quite mature and most probably with families, some form of employment and at times, being active members of a community. Such characteristics compel the students to experience conflict of interests at times, which may compromise their studies. The success of such students in their research process may need an empathetic supervisor, who would understand that apart from being a student, the supervisee is also a community person. This calls for supervisors of distance education students and part-time students to provide their students, not with pedagogical support alone, but also with emotional support. Good practice in research supervision will respond to the life needs of part-time students, in part at least, to acknowledge that life is bound to intervene and get in the way of part-time research students at some point (Watts, 2008). When students bring difficult or serious life issues to supervision, one practical response might be to alter the pace of their research

schedule, at least on a temporary basis, to allow them to feel that they can reclaim control and get back on track with their objectives.

In short, it is clear that distance education students as well as part-time research students have a range of support needs and these are often complex and interwoven with their 'other' roles beyond that of a student. Research supervisors should be wary of such students and be prepared to adopt a responsive and 'elastic' approach to guiding their progress in the research process. This suggests that for supervision to be effective, it should be individualized realizing that 'one size does not fit all'. Supervisors maintaining a pedagogical focus may help distance education and part time students to address academic issues in their supervisor/supervisee dialog, but supervisors should be realistic about the potential for this focus to be derailed by the 'personal aspects of the student.

4.9 The roles and responsibilities of research students

Many research students at the start of their degree are unsure what to expect from their supervisors and often find it hard to describe the roles they imagine their supervisors play. Reading the chapters of this volume with due diligence should be both assistive and instructive. This is mainly because the gap of plunging into research without some preparation is narrowed. However, we now believe that you have a better understanding of the responsibilities of your supervisors. We also hope that you now have clear expectations as to what your supervisor is, and is not here for. Below is an activity for you to recap on the roles and responsibilities of a supervisor.

Activity 4.4

1. Do you now understand the roles and responsibilities of a supervisor? Try to write them down in your own words.
2. Why is it important to discuss personal or social issues with your supervisor(s)?
3. How do supervisors detect and deal with warning signs exhibited by a student who is experiencing challenges in his/her research studies? How can you avoid experiencing these challenges?

There are no right or wrong answers here, and the responses you come up with are meant to be applied to your particular situation. We are also optimistic that the understanding has provided you with a foundation for building an effective supervisor-student relationship. However, as a student, you also have your roles to play in the research process, and the next sections will help you understand your roles as a research student. What follows are some of your responsibilities as a research student.

4.9.1 Importance of effective communication

One of your primary responsibilities is that you must communicate. James and Baldwin (1999) reported that the most fulfilling supervisory relationships are those whose lines of communication between the student and the supervisor, are established and defined early and clearly. The most frustrating part is where you and your supervisor work at cross-purposes. Thus, messages are misinterpreted, you become confused and resentful about not knowing what your supervisor really wants; and in turn s/he becomes disappointed with your work and 'attitude' (Chireshe, 2012; Krauss and Ismail, 2010). To avoid this, you should therefore agree with your supervisor to engage in effective communication. Distance Education (DE) students usually stay far away from their supervisors. However, information

technology has made communication a lot easier. Students can now use mobile phones and social networks (e.g. skype, Google talk, face book, twitter) and emails to regularly keep contact with their supervisors. To avoid losing touch and focus, effective communication should take place at least every four to six weeks, and wherever possible, to attend a supervisory session as per agreed schedule (Mouton, 2011).

There is need to work with your supervisor to establish and maintain a satisfactory timetable for the research. You should aim to have defined the area of research, become acquainted with the background knowledge required and the relevant literature, and have established a provisional timetable for conducting the research by the end of the first year (Maxwell and Smyth, 2010; Lee, 2008). At this stage, your research proposal should be complete (see Chapter 8). For you not to lose track of and interest in your studies, you should submit written work to your supervisor regularly and in good time, in accordance with the agreed timetable. This work should be word processed, and not handwritten.

Supervisors' feedback works like the oil, which lubricates the engine. Therefore, you should take note of any guidance and feedback offered by the supervisor. It is important to discuss any problems, such as those of access to data, information, facilities, equipment, or supervisory relationship with your supervisor. This includes personal issues that could adversely affect your work, since the early identification and resolution of problems can prevent difficulties later on. If you find it difficult to raise the problem with your supervisor (which should not be the case), then contact the relevant person as per your University degree research regulations. This could be the higher degrees office or the Head of Department. Further advice and support is also available from the Students Services Centre, Students Advisory Centre or the University's Counselling Service. Thus, the importance of prompt identification and resolution of any problems cannot be over-emphasised, and it is your responsibility in the first instance to ensure that any problems are quickly raised at the appropriate level (Chiome and Chabaya, 2012)

4.9.2 General principles in research supervision

These principles are a continuation of our discussion about what we perceive to be your responsibilities. It may seem overwhelming to hear that you will have responsibilities as a research student; the most important being responsible for planning and managing your own progress. Your supervisor is there to offer support and advice. Ultimately, it is down to you to make sure that you conduct your own research. The primary responsibility of research students is to pursue their research with diligence and according to the highest standards of their discipline, taking due account of the advice and criticism offered by their supervisors and other scholars in their fields. It is important then to understand in more detail the responsibilities you have as a research student, we have outlined your three main responsibilities below:

- ***Managing yourself*** - rules and regulations, training plan and research community
- ***Managing your work*** - progress monitoring, raising difficulties and thesis submission
- ***Managing your supervision*** - independent approach, type of guidance needed and supervision meetings (The University of Sheffield, 2013; University of Leicester Graduate School, 2013).

As you can see, you are responsible for planning and managing your work. However, it is something you will do with the guidance of your supervisor. Thus, to some degree, your supervisor will be reliant on you to tell him/her if you need guidance on something outside of these areas. If there is a problem or there is something you are unclear about, raise this with your supervisor as soon as possible to minimise any delay in your work. This implies that as a distance education research student, communication is very crucial and therefore, you must ensure that your contact details and addresses are kept up-to-date. It is also important to check your email account on a regular basis in order not to miss any messages coming from your supervisor.

i. Developing appropriate research practice

As we have emphasised, your supervisor is there to provide you with advice and guidance. One of the first aspects where you are likely to need advice is what it means to undertake a research study; thus, what is expected from you as a researcher. Your supervisor will guide you in the protocols and practices associated with research in your discipline. The University of Sheffield (2013) and Maxwell and Smyth (2010) noted that your supervisor can provide guidance on:

- the nature of research and the standard of work you are expected to produce;
- how to effectively and efficiently plan and manage a research project;
- how to accurately and appropriately record your research findings; and
- how to apply appropriate methodological or experimental techniques.

The bottom line is for you to make sure that you seek to make the most of your supervisor's experience and pay careful attention to the advice and guidance s/he provides.

As an effective researcher, you will need to demonstrate a good awareness of and familiarity with your research field and the context of your own research project. Undertaking a review of related literature is one way of doing this. This is something you may be required to complete before the end of your first year and a revised version of your literature review is likely to form part of your final thesis. Your supervisor is not there to do the thinking for you, or to critically evaluate your literature you find (The University of Sheffield, 2013). However, s/he will provide guidance on key works and sources that you should consult and study and which you can use as the basis for your own literature search (see Chapter 10)

ii. Developing research skills

Having strong research skills is important in successfully completing your research project. In the long run, these skills will also be important in helping you stand out in the employment market. Your supervisor and the sign-posted chapters will play a key role in developing these appropriate research skills. They will advise you on:

- appropriate methodological techniques and their application (see chapters
- practical and technical skills such as data collection, the use of specialised equipment, etc (see chapters
- the research context for your work (see chapters
- available training opportunities within your University

We strongly urge you to make the most of this advice and support, and the opportunities to learn from your supervisor's own experience as a researcher. Make sure that you take a positive and constructive approach to working with your supervisor to identify opportunities to developing your research skills.

iii. Developing transferable skills

A good researcher is not only expected to demonstrate advanced knowledge of their discipline and the ability to undertake original research; but also a range of more general skills and attributes. These are commonly referred to as 'transferable skills' (University of Leicester Graduate School, 2013). While such skills are useful in your research, they can be transferable and applicable to other contexts as well. Possessing a good range of transferable skills is something that employers particularly interested in as this suggests that you will be able to adapt to new situations and unforeseen challenges. Your supervisor will not have any direct responsibility for helping you develop your transferable skills - these are something you gain from your own experience and through any training programmes offered by your University or other outside agencies. Attending conferences is also another good platform for you to develop such skills. However, your supervisor is available to help you if you are unsure of development opportunities that are available; or the types of transferable skills you should be looking to develop. These are likely to include skills in communication, personal leadership, team work, project management, and networking (University of Leicester Graduate School, 2013).

iv. Planning your prospective career

Your supervisor can also provide general advice and guidance as you look to plan and manage your career development. Your research degree is a continuing professional development opportunity through which you will develop and apply a range of professionally relevant skills as well as develop a wider personal and professional network. It is up to you to make the most of this opportunity by taking a positive approach to your skills and career development; and reflecting on how your development activities support your personal career aims. Your supervisor is available both to provide guidance on careers within your discipline and, more importantly, to direct you to specialised advice and resources available within your university. If you are in agreement that the foregoing are indeed important responsibilities for the student, what are your comments on the next activity?

Activity 4.5

In the first column is a list of items you have read about. Explain (against each one) in what way it is important to your current study. Give your response in the second Column.

Item	Explanation
1.Effective communication	
2. Developing appropriate research practice	
3. Managing your supervision	
4. Developing research skills	
5. Developing transfer skills	

Thoughtful response will give you self-assurance and a sense of direction about procedures. You may also benefit by discussing your answers with fellow students, or your spouse.

4.10 Supervision: Meetings and feedback

For many postgraduate researchers, their supervisor's key role is to provide feedback on their work. Expectations on the frequency of supervision and the nature of the feedback and guidance provided do vary between disciplines. You should discuss with your supervisor at the start of your research journey how often you will meet; and what type of feedback and guidance you would find most helpful. As highlighted before, your supervisor has a responsibility to be accessible at mutually convenient times to provide advice. There are three main ways in which your supervisor will provide feedback on your work and progress namely: supervisory meetings, comments on your drafts, and the review of your thesis prior to submission.

4.10.1 Making the most of supervisory meetings

Supervisory meetings are an opportunity for you to talk about your research, discuss your progress, and alerting your supervisor to any problems with the view to seek guidance (Schulze, 2011; Lee, 2007). These meetings will serve as a forum in which your supervisor will provide feedback - based either on his/her own monitoring of your progress or in response to your submitted work. Supervisory meetings are an important part of your relationship with your supervisor and will play a big role in shaping how effective that relationship is. Therefore, it is important that you consciously create opportunities to meet and spend some time thinking about what you can do to make the most of these supervisory meetings. Below, we provide aspects that you should consider before, during, and after each meeting. Note that each stage has its significance.

A. Before the supervision meeting

At the start of your research journey, agree with your supervisor on a date and time for your first formal supervisory meeting. Thereafter, agree on a date and time for your next meeting. Thus, it is your responsibility to take the initiative in agreeing a mutually suitable schedule of meetings with your supervisor. It is also your responsibility to set the meeting agenda, and to prepare work for discussion. If a meeting has to be cancelled because your availability or that of your supervisor changes; then you should also take the initiative in proposing and agreeing a revised date and time.

i. Set the agenda for the meeting - Meetings are more fruitful if there is a clear structure for the discussion. Before each supervision meeting, you should prepare a short agenda of issues that you would like to discuss. Try to order this in a logical way, taking into account the amount of time you have for your meeting. We would suggest that your agenda starts with a review of the minutes of the previous meeting, and end with agreeing a date and time for your next meeting. Having an agenda will help you keep the discussion focussed on the key things that you want to discuss. It also serves as a useful record should you ever need to refer back to see when you spoke with your supervisor about a particular issue. It is a good idea to forward a copy of the agenda to your supervisor about a week in advance of the meeting so that s/he can see what you would like to discuss.

ii. Prepare work for discussion - The main reason for supervision meetings is to discuss your research and its progress. Therefore, we strongly advise you to bring some evidence of your work to each supervision meeting. Prior preparation at each meeting will not only provide a focus during the meeting itself, but it will also allow your supervisor to provide more specific feedback and guidance on your work; thus aiding you to refine and develop your ideas. We would like to remind you that your supervisor is not a copy editor to correct errors, spellings or grammar. Therefore, any work for discussion should have been carefully drafted and re-drafted before being presented.

It is also a good practice to inform your supervisor as to what you expect him/her to do with the work you are presenting. For instance, is it just for him/her to check on your progress, or that you are expecting feedback on what you have prepared? Remember that your formal supervisory meetings present the best opportunity to getting specific feedback and guidance on your work. Therefore, make the most out of it. While it may seem like extra work to prepare work for each meeting, the feedback you will obtain, is likely to save you time and effort in future. It is also important not be put off if your supervisor identifies gaps or flaws in the work you bring. Be open to constructive criticism as this will help you to improve the quality of your work. Just like the agenda, your supervisor will find it useful to receive a copy of the work you intend to discuss about a week before the meeting.

B. During the supervision meeting

You should be professional at the research supervision meetings. It is also your responsibility to take the lead during the meeting, and record meeting proceedings. Make sure you ask questions for clarification purposes in order to make the most of these meetings. Now outline in detail what we mean by being professional, taking the lead and asking questions:

i. Be professional - Most researchers find they develop a friendly and open relationship with their supervisor and this makes a valuable contribution to their ability to work with each other. Taking a professional approach to your supervisory meetings will help with this. In particular you need to:

- arrive on time and have everything you need;
- be honest in reporting your progress; and
- listen to your supervisor's feedback and show you appreciate their comments.

The first one is probably the most simple, but some research students still get it wrong. Remember that supervisory meetings are a professional interaction - arrive promptly and make sure you have with you a copy of the agenda, the work you have prepared for discussion, a notepad and pen, etc. Honesty in all dealings with your supervisor is crucial. Your supervisor will expect you to be able to be open and truthful in discussing your progress and any difficulties that you might encounter. If there are any issues that are affecting your progress; whether relating to your research itself, your motivation, or your personal circumstances, you should let your supervisor know. Finally, you need to approach each meeting with an enthusiastic and constructive frame of mind. Even if you are in a period where you have lost some of your motivation, try not to let this affect your approach to your formal supervisory meetings. These are much more likely to be productive if you approach them positively. That also applies to your approach to listening to what your supervisor has to say. You may have heard of 'positive listening' or 'active listening'; these are a set of skills that help make you a more effective listener that aid the communication

process. In your supervisory meetings, try using the following active listening skills when your supervisor is speaking:

- Give your supervisor your full attention - it is okay to take notes as they are talking, but avoid any other distracting movements or actions
- Use non-verbal expressions like nodding to show you are listening - making eye contact is also effective in this respect
- Avoid interrupting - listen for the whole message before jumping to conclusions
- Paraphrase what is said - restating in a different way what has just been said shows that you are listening and will alert your supervisor to anything they have perhaps not made clear

ii. Take the Lead in the supervision meeting - Actively listening to what your supervisor has to say is a key part of your supervisory meetings. However, it is not your supervisor who should be doing all the talking. The purpose of supervisory meetings is primarily for your supervisor to hear from you, in particular on your progress since your last meeting. Your agenda will give you a structure for what you want to say and help you not to forget any important issues that you wanted to raise. A good approach is to start each meeting by referring to the agenda and the items you want to cover, before reviewing the minutes of your last supervisory meeting so that you have a point of reference for your progress since then. You can then go on to discuss your progress in more detail and go through the work you have prepared for the meeting. As the discussion goes on, try to steer this so that it covers all of the items set out in the agenda. As you get more familiar with how these meetings work, you will develop confidence and build your own style for leading meetings. Do not be surprised though if you end up doing most of the talking. This is a common experience, and you will find that talking about your ideas with another person helps you refine them and think more clearly about what you need to do next.

iii. Ask Questions - Your supervisor's main role is to provide you with advice and guidance so that you can complete your research and write your thesis. If there is something that you need advice on, then ask. Asking questions means that you can benefit from your supervisor's experience, but also allows you to test your own ideas about what you should do. Your formal supervisory meetings are the best place for more detailed questions as they provide a private and quiet space in which you and your supervisor can think about the question and come up with a possible answer. Of course, your supervisor is not there to do your work for you; and they will not expect you to ask questions about every aspect of your research. A key responsibility of all research students is to work independently and manage their own work. But if there is something you are having difficulties with, ask your supervisor sooner rather than later so that you do not lose valuable research time. Asking questions in supervisory meetings about something your supervisor has just said is also a way of demonstrating active listening by showing that you are engaging with the ideas being discussed.

C. After the meeting

The final item of business before closing each formal supervisory meeting should be to agree on a date and time for your next meeting. Again, expectations on the frequency of supervisory meetings do vary between disciplines; but do speak with your supervisor if you feel that the frequency of your meetings needs changing. It is strongly recommended that

following each meeting with your supervisor you produce a short report, which is not more 100 words on what was discussed and any action points that were agreed upon between you and your supervisor. The record should also note the date and time you have agreed for your next supervisory meeting. You should try to produce this record as soon as possible after the meeting while it is still fresh in your memory. Once written, you should forward a copy to your supervisor and keep a copy for your own records in your research student progress file. Some universities have a meeting record template that could be used for this purpose. Finally, as a courtesy, thank your supervisor after the meeting.

In your record of each meeting, you should include a note on the feedback your supervisor has given you, together with any guidance s/he has provided on developing and improving your work. That feedback is only useful if you act on it. Make some time after each meeting to reflect on the feedback your supervisor has provided and its implications for your next action. As we have seen, it can be disheartening if your supervisor identifies weaknesses or problems with your work; but they can also offer valuable advice based on their own experience. Remember that your supervisor was once a research student, and s/he is still a researcher in his or her own right; and through having supervised other postgraduate researchers. If your supervisor offers criticisms, you need to remember that this is done with aim of being constructive. Do pay careful attention to what they have said even if your first instinct may be to disregard it. In the long run, you will find this advice to be invaluable in helping you successfully through your research journey. To reinforce the foregoing discussion, work on this activity before reading on.

Activity 4.6

- a. What do you need to do before and after a supervision meeting?
- b. Why is it important to prepare before a discussion supervision meeting?
- c. What three key aspects should you take into account during a research supervision meeting, and why is each aspect important?

If you have managed to answer the questions, following the guidelines suggested above, then you are ready for any type of research supervision meeting; and you will be able to make the best out of it.

D. Comments on Draft Work and review of thesis before submission

Your supervisor will assist you in managing your work as effectively as possible and this may include a schedule for submission of draft written work. For example, draft chapters of your thesis, progress reports, and article papers. It is your responsibility of making sure that you provide your supervisor with your draft chapters for marking so that s/he can return this to you with constructive criticism and in a reasonable time. That feedback may be in a written form or may be delivered verbally through your supervisory meetings - whatever its form, do make use of this to improve and develop your work.

Your supervisor has specific responsibilities of providing feedback on your thesis before it is submitted for examination. Precisely, your supervisor should read your completed final draft and give advice on its compliance with the University's rules on length for example, and other aspects. However, his/her ability to do that depends on you providing him/her with your final draft in good time before your expected submission date. Later on in this chapter, we will make reference to the final stage of the dissertation or thesis writing.

4.10.2 Academic Progress

It is your responsibility to keep written records of your work, which may form the basis of progress reports required by the supervisor, higher degrees office, department, Faculty or funding body. You should raise with your supervisor any concerns which you may have concerning the progress being made and request additional support if necessary.

4.10.3 Psycho-social issues

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The student-supervisor relationship is one of the most important relationships you will experience. Both you and your supervisor should contribute responsibly to this relationship by relying on common courtesy, punctuality, conscientious performance and mutual respect (Chiome, 2012). You should feel free to bring any problems, including those of a social or medical nature, to the attention of your supervisor especially if the problem is interfering with your work. If for any reason you feel unable to confide in your supervisor, you should approach the relevant authorities as per your university regulations. All staff members are bound by the University Act to treat such issues with complete confidentiality. You should not live with a problem and expect your supervisor to notice when something is wrong. Remember that your supervisor is neither a Messiah nor a prophet.

We earlier on highlighted that one of the most important functions of the supervisor is to provide constructive criticism. If you are making inadequate progress, an over-friendly and uncritical attitude may delay conflict; but it will not eventually prevent it. Hence, right from the beginning, open and honest discussion can reduce conflict or prevent it arising. Your supervisor usually keeps a log book of his/her discussions with you. Unsatisfactory progress must also be reported in progress and annual reports. So, to avoid this situation, it is important to discuss personal issues that could impact on your progress.

4.10.4 The final stage of research report writing

Writing a research report is a long process, and it requires you to remain focused. Once you get to the final stage of your work, you should familiarise yourself with the procedures for the submission and examination of your dissertation or thesis. Prior to submission, you should provide the supervisor with the opportunity to see a draft of the complete thesis. The decision to submit rests with the student, and whilst you should take due account of your supervisor's opinion, it must be stressed that at this stage, s/he is only playing an advisory role. You may decide to collaborate with your supervisor in the general advancement and dissemination of research knowledge. Such activity may lead to joint contributions to seminars and symposia, and possibly to joint publications in academic journals. However, you should always remember that the study belongs to you, and it is up to you to co-author with your supervisor or not. The intellectual property represented by the dissertation or thesis remains your property, except as affected by any prior agreements (for example, as part of the conditions of employment as a Research Assistant or Research Associate on an externally-funded project, or in other sponsored research).

4.11 Dealing with co-supervision

Some institutions strongly believe in the allocation of more than one supervisor to a student; and they see it as a way of upholding quality in the student's work. At times, such kind of supervision is necessitated by a situation where the student is engaged in cross-

disciplinary research or research involving collaboration between an academic department and an outside organisation, where meetings of all the parties concerned may be necessary from time to time. If you find yourself in a situation where you have more than one research supervisor concurrently, clear and professional management of the jointly supervised research work lies mainly on you as a student. Careful and reasoned consideration should be given to the views and expertise of your co-supervisors.

On a practical note, it may be difficult to arrange meetings between yourself and the supervisors who have demanding teaching and/or research duties. When a student has more than one supervisor, usually one of them is assigned a leading supervisory role. It is the duty of the lead supervisor to then liaise with others to suggest and arrange suitable and convenient times for meetings. Your lead supervisor will also coordinate and manage your progress on your programme of study. In some institutions or departments, the lead supervisor has the final say when contradictory advice or guidance is received from other co-supervisors. Most co-supervisor issues are usually resolved through discussion and negotiation between the parties involved. But if problems or concerns remain unsolved, you should approach your school or departmental head of the postgraduate studies indicating your concerns. Research shows that in most cases, the benefit of receiving two separate supervisory inputs on your work far outweighs any difficulties or issues you may encounter.

When you have more than one supervisor, communication is very crucial since all of them should be aware of what you are doing and when. Make sure that all relevant documents, plans and drafts of your work are copied to all supervisors. Keep all of them informed about your fieldwork activities and any changes or amendments to your work. Doing all this will help you to avoid a situation of confusion and misunderstanding among and between the supervisors and you the student.

4.12 Personal Harassment

Most universities have adopted a policy of providing equal opportunities for its students and staff. Given the unavoidably close working relationship between a supervisor and a research student which, by its nature, normally extends over several years, both supervisor and student have a special responsibility to observe the obligations recommended by various University Codes. Trust, confidence and fairness are essential elements in this relationship. The concept of personal harassment extends beyond matters of sexual harassment as such, to include any behaviour unwelcome by the recipient on the grounds of for example, gender, disability, race or religion. Harassment can occur in either direction between staff and students, and in either direction between men and women. Harassment is particularly unacceptable where the harasser occupies a position of authority (e.g. supervisor). If you feel that you are being harassed, and there is obvious communication breakdown, University regulations or Codes of Practice usually contain advice on seeking informal assistance in such cases, and on the procedures for making a formal complaint. A number of issues have been discussed above. All of them are critical to mutually beneficial supervision. In the next activity, two concerns are singled out for your comment.

Activity 4.8

- a. What are the pros and cons of co-supervision?
- b. In what ways does harassment manifest itself in a co-supervision relationship you have either experienced or heard about?

One of the advantages of co-supervision is probably that you benefit from the expertise of more than one supervisor. On the other hand, you could be disadvantaged if the supervisors contradict each other over important issues. Harassment can be psychological, emotional, or intellectual. Thus, your response to the second question should reflect a personal viewpoint.

4.13 Lessons learnt from supervising dissertations/theses

As research supervisors, we have learnt several lessons from supervising and examining dissertations and theses. Some of the lessons we draw from our experiences include but not limited to the following:

- The success of a student in his/her research depends to a large extent on the help and guidance that the supervisor offers, especially in the early stages of the work. Close personal contact at this time is essential if later difficulties are to be avoided.
- The principal supervisor (or the co-supervisor) is the person primarily responsible for giving the research student help and advice to obtain good training in research, choosing a topic of appropriate scope and significance, organising the research, composing a thesis that meets the University's specifications, and submitting it in due time.
- Many research students seem not to acquaint themselves with their university regulations on research writing. It is the student's responsibility of reading through the regulations and produce a quality dissertation or thesis.
- Distance learning students have particular problems in the early stages; it may be difficult to arrange meetings with the supervisors; the student may find it difficult to set priorities and provide enough free time for research. The supervisors should be aware of these problems and attempt to deal with them empathetically, while still ensuring that the student is launched on the project without undue delay.
- The relationship between student and supervisor is one of the most important relationships. The student and supervisor should contribute responsibly to this relationship by relying on common courtesy, punctuality, openness, conscientious performance and mutual respect, taking into account any social issues that could impact on the student's performance.
- Students who are open to their supervisors, and in turn get the necessary support, perform better and finish their research reports earlier than those who are not open to their situations.
- The majority of DE research students get into their studies with minimum or no formal training on how to conduct research. This brings conflict of expectation with the supervisor.
- Supervising a given topic implies that the supervisor should be a senior learner, who does not claim to know everything. However, our experience is that there are instances when the supervisor does not read ahead of the student in order to provide more informed guidance. This can lead to disillusionment on the part of the student, especially where the supervisor displays obvious gaps of knowledge in the field being investigated.

4.14 Summary

In this chapter, we have attempted to outline the roles and responsibilities of the supervisor and the research student. Without that understanding, difficulties are likely to arise from a mismatch in expectations. However, to maintain an effective working supervisor-student

relationship, there is need to discuss those expectations and think about how both parties can demonstrate a professional and positive approach. Nonetheless, every supervisory relationship is different, so it is important that the supervisor and the student understand and agree on how these formal requirements will apply in practice. We have also encouraged both the supervisor and the research student to regularly make reference to university research regulations in order to make sure that they are clear on each point and ask questions about any unclear points.

Our advice to the supervisor and student is that, like any relationship, impressions will be formed; but a professional and positive approach, are a catalyst to a more positive and lasting student-supervisor relationship. Finally, the successful completion of a dissertation or thesis is dependant, to a greater degree, on the quality of the student-supervisor relationship. This relationship should be a two-way communication, with regular interaction and direct feedback. Therefore, investing sufficient time and effort to make the student-supervisor relationship work, will enable the student to produce an end product (dissertation or thesis) that both parties will be proud of – an investment that could impact on both the student and the supervisor's future careers and lives.

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CHAPTER 5

QUANTITATIVE, QUALITATIVE, AND MIXED METHODS APPROACHES TO RESEARCH

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Abstract

Chapter 5 focuses on the quantitative, qualitative, and mixed methods research paradigms, and highlights how you can choose the appropriate paradigm for your chosen topic. The chapter begins with the questions that guide you into critically thinking about the thesis, followed by clarification of what a hypothesis is, and the definition of the concepts of 'inductive' and 'deductive' reasoning. These are applicable to any of the three approaches. There are related areas such as the different designs at your disposal, and several others closely connected with the objectives of the present chapter. These will only be referred to in passing, since they are dealt with in other chapters of the volume. This is followed by contextual definition of quantitative, qualitative, and mixed methods approaches as well as the philosophies linked to the paradigms.



5.1 Introduction

The purpose for understanding quantitative, qualitative, and mixed methods paradigms is for you to be able to choose the appropriate research design that will address your identified research problem. It is also to help you acquire knowledge and skills for justifying choices that you make as you progress with the research. The reader of your study, your supervisor, or examiner should clearly understand why you chose the particular approach or paradigm and the philosophy you used to study the particular problem. The research design that you choose from the several at your disposal should be clearly described and justification should be given. Note that matters to do with research designs are given detailed discussion in our next chapter, Chapter 6, while issues of data analysis are articulated in Chapter 7 and Chapter 12 respectively.

5.2 Objectives

After working through this chapter, you should be able to:

- define research paradigm and philosophical issues,
- explain the notions of the three paradigms/approaches,
- define hypothesis, and

- offer clarification of inductive and deductive reasoning as they apply to the approaches.

5.3 Preliminaries

Before one starts writing the proposal for the thesis it is critical to ask and answer several questions to which your attention is drawn below. The questions are repeated for emphasis, and reinforce the lucidly articulated steps in how to construct a winning proposal, detailed in Chapter 8. Here are the questions:

1. In which area (discipline) do I want to carry out my study and why?
2. What is my tentative topic for the thesis?
3. What has motivated me to do this thesis?
4. What is the problem that I want to solve?
5. What is the aim for my thesis?
6. What are the objectives that I want to achieve or the questions that I want to be answered by this thesis?
7. What sources will I use for review of related literature?
8. What is the philosophy that is suitable for my topic?
9. What research paradigm should I use in this research and why?
10. What data gathering methods are suitable for my topic and why?
11. What are the data analysis techniques that I will use and why?
12. How will my thesis improve the knowledge of my discipline?
13. What are the ethical issues that I need to address as I undertake this thesis?

Even before deciding which approach to take (quantitative/qualitative/mixed methods) one of the preliminaries to consider is whether your procedure will be inductive or deductive, a research aspect we discuss below.

5.3.1 Inductive or Deductive reasoning

Research, whether qualitative or quantitative, is grounded in theory. To understand the role of theory in empirical research it is useful to distinguish between two different styles of research: theory testing and theory building. This simply means, as you conduct your study, are you going to test an existing theory, or are you building a theory? The terms 'inductive' and 'deductive' reasoning have gained currency in research, and will be explained briefly.

i. Theory building (Inductive reasoning)

In www.nyu.edu/class/bkg/methods/005847ch1.pdf this explanation is proffered. Theory building is a process in which research begins with observations and uses inductive reasoning to derive a theory from these observations. These theories attempt to make sense of observations. Because the theory is produced after observations are made it is often called post factum theory (Merton, 1968) or ex post facto theorizing.

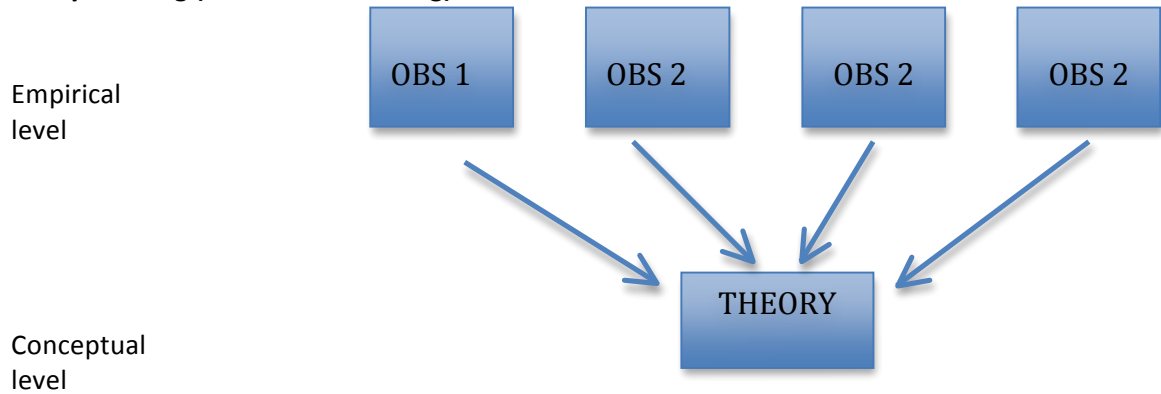
ii. Theory testing (Deductive reasoning)

In contrast, a theory testing approach begins with a theory and uses theory to guide which observations to make: it moves from the general to the particular. The observations should provide a test of the worth of the theory. Using deductive reasoning to derive a set of propositions from the theory does this. We need to develop these propositions so that if the theory is true then certain things should follow in the real world. We then assess whether

these predictions are correct. If they are correct the theory is supported. If they do not hold up then the theory needs to be either rejected or modified.

The two procedures can be represented diagrammatically thus:

Theory building (Inductive reasoning)



Theory testing (Deductive reasoning)

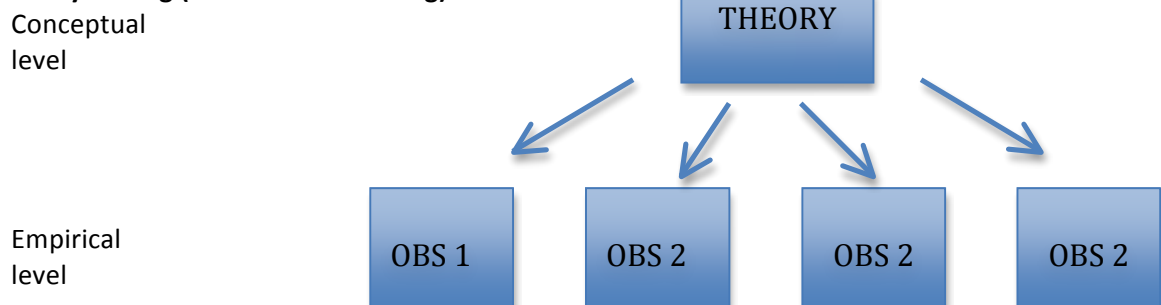


Figure 5.1 Inductive and deductive reasoning

To illustrate, we shall take a hypothetical research topic:

An evaluation of the African Apostolic Church entrepreneurship in Zimbabwe with special reference to Mutare.

By collecting data about the way members of this religious sect conduct business, the researcher would then analyse, interpret, and draw conclusions, leading to the formulation of an original theory. This would be a contribution to theories about entrepreneurship. Through inductive reasoning.

Obversely, the researcher could approach the study differently, by using an existing theory, e.g. Hagen's (1964) Social Change Theory to establish its effect on entrepreneurial practices by the group. This theory talks about how a creative personality whose social status has been withdrawn by an unjust political system makes up his/her mind to fend for the self and refuse to be oppressed. If ideas of the theory apply to members of the sect, then the theory is confirmed, that is, deductive reasoning.

A study is normally driven by research questions or hypothesis, whether qualitative, quantitative, or mixed methods. While the notion of 'research questions' is often not difficult to understand, on the part of the students, experiences of supervisors show that

many students have challenges defining what a hypothesis is. This is an important preliminary in our discussion, and we now examine it somewhat closely.

5.3.2 Hypothesis

Scholars (e.g. Tuckman, 1994; Babbie, 2004) have variously defined the term ***hypothesis***, and the fact is that they all concur that it is the driver of your study, especially when carrying out experimental studies. It is one aspect of a study, which makes the research process systematic (See Chapter 1 about the systematicity of research). Tuckman (1994, p.24) observes that a hypothesis is a predicted answer to the problem, and

“... should conjecture upon a relationship between two or more variables... it should be stated clearly and unambiguously in the form of a declarative sentence”.

A simple illustrative example is:

Learners taught using the Socratic Method perform better in tests than those taught using the lecture method.

The example conforms with the definition as follows:

- There is conjecture about two variables, namely, the methods being manipulated (independent variable), and the effect of the methods on learner performance, which can be measured (the dependent variable). For a more detailed discussion of research variables, go to §1.9 (Chapter 1).
- It is cast in the form of a declarative statement, stated unambiguously.
- It can be operationalised.
- It is testable.

The student may then wonder what the last two characteristics mean. Babbie (2004, p. 44-45) has observed that...“operationalisation literally means specifying the exact operations involved in measuring a variable”. That way we will be testing the hypothesis, hence the notion of testability. Let us subject the foregoing argument to some illustration using the example of hypothesis cited above.

We can operationalise the hypothesis by carrying out an experiment in which Teacher A teaches Class X using the lecture method, but teaches Class Y using the Socratic Method. The classes will be doing the same topic, e.g. ‘Faulting and Folding’ (Geography). At the end of the topic, the teacher would then give a test. After marking the test, there will be a comparison of performance by the two groups. The process shows operationalisation of variables and testability of variables.

You will also have read a bit about *alternative hypotheses*. The simplified hypothesis cited above could have alternative citations to it. Here are three alternatives, starting with the one you are already familiar with:

a. Learners taught using the Socratic Method perform better in tests than those taught using the lecture method.

b. The performance of learners has no relationship with the methods used to teach them.

c. Learners taught through the Socratic Method perform the same as those taught through the lecture method.

The 'no difference' version of the hypothesis is called a *null hypothesis*. A null hypothesis suggests that minor or negligible differences can occur due to chance variation, and thus are not real differences. We presume the foregoing explanation helps to clear the confusion that often perplexes students. However, to check your progress, work on this activity.

Activity 5.1

- a. Explain what you understand by: theory building, and theory testing.
- b. Construct a hypothesis based on a research area of interest to you.
 - i. What variables are you operationalising?
 - ii. Suggest a null hypothesis.
 - iii. Which of the two procedures are you following in testing the hypothesis: inductive or deductive?

To respond to the first question, you are advised to read through the discussion above. Your response to (b) is more personal, and should actually serve as a demonstration, on your part, of what you have grasped about the concept of 'hypothesis', relative to inductive and deductive reasoning.

In the next sections, focus shifts to the definition of a research paradigm, research philosophies, then to specific characterisation of quantitative, qualitative, and mixed methods paradigms. We start with definition of 'paradigm'.

5.4 What is research paradigm and research philosophy?

According to Kuhn (1970), Munhall (1982), Haase and Myres (1988) a **paradigm** is a world view of a subject that includes its underlying philosophy and the assumptions inherent in that view. We need to also understand what we mean by research **philosophy**. Creswell (2006) says a research philosophy is a belief about the way in which data about a phenomenon should be gathered, analysed and used. Another term, **epistemology** (what is known to be true) as opposed to **doxology** (what is believed to be true) encompasses the various philosophies of research paradigms and knowledge creation. There are two major research philosophies that have been identified in the Western tradition of science. They are the **positivist** sometimes called **scientific** and the **interpretivist** also known as **anti-positivist** (Henning, 2004). Many students tend to have problems distinguishing these notions, which have an important bearing on their research. These are explained in some detail below.

5.4.1 Positivism

The following are some of the features about positivism, which are worth committing to mind:

- The concept of positivism is directly associated with the idea of **objectivism**. Positivism is the view that Sociology can and should use methods of natural science (Biology and Chemistry) (Rossman & Rallis, 2003).

- Positivism is a research philosophy that uses **numerical data**. It involves hypothesis testing to obtain “objective” truth. Levin (1988) says positivists believe that reality is stable and can be observed and described from an objective viewpoint without interfering with the phenomenon being studied.
- Positivists believe in empiricism, the idea that observation and measurement are the core of the scientific undertaking.
- Thus, positivists contend that phenomena should be isolated and that observations should be repeatable.

We have observed that positivist research approach is that research that is considered objective, detached and structured by the researchers view. According to this philosophy researchers are interested to collect data from a large social sample instead of focusing details of research. This research philosophy is associated with quantitative data collection methods and statistical analysis.

5.4.2 Interpretivism

Interpretivists or anti-positivists argue the opposite of positivist. They are of the view that since human beings think and reflect, scientific methods are inappropriate for the study of society (Creswell, 2006). This is so because unlike objects in positivism human beings can change their behaviour if they know they are being studied. Therefore interpretivists argue that if we want to understand social action we need to delve into the reasons and meanings, which that action has for people. Thus, interpretivism is associated with qualitative research. It is used to obtain an understanding of the world from an individual perspective. Data are in the form of words and not numerical as in positivism. The other term related to interpretivism is **ethnographic research**. Ethnographic research arose from the desire to compare differing human-life ways through establishing a rigorous framework, using field-based, direct observation methodologies. Ethnography is, by nature, anthropological. You, the researcher as an anthropologist, will dwell among the people being studied or evaluated i.e. anthropology is field-based. Typical characteristics of the interpretivist/ethnographic research include these ones:

- The researcher’s entire person is used as the primary instrument of research.
- The study is inter-subjective, i.e. inter-subjectivity is the process of sharing the bases of one’s subjectivity in making clear one’s theoretical, methodological, and personal preferences and biases.
- Interpretivist research is holistic and conveys a well-rounded view from the inside.
- Interpretivism is designed to study cultures, societies, or institutions as wholes.
- Field-based ethnographic techniques have been developed to obtain humanistic data about what some place is like from an insider’s point of view.
- As Anthropological research, interpretivism uses the natural history approach, i.e. the facts observed are the interactions, actions, and statements of individuals, which are then grouped according to similarities. The researcher then arrives at correct generalisations from observational data. The data collected this way becomes useful scientific material.
- The approach uses continual cross-cultural frame of reference by interpreting each new way encountered in light of what is already known about all previously studied ways.

In the opinion of your supervisors, the majority of studies by students fall in the interpretivist paradigm. You are, therefore, urged to grasp its major tenets. For now, let us turn to the critical matter of relevance. Now work on the activity below.

Activity 5.2

- a. Explain the meaning of positivism and anti-positivism as used in research.
- b. Explain the meaning of epistemology and doxology.

For best responses, go over the discussion above, and apply to your topic.

5.4.3 Importance and relevance of research paradigm and philosophies

Why do you think it is necessary to develop a sound understanding about what a paradigm or a research philosophy is?

When undertaking research, it is important to consider different research paradigms and matters of ontology and epistemology (Lincoln and Guba, 1995:37). Research is about perceptions, beliefs, assumptions and the nature of reality and truth (knowledge of that reality), and these can influence the way in which the research is undertaken, from design through to conclusions. It is, therefore, important for the researcher to understand and discuss these aspects in order that approaches congruent to the nature and aims of the particular inquiry are adopted, and to ensure that researcher biases are understood, exposed, and minimised. You need to understand research philosophies so that when conducting research the assumptions from the particular paradigm guide the research process by providing a philosophy within which research questions can be developed. Understanding research philosophies will make it easier for you to choose the appropriate paradigm, design, data collection methods, data analysis techniques and justify the choices with ease.

Activity 5.3

- a. Define a research paradigm.
- b. Explain the philosophical issues of quantitative and qualitative approaches.
- c. How would you use information on paradigm and philosophy in your study?

Your response should demonstrate a clear understanding of the terms discussed in the foregoing section. To do that, re-read the section and arrive at more personalised definitions. This is the best way to respond to the third question, to do with application. Any given study is expected to articulate, in the early stages, what paradigm and philosophy influence the direction of research. We now turn to an explanation of the paradigms.

5.5 Research approaches or paradigms

There are three research approaches, also referred to as paradigms, which are in common use, namely: **Quantitative, Qualitative, and Mixed Methods**. The last mentioned is often referred to by scholars as **Traingulation**. Familiarity with each one is critical. A functional understanding of these is essential for a successful dissertation.

5.5.1 What is a quantitative research paradigm or approach?

Quantitative research is "a formal, objective, systematic process in which numerical data are utilised to obtain information about the world." This research approach is used:

- to describe variables;
- to examine relationships among variables;
- to determine cause-and-effect interactions between variables.' (Burns & Grove 2005:23)

We notice that quantitative research uses numbers and statistics. The focus in this type of research is on the control of all the components, actions and presentations of the participants. Thus the focus is on the variables. A variable is a component of the phenomenon that is studied. For example we could decide to study the following topic: ***"Attitude of distance learners towards e-learning based education."*** The variables could be attitude which we can term the independent variable because it bears some influence on observable learning. In this case, learning is the dependent or output variable because we can measure it in a number of ways, e.g. assessment, blogging and conferencing. Thus, quantitative research is all about quantifying relationships between variables. Therefore, in choosing to use this paradigm for your study you need to acquaint yourself with statistical concepts. These will be assistive of data analysis and interpretation. You should also have knowledge of computer software that you can use for data capturing and analysis.

It is noted that there are aspects related to the quantitative paradigm, and these are fully discussed in Chapter 6. These include different research designs (experimental and non-experimental designs), and hypothesis formulation.

5.5.2 What is qualitative research paradigm or approach?

Scholars have defined the concept of qualitative research since the inception of systematic thinking about research. Presently we single out only four definitions.

1. ***Denzin and Lincoln (1994:2)*** state that qualitative research paradigm is "multimethod in focus, involving an interpretive, naturalistic approach to its subject matter."
2. ***Marshall & Rossman (2006:2)*** define qualitative research as a broad approach to the study of social phenomena. They state that its various genres are naturalistic, interpretive, ethnographic and increasingly critical and they draw on multiple methods of inquiry.
3. According to ***Merriam (1998:8)*** qualitative research is an approach which recognises that meaning emerges through interaction and is not standardised from person to person as in quantitative research, and thus allowing the researcher to study issues in detail, without predetermined categorised analysis.
4. ***Creswell (2003)*** defines qualitative research as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture formed with words, reporting detailed views of informants, and conducting the study in a natural setting. From the above definitions we can say that qualitative research:

- is naturalistic inquiry
- uses non-interfering data collection strategies to discover natural flow of events

- describes and analyses people's individual and collective social actions, beliefs, thoughts, and perceptions.
- Has data collected by interacting with people

We, therefore, define qualitative research paradigm as a particular *approach* to inquiry, based on a particular set of assumptions about how knowledge is produced and about the nature of reality itself. We take the purpose of qualitative research as to understand the social phenomenon from participants' perspective. This understanding is acquired by analysing the many contexts of the participants and by narrating participants' meanings for these situations and events. Furthermore these meanings include feelings, beliefs, ideals, thoughts, and actions.

Similarly, it is also noted that there are aspects related to the qualitative paradigm, and these are fully discussed in Chapter 6. These include different research designs (e.g. ethnography, historical research, case studies), and issues to do with probability and non-probability sampling procedures. The other related aspects, applicable to the three paradigms under discussion (data collections methods, data collection and analysis) have received due attention in Chapters 6, 7 and 12.

Supervisors have observed that the most frequently used paradigm by open and distance learning students is the qualitative approach. It may be useful for you to familiarise yourself with some of the advantages and disadvantages of the paradigm, as discussed below.

5.5.2.1 Strengths and Limitations of Qualitative Research

In this section we describe the strengths and limitations of qualitative research that may influence decisions about research design.

i. Strengths of qualitative research

- Issues can be examined in detail and depth.
- The researcher is not restricted to specific questions or lists. Interviews are in-depth discussions guided by the researcher to yield relevant information.
- The research framework and direction can be quickly revised as new information emerges.
- Methods are adaptable for use with a wide range of subjects. For example, visual representation and mapping exercises can be done with people with low levels of literacy.
- Data collection can be more informal, relaxed, and fun, which encourages subjects to participate in the research.
- Research can be done with an analytical mind along with pen and paper. Computer skills may not be needed.

ii. Limitations of qualitative research

- Data are collected from a few cases or individuals, which means that findings cannot be generalized to the larger population.
- Research quality is heavily dependent on the individual skills of the researcher.
- Rigour is more difficult to maintain, assess, and demonstrate.
- The volume of data makes analysis and interpretation time consuming.
- It is not as well understood as quantitative research. It is, therefore, often more difficult to convince others of the importance of its contribution.

Activity 5.4

a. Which of the two paradigms – qualitative and quantitative- is more commonly used in open and distance learning studies?

a. Why do you think that is the case?

The qualitative paradigm tends to be more commonly used. There are probably many explanations, but certainly one of them is that it is difficult to set up an experiment with the experimental and control groups. Experience has shown that many students prefer topics in which they try and solve problems at the workplace, usually using case studies.

We now shift focus to the third paradigm, namely, mixed method approach.

5.5.3 The Mixed Method Approach

When using the Mixed Methods approach, the researcher ‘mixes’

- i. both quantitative approach that collects numeric data (numbers), and qualitative approach that collects text data (words) in a single study; and
- ii. different data collection methods, which enable the researcher to see the same phenomenon from different perspectives in order to understand the problem more completely (Creswell, 2007; Denscombe 2001; Johnson & Onwuegbuzie, 2004; Robson, 2005; Maree, 2007).

Although quantitative and qualitative approaches differ in how they access knowledge and the research questions they address, they are complementary and help provide a more complete analysis of the research problem (Maree, 2007), and offer the best chance of answering the specified research questions.

In using the Mixed Methods approach one ensures triangulation of both quantitative and qualitative methods and data sources in a single study, convergence and corroboration of results from the different methods on the same phenomenon (Borg and Gall, 1996; Creswell, 2007; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie in Maree, 2007).

While quantitative approach enables you to look for relationships between the variables and generalise results to the main population, the qualitative approach enables you to acquire in-depth understanding of respondents’ experiences and perceptions (Maree, 2007). Given that all research approaches have their strengths and limitations, the problem comes when you rely on just one, hence combining or triangulating them offers a more comprehensive approach to finding answers to the research questions, especially since many questions in open and distance learning are complex and cannot be easily answered using a single research method. The different research methods overlap somewhat, at times complement each other, but are also contrary at times. This has the effect of balancing each method out and giving a richer and hopefully a deeper understanding of the phenomenon. The different research methods at your disposal are fully discussed in Chapter 6. The concept of *triangulation* will be extended briefly, mainly because students have expressed lack of clarity about it.

Thurmond (2001) has explored the various types of triangulation strategies, and indicating when different types of triangulation should be used in research. The scholar has observed that many researchers strive to design studies that will not only give a multidimensional perspective of the phenomenon (Foster, 1997) but will also provide rich, unbiased data that can be interpreted with a comfortable degree of assurance (Breitmayer, Ayres, & Knafl,

1993; Jick, 1979). One of your ultimate goal as a researcher is to design a study that has strong internal and external validity and reliability, a comprehensive multiperspective view (Boyd, 2000), and procedures to decrease potential biases within the research (Mitchell, 1986; Shih, 1998). One way to increase the validity, strength, and interpretative potential of a study, decrease investigator biases, and provide multiple perspectives is to use methods involving triangulation (Denzin, 1970). We shall, therefore, define methodological triangulation as the use of two or more different kinds of methods in a single line of inquiry. Although use of methods drawn from both the natural and the social sciences raises a number of questions at the philosophical level, such use has become legitimized as opposed to separatism (cf. Risjord, Moloney, and Dunbar (2001).

According to Barbour (2001) In sum, triangulation is a system of using multiple forms of data collection, such as focus groups, observation and in-depth interviews to investigate the phenomenon (Barbour, 2001). Triangulation is also known as cross-checking of information and conclusions through the use of multiple procedures of sources (Golafshani, 2003, Ovreteit, 1998). When the different procedures or sources are in agreement you have what we call corroboration. Triangulation can be done at different levels. **Data triangulation** is the use of multiple data sources to help understand a phenomenon. **Methods triangulation** is the use of multiple research methods to study a phenomenon. **Investigator triangulation** is the use of multiple investigators (i.e., multiple researchers) in collecting and interpreting the data. **Theory triangulation** is the use of multiple theories and perspectives to help interpret and explain the data (Nutbeam, 2006).

Activity 5.5

a. Define triangulation.

b. Explain how you will make use of this paradigm in your study.

Revise the foregoing discussion, then attempt a personal definition, which will guide your thinking. The response to the second question is more personal, so there is no prescribed answer.

5.6 Lessons learnt from students work in this area

In our interaction with post graduates as they write their dissertations and thesis we have learned few lessons that we will now share with you.

- The first lesson or observation is that the majority of undergraduate projects and master's dissertations tend to use methods without really taking time to match the problem to be studied with the appropriate research methods.
- We have noticed that candidates seem to choose research methods familiar to them and not based on the specific problem at hand. It would seem that most candidates do not understand that they should choose a method that is appropriate to what they are trying to find out.
- We have learned that most candidates do not see quantitative and qualitative research methods as complementary. As such we have noticed that our candidates rarely talk of pragmatism or mixed methods approach. It would seem that our candidates simply think of quantitative or qualitative methods as they write proposals for their thesis.
- Most Mphil and DPhil candidates do not understand the philosophies behind quantitative and qualitative research paradigms, and how they affect the quality of their thesis. It would seem that most of our candidates do not read about philosophical issues in research such concepts of positivism and interpretivism and how they help them to come up with the appropriate research methodology.

- Those students who read about philosophies like positivism and anti-positivism, tend to merely display textbook knowledge, without linking such knowledge to the study at hand.

5.7 Summary

In this chapter we:

- elucidated inductive and deductive reasoning and their significance to a given study.
- This was followed by an explanation of what a hypothesis is.
- Examples of types of hypotheses were given.
- We presented a brief account of the quantitative, qualitative, and mixed methods research paradigms and philosophies.
- Extended explanation of triangulation was given.
- The qualitative paradigm is commonly used in many open and distance learning studies, which supervisors have come across. In the discussion, we gave advantages and limitations of the paradigm.

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CHAPTER 6 RESEARCH DESIGNS

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Abstract

Chapter 6 focuses on Research Design and in the process provides students of research with different research designs to choose from when conducting their own research work. The chapter provides a detailed analysis of the descriptive survey, case study, mixed methods design, correlational research design, and experimental research design. The place and value of sampling in the different research designs and data collection strategies that include questionnaires, interviews, focus group discussions, observations and document analysis are also dealt with in detail. The advantages and disadvantages of the data collection strategies are also articulated. The Chapter describes the value of pilot testing the data collection instruments in research and concludes with a summary of the main issues covered.

6.1 Introduction

In this chapter we present research designs. You need to have a grounded understanding of research designs to select the most appropriate one for your study. The present chapter serves as reference point for Chapter 11, which deals with research methodology. According to Maree (2007) there are three recognised approaches for the procedures of conducting research: **quantitative**, **qualitative** and **mixed methods approaches** (also referred to as **triangulation**). These are discussed in depth in Chapter 5. Your philosophical orientation or type of knowledge you seek will guide the choice of research methods and designs, and the related sampling techniques and data collection strategies. The chapter will outline some of the lessons about research designs, which the authors have gleaned over the years of supervising dissertations.

6.2 Objectives

After working through this chapter, you should be able to:

- describe the different research designs;
- compare and contrast similarities and differences that exist in the research designs;
- identify advantages and disadvantages of using each research design in one's study;
- explain various sampling techniques applicable to each of the research designs;
- give an account of the data collection strategies;
- select the most appropriate research design for your research study; and
- implement good practice from the experience of supervisors in supervising dissertations.

6.3 The Research Design

A research design is a plan or strategy which moves from the underlying philosophical assumptions to specifying the selection of respondents, the data gathering techniques to be used and the data analysis to be done (Maree, 2007).

Taylor (2000) defines research designs as constructed plans and strategies that are developed to seek and discover answers to research questions. According to Gelo et al. (2008), a research design is the plan of action or structure, which links the philosophical

foundations and the methodological assumptions of a research approach to its research methods. Figure 6.1 is illustrative.

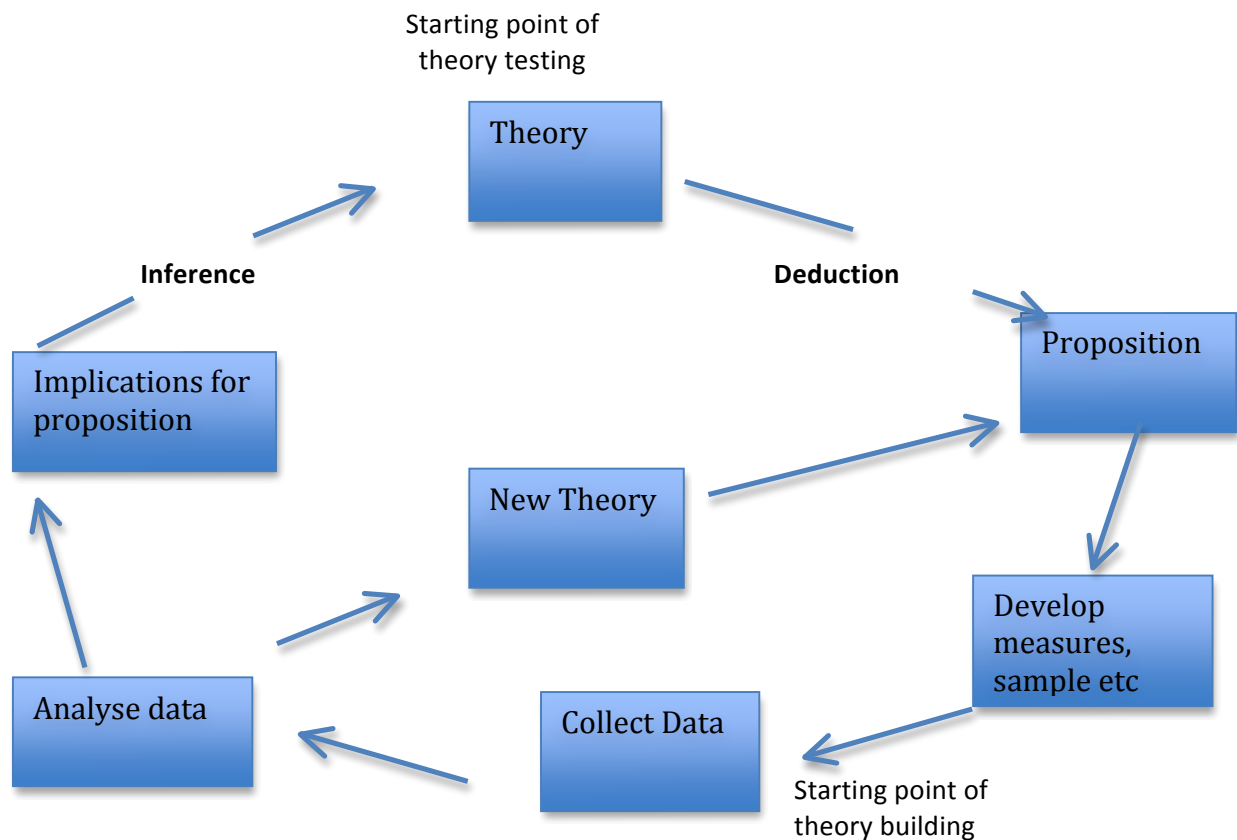


Figure 6.1 The logic of the research process

It can, therefore, be argued that the research design is a systematic arrangement of procedures and methods used during a study, and sets the logic by which researchers make interpretations at the end of their studies to avoid a haphazard approach.

6.4 The range of research designs

Tichapondwa (2010, p.171), supported by other scholars (e.g. Naidu, 2004; Mishra, 1998; Berge and Mrozowski, 2004) summarised four designs at the researcher's disposal as follows (refer to table 6.1).

Table 6.1 Types of research designs

Research Design	Positive Features	Negative Features
Descriptive: collection and reporting of data on organizations, programmes and processes.	Comprises valid and reliable data; reveals trends; innovative and charts new directions; contributes to what is already known; has validated measurement tools.	Tells nothing new; simply reports what was done and why; boring; nothing creative or ambitious about the description; rudely developed instruments.

Case Study: in-depth study of one project, or one subject, presented in narrative form.	Has a character, totality and a clear boundary; reflects some unity in the phenomenon being reported; seeks patterns, regularity, and commonality in the study.	Narrates a story; does not go beyond dry description; boring; not innovative; no critical analysis; crudely developed instruments.
Correlation: involves collecting data to determine whether, and to what extent a relationship exists between two or more variables.	Reveals a clear relationship; provides an estimation of how related the two variables are.	Mainly descriptive and narrative; data collected using crudely developed instruments
Experimental: tests hypothesis concerning cause and effect of one variable on another.	Manipulates the independent variable to determine its effect on the dependent variable; subjects are assigned to experimental and control groups; systematic selection of subjects to eliminate bias.	Use of crudely developed instruments; poor control; descriptive presentation.

Now, work on this activity, and in doing so, bear in mind the commonly used types.

Activity 6.1

Re-examine the four research designs.

- Which one do you think is commonly used in ODL research?
- Which one do you think is difficult to apply by students doing research at a distance?
- How much did you know about the negatives and positives of each method before reading this chapter?

This is quite an important activity, which requires you to reflect on an important aspect of research, namely, what design(s) to use within a given study. Try and internalize the positive and negative aspects of each design for application in any study you will undertake. We now move on to the research designs selected for discussion in this chapter.

6.5 The Descriptive Survey Design

This section of the chapter addresses perhaps the most frequently used research design - *the descriptive survey design*. The descriptive survey design is ideal for gathering original data for purposes of describing certain perceptions, opinions, attitudes, relationships and orientations that are held by a population too large to observe directly.

- The descriptive survey design describes what we see, hence reveals the actual picture of a situation through the emerging trends from the study (Leedy, 1997).

- The descriptive survey research design enables the researcher to obtain in-depth information, which can be used to facilitate the generalisation of one's findings to the larger population (Maree, 2007; Borg & Gall, 1996).
- When using the descriptive survey design, the researcher needs to randomly select or sample a small group of respondents within the population who have the characteristics that are identical to the larger population from which it is selected.

Researchers using the descriptive survey try to be as objective as possible, meaning that they wish to develop an understanding of the world as it is 'out there', independent of their personal bias, values and idiosyncratic notions. To achieve this objectivity, the researcher needs to be personally **detached from** those being studied through using objective instruments such as standardised questionnaires, observation schedules, and interview guides to collect data (Borg & Gall, 1996; Maree, 2007). The survey questionnaires collect respondents' perceptions on the phenomenon under study through structured closed-ended items, or questions with pre-determined multiple-choice responses and unstructured open-ended questions.

For purposes of analysing descriptive data, see discussion in Chapter 7 and Chapter 12 of the volume.

6.6 The Case Study Design

The term **case study** is often taken to be synonymous with qualitative methods. To study 'cases' seems to imply looking up closely and being drawn into the world of alternative perceptions and different views about common and shared tasks and workplace contexts. According to Creswell (1994) (cited in Leedy, 1997) the following are characteristics of a case study design:

- a type of qualitative research in which the researcher explores a single entity or case within its real life context, bounded by time and activity;
- collects detailed information through a variety of data collection procedures during a certain period of time;
- the design is based on a naturalistic approach where the researcher develops a complex, holistic picture, analyses documents, detailed views of informants and conducts the study in its natural setting (Creswell, 2007; Denzin & Lincoln, 1994);
- deals with contemporary events and is concerned with how and why things happen;
- strives to provide vicarious feeling of 'being there' within its real life context to the reader (Leedy, 1993; Anderson, 1993);
- a unit of human activity embedded in the real world which can only be studied or understood in that context. This implies that a case can be a single individual, a group such as a family or an institution such as a school or a community likely to have an idiosyncratic set of values, feelings and beliefs that can only be discovered through intensive, interactive study of that individual entity;
- it is mainly qualitative in nature, is a single entity like a classroom, a programme, a course, or an institution; and
- is confined to a period of time, employs multiple data collection techniques, calls for the researcher's physical presence and seeks to explain current phenomena.

Read this in conjunction with Table 6.1 above.

If as a researcher, you choose the case study design, you have to visit the respondents at their natural settings and document real events, record what they say, observe their

behaviour as they are immersed in their natural setting of everyday life in which the problem under study is framed. This way, you will be able to recognise several nuances of attitude and behaviour that might escape you when using other methods (Maree, 2007; Neuman, 1997). The main advantage of a case study is its ability to probe deeply, analyse intensively and get an in-depth and detailed understanding of the phenomenon under review, (Cohen & Manion, 1994; Cohen, Manion & Morrison, 2006; Creswell, 2007; Denscombe, 2001; Wimmer in Maree, 2007). This way, as a researcher you are able to retain the holistic and meaningful characteristics of real life situation that enable you to analyze the context in which the respondents operate in addition to their responses (Yin, 2003).

In choosing the case study, your reporting system will either be narrative or descriptive of real events through note-taking and audio taping devices of what people said and observing and documenting the behaviour of participants (Maree, 2007; Neuman, 1997). The text data are then transcribed for further analysis and interpretation, based on the values and meanings that participants perceive in their world. In reporting case study results one involves describing what is observed, with little if any quantification. Data analysis for a case study is done at three levels: interpretational, structural and reflective (Mhlanga & Ncube, 2003).

- **Interpretation analysis** refers to the examination of data for constructs, themes, categories and patterns that help to explain the phenomenon.
- **Structural analysis** examines the data for patterns in a discourse and text with significant inference to the meaning of the patterns.
- **Reflective analysis** involves making value judgments on the phenomenon. The case study report presentation is a reconstruction of the respondents' reality through a rich descriptive narrative of their values, perceptions, experiences and feelings.

Critics of the case study design argue that it lacks internal reliability as another researcher might come to a differing conclusion (Anderson, 1993), and that findings cannot be generalised. However, the incorporation of multiple data sources in your study such as individual interviews, focus group discussions, observation and documentary analysis improve internal validity since conclusions suggested by different data sources are far stronger than those suggested by one source. Case studies are liable to criticism in relation to the credibility of generalisations made from their findings since it is difficult to generalise on the basis of one case.

Our observation is that many of our doctoral students find the case study methodology a favourite. Given this state of affairs, researchers (e.g. Tichapondwa 2012:25-42) have conducted research to establish what criteria can be used to confirm that a given case study is scientific. The following five adjudication criteria (cf. Anderson and Herr, 1999) can guide you, should you choose to do case study research.

- The first criterion is what they call **outcome validity**. This refers to the impact that the case study has on practice, and the extent to which the enquiry has led to a resolution of the problem.
- Secondly, comes **process validity**, which refers to the appropriateness of methods adopted to the question being investigated.
- The third criterion is what the two authors refer to as **democratic validity**. In essence this means the extent to which all key stakeholders are consulted and engaged in the enquiry.

- Fourthly, we have ***catalytic validity***, which refers to the transformative potential of the research findings.
- Last but not least is ***dialogic validity***. This refers to whether there is trustworthiness, namely, the extent to which the study stimulates ongoing discourse among participants and interested stakeholders.

In the next activity, think more about the correct handling or mishandling of the case study research.

Activity 6.2

By referring to the five validity criteria, explain how you have either accommodated these in your study, or the extent to which you find them of academic value.

If you find the criteria of some value, you will probably have accommodated them in your research, even though you may not have done so consciously. As criteria to assess effectiveness of your case study, the criteria do have potential academic value. As you notice, there is no right or wrong answer. All depends on how you perceive them in conjunction with the other foregoing information. The Mixed Methods Design is discussed next.

6.7 The Correlational Research Design

In using the correlational research design one seeks to establish the degree of variation between two factors or variables. The degree of variation is generally measured through some statistical correlation coefficient (Cohen and Manion, 1994). If you choose the correlational research design you will collect two or more sets of data from a group of respondents. The data will be subjected to statistical analysis using measures like the Spearman's Rank Order Correlation or Pearson's Product-Moment Correlation to compute the correlation coefficient between or among the variables. For a more detailed discussion on this, refer to Chapter 7. As a researcher you do not manipulate the variables but simply sample observed behaviours. This design is compatible with quantitative research.

Correlational studies help to confirm or refute suspected relationships between or among the variables. They help the researcher to confidently predict the flow of events from a close analysis of one set of related events. A disadvantage of correlational studies is that correlation is dynamic rather than static (Cohen and Manion, 1994). This means that variables that at some time appear to be related may at some other stage show no correlation. The conclusions you draw from such studies may be relatively temporary. The results are also influenced by multiple interfering variables, which may have greater influence than the central variables.

6.8 The Experimental Research Design

The experimental research design is known by various names such as 'cause and effect', 'pretest-post test control group design' and the laboratory method. Experimentation in education has become widely used, hence different variations of the experimental design are used in education to address causal processes (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlanga and Ncube, 2003). In choosing the experimental design you will be able to manipulate and control a condition or variable whose effects you seek to understand. This variable is known as ***the independent variable***. The experiment also wants to discover its

effects upon some consequent variable, usually known as **dependent variable**. For a more detailed discussion of research variables, see Chapter 1 §1.9. In using the experimental design you, therefore, seek to identify possible cause and effect relationships through exposing experimental groups to treatment conditions and comparing the results to control groups not receiving the treatment. This section focuses on the pre-experiments, (one-short case study, the one-group, pre-test---post-test research), simple experimental and the quasi-experimental research.

6.8.1 Pre-experimental research designs

In selecting pre-experiments you will have to do without random assignment of research subjects. The pre-experimental designs include the one-short case study, one-group, pre-test---post-test design and the static-group designs (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlana and Ncube 2003).

i. *The one-short case study design*

In this design you provide a treatment to a group of subjects and carefully scrutinise, then compare the results to some general assumption of what would have most possibly been the case had the treatment not been administered (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlana and Ncube, 2003). This conclusion is arrived at on the basis of insufficient or no evidence. The status of the group before the treatment is not even known to justify the general expectations to which the results are compared.

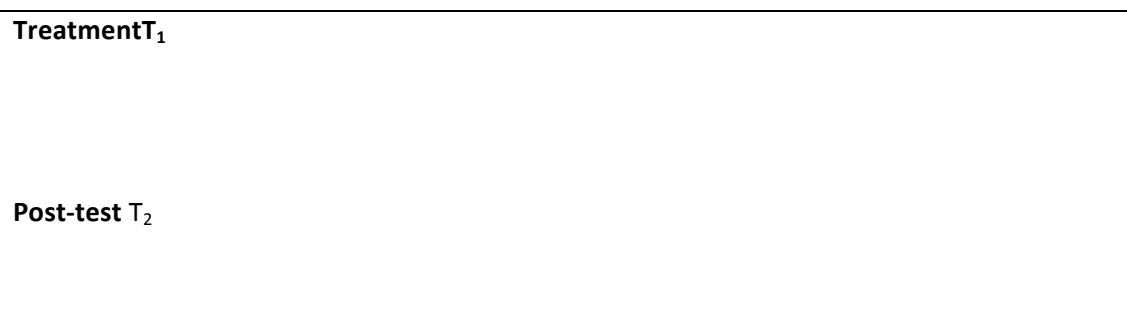


Fig.1: One-short case treatment

In the diagrammatic presentation in Figure 1, you expose a group of participants to a treatment without establishing its original status. The group is post tested to establish whether there is some change in behaviour. This process is not an experimental design as there is no control or any check on internal validity in the design. Internal validity is concerned with the possible effects of extraneous variables that might be the real cause of the demonstrated effects and not the actual treatment (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlana and Ncube, 2003). Such extraneous variables could be hidden distorting factors other than the treatment or manipulated variable. These include maturity of the participants, the effects of pre-test measures, conditions under which the pre-test was conducted, the influence of the persons administering the tests and the effects of the initial differences of the experimental and control groups.

ii. *The one-group, pre-test---post-test research design*

The design reflects some improvement over the one-short case study in that the group is pre-tested to establish its original status. Then some treatment is administered on the group and the group is finally post-tested to establish behavioural changes. The new behavioural changes are attributed to the treatment (cause). This design has no provision for a control group.

Pre-test T_1	Treatment Z	Post-test T_2
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Fig.2: One group, pre-test---post-test treatment

In Figure 2 above the researcher is able to compute gain or loss observed at the post-test stage and credit the cause of any differences between T_1 and T_2 to the treatment applied. Since there is no control group, the design is not truly experimental and there is still the concern of internal validity.

iii. The static-group research design

In this design, the status of a group that has received a treatment is compared with that of a group that has not received the treatment. The people are not randomly assigned to the groups, instead the groups may be naturally occurring and there is no guarantee of equivalence between the two groups hence the comparison is faulty.

6.8.2 The true experimental research design

The design can be represented diagrammatically as follows.

Groups	Treatment/No Treatment		
Experimental	T1	Z	T2
Control	T1		T2

Fig.3: True experimental treatment

In the true experimental design, the experimental and control groups are measured on **pre** and **post** tests but only the experimental group receives the treatment **Z** (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlanga and Ncube, 2003). In conducting the simple experimental design, subjects are divided into two groups, the experimental and control groups. Both groups are pre-tested and their pre-test means are compared. The experimental group is exposed to the treatment and the control group is not. At the end of the experiment, both groups are post-tested and their means compared. The differences between the experimental and control groups determine whether or not the treatment is associated with the changes in the mean scores.

6.8.3 Quasi-Experimental research design

The quasi-experimental design is semi-experimental in nature (Borg and Gall, 1992; Cohen and Manion, 1994; Mhlanga and Ncube, 2003). In this design you pre-test two non-equivalent groups at the beginning. You treat the experimental group and leave out the control group, finally post-test both groups. The quasi or semi experiments are research designs that lack random assignment of treatment and comparison groups that enable the investigator to assess cause and effects variables. If you do not randomly assign groups to treatment conditions, then you lose the ability to control what happens to them. The differences between pre-test scores and post-test scores may be tested for statistical significance. The research design is ideal for intact groups that are assumed to have similar maturity, aptitude, intelligence etc. Quasi experiments are a compromise between true experiments with random assignments and pre-experiments and are far superior to pre-experiments.

Each of the foregoing designs can use a combination of research methods, whether it follows the quantitative approach, the qualitative approach, or mixed methods approach. See Chapter 5. We now turn to an important component of the research design, namely,

6.9 Sampling in research

Sampling procedures and techniques are normally applicable to the three different approaches (quantitative approach, the qualitative approach, or mixed methods approach). However, some techniques are more compatible with one approach than the other. Presently, we take a more general approach of informing students about sampling techniques. Note that systematic sampling contributes to the validity and reliability of research, a matter discussed in Chapter 1.

A sample is the group of cases (individuals) selected from all the possible respondents in a population in which the study is being conducted. A population is any target group of individuals that has common characteristics that are of interest to you, the researcher (Best & Khan, 1993; Tuckman, 1994). In most instances there is shortage of financial resources, time and accessibility to study all the cases in the population of interest, making it necessary for you to collect information from a **representative sample** distribution of cases of the total population in such a way that the knowledge gained is representative of the entire population under study and allows for accurate generalisations to the total population (Babbie, Mouton, Vorster, & Prozesky (2001); Cohen, Manion & Morrison, 2006).

Scholars (e.g. Anderson, 1993; Cohen & Manion, 1990; Creswell, 2003) concur that there are two kinds of sampling, namely: probability and non-probability sampling are focused upon next. These are discussed presently.

6.9.1 Probability Sampling

Probability sampling is based on randomisation in which every element of the population has a known chance of being included in the sample. The probability sampling encompasses simple random sampling, stratified random sampling, cluster sampling and systematic sampling.

i. Simple random sampling

When using simple random sampling you ensure that each element of the population has an equal chance of being included in the sample. You then use methods such as Roulette wheel, lottery, the computer, picking from a hat and the table of random numbers that ensure that each participant has an equal chance of being selected. Equal chance of selection implies that there should be equal representation of all elements of the entire population.

Suppose you want to select a sample of 30 participants out of 100. You will number all the hundred entries in the population and place corresponding number of slips of paper in a hat or some container where they are mixed thoroughly. When a slip is drawn its number is recorded and the slip is put back in the container. When a previously drawn number is drawn again, it is ignored and put back into the container. The process is repeated until the desired sample size is achieved.

ii. Stratified sampling

In using stratified sampling you divide the population into two or more strata or layers and then take either a simple random sample or a systematic sample from each stratum. An education researcher using stratified sampling would organise the respondents as Education Officers, Heads of Schools, Senior Teachers, and classroom teachers.

iii. Cluster sampling

Cluster sampling is a version of simple random sampling that applies to large populations that are spread over large geographical scatterings. Cluster sampling can be useful where it is difficult or impossible to involve all the elements in a large population. If you want to study trends in schools in a country, you will have to sample equal numbers of schools or districts from each province, which is a geographic cluster. This is in accordance with Williamson, Karp & Dalphin (1977), who indicated that once a sample of clusters has been selected, simple, systematic or stratified random sample of individual elements can be selected from the chosen clusters. In cluster sampling, you only list relevant elements and not the complete list of all the elements in the population. The precision of cluster sampling is less than that of other probability samples and can be improved by selecting a larger sample size. Cluster sampling can help save time and money as a few researchers can be sent to a few randomly selected areas where they interview a substantial number of participants in each.

iv. Systematic sampling

Systematic sampling is similar to simple random sampling. In using the systematic sampling you identify a random starting point on the population list and thereafter select every *n*th or **unit** from that starting point. A selection interval could be ten, meaning that every tenth character is selected for inclusion in the sample. The process is continued until the sample is adequate.

Non-probability sampling, the second sampling type, comes next for discussion.

6.9.2 Non-probability sampling

Non-probability sampling could be referred to as unscientific. The most important types of non-probability sampling are accidental, quota and purposive. Accidental sampling is discussed first.

i. Convenience sampling

Convenience sampling, also known as accidental sampling, is the familiar 'man in the street interview'. If you choose to use accidental sampling you may have to stand in street corners and interview people as they pass by and make wide use of volunteers. This kind of sampling is highly biased and is only suitable where data collection is not complex and very low level of generalisation is expected. The assumption carried by accidental sampling is that by simply interviewing passersby, researchers get a reasonably representative cross-section of the population of interest. There is no guarantee that this is going to be the case as there is no reliable way of checking the reliability of a sample under accidental sampling. As such, you must exercise caution about generalising findings under accidental sampling. Quota sampling is focused upon next.

ii. Quota sampling

A quota sample is when interviewers screen potential respondents according to study's desired characteristics. A study might seek for equal representation of men and women, hence the quota sampling might call for 50% of the interviewees be female and another 50% be males. Should the study have to do with races, the quota sampling might demand that 50% of the interviewees be white and the other 50% be black. The quota sampling ensures that a certain strata of the population will be included in the study. The 'man in the street interview' can be conducted with an equal representation of 50% white people being stopped against 50% black people. Interviewers are afforded a large degree of latitude in

quota sampling which gives too much room for biased sampling as they provide room for interviewers to choose the kind of females or males they prefer to interview.

iii. Purposive sampling

A purposive, or judgmental, sample is one that is selected based on the knowledge of a population and the purpose of the study. It is used so that individuals are selected because of some defining characteristic that makes them the holders of specific data needed for the study (Maree, 2007). In purposive sampling you hand-pick certain groups or individuals to include in the sample on the basis of their relevance to the problem under study. According to Patton (1990) the logic and power of purposeful sampling lies in selecting information-rich cases for in-depth study. Information-rich cases are those from which you can learn a great deal about the phenomenon being studied. This sampling procedure is used in studies that are too rare to effectively deal with when using a representative cross section of the population. In using sampling you reduce travelling cost involved when collecting data from the geographical spread respondents and enables you to draw some specific information from the respondents who are crucial to the study and may be hard to locate. The main disadvantage with purposive sampling is that there is little or no control over who is selected within the category and there is no guarantee that those selected are representative of the specified population.

iv. Snowball sampling

A snowball sample is appropriate to use in research when the members of a population are difficult to locate, such as homeless individuals, migrant workers, or undocumented immigrants. A snowball sample is one in which the researcher collects data on the few members of the target population he or she can locate, then asks those individuals to provide information needed to locate other members of that population whom they know. For example, if a researcher wishes to interview undocumented immigrants from a particular country he or she might interview a few undocumented individuals that he or she knows or can locate and would then rely on those subjects to help locate more undocumented individuals. This process continues until the researcher has all the interviews he or she needs or until all contacts have been exhausted.

6.10 Time, place and event sampling

These are not sampling techniques like purposive or simple random sampling, but are other considerations when sampling. One can sample times and places for observation. If possible the observer would break the 24-hour day into discrete time units and let the times of observations be dictated by a random sampling of these time units.

Activities and events also vary in different places within an organisation, hence one might need to carry out observations in different strategic locations within the organisation, (Williamson et.al., 1977). For example, as a researcher you need not only observe the activities of teachers teaching in the classroom as they are likely to be different when teaching outdoor lessons where a lot of practical engagement and demonstration are required. It might be acceptable in some activities to combine the sampling of time and place where research will be conducted. Share your views about sampling by doing this activity.

Activity 6.5

- Differentiate between non-probability and probability sampling.
- Which form of sampling allows you to hand pick respondents for in-depth understanding of the problem under study? Justify its use.

Respond in your own words to demonstrate a personal grasp of the topic. This exercise is meant to reinforce your knowledge on sampling in research. Students often face difficulties distinguishing between research design and method. Are you aware what the distinction is? Let us dwell on that important aspect in the next section.

6.11 Design versus Method

In www.nyu.edu/classes/bkg/methods/005847ch1pdf the distinction between research design and research method is made explicit. A Research design is different from the method by which data are collected. Many research students confuse research designs with methods. It is not uncommon to see research design treated as a mode of data collection rather than as a logical structure of the inquiry. But there is nothing intrinsic about any research design that requires a particular method of data collection. There are no research methods that are confined to either qualitative or quantitative approach. This means methods are at the service of either. This is illustrated in Figure 6.1, where the first four boxes show design types. While the other four show methods of data collection.

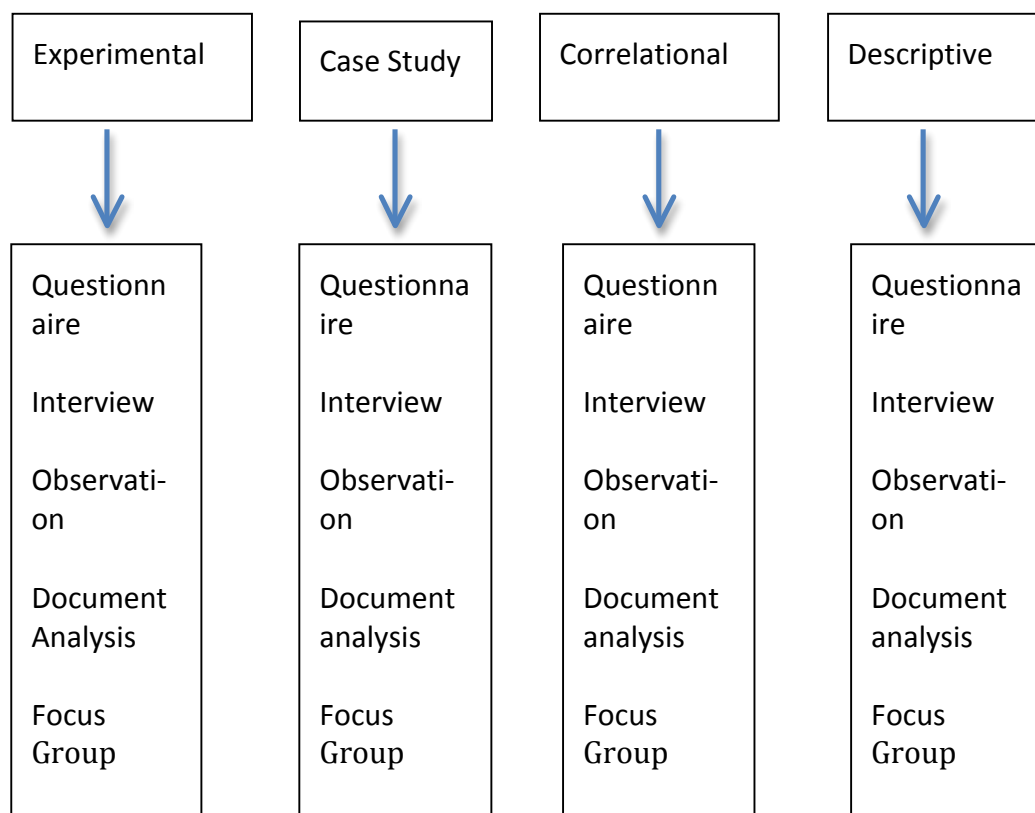


Figure 6.2 Relationship between research design and data collection methods

We now briefly examine the data collection methods.

6.12. Data collection Methods

The knowledge of data collection methods is for researchers to obtain standardised information from all respondents in the sample of the study by administering the same instrument to all the respondents. Best and Khan (1993, p25) describe data collection as 'the process of disciplined inquiry through gathering and analysis of empirical data'. The most widely used tools (instruments) in gathering data in research are questionnaires, interview guides, and observation schedules, hence a detailed exposition of each is presented next.

6.12.1 Collecting data using Questionnaires

A questionnaire is a document containing questions designed to obtain information from the sampled respondents and is used a great deal in survey research. A questionnaire is usually composed of structured or close-ended and unstructured or open-ended questions. Close-ended questions can be referred to as fixed alternatives or multiple choice questions with specific answers and the respondents choose from a number of options such as 'Yes' or 'No'. They are restrictive in the type of information gathered hence confine the respondent to the subject through the stipulated responses (Chivore, 1991). The open-ended questions enable you as a researcher to establish what respondents believe, know, like, dislike, and think about the problem under investigation. They are flexible and do not limit the possible answers and tend to allow respondents to give their real responses on issues under investigation, (Chivore, 1991; Cohen & Manion, 1994). Their flexibility allows individuals to give their free responses on issues under investigation hence may bring out situations or issues that were not anticipated when the questionnaire was designed (Cohen & Manion's, 1994; Chivore, 1991). Once you choose to use unstructured or open-ended questions then keep them to a minimum since respondents prefer to choose from pre-determined structured responses than to write descriptive accounts on the phenomenon. Leedy (1989) and Wiersma (1995) advise that one should never forget that he/she is asking from the respondents a gift of time and effort and the favour of a reply hence should keep the questionnaires as concise and as clear as possible so that they demand as little effort as possible from the respondent.

i. Advantages

A number of authors among them Nachimias & Nachimias (1989) and Payne & Payne (2004), concur that questionnaires have the following advantages:

- They provide the study with high objectivity because there is a standard way of answering questions;
- They enable large quantities of data to be collected over a relatively short period of time;
- They are cheaper to distribute than conducting interviews and tend to permit a wider geographic coverage at minimal cost;
- They have little personal involvement during the data collection process and therefore less danger of researcher influence and provide greater anonymity, especially when sensitive issues are involved such as sexual behavior or child abuse; and
- Open-ended questions enable the researcher to gain access to data which is sometimes buried deep in the minds, attitudes and feelings of respondents.

ii. Disadvantages

Despite their many advantages, questionnaires have the following disadvantages:

- The response rates are much lower than that of interviews as some respondents may choose not to respond for reasons such as being requested to give information on topics they are unfamiliar with as is the case with some questionnaires.
- They do not provide the researcher with an opportunity to probe beyond the given answer, to clarify ambiguity and to appraise the non-verbal behaviour of respondents.
- The researcher does not have control over who fills out the questionnaire hence cannot be sure that the intended person completed the questionnaire.
- Due to their standardized nature, survey questionnaires do not have the opportunity to explore a topic in depth and may miss contextual detail hence the need for complimentary in-depth interviews (Sources).

6.12.2 Interviews

Interviews involve the collection of data through direct contact between you and respondents presumed to have certain experiences that enhance in-depth understanding of the problem under investigation (Borg & Gall, 1996; Denscombe, 2001). According to Best & Khan (1993), Cohen, et al., (2006) Creswell (2007), an interview is a two-way conversation or oral questionnaire initiated by the interviewer for the specific purpose of obtaining research-related information and to learn about the ideas, beliefs, views, perceptions and opinions of the interviewees. Patton (1990) argues that the purpose of interviewing is to find out what is in someone's mind and to depict the respondent's perceptions and experiences about a phenomenon under review. Cohen, et al.,(2006) posits that by providing access to what is 'inside a person's head' makes it possible to measure what a person knows (knowledge or information), what a person likes or dislikes (values and preferences) and what a person thinks (attitudes and beliefs).

As a researcher you will conduct interviews using interview guides or schedules that list the questions to ask. Interview guides can be broken into categories of structured or close-ended and unstructured or open-ended questions. The structured interview questions are pre-planned and enable the respondent to respond in a particular way while the unstructured interview questions enable respondents to freely express themselves at some length and provide in-depth data about the problem under investigation (Borg & Gall, 1996; Haralambos & Holborn, 1995). When conducting semi structured interviews, the researcher begins by asking a series of structured questions and then delves more deeply by asking open-ended questions in order to obtain more complete data. This is called probing. Interviews have their share of advantages and disadvantages that are discussed below.

i. *Advantages of interviews*

Borg & Gall (1996), Creswell (2007), Nachmias & Nachmias (1989) and Schurink (1990) concur that interviews afford researchers a number of advantages. Frequently cited advantages are that:

- Semi-structured interviews are flexible, adaptable and provide direct human interaction that enable the researcher to probe and clarify answers with the respondents, follow-up leads, elaborate on the original response and obtain more data with greater detail and clarity.
- The researcher gathers data systematically and is assured that no data are omitted.

- The face to face interaction promotes verbatim recording of responses that provides immediate feedback and gives room for probing and clarification of issues hence the researcher can immediately cross-check data for authenticity.
- The researcher can immediately validate the data when sensing that the respondent is giving false information through non-verbal cues, including facial expressions and tones of voice.
- It can be used to collect data from the young, aged and illiterate that cannot be successfully obtained by any other method.
- The use of a recording device such as a dictaphone enables the interviewer to concentrate on listening, probing and responding to the interviewees and does not have to write down responses to one question before moving on to the next.
- If the researcher makes the respondents comfortable and secure they could reveal supplementary information through some spontaneous reactions that could not be revealed under any other circumstances which might be of future use to the researcher at the data analysis stage.

ii. Disadvantages of interviews

The above authors also note that interviews have a number of disadvantages *inter alia*:

- Interviews are more costly to conduct when compared to questionnaires.
- Interviews also allow for subjectivity and possible bias emanating from the eagerness to please the interviewer or the tendency by the interviewer to seek out answers that support his or her preconceived notions.
- Interviews are easily influenced by respondents' personal attributes and may suffer from interviewer dominance.
- Interviews are often shallow as they can only accommodate a limited sample of respondents and often fail to dig deep enough to provide a true picture of opinions and feelings.
- Interviews lack the anonymity that is provided by the questionnaire hence may leave the respondents feeling threatened especially if the topic or some of the questions are of a sensitive nature.
- Interviewing and recording manually simultaneously spoils the flow of the interaction and it is easy to lose focus if the interviewer gets carried away.

6.12.3 Focus Group Discussion

A focus group is defined as a small gathering of individuals who have a common interest or characteristic, assembled by the researcher who uses the group and its interactions as a way to gain in-depth information about a particular topic (Kark & Williams, 2002). Krenger (1988) views a focus group discussion as a carefully focussed discussion designed to obtain perceptions, attitudes, feelings and experiences in a defined area of interest in a permissive non threatening atmosphere of disclosure from a predetermined and limited number of people. The key element here is involvement of people where their disclosures are encouraged in a nurturing environment. It taps into human tendencies where attitudes and perceptions are developed through interaction with other people. Some topics are better discussed by a small group of people who know each other while some people need company to be emboldened to talk hence focus group discussion becomes ideal for such instances. The focus group discussion strategy is based on the assumption that group interaction will be productive in widening the range of responses, activating forgotten details of experience and releasing inhibitions that may otherwise discourage participants from disclosing information (Maree, 2007).

Group dynamics in focus group discussions enable participants to be able to build on each other's ideas, experiences and comments to produce data rich in detail that is difficult to achieve with other research methods, (Anderson, 1993; Maree, 2007). Unexpected comments and new perspectives can be explored easily within the focus group and can add value to one's study. The participants interact with each other rather than with you the interviewer, such that the views of the participants can emerge and the participants' rather than the researchers' agenda can predominate (Cohen, et al., 2006). It is from the interaction of the group that the data emerge.

In conducting a focus group discussion its ideal to begin with a broad and less structured set of questions to ease participants into a process where they actively debate issues (Maree, 2007). Active participation and interaction among members can be motivated by your probing to steer the discussions or clarify issues. As the discussion picks up, the interview questions will become more structured and cover that which is pertinent to the study to generate as many views and perceptions as possible from the group (Maree, 2007). At the end of the discussion, all the participants should be focused on the heart of the research question.

In using focus group discussions, you should avoid working with small and unrepresentative samples where the discussion is dominated by the more outspoken individuals and there is difficulty in assessing the view points of the less assertive participants. It is advisable to form homogeneous focus groups, e.g. a focus group composed of teachers of the same grade, instead of mixing teachers, senior teachers and heads of departments in the same focus group. Also, too much control by the researcher means that one hears little of the participants' own perspectives. Rapport between you and the group members encourage silent participants to express their feelings fully and honestly and enables you to control those who dominate the conversation and keep the flow directional, animated and relevant.

The focus groups are generally composed of six to twelve participants and groups greater than twelve tend to break apart into various factions while groups less than six generally are not ideal enough to provide the required synergy (Anderson, 1993). Working with three focus groups would be ideal for a study, with the first two groups giving considerable new information and there after the new insights rapidly diminish. You as the researcher are expected to promote a comfortable, permissive and non threatening atmosphere that encourages free disclosure in which respondents share their ideas, experiences, feelings, perceptions and attitudes about the problem under investigation (Krenger, 1988). You ought to ensure that interview and focus group discussion proceedings are recorded verbatim. Recording is focused on next.

6.12.4 Recording interview responses and focus group discussion proceedings

The interview responses and focus group proceedings can be recorded manually by you the researcher or through a recording device to enable the interviewer to concentrate on listening, probing and responding to the interviewee or focus group participants. Recording devices include tape recorders, video cameras and digital voice/sound recorders. The recording devices facilitate the flow of the interview or focus group discussion you do not have to write down responses to one question before moving on to the next hence speed up the interview process. The use of recording devices reduces the tendency of the interviewer to make an unconscious selection of data favouring his/her biases (Borg & Gall, 1996). The tape recorded data can be replayed several times and can be studied more thoroughly during the study that would not be the case if data was only recorded manually. It is possible

for another researcher to use the recorded data to evaluate and classify the responses. In manual note taking there is an increased risk of interviewer bias because the interviewer is likely to make notes of the responses which make immediate sense or are perceived as directly relevant or particularly interesting.

The principal disadvantage of using the recording device in an interview or focus group discussion is that it changes the interview situation to some extent. In instances involving sensitive and highly personal information the respondent may be reluctant to express his/her feelings and opinions freely when aware that the process would be recorded. As a researcher, you need to carefully explain the purpose of the recording and assure strict confidentiality amongst respondents as some people think that once their words are recorded on tape they might find themselves in trouble, especially if they revealed something illegal they did (Bogdan & Biklen (1992).

However, if interviewees and focus group participants do not want the proceedings to be recorded using a device such as a dictaphone, the researcher has to write down some notes during the interview or focus group discussion. In the following table, Opie (2004) provides a general overview of the advantages and disadvantages of tape-recording versus note-taking during interviews and focus group discussions.

Table 6.1: Advantages and disadvantages of tape-recording and note-taking.

Tape-recording	Note-taking
ADVANTAGES	
Preserve natural language	Central facts recorded
Objective record	Economical
Interviewer's voice also recorded	Off-record statements are not recorded
Data can be re-analysed later	
DISADVANTAGES	
Too much data	Recorder bias
Time-consuming to transcribe	Interview
Presence of recorder off-putting	Status of data recorded questionable
Irrelevancies recorded	

Whichever recording method the researcher uses, he/she must take cognisance of the disadvantages and have in place strategies to circumvent them. Data can also be generated through observation – our focal point in the next section. Attempt this activity.

Activity 6.6

a. Compare and contrast questionnaires and interviews.

b. Show how they complement each other when in one single study.

Your response should be in your own words to demonstrate a personal grasp of the topic. In order to come up with good responses to each item, revisit the text above the exercise. Share your ideas with a colleague. Let us now read on and examine the several steps.

6.12.5 Observation

Observational strategies collect qualitative data and are suitable for investigating phenomenon that can be observed directly (Nachmias and Nachmias (1989). The

observation technique allows you to observe the participant, record what is going on or take down notes hence needs to be systematically planned and recorded. Advantages of observation are that you being an outsider can see phenomenon about a situation, which those involved may take for granted and that you record the events as they occur. Observation serves as an ideal data collection strategy when dealing with respondents who are unable to give verbal reports such as young children, deaf and dumb people.

The disadvantages of the observation strategy include the fact that you might not be there at the time of spontaneous occurrence which might be of interest. The other disadvantages are that observations are limited to the duration of the event and by situations where it is taboo to apply observation such as human sexual practices, some religious ceremonies, cultural events such as circumcision practices among some tribes etc. Finally, your presence of an outsider (the researcher/observer) is bound to alter the behavior of those being observed. You as the researcher must come up with strategies to deal with these disadvantages. Observations can be conducted in structured and unstructured forms that are explored below.

6.12.5.1 Relationship with Participants

As a researcher you may take the roles of covert observer or complete participant, the participant-observer or the complete observer.

i. Covert observer/complete participant

In covert observation those being observed are not aware that they are under scrutiny. Their 'cover' is so complete that other participants see them as one of them. When operating under cover, the reconstruction of events over a long time between debriefings can be a problem hence you might resort to using a concealed miniature recording device and there can be a problem when you are discovered, (Krathwohl, 1993). Covert observation does not capture the nonverbal clues and limits relationships to those of your grade level in the organization hence certain records and information may be inaccessible to the grade of the observer. The effort to be as natural as possible by getting so involved and active with the subjects runs the risk of the observing researcher "going native" and losing one's original intentions. Cultural background, religion, age, sex, race, family situation may preclude any kind of participant observation in certain group activities. On the other hand, the covert participants can access data which no one else could be privy. Due to the numerous disadvantages of covert observation and the dilemmas when the role involves illegal and unethical behaviour, its use is relatively rare and most researchers prefer the role of participant observer.

ii. The participant observer

The participant observer is part and parcel of the group and the group members know all the time that they are under scrutiny. People who know that they are being observed deliberately change their behavior to suit their preferred circumstances. Krathwohl (1993) also argues that the central problem of observation is that individuals who are conscious of being observed are likely to behave differently, usually in the direction of what they perceive to be more socially acceptable or try to satisfy the observer's expectations. In education circumstances, when students are aware that an education authority is observing their class teachers' instruction for purposes of promotion, they may project an artificial behaviour to satisfy the observer. In some instances you may prefer the complete observer role.

iii. *The complete observer*

The complete observer takes part in the activity and observes secretly or covertly (Chikoko and Mhloyi, 1995). As the complete observer you are detached or aloof from the group activities being investigated and you may observe behaviour from the back of a classroom or from a separate room through a screen or window (Chikoko & Mhloyi, 1995). The nonparticipant observation provides the researcher with freedom to concentrate entirely on observation and become very sensitive to the importance of what is happening. Ethical considerations again restrict researchers from observing people who are unaware of their spying activities hence most prefer the role of participant observer. The data collected through observations ought to be recorded as soon as possible.

6.12.6. Document/Content Analysis

Documents analysis is unobtrusive and non-reactive and can yield a lot of data about the values and beliefs of participants in their natural settings (Marshall & Rossman, 1999). Analysis of documents complements interviews and questionnaires in the data collection process and may help answer questions that interviews, focus group discussions and questionnaires may not address. According to Maree (2007) document analysis means focusing on all types of written communication that may shed light on the phenomenon that one is investigating. Written data sources may include published and unpublished documents, reports, administrative documents, e-mail messages, newspaper articles or any document that is connected to the investigation. The sources of documentary analysis can be primary and secondary. Primary sources refer to unpublished data that you gather directly from the participants who actually witnessed the events they can describe and these include minutes of meetings, reports, correspondence etc. Secondary sources refer to materials that are based on previously published works such as textbooks and research reports.

The advantages of document analysis are that documents may fill in the gaps that may be left open by other data collection strategies. The researcher may also pick up some issues from document analysis which need verification with the respondents during individual interviews and focus group discussions and might assist the researcher to minimize the risk of imposing personal inferential interpretation on what is found in the documents (Chisaka & Vakalisa, 2000). Criticisms levelled against document analysis include the possibility by the researcher to render a selective and biased understanding of a document due to its social context and identity. Authors of documents decide to record and leave out information informed by their social, political and economic environment of which they are part (Creswell, 2003).

Documents are historically amenable to manipulation and selective influence. In undertaking document analysis, you should be aware of these influences and not assume that documents are simply neutral artefacts from the past. Using documents without due consideration to the process and social context of their construction, leaves you open to criticism of being unreflexive and uncritical in their 'readings'. You then need to be on high alert and avoid accepting documents at face value and differentiate between genuine and spurious documents so as to help establish authenticity and credibility of collected data.

6.12.7. Pilot testing of the research instruments

Pilot testing of the research instruments helps the you to fine tune the data collecting instrument for the main enquiry. Pilot & Hungler (1983) define a pilot study as a "trial run of

what is intended to be a later larger project". Bless & Higson-Smith (2000) in de Vos, Strydom, Fouchie, and Delpont (2005) argue that a pilot is a small study conducted prior to a larger research to determine whether the methodology, sampling, instruments and analysis are adequate and appropriate. It can be argued that a pilot is a small study that is conducted prior to the main investigation with the intention of improving the success and effectiveness of the main study. Piloting the research instruments is important because it helps to assess and increase the validity and reliability, the feasibility and practicability of the study and the suitability of the research instruments and design (Cohen, et al., 2006; Oppenheim, 1996). The pilot test ought to use a group of respondents who are part of the population but not part of the sample and whose attributes and characteristics are similar to those of the target population.

Piloting the research instruments helps to: check the clarity of the wording of questionnaire items and interview questions, instructions and layout; eliminate ambiguity or difficulties in the instructions; check the time taken to complete the responses; reveal omissions or previously unanticipated answers in multiple choice questions and identify redundant questions and those that are commonly misunderstood or non-completed items (Anderson, 1993; Cohen, et al., 2006; Haralambos & Holborn, 1995). Pilot testing the questionnaires and interview guides provides you with a final opportunity to improve the research instruments before finally releasing them to the target population. Opie (2004:104-105) views the pilot test as providing answers to the following questions:

- How long did it take to answer the questionnaire?
- Were the instructions clear?
- Were any of the questions unclear or ambiguous?
- If so, which and why?
- Did respondents object to answer any of the questions?
- Anything major omitted?
- Was the layout clear and attractive?

Attempt this activity.

Activity 6.7

- a. Identify the challenges posed by observation in data collection.
- b. Identify the advantages of document analysis.
- c. In qualitative research designs, why is the researcher viewed as the major data collecting instrument?

Your responses should be in your own words to demonstrate a personal grasp of the content. You are free to refer to the relevant topic for information. This exercise meant to help you realize how much you remember from work covered.

Our observation is that many of our students mismatch a chosen methodology and data collection strategies such as using questionnaires in a case study and interviews in a survey study. Students mainly adopt descriptive and case study designs and rarely work with mixed methods, correlational and experimental designs.

6.13 Lessons learnt

Research design is a critical section of the research, and supervisors' experience is that many students experience difficulties concerning how to handle the section. Some of the lessons learnt are outlined below.

What makes the Methodology chapter flawed and a pain to go through for supervisors is that students tend to **reproduce textbook information by:**

- Citing excellent textbook information on ontology, phenomenology, honcology, and many other *–ogies*, whose relevance is doubtful.
- Defining what a research design is, and how many research designs they know in this world.
- Explaining at length the paradigm types and research philosophies (e.g. interpretivism, constructivism, positivism, ethnography...).
- Dwelling on what distinguishes inductive from deductive approach.
- Reproducing literature about qualitative/quantitative approaches, then spending as much time displaying their knowledge on what triangulation is.
- Declaring that they will work with the qualitative approach even when they will inevitably have some statistics – A kind of phobia for the quantitative approach.
- Detailing procedures of how to design a questionnaire/an oral interview schedule.
- There is a tendency to confuse concepts e.g. talking of a mixed design when it should be mixed methods design; methodology when referring to methods; referring to methods as designs; referring to qualitative and quantitative approaches as either methods or designs. The list is long.

6.14 Summary

The Chapter covered broad ground including:

- A description of the Descriptive Survey, the Case Study and Mixed designs drawn from the Quantitative, Qualitative and Mixed Methods approaches was given.
- The sampling strategies applicable to the Descriptive Survey, the Case Study and Mixed designs were identified.
- The use of questionnaires, interviews, focus group discussions, observations and document analysis as data collection strategies were articulated.
- The advantages and disadvantages of using each of the data collection techniques were articulated.
- The value of pilot testing the data collection instruments were identified

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CHAPTER 7

DATA HANDLING, ANALYSIS, AND INTERPRETATION: HINTS AND CAVEATS

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Abstract

This chapter is concerned with highlighting technical challenges associated with handling, managing, analysing, and reporting data in research projects. The chapter provides hints and caveats to more appropriately plan and handle both quantitative and qualitative data types. The chapter gives the reader a series of activities to help him/her in analysing and reflecting upon the issues raised here. The ethical responsibility of the researcher in ensuring that data are handled, managed, and analysed systematically and accurately is stressed, and the image below adds voice to this point. Both the beginning and accomplished researchers should find the chapter appealing and a useful resource for critically reflecting and improving quality of their own research.



7.1 Introduction

Experience in teaching research methods courses and serving as examiners for theses and dissertations for several universities, reveals that students and beginning researchers find it difficult to effectively handle and manage data. Equally, they find it a challenge to analyse and interpret the data meaningfully in relation to the problem of study and the research questions. They lack sophistication in both (qualitative and quantitative) analytic techniques and procedures regarding when and how to use them (see also Chapter 12). Sometimes, irrelevant data are collected. It is important to take seriously Walliman's (2005) counsel concerning data analysis as we approach the chapter.

(Data) analysis must be carried out in relation to the research problem. You are wasting your time, and that of your eventual readers of your work, if you carry out analysis irrelevant to the aims of your study. You are probably also wasting your time if you amass data you are unable to analyse, either because you have too much, or because you have insufficient or inappropriate analytical skills or methods to make the analysis (Walliman, 2005, p. 301).

There are critical issues, which you should be conscious of. This chapter provides hints on how to realise success in the procedures involved with data handling and management, analysis and interpretation. When conducting data analysis, the aim is to extract and provide useful information and credible evidence concerning the constructs and factors under study. This analysis must be carried out in relation to the research problem and the research questions deriving from the problem. Basing on the information garnered, researchers come up with conclusions that can have implications for policy and practice, and for enhancing theoretical understanding in the area of study.

7.2 Objectives

After working through this chapter, you should be able to:

- recognise the technical challenges associated with handling, analysing and interpreting research data;
- identify ways in which data are not properly handled, analysed and interpreted and explain approaches for correcting this;
- effectively plan and explain the logic of data capture and analysis; and
- discuss implications of validity, reliability, and significance claims in research.

7.3 Preliminary considerations

For both beginning and accomplished researchers, experience has shown that the process is fraught with its difficulties and nuisances.

- Firstly, some of the difficulties arise from the failure to properly plan for data capture and handling at the time of data collection. At the point of analysis, it may be discovered that the data are inappropriate or inadequate for the problem being explored.
- Secondly, a point worth noting is the importance of the validity of the data obtained in relation to: the research problem; research questions; the research design; and relevance for educational policy and practice. Data will not be valid if not relevant to the research problem, and valid data cannot be obtained with poorly designed and poorly implemented research plans.
- Thirdly, data will be more valid if they can be applied or connected to understanding practices in the field of investigation in the real life context. Data on their own are of very limited value until the research reflexively interrogates and interprets them in the light of these three contexts.
- Fourthly, sometimes the researcher fails to demonstrate sufficient appreciation of the nature of constructs or factors under study. For example, inadequate analysis of the nature of variables or constructs to determine the appropriate levels of measurement usually results in poor design of data collection instruments. A researcher may collect data of a type that are not amenable to analysis by the planned analytic techniques. This often happens where the researcher has collected qualitative data but fails to follow through appropriate qualitative analytic approaches and instead indulges in statistical procedures that may be inappropriate. Besides, researchers especially biased towards statistical analysis, often labour to demonstrate the statistical significance of their results at the expense of critically reflecting upon the practical significance of the results or findings for the advancement of theory or for policy and practice.

A common problem amongst budding researchers is that they often overlook their own expertise concerning analytic and interpretive techniques involved with specific data types. This is probably because no serious consideration is given to how data will be analysed at the design stage of the study. The quality of data collected from the field is just as good as the analysis methods used in order to distil meaning out of the data.

Activity 7.1

Reflect on the foregoing issues and share your views with a colleague. You may want to refer to the study you are involved in or that you are reading.

- a. What do you think is the importance of planning for data capture?
- b. How do you ensure validity of data, as pointed out in the second point above?
- c. In the fourth point, an observation is made that there could be inadequate analysis of variables or constructs. Explain in your own words, the meaning of research variables and constructs.

Your response to this activity should underscore the significance of planning for data capture. It is not supposed to be a haphazard affair. To ensure validity, the data you collect should comply with the research problem, research questions, and the methodology you opt for. In order to respond to(c), revisit your literature and revise your understanding of these two critical concepts in data handling. Let us extend our understanding by dealing with issues of logic.

7.4 Logic of data analysis and need for perceptiveness and reflexivity

Rose and Sullivan (1993) appropriately reminded us that data analysis is not the same as the term 'statistics'. Data analysis in research entails:

- applying procedures and techniques that help to extract and describe information, detecting and describing patterns,
- testing hypotheses, making decisions about significance,
- use and implications of the data relative to the research problem, and
- searching and interrogating what data mean.

There are many processes and technicalities involved in data analysis. As such, it is therefore an important strategy when planning the methodology at the research design stage to ensure that data handling and analytic procedures are planned for.

In research, including educational research, both quantitative and qualitative data are relevant for making decisions concerning educational theories, policies, and practices. Working with both quantitative and qualitative data is inevitable, and many educational research problems often dictate this. Even where the research design is experimental, it will be necessary to qualitatively describe the conditions and context, and sometimes, it is necessary to obtain data where subjects express opinions and views of their experiences of their participation in the experimental research. In addition, the researcher needs qualitative observation methods to appreciate the behaviour, actions, and attitudes of the subjects in the study. The qualitative data provides essential information that provides both context and setting for interpreting the quantitative data. Besides, it would be foolhardy to concentrate data analysis on the numbers or values that quantitative research yields without qualitatively explaining their interpretation and use. This perceptiveness is necessary and is often lost due to the self-imposed confinement to the belief that

quantitative research is 'quantitative' and that qualitative research is exclusively 'qualitative'. Indeed, **mixed methods** approaches that draw on the **synergistic strengths** of quantitative and qualitative data are increasingly becoming preferable in education.

All in all, it is imperative for the researcher to appreciate both the uniqueness as well as the complementarity of qualitative and quantitative research, data collection, and data analysis. The reader is encouraged to find out more about mixed-methods research by reading, for example, Creswell (2009) and Creswell and Clark (2007). In both qualitative and quantitative research, a researcher must always be alert to the fact that they collect data on individuals or on groups of individuals, and thus the overall meaning of the group data is crucial. In the final analysis, a useful way to think about data in educational research is to examine:

- i) the **central tendency** (commonality or sameness),
- ii) the **exceptions to the central tendency** (exceptionality or uniqueness), and
- iii) to examine the **overall pattern** of the data (trends). These points hold special meanings when the data are either quantitative or qualitative.

The point to be made is that data analysis reflects comparable thought processes in both quantitative and qualitative research. We stress that quantitative and qualitative research approaches are **complementary** (see for example, Creswell, 2009), more so in educational research. In most cases a study can use both the qualitative and quantitative approach for best analysis, and to establish trends (patterns or regularities in a phenomenon being studied). In the next activity, reflect on some of the ideas raised in the foregoing explanation, then read on.

Activity 7.2

Find out more about differences between quantitative and qualitative research.

- a. What do you understand by quantitative and qualitative research?
- b. In what ways are the quantitative and qualitative approaches complementary?
- c. What are data trends in quantitative and qualitative research?

Quantitative and qualitative approaches constitute the might and main of research. By re-reading relevant sections of this volume (cf. Chapter 5), as well as what has been said in the foregoing, you should be able to respond to the questions posed in this activity with comprehension. We now look at the issue of prior planning.

7.5 Planning for data handling at the research design stage

It is important for a researcher to think of the research design in a more holistic manner. The process involves a number of decisions concerning the overall methodology of the research:

- i) planning for selecting the population and obtaining research samples and participants,
- ii) planning for the research instruments and how they will be used or administered to collect the research data, and
- iii) planning for how the data will be collected, recorded, stored, and prepared for analysis and indeed, how the analysis will be conducted in line with the canons of the research design adopted. It is noteworthy that data collected by poorly

implemented research procedures will be useless and so will data that have been collected by good procedures, but that are poorly managed and analysed.

One of the reasons for unsuccessful data analysis is failure to plan for handling data in the field especially those data involving qualitative research. Sometimes, the qualitative aspects of the quantitative research are ignored and data involving settings are not availed to contextualise meaning. In the case of qualitative research, an important and often overlooked aspect is the preparation of the qualitative data for systematic, disciplined, and rigorous analysis, which can enable authentic extraction of concepts from the data and avoid the imposition by the researcher of preconceived self-fulfilling notions. In essence, this is analysis that reveals the crucial evidence upon which research conclusions are based. This might entail **triangulation and iterative** use of complementary analysis techniques, and addressing validity and reliability concerns regarding qualitative data. Unfortunately, many researchers fail to recognise and implement the main features of qualitative research. It is desired in qualitative research that the researcher captures the natural setting, its logic and arrangement, in a holistic way. Imperative in this is the need to capture to the perspectives and perceptions of the people involved in the local setting. This is the essence of doing fieldwork. It involves:

- implementing specific data collection techniques,
- adoption of a data analysis approaches, and
- production of written records to reflect the context, setting, and any other data of interest. The next activity tries to show the social setting and your evaluation of the relevance of documenting it during field work.

Activity 7.3

Study the following observations paraphrased from Spradley (1980), who says that:

social settings consist of place and people in which certain processes and activities happen or in which people are engaged in certain roles. Dimensions of social situations include space (the physical place or places), actors (the people involved), activity (a set of related acts that people do), object (the physical things that are present), act (the single actions that people do), events (a set of related activities that people carry out), time (the sequencing that takes place over time), goal (the things people are trying to accomplish), and feeling (the emotions felt and expressed).

- a. What is the relevance of documenting the educational setting in fieldwork?
- b. To what extent can setting serve as an important data set or must it serve as the background on which to analyse other data collected?
- c. Peruse the methods and results section of a thesis. Is the setting and context described or not? Would it have enhanced the methods or results section?
- d. Can the attributes of setting enrich quantitative studies?

The above activity demonstrates the importance of the research setting in providing the context and data for the study. Research instruments to capture the data in that setting are important too. Therefore, it is important to provide details of the particular instruments that

are used to collect data on the variables under study. Rudestam and Newton (2007) suggest that the researcher must answer three questions with respect to the instruments:

- i) Is the measure appropriate?
- ii) What are the measurement characteristics including structure, validity and reliability of the instrument?
- iii) How does one administer and score the measures?

7.6 Data types and their mishandling

A major challenge we find in theses, dissertations, and published research is the inappropriate choice of data analysis techniques and procedures. Further to this, it is also a challenge for many researchers to ensure that the data analytic procedures satisfy the assumptions or conditions for the chosen research procedures and analytic techniques to be applicable. This can be demonstrated with reference to both quantitative and qualitative data types. Before moving on, consider the challenges raised here and the extent to which they also impact on your study.

7.6.1 Mishandling quantitative data

Typically, quantitative data are concerned with a collection of scores or measurements obtained when characteristics of members of a group are studied. The process includes a quantification of concepts by allocating numerical values (Walliman, 2005; Hinkle, Wiersma, & Jurs, 1988). This process is referred to as **measurement** and the researcher needs to be aware of the levels of measurement employed to quantify variables. As the process of data analysis includes the investigation of the properties of the data using statistics, it is imperative for the researcher to understanding the nature of study variables and constructs in relation to the four levels of measurement. There are types of measurement scales and associated variables. The scales of measurement, arranged in rank order of sophistication (i.e., from, lowest to highest level) are:

- i) the nominal for categorical data,
- ii) the ordinal for categorical ranked data, and
- iii) the interval and ratio scale for quantitative and continuous data.

The nominal and ordinal variables are qualitative and categorical variables while the interval and ratio variables are quantitative and continuous variables.

The level of measurement dictates the way data are represented in tabular or graphical formats and the statistical analyses that are appropriate for the data. At the first level of handling quantitative data, it is imperative to explore patterns of data when summarised and organised in tables. The summary statistics must be described and the indices interpreted to depict overall group data tendency towards the centre (the mean, mode, median), the deviation from the centre (range, standard deviation, variance), and shape of distribution (skewness and kurtosis). A lot of researchers focus only on reporting the mean and forget or ignore to interpret the rest of the indices that makes understanding of the distribution more complete. The mean is not a very useful statistic if we do not know how the individual scores deviate away from the mean. For example, a mean of 58 with a standard deviation of 8 would show us that roughly 68% of those involved in the sample score between 50 and 66 assuming a normal distribution, i.e., the 68% of the sample is scoring between one standard deviation below and above the mean. On the other hand, if we had another sample achieving the same mean score of 58 but having a standard

deviation of say 16, this would suggest that that the 68% of the sample are scoring between 42 and 74. The distribution is thus no longer clustered near the mean.

Activity 7.4

To develop insight into the indices, identify simplified literature that guides you about the mean, the mode, the median, and all other commonly used indices.

Many students conducting what would be largely qualitative research, tend to have a phobia about such statistics, yet with close concentration, you could enhance the communicativeness of your study by merely doing some extra reading. In particular, distance education students require some brush with this aspect of research. One book that readily comes to mind, which can be helpful is Neil J. Salkind's (2004) book *Statistics for people who (think they) hate statistics*. You may also find another book or search the internet for simplified explanations to begin with.

The assumption of normality is often the major weakness in much published research and in theses. This is made for random variables and samples on which these variables are collected. If the sample is non-random, the assumption of normality should not be made. The adopted sampling procedures will determine if or not we must assume normality. As such Rudestam and Newton (2007) stress the importance of rigorous attention to sampling procedures and to sample sizes as part of the methodology. The adopted sampling procedures are as important to describe as are the procedures for collecting the data from the obtained sample. Many researchers fail to reflect on and use correct sample sizes and on this Rudestam and Newton (2007, p. 20) note that "Most students tend to underestimate the number of participants necessary to draw meaningful conclusions from the data"). The sample size is influenced by a number of factors and considerations, including:

- the purpose of the study,
- population size, the risk of selecting a "bad" sample, and
- the allowable sampling error.

It is the combination of sampling procedure and sampling size that results in the validity of our assumptions of a normal distribution for the purposes of statistical analysis, a point that should not be overlooked. Various methods are available for estimating sample sizes required depending on the nature of the research: using formulas to calculate a sample size, using published tables that give the optimal sample size given a population size, a specific margin of error, and a desired confidence interval (see for example, Israel, 2012; Research Advisors, 2006), and using sample size calculators on the internet.

Activity 7.5

Try out the following websites or others to estimate sample sizes that you may require:

www.calculator.net/sample-size-calculator.html;
www.surveysystem.com/sscalc.htm; and
<http://www.macorr.com/sample-size-calculator.htm>.

You will be able to see that, for example, the optimal sample size from a population of 100 is 80 at the 95% confidence level and 87 at the 99% confidence level for a margin of error of

5%. For a population of 1000, the sample size is 278 at the 95% confidence level and 399 at the 99% confidence level for a margin of error of 5%.

It is important to stress that the conditions of a particular statistical procedure must be met before we choose it for data analysis. The choice must not be based on our personal whims or assumptions. Parametric tests such as the t-test and the analysis of variance require that the conditions of the normal distribution and others peculiar to the specific test are met. On the other hand conditions of normality cannot be met in non-parametric tests such as the various Chi-squared tests of significance (test of goodness of fit, test of homogeneity, and test of independence). Each test must be used appropriately and when its conditions are met. For example, the conditions for a t-test are that the population has a normal distribution or that the sample has a large sample size and the sample mean will follow a normal distribution. Besides, knowing the type of test, a researcher often has to decide whether or not a test is one tailed or two tailed. This should be determined by the nature of the research hypothesis, whether or not it is directional or non-directional. These decisions must not be made in a superficial manner. They determine the quality and accuracy of data analysis and the results, and the validity of their interpretation into research findings.

Activity 7.6

For this activity you may wish to read the section on statistical tests in Chapter 12 of this book. Find out more about the following concepts. You also do well to search these terms on the internet:

- a. assumptions of a statistical test;
- b. parametric or non-parametric test;
- c. directional or non-directional research hypothesis; one- or two-tailed test;
- c. significant statistical result.

Read a thesis in which some of the concepts are used. Are they explained and properly used?

7.6.2 Mishandling qualitative data

While quantitative data are recorded in numerical form, qualitative research data are what participants in the study provide verbally or in writing. It can also be in the form of artefacts and textual records or documents. Data will also be in the form generated by the researcher as he or she interacts with the participants. This will include image data in photographs and audio and image data in video recordings. The researcher is usually concerned with the meanings, attitudes and interpretations of participants (Barbour, 2008); as such patterns, relationships and theoretical assertions must emerge from what participants expressed or from the evidence in the artefacts. For this to be done effectively it calls upon the critical engagement of the researcher in the research process, as an instrument, analyst, and interpreter as he or she explores educational processes, interactions and transactions. This, in the case of oral data, such as in interview research, must begin with the transcription of the data from its oral form into a transcript that reflects a verbatim text format of the same.

There is also a common practice of conducting open-ended question surveys or including open-ended questions in questionnaire surveys. These open response data must then be systematically analysed following the qualitative data analysis procedures that may entail open coding, axial coding, selective coding, 'memoing', and leading on to drawing conclusions or generating theory (Flick, 2009). These processes need to be systematically pursued and this is not often the case in many research projects for theses. There is

sometimes a rush to settle for quantitative aspects. For example, reports will state that 'many', 'few', 'several', and so forth without showing the concepts or categories. Often the researcher just goes on to give some direct excerpts without analysing the entire transcript or the entire collection of open responses. All this compromises the analysis and the resultant interpretation.

Activity 7.7

- a. Select a research or thesis. Examine how open-ended questions in interviews and questionnaires are handled.
- b. Find a research where an interview or open-ended questions have been used. How were they analysed? Is this systematically done?
- c. Read about the procedures to handle open-ended questions and responses to them. What are the recommended procedures?

In other cases, quantitative analysis opportunities help to gain deep insights into the characteristics of participants and the conclusions that may be derived from the qualitative data are missed. It is vital to recognise that quantitative analysis may enable the researcher to describe the participants' demographics and to assess the frequency of certain themes or categories in the qualitative data. Such data may be presented graphically or pictorially to show the trends in bar graphs, pie charts and other forms of pictorial representation (see Chapter 12). Further to this, it may be possible to assess the statistical significance of qualitative categorical data using, for example, the Chi-squared test. The understanding that certain qualitative data can be assessed and interpreted in quantitative terms is important. Our experience shows that some researchers impose and concentrate efforts mistakenly on quantitative and statistical analysis in the belief that quantitative data analysis is more credible and valuable than qualitative analysis. This fallacy often leads to several problems noted in theses, dissertations and other research reports, viz.

- In spite of the fact that much educational research collects masses of qualitative data; only data amenable to statistical analysis become the preoccupation of the researcher.
- Inappropriate application of certain quantitative techniques and procedures that may not be suited to the type of study and data collected.
- Use of statistical procedures where convenience and non-probability samples have been used in the study.
- Applying incorrect procedures to data sets without explaining the nature of variables and constructs and their levels of measurement.
- Inappropriate data analysis techniques given the sample type and the levels of measurement for the variables and constructs.

7.7 Partial analysis of the literature and data handling and management

It is worth conjecturing that the inadequate appreciation of the technique and requirements for handling and analysing data may lay in the way the literature review and analysis is understood by research students and their supervisors. For example, we have noted that the literature review and analysis in many research reports and theses is not used to inform all aspects of the research process. We typically advise our students that all aspects of the research process must be informed and justified with reference to literature sources. They usually do this to explain the variables and concepts, to identify theories that guide the

research, to develop a conceptual or theoretical framework. While this is good, a lot of the literature analysis fails to interrogate the methodological frameworks of the research designs being undertaken and inadequately, or fails to tackle the literature, both theoretical and practical, to inform the data collection procedures and the data analytic approach. The result as explained above is the inappropriate handling or the mishandling of data and their analysis.

Activity 7.8

Scrutinise the literature review section of a research report or theses. Using a scale of '1' not at all to '10' extremely well, rate the extent to which the following issues are reviewed:

- i) Methodology and research design,
- ii) Data analysis approaches and techniques,
- iii) Results and findings from the cited research, and
- iv) Theoretical or conceptual framework. What is the overall bias of the literature review in terms of the issues addressed?

Supervisors have often observed that many students tend to reproduce literature about research design and related issues without linking it to the purpose of the study. It should be noted that the methodology section, which, among its other objectives, discusses data handling procedures, is not a re-writing of another textbook. It must explicate the procedures of the research being reported on.

7.8 Undervaluing of 'description' as basic competency for data quality

Over the years, we have come to recognise that handling data and assuring their quality is a major area of difficulty for students and some accomplished researchers. Sometimes the quality of the data is compromised because of inappropriate research designs and methodology, and sometimes, appropriate designs and methods have been used but they are inadequately described. Detailed and accurate 'description' is an overlooked aspect of research report writing. Consequently, it becomes difficult in reading the report to ascertain the internal validity, i.e., if the data collection procedures were implemented correctly and systematically or not. This is particularly a problem when the actual steps in the research process are not described clearly and completely. Regardless of whether the research is quantitative or qualitative, clear and complete description of the research procedures employed and the sequence followed is crucial to coming up with good quality data and acceptable research reports. It is important to appreciate that no matter how appealing the data you get looks, it is worthless if the methodology lacks authenticity and validity, which must begin with description.

Activity 7.9

As you read the next paragraph, reflect and evaluate the meaning of 'thick description' and its relevance in quantitative and qualitative or mixed methods research.

In qualitative research, the question of methodology is often not so much of a challenge because 'thick description' is one of the canons of good qualitative research, a concept that

in our view can benefit quantitative studies. Ponterotto (2006) describes thick description as one of the most important concepts in the lexicon of qualitative researchers. This concept in the context of qualitative studies was meant to describe a phenomenon in sufficient detail one can begin to evaluate the extent to which the conclusions drawn are transferable to other times, settings, situations, and people and thus to achieve external validity (Lincoln & Guba, 1985). It requires detailed accounting of field experiences and procedures, and a reflection on the context of the situation or behaviour of the actors involved (Ponterotto, 2006). It is important to note that the notion of thick description is one that is relevant to educational studies where beginning researchers often provide superficial or thin descriptions of their research settings, populations, samples, and research tools in those studies. This notion when applied to practical issues of research designs, sampling designs, and sample sizes are quite useful. The reason for this suggestion can be found in a quote from Norman K. Denzin (cited in Ponterotto, 2006), who noted,

A thick description ... does more than record what a person is doing. It goes beyond mere fact and surface appearances. It presents detail, context, emotion, and the webs of social relationships that join persons to one another. ... In thick description, the voices, feelings, actions, and meanings of interacting individuals are heard (Denzin, 1989, p. 83 cited in Ponterotto, 2006)

Rudestam and Newton (2007) made the observation that students and beginning researchers often fail to provide clear and complete description of their quantitative or qualitative research designs and research procedures, instrumentation, and data analysis and validation. The concept of thick description draws in the need for **reflexivity**, i.e., the researcher's need to constantly be aware of how and why they are conducting the research, and to recognise at what points their own beliefs and opinions might have influenced research designs and research procedures, instrumentation, data analysis and validation. In either quantitative or qualitative research it is important to fully describe the sample by explaining fully the participants and their actions and the setting, as well as the actions of the researcher or research assistants. It is important to provide sufficient detailed description of the sample for readers to envision the sample, its selection procedures, and the rationale. Ponterotto (2006) suggests that this description must include the relevant demographic and psychological characteristics of the sample. He noted that "... describing the setting and procedures in adequate detail provides a context for understanding the study's results" and this, for the purpose of the argument here, cannot be the business of only qualitative research. It would do great good in educational research to bring into the reporting of research, including experimental and quasi-experimental, the voices, actions, and meanings of those researched.

7.9 Lack of competencies and confidence in data handling and analysis

Many researchers and student researchers delegate the important task of data management and analysis to someone else. This is because a researcher may lack the requisite skills and competencies to handle, manage, and analyse the data, which they have collected. Relying on others who are more expert, e.g., in statistical analyses, is noble and yet it denies the researcher an important opportunity to appreciate his or her data, their relevance, and their meaning. Often this results in data being analysed inappropriately and incorrectly. For example, it becomes difficult for a researcher to appreciate how missing cases are being treated or how certain data are being coded or how certain coded data are transformed. Besides, data not relevant to research questions may be collected since the analytic procedures were unanticipated. In the case of qualitative research, the researcher is meant to be the instrument, and its quality relies on his/her reflexivity to discover and develop the

new and empirically grounded theories (Flick, 2009). Delegating the handling and analysis of the data thus leads to loss of data that are part of interpretation involving the researcher's observations, impressions, feelings, and so forth. Researchers should not ignore the important purpose why they undertake the research process: learning. It is important to learn how to handle and manage the data they collect for the kind of studies they choose.

7.10 Misrepresenting claims of quality, validity and reliability

Often researchers overlook matters to deal with validity and reliability of their studies and the data that they generate. These concepts relate to the credibility of the research, and the concepts are inappropriately used to mean the same with regard to whether or not the research is quantitative or qualitative. Golfafshani (2003) suggests that "these terms as defined in quantitative terms may not apply to the qualitative research paradigm". Inspired by Dey (1993), as we wrote this chapter

we checked the MS Word dictionary for synonyms of 'valid' and found the terms well founded, convincing, suitable, compelling, and legitimate. Dey (1993, p236) suggested a simple definition that would contextualise the nuanced technical meaning of the concept 'validity':

A valid account is one, which can be defended as sound because it is well-grounded conceptually and empirically. If it doesn't make sense, then it cannot be valid. If it fails to account for the data, then it cannot be valid.

In one sense, **evidence of validity** lies in the rigour of methodological procedures and their description to show that procedures were properly and effectively implemented. What we want to observe is that researchers may be treating the matter of validity in a casual manner and thus the question may not be answered effectively: 'Is there good evidence to sustain results, findings, and conclusions?' For example, procedures involving pilot testing and expert review of instruments are not dealt with. Often too, researchers point to making adaptations to existing models and frameworks or to data collection instruments fail to provide detailed accounts of the adaptations and how validity is maintained. Where pilot testing is done, it is not enough to mention it without describing fully the results of the process and how the instruments were adapted or revised. Preliminary results and their analysis are omitted and yet these would serve as the basis to learn the procedures for data management and analysis relevant to the research.

In relation to instruments, this will impact on their **reliability**, a concept, which relates to the consistency with which constructs are measured. Is there good evidence that our instrument is good and consistent? Our concern is the fact that the reliability indices selected may be incorrect. A typical example in educational research is the situation with reporting Cronbach alpha or the split-half reliability coefficient of tests or questionnaires used in surveys. What strikes us is that erroneously an index is computed when there is no explanation of how situations such as the following are tackled. For example, we have seen reliability indices such as these reported for questionnaires comprised of several sections that may have different response scale formats. Section A may call for demographic information perhaps in multiple-choice format. Section B might be a series of items whose response format may be on a Likert type scale say 1-5 ranging from *strongly agree* to *strongly disagree*. Section C might have a different Likert format response 1-5 *very important* to *very unimportant*. Typically, we have seen that the instruments may have a combination of structured and open-ended questions too. How is it possible to compute these renowned indices of reliability such as Cronbach alpha or the split-half reliability coefficient in such instances?

Activity 7.10

Examine the methodology and/or results sections of theses or other research reports.

a. What are the meanings validity and reliability and their relevance to research? How do they differ?

b. How are validity and reliability issues handled in the research report or theses? From what you have read and understood, are these issues properly dealt with?

Go over the definitions offered in the foregoing discussion to enable you to respond to the first question. To respond more meaningfully to the second question, you need to read a dissertation by another scholar so that you appreciate how the two notions are handled. You may wish to peruse free resources such as the *SPSS Survival Manual* (2005) at http://www.academia.dk/BiologiskAntropologi/Epidemiologi/PDF/SPSS_Survival_Manual_Ver12.pdf <http://www.linkedin.com/redirect?url=http%3A%2F%2Fwww%2Eacademia%2Edk%2FBiologiskAntropologi%2FEpidemiologi%2FPDF%2FSPSS_Survival_Manual_Ver12%2Epdf&urlhash=LlgR&_t=tracking_disc>.

7.11 Transporting technical language of quantitative research to qualitative research

The one area, which should not be ignored, is that of the technical jargon of research, especially how the language of one methodological approach is inappropriately transferred to another. This is the case of concepts that emerged in the quantitative research tradition transporting incorrectly to qualitative research approaches. Examples may relate to concepts such as ‘sampling’ of ‘subjects’ (quantitative concepts) that refer to ‘selection’ of human ‘participants’ (qualitative concepts) in research (Polkinghorne, 2005). Find other examples.

The other quantitative concepts from quantitative approach are validity and reliability. In qualitative research, it is more appropriate to talk of the integrity and quality of the research rather than of validity and reliability. The concept normally preferred is ‘trustworthiness’ (Lincoln & Guba, 1985; Denzin & Lincoln, 2000). According to Lincoln and Guba (1985), ‘trustworthiness’ is comprised of four aspects:

- credibility,
- transferability,
- dependability, and
- conformability of qualitative research.

These concepts correspond, respectively, to the quantitative concepts of **internal validity**, **external validity**, **reliability**, and **objectivity**. Other researchers relate these concepts under the umbrella concept of **rigour** in research (Morse, Barrett, Mayan, Olcson, & Spiers, 2002). In order to attain rigour, the researcher needs to apply verification strategies throughout the conduct of the study. It is the researcher who must be self-critical to ensure reliability and validity. Verification and validity in qualitative research may be achieved using techniques such as:

- audit trails,
- member checks or confirming results with participants,

- peer debriefing, and other techniques (Lincoln & Guba, 1985; McMillan & Schumacher, 2006; Patton, 2001).

These verification mechanisms ascertain that research procedures and their outcomes are checked, confirmed and corrected during fieldwork thus ensuring the rigour of a study (Morse, et al., 2003).

We stress that matters of verification and validation **tend to be overlooked or are often missing** in research reports and theses. More detailed accounts of verification strategies and techniques would enhance the stature of qualitative research in, for example, theses and dissertations. We concur with Morse and colleagues (2003) in asserting the crucial responsibility of the researcher in assuring rigour in research rather “than external judges of the completed product”. This calls for deeper reflexivity and self-criticism on the part of the researcher in relation to the techniques and methods used to ensure the integrity, validity and accuracy of the findings.

7.12 Statistically significant results versus practically significant results

In analysing data from a study researchers face the question, "How important are these results?" (Gall, 2001), a question often answered mistakenly via the results of tests of statistical significance. Unfortunately as noted a few decades back and still valid today, “Too few researchers understand what statistical significance testing does and does not do, and consequently their results are misinterpreted” (Thompson, 1994). A statistically significant result is often mistakenly interpreted as implying practical significance or importance of the result of study. In quantitative analysis, finding a statistically significant result results in the rejection of the null hypothesis, which seeks to account for observed results in terms of normal variations, chance occurrences or sampling error. It is imperative to note that a statistically significant result can be found for small effect sizes or differences provided the sample is large enough (King, 2002). Gall (2001) notes that achieving statistical significance is easily influenced by sample size, the value of α used as the criterion for rejecting the null hypothesis, and whether the test of statistical significance is one-tailed or two-tailed. King (2002) notes that statistical significance may arise due to a large effect, a large sample size, or both; “consequently, results may be “statistically significant” due to a large sample size, but not practically significant due to a small effect (and the converse is true)”. Concurring with this, Gall (2001) suggests the finding of a significant result in our data is not important in and of itself and that the tests of statistical significance say virtually nothing about the importance or practical significance of a research result.

Both King (2002) and Gall (2001) intimate that practical significance looks at whether the difference or relationship is large enough to be of value in a practical sense and point out that by itself, statistical significance testing is inadequate for determining the importance of results and the likelihood of obtaining similar results in the future. For practical significance it is important to assess the implications and meaning of the significant result in real life. Given this difference in conceptual meaning of statistical and practical significance, an important caution is always to specify “statistically significant” instead of shortening the term to “significant” when referring to results from a statistical test (King, 2002). Without that the word "significant" misleads professional practitioners and the lay public into thinking that the research results are important or that a result that is not statistically significant is not important (Gall, 2001).

Activity 7.11

Reflect on mistakes made in reporting statistical significance and practical significance.

a. What is the difference between a statistically significant result and a result that is practically significant?

b. Why is a researcher at fault in reporting as follows (what Thompson (1994) calls “three habits of language” leading to “unconscious misinterpretations”):

- Report that the “result is significant” instead of the “result is statistically significant”.
- Reporting that the “results approached statistical significance”
- Reporting that “the statistical significance testing evaluated whether the results were due to chance”.

7.13 Misinterpretation of the p -values generated with statistical test data

A final point with regard to the statistical tests is the incorrect use and interpretation of concepts related to the significance of the results, α (alpha level or level of significance) versus the p -value (probability value). First of all, it is imperative to realise that the researcher has the obligation to pre-determine the level of significance (α) ahead of the data analysis as a criterion to judge or decide on the significance of the result (Hinkle, et al., 1988; Thompson, 1994). It enables an assessment of what likelihood or probability the result is due to chance (rather than the factors under study). Typical values for α in educational research are .05, .01, and .001, which respectively correspond to the 95%, 99%, and 99.99% confidence levels. The α -level is reflecting the probability of making a Type error by rejecting a true null hypothesis, i.e., concluding that the factors under study led to the significant result when in fact it could be random errors (that include sampling errors and measurement errors).

The mistake made by the researcher is not to decide on the level of significance and to rationalise the particular level chosen. Consequently, they simply resort to the p -value that is generated together with the test data by the statistical software. The p -value is the probability of observing a sample statistic as extreme as the test statistic, assuming the null hypothesis is true (Thompson, 1994). The p -value indicates the strength of evidence in support of a null hypothesis. In the case of p -value equal to or less than the level of significance, the null hypothesis is rejected suggesting a statistically significant result. In the case of p -value greater than the level of significance, the null hypothesis is not rejected suggesting a non-statistically significant result, the result obtained may be accounted for by random errors. Researchers make the error of simply looking at the software generated p -values (e.g., $p = .67$; $p = .07$; $p < .0002$) and conclude without reference to the criterion level of significance. Such p -values may only be evaluated against the researcher's criterion level of significance, which must be explicitly stated. A researcher needs to be comparing and assessing the p -value against the level of significance. For example, he or she may indicate a significant result with $p < 0.05$, if the level of significance is .05 or a non-significant result with $p > .05$. Failure to do so leads to incorrect evaluation of the significance of statistical test result and partly, to the erroneous assessment of statistical significance as opposed to practical significance. Besides, attending to expressions made in evaluating the results is important.

7.14 Lessons Learnt

In fact the entire chapter has been about lessons learnt by supervisors about handling data. The following are some of the lessons:

- There are challenges of a technical nature, associated with the handling of data.
- Many students fail to plan for data capture and analysis.
- In the majority of cases, students lack awareness about the distinctions between validity and reliability for quantitative studies versus trustworthiness for qualitative research.
- Supervisors have observed failure to demonstrate an appreciation of constructs under study.
- Students have demonstrated a failure to realise the complementary nature of quantitative and qualitative approaches.

7.15 Summary

This chapter highlighted some intricate issues associated with handling, managing, analysing, and reporting data in research projects as well as their mishandling and misrepresentation. It has attempted to examine these issues as they arise in both quantitative and qualitative research, stressing their complementarity. The chapter tried to alleviate the common misconception that data is statistics (Rose & Sullivan, 1993) and showed the criticalness of researcher perceptiveness and reflexivity in planning for data handling, management and their analysis and interpretation. The chapter articulated the ethical responsibility of the researcher to be well acquainted with data collection and analysis procedures and techniques to ensure validity and rigour in the quality of research. We end the chapter therefore in the way we began it by taking the counsel of Walliman (2005) who cautions that: "You are probably also wasting your time if you amass data you are unable to analyse, either because you have too much, or because you have insufficient or inappropriate analytical skills or methods to make the analysis" (p. 301).

Activity 7.12

Why is it considered an ethical issue and intellectual dishonesty for a researcher not understand the data analysis techniques employed in his or her research? (See for example, Wilkinson, 1999; Rudestam & Newton (2007))

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CHAPTER 8 WRITING THE RESEARCH PROPOSAL

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Abstract

This chapter focuses on writing the Research Proposal, and in the process, sensitises the student about key expectations. *Inter alia*, it begins with a definition of what a research proposal is, taking into account its significance to the student, the supervisor, funders of the particular research, and the research community in general. Bearing in mind that research proposal writing is not a haphazard affair, major steps to be followed are discussed with supportive examples. Typically, the starting point is formulation of the title, followed by background to the study. Following this section are other sections that derive from the background, and in turn influence subsequent ones. The most outstanding are: statement of the problem, research questions/hypotheses, theoretical grounding, literature review, methodology, ethical and legal considerations, research objectives, purpose of the study, limitations, and delimitations. These are the building blocks of the study as shown in the image below.



8.1 Introduction

One of the things any new graduate student will have to do is to write a research proposal. Unfortunately, most students and beginning researchers do not quite understand what research proposal means, nor do they understand its importance. Proposal writing is one of the most important stages in the research process. A student wishing to carry out research is first required to submit a research proposal, which will be assessed and approved by the relevant academic department before embarking on the actual study. Without a clear proposal it is unlikely that one will be able to embark on a systematic investigation and discussion of a problematic issue in one's area of research. To put it bluntly, one's research is only as good as one's proposal because a flawed proposal dooms the research project. On

the other hand, a high quality proposal promises success for the project and also impresses the supervisor about one's potential as a researcher. This chapter seeks to provide an understanding of what proposal writing is, its significance and its major components. Whether you are studying for a Doctoral degree or a Masters degree by research or a Bachelors degree, a research proposal will allow you to focus your work and find a suitable supervisor hence it is an important starting point for your research journey. It is important, however, to stress that there is no one correct way to write a research proposal. The discipline you are writing for, or the faculty is going to help determine what needs to be included. Views expressed in this chapter therefore, are merely a guide and not a rule for research proposal writing. Please use these guidelines as a point of departure for discussions with your supervisor. You are therefore strongly advised to read this chapter in conjunction with other relevant chapters of this book for you to understand the finer details of the issues being presented.

8.2 Objectives

After working through this chapter, you should be able to:

- define a research proposal;
- state the rationale for developing a research proposal;
- establish main steps taken in proposal writing; and
- write a meaningful research proposal.

8.3 What is a research proposal?

A research proposal is an outline of the entire research process, which gives the reader a summary of the information in a research project. Proposal writing is important to your pursuit of both undergraduate and post-graduate studies. The proposal is in effect an intellectual scholastic (not legal) contract between the student and the supervisor. It specifies what you will do, how you will do it and how you will interpret the results. The objectives of writing a proposal are to describe what you will do, why it should be done, how you will do it and what you expect will result. Being clear about these issues from the beginning will help you complete your thesis in a timely fashion. A vague, weak or fuzzy proposal can lead to a long, painful and often unsuccessful thesis writing exercise. On the other hand, a clear, well thought-out proposal forms the backbone of the research study. The goal of a research proposal is to present and justify the research idea you have and to present the practical ways in which you think this research could be conducted. Basically your research proposal has to answer three basic questions:

- What research project will you undertake?
- Why is it important to know that thing? and
- How will you proceed to make that research?

The purpose of a research proposal is to ensure that the student has done sufficient preliminary reading in the area of his/her interest. It also helps to ensure that the student has thought about the issues involved and is able to provide more than a broad description of the topic, which he/she is planning to research. A proposal is however, not a fixed blue print because research findings will inevitably alter or even unseat one's initial expectations.

A research proposal is intended to convince others that you have a worthwhile research project and that you have the competence and work-plan to complete it. It should,

therefore, contain all key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study. According to Borg and Gall (1989) a research proposal is a research plan outlining the research problem, the subjects and methods by which the problem is to be investigated. It is a planning document that outlines your thinking about a research problem and describes what is to be studied and how it will be studied. Robison (1994:465) says, "The research proposal is your opportunity to persuade the 'client' that you know what you are talking about. That you have thought the issues involved and are going to deliver." It can be deduced therefore that a proposal is a fundamental part of the research study, which should be viewed as a framework or foundation to every study. It provides a telescopic view of the actual study and gives a preview of the research and methods that will be used to research the problem (Choga and Njaya 2011; Gwimbi and Dirwai 2003). A good research proposal presumes that you have already thought about your study and have devoted some time and effort in gathering information, reading and then organizing your thoughts. Just as a tree needs a good root system to grow, a research project also needs a good proposal.

It is important for students to know that there is no single format for developing a research proposal. This is because every research project is different. Different disciplines, donor organisations and academic institutions all have different formats and requirements. However, there are certain key components that must be included in every research proposal and these are:

- description of the research problem;
- an argument as to why that problem is important;
- review of literature relevant to the research problem;
- description of the proposed research methodology; and
- description of how the research findings will be used or disseminated.

As for the length, again this is very controversial but more often the proposal is limited to 10-15 pages.

8.4 Significance of a research proposal

The role of a research proposal is to show that the problem you propose to investigate is significant enough to warrant investigation, the method you plan to use is suitable and feasible and the results are likely to prove fruitful and will make an original contribution to knowledge. The proposal helps you to think about your topic, to see the scope of your research and to review the suitability of your methodology. Having something in writing also gives an opportunity to your supervisor to judge the feasibility of the project, to assess the likelihood of success and its ability to meet the academic standards required. The research proposal is a way of thinking clearly about the destination you want to get to, the means of getting there and the arrangements you have to make in order to undertake the research (Robson 1994). Without such a proposal, you might very easily get lost. Like a traveler who aims to undertake a journey, the proposal is your map, your itinerary, the preparations you have to undertake and the list of necessary provisions for the journey. A research proposal is useful to the student, supervisor, funders and the broader research community.

i. To the student

The research proposal outlines your thinking about what you will be investigating –the focus, the limits, the logical development of your investigation and methods you will be using to investigate the topic. It helps to further define the research question and enables one to demonstrate how one intends to go about answering that question. The better the planning, the better the research undertaking will be organised. Thus, through the development of the research proposal you come to a clearer understanding of the literature, the main considerations, the potential pitfalls, the perspective from which to approach one research and ways in which one will gather information from available resources.

ii. To the supervisor

It is an indication of whether adequate thinking about the topic and sufficient preparation for the study has been done. The proposal forms the basis of a kind of contract between you and the supervisor. It gives both the student and the supervisor a plan of action to follow in order to reach completion of the research project – your ultimate goal.

iii. To the funders

It gives a clear indication of whether you have clearly thought about the topic, whether it is something feasible and worth supporting.

iv. To the broader research community

The research proposal is an indication of the focus of your investigation and how it links to the ongoing debates in literature. It is the opportunity to establish the attention of researchers and convince them of the importance of your project. To reflect on the foregoing, work on this activity.

Activity 8.1

- a. What is a research proposal? Explain in your own words.
- b. Explain why it is important to prepare a research proposal before embarking on your chosen study.

Your response to the first question should be in your own words to demonstrate a personal grasp of the concept. Similarly, you should clarify to yourself the importance of preparing the research proposal before embarking on the investigation. Let us now read on and examine the several steps.

8.5 Steps in developing a research proposal

In this section, we take you through the steps to be followed when developing a research proposal. The purpose is to communicate clearly, hence your proposal document should be written in good **prose**. Note that unlike the research report, which you always write in the past tense, the proposal is written in present or future tense. As you develop your proposal please remember that there is no single prescribed format for writing a research proposal. This is because different disciplines and academic institutions may have different formats. There are however, essential components, or commonalities, which are expected in a research proposal, and these are presented below.

8.5.1 Choosing a Topic/ Title

Choosing a suitable topic or title is the first step in developing a research proposal. The articulation of an appropriate and interesting research topic is perhaps the most demanding and difficult part of your proposal development. The title should originate from one's discipline. Fruitful sources to look for appropriate titles include:

- contemporary (current) issues which are problematic.
- recommendations on research needs in journals or research reports.
- existing research projects
- requests for research from organisations and suggestions from experts in the field
- personal experience: it is often the source of great passion and interest which motivates you. ([http://www.uwc.ac.za/usrfiles/users/270084/RESEARCH PROPOSAL 2 pdf](http://www.uwc.ac.za/usrfiles/users/270084/RESEARCH_PROPOSAL_2.pdf)).

The research title is shown as the specific area that you want to work on; a clear indication of the problem to be investigated. It is never exhaustible, hence you need to refine it before you are satisfied that it is the correct one. It must be precise, clearly structured and should reflect exactly what you are studying. The research title does not have to be wordy hence you should avoid obscure and unnecessarily lengthy titles. Some universities advise that the title should be around 12 words. We think this is a good guide, just in case we end up with whole paragraphs purporting to be titles. Chiromo (2006) and Mather-L'Hullier (2009) assert that a good title should be short, accurate and concise. The title should overtly imply the main variables to be investigated, the target population (that is, who is studied) and the context of the study that is, where the study will take place. Here are two examples of titles to which we will refer occasionally.

Title 1

Perceptions of teachers on child sexual abuse in Midlands Province schools in Zimbabwe

Title 2

Adoption of Information Communication Technologies as a Value Adding Tool in Business

By now, you should be thinking about your own topic. What insights do you draw from the information and the two topics discussed above? The following activity should help you go deeper into more personal understanding.

Activity 8.2

The following are criteria that can be used to measure best ways of choosing a topic. To what extent do the two topics measure up to the criteria?

- a. Drawn from two or more general areas
- b. Narrowed down to one general area
- c. Narrowed down to a specific area of interest
- d. Should be more intellectual than emotional
- e. Researchable
- f. Brief in terms of number of words
- g. Stated in statement, not question form

While the first two questions may not be easily obvious, you will agree that the two topics meet requirements of the other criteria. Of course, you will have to reason out in what ways, as you examine each topic. Share this with a colleague, and try to apply this to your own research title.

8.5.2 Introduction and Background to the Study

A proposal has to be introduced. You have to shake hands with it before getting to know it better. You have to catch your reader's attention with a compelling idea right at the beginning. Once he/she loses interest in what you propose to do, it will be very difficult to get it back. Describe your topic/theme in a single sentence and follow with one or two short paragraphs 'fleshing' out its basic properties. Also explain where the idea came from and why you think it should be researched.

Mather –L'Huillier (2009) asserts that the context (background) of the proposed study must capture the reader's interest. A well written background is the most efficient way to hook your reader. Some of the conditions that might lead you to propose investigating a problem might be:

- you may be aware of certain events, processes and debates and be of the view that certain issues require systematic and focused research.
- you may be of the view that current knowledge of certain issues is inadequate or that certain issues have been poorly researched.
- you may be in disagreement with interpretation advanced by a certain scholar and or the methodology used. ([http://www.uwc.ac.za/usrfiles/users/270084/RESEARCH PROPOSAL 2 pdf](http://www.uwc.ac.za/usrfiles/users/270084/RESEARCH%20PROPOSAL%202.pdf)).

Basing on the above, the background is the opportunity to demonstrate why the research needs to be conducted. You are looking for something wrong, something that needs close attention or something where existing methods no longer seem to be working. You also demonstrate that the research has not yet been done before and that it will add something new to the existing body of literature.

According to Baron (2010) the background should provide the reader with a brief summary of research studies related to the problem being investigated and should lead up to the statement of the problem. You will provide background information in the form of a review, which helps you to set the context for your research and to help the reader understand the research questions and objectives. Review what is known about your topic as far as it is relevant to your thesis. Refer to key research papers or the most relevant and representative publications and explain how your research will either fill a gap, complete or follow on from previous literature. A bit of evidence from research findings should help explain how the problem relates to business, social or political trends and demonstrate the scope and depth of the problem. Dramatic and concrete illustrations of the problem should be given ([http://www.bcps.org/offices/i.s/researchcourage/developwrite introduction.html](http://www.bcps.org/offices/i.s/researchcourage/developwrite%20introduction.html)).

In general, the background of study is explained starting from a broader picture narrowing in on research questions. An effective background, therefore discusses the meaningfulness of the study along while it presents the problem. It advocates for the need for one's investigation and gives a clear insight into your intentions. The background to the study looks at a review of relevant work done by other researchers hence it becomes an assurance that you have a good idea on gaps to be filled by the proposed research and how these gaps can be bridged. The activity below, requires you to reflect on the foregoing information, relative to the two topics listed above.

Activity 8.3

By examining one of the topics or both, suggest the introduction or background that you think should be included.

This activity is not meant for you to go into details about topics, which you are not studying. You should handle the activity in general terms as a way of teasing your intellectuality from the point of view of looking at topics that may be different from yours. This exercise ultimately helps you to focus more purposefully on your own research title. You may now read on, and focus on the critical aspect of problem statement, that is, that which bothers you to stimulate research action.

8.5.3 Statement of the Problem

The problem statement is among the most critical parts of the research proposal because it provides focus and direction for the remainder of the study (Baron, 2010). It is an imperative part of the proposal, for in order for research to be conducted; one must notice a problem in the existing literature that has not been previously addressed. The problem statement must come early in this section, to make it possible for the reader to quickly determine purpose of study. A problem statement:

- is a brief, clear and explicit explanation of the problem under investigation. Usually it is just one sentence or one short paragraph. After writing the introduction section the single sentence that is the problem statement must be easily be identified.
- should be expressed as a relationship between two or more variables
- should imply that empirical testing is possible.
- should make a convincing argument that there is insufficient knowledge available to the problem (<http://www.bcps.org/offices/i.s/researchcourage/developwriteintroduction.html>).

Here is a problem statement deriving from one of our topics, dealing with adoption of ICTs:

The problem is that SMEs, although having access to ICTs, do not seem to be using them to add value to their business processes, and cumulatively to stay competitive.

SMEs stands for Small to Medium Enterprises. We now work on an activity to develop further insight.

Activity 8.4

- a. How explicit do you think the topic is? Explain your view.
- b. What are variables?
- c. Explain the two related variables, which are implied in the title.

One might say the problem being investigated is quite clear. Avoid the trap of many students who tend to write an aim instead of the correct thing, the problem. Many students tend to have challenges stating what variables are. In his book *Conducting Educational Research*, Tuckman (1994) gives clarity to this concept. The **independent variable** is the input or stimulus variable. It is manipulated to cause a change in another variable. In the case of our topic, ICTs are the independent variable. The **dependent** variable is the output or response variable. It is the observed aspect of behaviour of the organism that has been stimulated. In the case of our topic, business processes are the dependent variable. We can measure them. To check if this makes sense, try and apply the logic to your topic. Others are **moderator**

variable, intervening variable or control variable. Visit relevant literature to develop clearer understanding.

8.5.4 Research Questions/ Hypothesis

Research questions or hypothesis are developed from the research problem (Choga and Njaya, 2011). Borg and Gall (1990) define a hypothesis as an educated guess about possible differences, relationships or causes. Research questions ask what relationships exist between different variables in the study, while hypothesis predict the relationships between variables.

i. Characteristics of good research questions

Choga and Njaya (2011); Chiromo (2006) cite the following characteristics of research questions:

- They must be answerable not through 'Yes' or 'No' but through collection and processing of data.
- They should describe the general research problem in clear terms.
- They should indicate the population to be studied.
- They must specify the variables – identify key factors to be investigated.
- When the research question is addressed individually, it should yield responses, which can be reconstituted to make up a complete answer to the main research question or research problem.
- They must be divisible into good component parts.

Below are examples of research questions deriving from the research problem on the topic on ICTs. Read them with a critical mind and confirm the extent to which they measure up to the criteria listed above.

- What are the available technologies at the disposal of businesses?
- What ICTs are used by organisations targeted by this study?
- What are the barriers to ICT adoption experienced by SMEs?
- What is the value obtained from ICTs use by SMEs?

Note how each question implies the role of variables. For example, the first question directly points at the independent variable ICTs), and implies application of the same to enhance processes (dependent variable. The last question is directly implicit of dependent variable (business processes), whose value add can be measured.

ii. Characteristics of a good hypothesis

A good research hypothesis should:

- give direction to the research by identifying measurable variables.
- be testable – you should be able to prove that it is correct or incorrect.
- assist to confirm or refute the validity of an existing theory or new statement.
- be consistent with results established from previous research.

Here are three hypotheses from our topic on ICTs.

H1: Most SME's use general ICTs and relatively few use advanced ICTs.

H2: Western Cape SMEs experience critical barriers when using ICTs.

H3: ICTs are perceived by SMEs to add value to their business.

Activity 8.5

Evaluate the three hypotheses against the characteristics noted above.

In response, bear in mind the variables already discussed. The testability of each hypothesis will, without doubt be dependent on a theory about ICTs in business. Similarly, there will be prior research to benchmark on. Now relate this to your own hypotheses, if you have any for the topic you intend to explore.

You are reminded that not all studies contain hypotheses. You could conduct the study on the basis of research aims only.

8.5.5 Aim and Objectives

The aim is the major goal of research, whilst objectives are the immediate or short term achievements (Gwindi and Dirwai , 2003).The aim should specify what kind of knowledge the study is expected to obtain. Objectives disaggregate and follow logically from the aim. They are a preliminary view of the research design. Aims or objectives derive from research questions. To avoid confusion, some faculties prefer the use of either aims or objectives instead of both.

What aims can you suggest for the topic about ICTs in business?

8.5.6 Justification of the Study

This section also known as 'rationale' or 'significance of study' is crucial because it is one place in which the researcher tries to convince his/her supervisor, and external examine that the research is worth doing. This section, according to Baron (2010), describes the potential value of the study and findings. It therefore, should identify the audience for the study and how the results will be beneficial to them. Remember, research is conducted to add to the existing knowledge base, and or to solve a problem – how your particular research will do this should be articulated in this section. This can be done by describing how the results may be used such as:

- may resolve theoretical questions in your area
 - may influence public policy
 - may change the way people do their jobs and the way people live.
- (<http://www.ssdd.bcv.ac.uk/learner/writing guides/1.07.html>)

For example: The research will provide an understanding of the impact of sexual abuse on learners. A justification statement from the ICT topic could read something like:

There is wide acceptance that, IT can lower production and labour costs, add value to products and services and increase a company's competitive advantage (Corso, Martini, Pellegrini and Paolucci, 2003; Levy, Yetton and Powell., 2001; Nguyen, Sherif and Newby, 2007; Premkumar, 2003). However it is not enough for an organisation to adopt IT, but there is need to understand how the technology adds value to the existing business processes.

Note the supportive references even in this section.

8.5.7 Theoretical Framework

This section details the theory guiding the proposed study. The theoretical framework is sometimes called the conceptual framework and describes the theories and concepts considered relevant in finding solutions to the problem that has been identified. All research has a conceptual basis which is a perspective from which the story is being told. The theoretical framework introduces and describes the theory which explains why the research problem under study exists([http://bguides.usc.edu/writing guide](http://bguides.usc.edu/writing_guide)).It consists of concepts together with their definitions and existing theory used for study. The selection of the theory should depend on its appropriateness, ease of application and explanatory power. Pajares (2007) asserts that from this theory the researcher is able to inform the statement of the problem, the purpose of the study, the questions and hypothesis, the choice of instrument and methodology of study. It is a peg on which to hang your jacket.

In this section, therefore, you explain the major tenets of the theory as well as how the theory relates to the proposed study. By virtue of its application nature, a good theory is of value because it explains the meaning, nature, and challenges of the phenomenon under investigation.

8.5.8 Definition of Key Terms

The same words may have different connotations to people; especially if they work in different disciplines. Gwimbi and Dirwai (2003) assert that just principal terms are necessary to define. Pajares (2007) says it is essential that one defines the central ideas or concepts of the research study because definitions help to establish the frame of reference. Working definitions not dictionary definitions should be given. Examples of key terms from the ICT topic could be: *small to medium enterprises, value, adoption, ICTs*

8.5.9 Delimitations

This refers to the setting of limits or boundaries or delimiting the research study (Choga and Njaya, 2011). Narrow your field of study. Most proposals suffer from being too ambitious and trying to cover too wide an area. Narrow down the study by limiting it to a particular group of people (e. g. women or single mothers) or to a particular time or a particular region. In the demarcation of the research, it is necessary to :

- justify why specific choices are made
- who and what is included or excluded in the study and why.

In the delimitation section you focus on a small area, which you aim to investigate in depth, setting clear boundaries which will serve to orientate your reader and to make your study manageable. In other words delimitations are limits you impose on the scope of the study in order to make it more manageable.

8.5.10 Limitations

In this section you document the potential weaknesses or possible limitations of methods and procedures to be adopted to achieve expected results. Statements relating to factors, issues beyond control of study need to be included also. In other words, you should say out the constraints (limitations) over which you have no control. What do you think would be some of the limitations for each of the two topics already cited?

8.5.11 Assumptions

An assumption is a commonly held belief or conviction about phenomena. It is important that you state clearly the research assumptions that you will base your study on. This helps immensely in preventing you from vague generalizations that so often accompany the lack of proper research planning. Assumptions are what the researcher believes to be fact but cannot be verified. They are not the object of research but help to strengthen it (Gwimbi and Dirwai, 2003).

For example: It is assumed that during this study, participants' gender will not significantly affect their perceptions.

8.5.12 Literature review

A literature review is an account of what has been published on a topic by accredited scholars and researchers ([www.writing.utoronto.ca/advice/specific /literature review](http://www.writing.utoronto.ca/advice/specific/literature%20review/)). The review should greatly expand upon the introduction and background information presented. Most importantly, it tells about prior research and findings in the same field.

i. Purpose of Literature Review

Literature review plays a crucial role in the research process. Saunders Lewis and Hill (2009); Ridley (2008); Rudestam and Newton (2007), Muranda (2004)and Gibson (2001) are in agreement about the following as reasons why reviewing related literature is beneficial to researchers:

- to study the different theories related to the topic, that is, to sharpen and deepen the theoretical framework of research. To identify gaps in knowledge, as well as weaknesses in previous studies that is, to determine what has already been done and what is yet to be studied or improved. .
- to discover connections, analogies and other relations between different research results by comparing various investigations.
- to study the definitions (conceptual and operational) used in previous works as well as the characteristics of the populations investigated, with the aim of adopting them for new research.
- to study advantages and disadvantages of the research methods used by others in order to adopt or improve on them in one's own research.
- to identify key people, organisations and texts relevant to research. Research organisations might include academic, government and professional bodies.
- To give the historical background situated in a context which has a history. As an example, it may be important to describe a sequence of events, policy changes which have led to current situation in which current research is taking place.
- to discover and provide insight into research approaches, strategies and techniques that may be appropriate to own research questions and objectives.
- to suggest the desirability of replication to confirm previous findings.
- to discover explicit recommendations for further use.

A literature review is thus expected to involve accessing a selection of relevant previous work, resources and materials with a strong relation to the research topic in question accompanied by a description and a critical evaluation /critique and comparative analysis of each work. To logically organize the literature review make use of subheadings to bring order and coherence. Each section and subsection must be properly listed in the table of contents.

You should note that in the proposal, only brief information is expected. Much of the detail should be reserved for the relevant chapter.

8.5.13 Methodology

The methodology section should have a section on the participants which is sample size, the design section which shows the research type, the apparatus or tools of research and procedure to be taken (Chiromo 2006 and Pajares 2007). The method used should correlate with the data to be collected and the appropriate method to be used in the study should be indicated in the research proposal. You should justify why a certain method will be preferred. Proposed methods of data collection and analysis should be included also.

According to Pajares (2007) the methodology section is the most important section in the entire proposal as it explains each step the researcher will take in order to conduct research. It is the cornerstone of the research proposal and therefore a critically important section. Failure to address it properly can lead to the proposal's rejection and even to the rejection of the final thesis by external examiners. The most important consideration is that the choice of the design emerges from the aim of the study (Silverman, 2000). In other words, the nature of the phenomenon being studied determines the methodology to be used (Prahoo, 1997). The researcher has to decide which approach/design to use for the study and has to defend the reason for the choice.

The design indicates whether the study is experimental in the sense of there being an experimental and a control group, using some form of treatment on the former group (True experimental design). It could be a quasi-experimental design, using a combination of quantitative data collection and experimental and control grouping. It could also be the case study used as the design.

8.5.14 Ethical and legal considerations

Ethical issues cut cross the entire research process, planning, data collection, data analysis, report writing and dissemination of research findings. If your research will involve people or animals as research subjects, you have to include an ethics statement in your proposal. Such a statement is an indication of your awareness of the ethical considerations and an agreement to conduct fieldwork in accordance with ethical procedures. For example, the researcher conducting the ICT study with speakers of Afrikaans, who cannot speak English, will have ethical considerations to account for.

You must:

- Ensure that rights and welfare of human subjects are protected.
- Protect identities and interests of those involved.
- Guarantee the confidentiality of the information supplied.

8.5.15 Chapter Outline

The chapter outline is the skeleton of your research. It gives the reader an indication of how the various elements of your study fit together, and the logical development of your investigation. The way you structure your chapters depend on the kind of study you wish to undertake. Studies that embark on empirical research usually follow a format that consists of:

Chapter1: Introduction

Chapter 2: Literature Review

Chapter 3: Research Design and Methodology

Chapter 4: Findings, Analysis and Discussion

Chapter 5: Conclusion and Recommendations

8.5.16 Time Line

Here you outline a work schedule, which couples the various research activities you will be involved in with a time- frame. It is important that you present a realistic time-frame, which allocates sufficient time for various activities and also for revising, editing and producing the final text.

8.5.17 Budget

If you are submitting your proposal to funders you must include a budget. The budget must contain details of costs that the researcher expects to incur during the conduct of the research. Remember to:

- list what equipment you need, for example; computers, tape recorder, and scientific equipment.
- list type of services you will have to pay for, like photocopying, binding, and postage.
- Estimate costs associated with travel.

8.5.18 Conclusion

The conclusion is the closing section of the proposal. It should highlight the main elements and provide a summary of crucial issues raised during the development of the proposal.

8.5.19 References

List all references (not bibliography) cited in writing your proposal. The common referencing styles used are the American Psychological Association (APA) and the Harvard System. Adopt one style and be consistent. It will also be important for you to find out from your supervisor which style of referencing is recommended for your project.

8.6 Format of a Research Proposal

Below is a suggested format that your research proposal could take on submission. NB: Formats vary from one institution to the other hence you need to consult your supervisor for the appropriate format.

TABLE 8.1 RESEARCH PROPOSAL FORMAT

No.	Item
1	Name of Student
2	Registration Number
3	Degree
4	Proposed Title of the Research Study
5	Introduction
6	Background to the Study
7	Statement of the Problem
8	Research Questions/Hypothesis
9	Study Objectives
10	Justification/Rationale/Significance
11	Theoretical/Conceptual Framework
12	Definition of Key Terms
13	Delimitations
14	Limitations
15	Assumptions

16	Literature Review
17	Research Design and Methodology
18	Ethical and Legal Considerations
19	Organisation of Study (Chapter Outline)
20	Time Line
21	Budget
22	Conclusion
23	References
24	Appendices

8.7 Submitting the Research Proposal

The research proposal should be neatly typed using font size 12 and double spaced. Make sure that the proposal is written in clear and precise language. If the grammar is not perfect, this will result in ambiguity which will make the proposal difficult to read and often impossible to understand. Be sure that your grammar is perfect and that every word is correctly spelt. Make your proposal a pleasant reading experience that puts important concepts up front and makes them clear. Remember the main objective here is to submit a proposal that gets through the review process successfully hence there is no need to brag about yourself or your research.

Proof read your proposal before it is sent to the supervisor or research committee. Many proposals are sent out with silly mistakes, omissions and errors of all sorts. Avoid submitting a proposal with for example, wrong spellings on the title or without a list of references that were used to compile the proposal. Such stupid mistakes will kill the proposal. Don't spent six or eight weeks writing a proposal just to kill it with stupid mistakes that are easily prevented.

Remember to submit your proposal on time. Why work for several months on a proposal just to have it disqualified for being late? It is advisable to get your proposal in two or three days before the deadline. Indeed it can take several months to prepare a good proposal but if you use this time to prepare thoroughly you will have much higher success rate. Taking the time to do it right really pays off.

NB: If there are any adjustments and/or improvements to the research proposal, these should be discussed and agreed upon between you and your supervisor.

Activity 8.6

- List the main steps that should be followed when developing a research proposal. Explain the significance of each step.
- Prepare a research proposal that is in line with the requirements of your degree programme. Submit it to a supervisor for advice.

8.8 Lessons Learnt

The authors of the present chapter, informed by their experience of supervising students, have observed the following.

- Students struggle to arrive at a researchable topic, mainly because they have in mind too many interesting issues to investigate, but fail to narrow them down to specifics.
- It has been observed that students do not have clarity about the concept of 'variables', which should be implied in the title for research.
- We conduct research because we intend to measure something e.g. the effect of X (independent variable) on Y (dependent variable). Our experience is that this does not come out explicitly in either the title or its subsequent explanation.
- More often than not, students experience challenges with the section on background to the study, largely because they think it is nothing more than the geographical context.
- Many students tend to specify research aims (in the statement of the problem section) instead of specifying the perceived gap, or that which bothers them, and motivates research action.
- In the methodology section, there often is quite some confusion about research terms. For example, there seems to be misconceptions about: methodology and methods; methods, procedures and instruments; research design and research paradigm.
- When it comes to discussion about the quantitative and qualitative concepts, confusion gets multiplied. These two are referred to as:

methods/approaches/paradigms/methodologies/procedures/designs

It is not clear to the student what to call the two concepts.

- When it comes to ethical considerations, the tendency by many students is to state the obvious e.g. the budget or limited research time. Ethical considerations can come from sampling procedures, language differences, or the nature of the topic, so there is need to be more thoughtful about this aspect.

8.9 Summary

The chapter has provided an overview of the main steps to be followed when developing a research proposal for undergraduate or postgraduate studies. Regardless of your research area and methodology you choose, a research proposal must describe what you will do, why it should be done, how you will do it and what you expect will result. The sequence of steps showed that developing a proposal is a systematic process that requires time, intellectual endeavor and planning. Conducting research always starts by developing a proposal and the key steps to be followed are; selection of topic, background to the problem, statement of the problem, research questions, study objectives, justification of study, theoretical/conceptual framework, defining key concepts, delimitations, limitations, assumptions, literature review, research design and methods, ethical considerations, chapter outline, time line, budget and references. We have also demonstrated in the chapter that proposal writing is one of the most important stages in the research process. You should never omit information that has been asked for by your supervisor or the research panel. If there are word limits, page limits and due dates for a particular proposal, these definitely have to be adhered to. Now that you have been taught how to write a

research proposal, the next chapter will help you to write the research report for the different levels of study.

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Chapter 9

Introduction

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Abstract

This chapter presents the Introduction to a thesis/dissertation, and through it, we see all chapters as the image below illustrates. The Introduction is normally the first Chapter in the research report. It presents a concise statement on the main variable(s) being investigated. It seeks to establish the place/gap to be filled by the study from various angles such as time, method, geographical area in which studies have not been conducted, and from the definition of concepts that are used in other studies. From the gap(s) that is/are established, the Introduction presents a statement of the problem, which is a brief statement of what remains to be done after all the contributions of other researchers have been taken into account of the specific nature of the gap and what the researcher suggests the present study will do about it. From the Statement of the Problem logically flows the purpose or aim(s) of the study, from which follow the Objectives of the study and then the Research questions. Other important aspects of the Introduction include Significance of the study, which states the theoretical and practical contribution, which the study will make to indicated stakeholders. Limitations show the constraints, which may affect the validity, trustworthiness, or feasibility of the study while delimitations show the scope of the study in respect of the geographical area, sample and other variables that are studied.



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9.1 Introduction

This Chapter will strive to:

- present a short section on the importance of the Introduction in the writing of a thesis/dissertation.
- show the components of the Introduction, which are commonly used in writing up thesis/dissertations
- indicate salient characteristics of each component, which the supervisor should expect to see under each subheading.

- give a brief synopsis of some of the lessons, which the present author has gleaned over the years of supervising dissertations.
- discuss, in turn, the following components of the research report: Background to the Study, Statement of the Problem, Aim(s)/Purpose of the Study, Objectives of the Study, Research Questions/Hypotheses, Significance of the Study, Limitations, Delimitations of the Study, Assumptions of the Study and the Chapter Summary.

The subheading 'Organisation of the Study' will summarise how the Chapters of the Dissertation/Thesis follow logically and sequentially from the beginning to the end. There is no single right way of starting a thesis/dissertation report and of labelling the various sections. What follows is therefore what the present author is familiar with and has met and advised in the course of supervising/promoting dissertations/theses.

9.2 Objectives

After working through this chapter, you should be able to:

- outline the components of the Introduction to a Thesis/Dissertation;
- articulate the importance of the Introduction to the writing of a Thesis/Dissertation;
- be conversant with what the supervisor expects/should expect to see under each rubric; and
- learn and implement good practice from the experience of supervisors in supervising theses/dissertations.

9.3 Background to the Study

The Background to the study is made up of a number of components and, therefore, suggested tasks for the student working on a dissertation/thesis. Normally, the student will begin with a **cited explanation of the important concept(s)/variable(s)** that is/are under study. In a study of Factors Affecting Teacher Motivation, for example, the student may start off by briefly explaining what teacher motivation is. The student will follow that up with an explanation, supported by sources, of why it is important to study teacher motivation i.e. why the concept of teacher motivation is important to education and to other social processes and institutions. Instead or in addition to this beginning, some suggest that the student should begin with a short **one-sentence statement of the goal of her/his research** so that the reader comes to the first chapter expecting to be informed concisely what the topic of the thesis/dissertation is and what the researcher-student expects to achieve (Bolker, 1998; Chandler, 2011; Woodall, 2012).

The Background to the Study presents **the history of research in the area** that is under study. It provides the historical context within which the study is being conducted. It, therefore, aims to bring out the landmark researches that have been conducted and where applicable, the theoretical frameworks within which they have been conducted. The Background to the Study, hence, summates and assesses what has been accomplished in the researches that surround and precede the present topic. This summary must **show not only what has been achieved but also what has not been achieved**. It should be very clear after stating what has been achieved to specify issues that remain unresolved, at a theoretical and practical level. The Background to the Study should, therefore, show clearly what **the gap** in the present knowledge is (Griffiths, 2008).

The Background should also lead **logically to the Statement of the Problem** which is a more specific description of the gap and how the present study will attempt to address that gap.

For the student to be effective in writing the Background to the Study, he/she must specify the nature of the gap that exists in the present knowledge. The gap could come in a number of forms which are presented below. These gaps can occur separately or together in combination.

One gap could be a **temporal gap** where similar studies were carried out many years in the past and are now dated. The researcher feels that there is need for carrying out a study in an identical area perhaps even using the same methodology to update the state of knowledge in that particular field. For instance, a study may have been done on Factors of Teacher Motivation when the socio-economic conditions were different, say, before Independence in Zimbabwe or before the end of Apartheid in South Africa. Certainly, the findings before these landmark events will be outdated considering the substantial changes that have occurred in the economics and other social situations that impact on the feeling of wellbeing of the teachers. A different mix of factors of motivation among teachers could be expected.

In the Background, the researcher will state clearly, that 'even though much work has been done on Factors Affecting Teacher Motivation, most of that work is dated' and new research needs to be conducted to assess any changes that may have taken place in the factors that affect the motivation of teachers.

The gap could also **geographical** whereby studies may have been carried out in other places than the site where the researcher is working. The researcher may prefer to state and briefly analyse the contribution of researchers in Developed Countries, and then what has gone on in Developing Countries and then in the specific research site where the researcher is working.

The researcher will specify what research has been done in different areas of the world and contrast that with, perhaps, scant research that has been done in the site where he/she intends to conduct her own research.

Another gap may be **methodological** whereby studies in a particular area were carried out using a design and techniques that the present researcher does not believe were the most suitable for the study or needed to be supplemented by other techniques. For instance, in the study of Factors of Teacher Motivation, the instrument that was used could have been the questionnaire. A later researcher may believe that although the questionnaire was a valid instrument as far as it went, vital personal and intimate data were not collected for the failure of the researchers to use qualitative techniques such as in-depth interviews and focus group discussions

This researcher states that 'although the issue of Factors of Teacher Motivation has been investigated by a number of scholars, there has been a trend to the use of quantitative approaches at the expense of qualitative approaches with the possibility that certain data that could only be obtained through the use of qualitative methods may have been missed. This study will hence break with tradition and will employ' (Mapfumo, 2008).

Yet another gap could be in the form of ***the sample/population*** that was studied. For instance in studying Factors of Teacher Motivation, researchers may have defined teachers as those instructors in schools who were certified after a recognised period of training. One researcher at a later stage may opine that there are numerous individuals who teach in schools but have not been formally trained and decides to include those untrained persons in his/her study. In the same way teachers may have been defined to exclude heads of schools, education officers and others. This provides a gap for a new study. The researcher is expected to be deliberate in pointing out the gap by saying for instance, that 'Although the findings by NAME OF AUTHOR AND YEAR were useful, that researcher excluded heads of schools and education officers from his sample. This biased the result. This study will, therefore, include as teachers all persons that have been trained as teachers and all others who teach classes in schools even if they have not been formally trained'.

A gap may indeed exist in the manner in which ***key concepts or variables*** were defined. Supposing in the study on Factors Affecting Teacher Motivation, motivation was defined as 'coming early to work', that might be too limited a definition of a key variable and another researcher might see a gap where he/she can carry out a similar study based on a broader and perhaps more meaningful definition of motivation.

There could yet be another gap. Suppose the topic on Factors Affecting Teacher Motivation was *studied only by Psychologists*. Another researcher, a Sociologist for instance, may decide that he/she wishes to bring her/his training to the same topic perhaps with an accent on the social origins of low or high Teacher Motivation. The gap here, therefore, comes from the ***different perspectives of the various disciplines***.

These gaps could exist in different combinations where studies in a particular area of interest are dated; the design preferred was not ideal in the eyes of the present researcher; the key concept being investigated (Teacher Motivation) was differently defined and so forth. In the Background to the Study, each gap or combination of gaps that is observed and will be addressed should be articulated and the way it is addressed should be stated.

The Background to the Study is a ***mini highly-focused literature review*** and should form a firm basis for the Review of Related Literature (Chapter 2). Key concepts and statements made in the Background should form the pillars of the Literature Review, and should contain some statements that will be elaborated in both Chapter 2 and, to some extent, Chapter 3.

The student should also show his/her motivation/experience to carry out the study. The researcher's motivation is commonly written last in the Background to the Study. This is also a very important section because it helps readers to appreciate whether the writer of a research report had an ***insider or outsider view on the issues*** that were addressed in that study.

Some of the key ideas about the Background have been highlighted in bold italics for your special attention. In the activity below, share your views on what you have read so far.

Activity 9.1

There are two columns below. In the first column, characteristics of the Background section of your study are listed. In the second column, explain your understanding of each item in your own words. Focus on the study you are currently working on as you formulate your responses.

Characteristic	Explanation
The history of research in the area	
What has not been achieved in prior research?	
Temporal gap	
Geographical gap	
Methodological gap	
The sample/population gap	
Key concepts or variables gap	
A gap ifrom different perspectives of the various disciplines	

In order to come up with good responses to each item, revisit the text above the exercise, and come up with explanations that are relevant to your study. Share your ideas with a colleague.

9.4 What the supervisor/promoter expects to see under Background to the study

In checking your work, the supervisor should expect positive answers to all the questions below.

- Has a clear definition of the key variable being studied been given?
- Has the importance of studying the key variable been given?
- Has the important research of other scholars been cited?
- Has the student stated what these researchers have found?
- Has the student stated what other researchers have failed to find, or methods they should have used which they did not use?
- Has the student indicated where studies have been carried out?
- Has the student shown that there is a gap in the research area where he/she intends to carry out her/his study?
- Has the student specified the type of gap that the study will try to fill?
- Has the student shown any contradictions, conflicts or discrepancies in the state of the knowledge that has been discovered by the researchers who have done some work before him/her?
- Has the student cited sources that are authentic, current and relevant?

Answering the foregoing questions, while working on your background section, will inevitably result in a focused presentation of your Background. Your supervisors have

derived rich lessons from reading many background sections in dissertations and theses. Below are some of the lessons they have learnt. Study them for your own benefit.

9.4.1 Lessons learnt from supervising dissertations/theses:

The Background to the Study is, perhaps, one of the most difficult parts of the dissertation/thesis for many students.

- They do not seem to understand what 'Background' refers to.
- They seem to think that 'Background' refers only to their own experience and what they know about a given topic. That then causes problems when one tries to assist the students to appreciate the gap and even more difficult to appreciate the various kinds of gaps which they can take advantage of.
- They string finding after finding in the forlorn hope that the literature 'speaks for itself'.
- Thus, their language is devoid of words and phrases that depict the contradictions and confluences in the arguments from the literature (on the other hand; to the contrary; a contradictory finding was that; a considerable amount of agreement is noticeable in the findings by... etc).
- In addition, the Background to the Problem does not lead smoothly to the Statement of the Problem (which seems a loose coupling unrelated to the debate that has been waged in the Background to the Study).

What follows is an activity, which requires that you reflect more on what has been presented so far.

Activity 9.2

Closely examine the questions you are advised to respond to in §9.4.1 and identify any three, which the Background section for your current study does not seem to address adequately.

- a. What steps do you propose to take to ensure that your supervisor finds your Background section more convincing?
- b. From the lessons outlined in §9.4.2 specify which ones apply to your situation? Suggest ways to overcome what you perceive to be weaknesses inherent in your presentation.

For this activity, there are no right or wrong answers. In actual fact, the idea is that you examine and evaluate your output objectively so that you come out with an acceptable presentation.

9.5 Statement of the Problem

This is a very important part of the research report because it provides focus and direction for the report (Baron, 2010). Research is not carried out for its own sake but to attempt to solve important theoretical and practical problems that affect the human condition. The **Statement of the Problem** is a one-page to three-page presentation, and sometimes even shorter, of the theoretical and practical problems to whose solution the research results will make a contribution.

At theoretical level part of the Statement of the Problem comes from sources within the research efforts around our index topic. The results of prior studies are shown to be inadequate in one or various ways. These results may have been mixed or contradictory

according to certain specific landmark studies in the literature. The student states, for instance, that:

...although much evidence has accumulated to explain factors of teacher motivation, there is still no consensus on whether Teachers in the Third World are affected by the same sort of factors as their counterparts in the Developed World. Even in the Developed World, where much research has been conducted, there is no agreement on which are the predominant factors of Teacher Motivation because leading scholars seem to have arrived at different findings.

Then you cite the main findings which the different leading scholars have arrived at (Chandler & Monday, 2011).

The student then briefly but clearly states what the different findings are, which leading scholars have arrived at.

The researcher could even state that there are differences in the manner in which the term motivation was conceptualised in previous studies, e.g.

Those in the Maslovian fold may not have accepted that there was a distinct difference between lower-level and higher-level needs but another theory may hold that even the so-called lower level needs do in fact motivate personnel to very high levels of performance.

In that case, those who subscribe to the new and different theory might see a gap, which they will try to fill by working within a different theoretical framework albeit in the same area of motivation.

The researcher should also clearly state what remains unknown. For instance, a writer of a dissertation/thesis on Factors of Teacher Motivation may specify that:

in spite of the considerable work that has been done on Factors of Teacher Motivation, little is known about some critical issues such as the impact of increased remuneration on reported Teacher Motivation, or the impact of liberalising of conditions of service where teachers may now be permitted to make additional income for themselves through any income-generating projects of their choice.

The writer of a dissertation/thesis may even state that “although there is accumulating evidence on Factors of Teacher Motivation, too much interest has been given to issues related to remuneration at the expense of other possibly equally-important factors”.

At the practical level the student may state that:

...because of the lack of agreement among researchers and the questions raised around some of the methods and findings in prior research work in the area, planners and policy makers have found little value in the work that has been carried out so far.

This may be followed by a statement on how the new effort will improve decision-making processes around issues of teacher motivation.

To summarise, the Statement of the Problem arises from the Background Statement and presents the exact gap in the knowledge that is at hand so far (as stated in the

Background to the Study). As shown just above, the gap must be specifically stated because it is the precise reason for the study. The Statement of the Problem clearly suggests the need for the study. It may be noted that a well-written Statement of the Problem gives a very clear idea of what the Purpose of the Study will be. (Some scholars do actually present the Purpose of the Study in the Statement of the Problem but the present author does not encourage the practice. Experience shows that students who do that, end up writing an aim instead of the problem.). It should be possible to have a reasonably clear idea of what the objectives of the new study and the questions to be answered will be when a well-written Statement of the Problem is presented.

Before reading on, examine the Statement of the Problem you spelt out for your study. To what extent does it comply with ideas in the foregoing discussion? On a separate piece of paper, briefly re-state the gap(s) that is/are specified in your Statement.

9.6 Purpose of the Study

The Purpose of the Study is a statement contained within one or two paragraphs that identifies ***what the research intends to do and how it intends to do (Method) it with what participants***. The purpose might be written as:

Using qualitative techniques, the purpose of the study was to identify and rank-order Factors of Teacher Motivation among 200 purposively-selected teaching professionals in one educational circuit in Eastern Zimbabwe.

It bears repeating that the Purpose of the Study ***develops from the gap(s)*** that is/are stated in the Statement of the Problem. The Purpose of the Study is an answer to the question 'How will the study address the gap(s) that has/have been articulated in the Statement of the Problem?'

9.7 Objectives of the Study

Objectives of the Study represent a teasing out/unpacking of the Purpose of the Study into simple actionable steps. Some Objectives of the Study would be to:

1. compare Factors of Teacher Motivation in Primary and High Schools
2. contrast Factors of Teacher Motivation for female and male members of the teaching profession
3. determine the relative significance of lower-level and higher-level factors of the Maslovian hierarchy of needs.
4. establish a rank order of Factors of Teacher Motivation

Like the Purpose of the Study, Objectives of the Study develop from the Problem Statement and represent specific goals towards which the data will be collected. Meeting the objectives of the Study must necessarily fill the gap(s) that have been presented in the Statement of the Problem (Mapfumo, 2008).

9.8 Research Questions/Hypotheses

Research questions, like the Purpose of the Study and the Objectives develop from the Statement of the Problem and directly from the Objectives. Research questions operationalise the Problem in terms of the specific variables and relationships that have to be examined and reported upon to meet the Objectives of the Study. Answering each Research Question represents an instalment in providing additions to the body of knowledge where gaps have been identified.

Research questions are derived from turning Objectives into questions. It should be noted, but is not encouraged by the present author, that it is possible to state the Purpose/Aims, Objectives, Research Questions/Hypotheses under the Statement of the Problem. In some cases your supervisor may inform you that it is enough to state Purpose without going on to state Objectives.

Hypotheses are testable predictions of how variables in the study will be related. (Magwa & Magwa clearly explain criteria for good research questions and hypotheses in the chapter on the Research Proposal in this volume).

9.9 Significance of the Study

The Background to the Study showed the historical evolution of research and concepts around the topic that has been selected for research. The Statement of the Problem has indicated the work that still has to be done while the Purpose, Objectives and Research Questions focused on what the research was going to do and how.

An important question still needs to be answered. When all has been said and done, what benefit does one derive from the results of the study? The Significance of the Study is thus a statement and explanation of the ***potential value of the study*** to specific and named stakeholders. The section should, therefore, identify the audiences of the study and how each audience will benefit. The value of the study is at two levels i.e. the theoretical and the practical.

From the theoretical dimension, the following are noteworthy questions to respond to:

- How does the work that is done in the present study benefit researchers in the future?
- How much does it extend the knowledge that has already been generated through empirical research in the area under study in the past?
- Precisely how much more is known now compared to what was known before the study was conducted?
- Has the researcher shown that there are, in fact, different sets of factors of teacher motivation that have in the past not been discovered?
- Are there findings within the present researcher's work site that are different from findings in other geographical areas?
- Has any original knowledge been added to the funds of knowledge that were available before the study was conducted?

From the practical perspective the question to be answered is whether the findings and the recommendations from those findings increase the skills and competencies, and better inform the practices of school managers/policy makers, practitioners and other stakeholders in the area concerned. In the study on Factors of Teacher Motivation, for instance, would School Inspectors and higher authorities be better able to find more effective ways of motivating teaching staff than before the study was conducted.

To summarise, Significance of the Study is a statement of why it is important to determine the answer to the gap in the knowledge base and is geared to improving the human condition in theoretical and practical ways. It specifies how the new data will be used to fill the gap in knowledge that existed before the study was conducted.

9.10 Lessons learnt from promoting/supervising.

- Students do not specify the beneficiaries of the study and the manner in which they will benefit preferring such vague statements as 'The results of the study will be of use to the society in general'.
- Later in Chapter 5 students forget that they should make Recommendations to the people and institutions already mentioned in that section and they make Recommendations to different sets of groups of people and institutions who were not named as stakeholders under this section.

9.11 Definition of Terms

The student-researcher needs to be reminded that words are powerful and that all of them that may be unusual or not widely used should be defined. It is even more critical to make certain that any word in the topic that could need definition is defined so that all readers understand every word in the topic as it should be understood. It harms the research report if right from the topic some word (s) is/are not understood.

Some terms may appear pretty common but they should also be defined if they carry unusual meanings in the study. For instance, in the study on Factors of Teacher Motivation, it may be necessary to define the term 'Teacher' because there can be certified graduate teachers; there can be uncertified as opposed to certified teachers in general and the specific status of the teachers may have an important bearing on their motivation. It may be necessary to explain whether teachers are only those people who are practising in the classroom as opposed to other people who may be trained as teachers and are in schools but working in other capacities such as administration. Indeed it may be necessary to clarify whether lecturers in Colleges and Universities also fall under the rubric of teachers.

The definition of terms needs to be preceded by a statement that states the intention of the author to deal with the definitions. That transitional statement might read like:

The meaning of certain terms is critical for the understanding of important aspects of this study. The words and acronyms listed below are defined so that there is a common understanding of the terms for all readers of this study.

Acronyms also need to be defined so that all readers are perfectly clear what the acronyms stand for. Some acronyms that could be defined in the study on Factors of Teacher Motivation might include SDC (School Development Committee); DEO (District Education Officer); PED (Provincial Education Director) and others.

In handling the definitions, those that are borrowed from literature sources are cited as such, e.g. *Motivation*: the term motivation refers to "the reasons underlying behaviour" (Guay et al., 2010, p. 712).

The writer should make it clear for all terms that are not accompanied by a citation that he/she has actually constructed those. There should be no terms that are defined and left without references or a statement of the author's responsibility in constructing them.

9.12 Limitations of the Study.

There are many times when the researcher comes up against factors that potentially compromise the validity of his/her study and are beyond his/her control. The researcher should state these factors (limitations) so that readers are aware that the study was conducted in the face of challenges to the validity of the results of the study.

These limitations may be apparent at the beginning of the study but may also be clear only as the study moves forward. It is not enough for the student to list and explain the limitations, but the dissertation/thesis writer should also carefully think through and state how he/she attempted to mitigate or reduce the negative impact of each of the stated limitations.

The following are some of the examples of limitations found in research studies.

- Small/unique samples that do not allow generalisation of the results to the wider population
- Limited resources where it is not possible to carry out the extensive investigation which the researcher may otherwise wish to carry out
- Loss of participants in a longitudinal study
- Language problem where English, the language used to conduct the study, is not commonly spoken by the research population

Students should avoid studies that have such numerous or severe limitation that any results that are obtained are meaningless.

The section on limitations is taken by some authorities as optional, but leaving it out suggests either that the study had no limiting factors, or that the researcher has accounted for all the variables to the extent that the results of the study can be safely generalised to all populations and could be successfully replicated under all conditions. This ideal situation almost never exists.

Although Limitations show what may be seen as weaknesses in your study, they are very useful for future researchers. They show areas in which there were difficulties in carrying out the previous study, hence point to aspects which could be improved in subsequent research studies.

9.13 Delimitations

Delimitations are somewhat similar to Limitation but are quite distinct. The major differences between delimitations and limitations is that the researcher has little if any control on the limitations, but does have some control on Delimitations.

Delimitations describe the **scope** of the study and establish the **parameters** within which the study will be conducted i.e. delimitations set the boundaries of the study and these boundaries may be set with respect to the following aspects.

- Sample size where the researcher may decide on a large or small sample
- Composition of the sample e.g. relative representation of men and women, urban and rural schools and so on.
- Extent of the geographical area from which the data will be collected e.g. the decision to carry out the study only in one educational circuit or across a number of circuits.

- Time frame for the study, which the researcher deems suitable to allow all the research activities to be carried out effectively. The decision to carry out a cross-sectional as opposed to a longitudinal study lies within this delimitation

Delimitations, like limitations, are very useful to future researchers who may be able to use/incorporate information generated in a particular study. Specifically, Delimitations (and Limitations) show the area of constraint in the previous study and indicate how future researchers may improve upon previous studies.

9.14 Assumptions.

Research questions and hypotheses were stated so that the questions could be answered and the hypotheses tested. Assumptions are situations and contingencies, which the researcher will take for granted and will, therefore, not attempt to control. That researchers do not attempt to verify/prove an assumption marks the assumption off from research questions and hypotheses. Assumptions are thus a special kind of limitation. The researcher is aware that there are extraneous factors that will potentially affect the validity of a study but unlike in the case of Limitations, will not attempt to control (them).

Assumptions are often stated to show that the expected limitations/constraints will not come into operation or are unlikely to significantly affect the results of the study. For instance, one common assumption is that respondents will report the truth. It must be stated that should an incorrect assumption be made, the study is either impossible or meaningless. For instance, if the assumption that the participants will report the truth happens to be incorrect it means the responses will be false and therefore useless. If, in addition, the assumption that authority will be given to carry out the study, happens to be incorrect then the study will not even start for lack of appropriate authorisation.

The student should not state as assumptions those conditions that have already been stated as hypotheses or limitations. If for instance, in the study on Factors Affecting Teacher Motivation the researcher has stated that women teachers are expected to be more motivated than male teachers, the researcher cannot then state an assumption that gender will not affect level of motivation. If a limitation is that the culture of the participants does not always allow them to be candid with questions that relate to sexual experience, the same researcher cannot then assume truthfulness from all the participants.

9.15 Lessons learnt from promotion/supervision:

Students tend to err by:

- making assumptions about outcomes on the variables that they are researching e.g. assuming that girls will do better in English than boys in a study that sets out to compare the performance of boys and girls in that subject (This comes from confusing assumptions with hypotheses).
- Writing such an elaborate presentation of limitations that the impression is simply that the study should not have been conducted in its present design.
- Stating some limitations which suggest that the study should not have been conducted e.g. that participants were unwilling to participate and were instructed to do so by their superiors (which is ethically unacceptable) or that it was likely that participants would not report the truth with respect to the personal matters that were being investigated (which strongly suggests that the results were invalid).

9.16 Organisation of the study.

This section presents a summary of the contents of each chapter of the dissertation/thesis. This makes it possible for readers to have a good idea of what information each chapter contains. The student can write something to the effect that:

Chapter 1 has presented the Introduction, in which the importance of Factors of Teacher Motivation has been stated and significant research Teach motivation has been summarised. Chapter 1 has also presented the Statement of the Problem, Purpose of the Study, Objectives of the Study, Research Questions, Significance of the Study, Definition of Terms, Limitations of the Study, Assumptions and Chapter Summary.

Chapter 2 presents literature related to this study and presents important researches in the history of the concept of Factors Affecting Teacher Motivation. The Methodology used in the collection of data is explained in Chapter 3 while Chapter 4 presents the data that was found, interprets those data and discusses the contribution of the present study. Chapter 5 summarises the study, questions that were asked, the methods that were used as well as the findings that were arrived at. Conclusions derived from the findings were made and the recommendations that were made.

If Chapter 1 has already been summarised, the correct subheading for this section is 'Organisation of the Rest of the Study'.

Having covered substantial ground about our introductory Chapter 1, and having supported the discussion with a simulated theme threading across the sections, let us check our personal grasp of key concepts discussed above by working on the next activity.

Activity 9.3

There are three columns below. In the first column is a list of sections of Chapter 1. Tick either Yes/No against each item to show whether or not you now have a clear idea what each section involves.

Section	Yes	No
Background of study		
Statement of the problem		
Purpose of the study		
Objectives of the study		
Research questions		
hypothesis		
Significance of the study		
Definition of terms		
Limitations		
Delimitations		
Assumptions		
Organisation of the study		

This is a very straightforward activity where you frankly answer Yes/No. Where you answer No, go back to the information, read and re-read to ensure you master what is expected of you.

9.17 Summary

This Chapter has shown that the Introduction (Chapter 1) of the research report contains important subsections that fulfill specific functions. The opening of the Introduction is a statement that shows what the dissertation/thesis is about and why the problem that is being solved is an important one. The Background to the Study presents what other people have done, how and with what conclusions. It also clarifies what other people have been unable to do and what conflicts and contradictions still remain to be addressed. The Statement of the Problem is a specific statement of the gap that needs to be filled by the current study. Limitations are constraints which the researcher can do little about while Delimitations are boundaries to the study set by the researcher. Assumptions are factors that the researcher takes for granted on the understanding that doing so will not damage the validity of the findings.

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CHAPTER 10

REVIEW OF RELATED LITERATURE

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Abstract

The essence of this chapter is to offer you skills and strategies on how to write a review of literature for your dissertation or thesis. We start off by outlining the key chapter objectives. As you read, continuously reflect on these objectives. The chapter takes you through the definition of 'review of related literature'. We wish to remind you upfront that the review process is a tedious but systematic academic undertaking that requires a degree of effort on your part. As you read through, we give you activities to reflect and work on. The section on components of a review is central to your ability to formulate an informative and scholarly review. Model examples of how to do a typical review are given. Hasten to say that your review should focus on interrogating the problem, variables, methodology and results of the previous studies. The chapter offers you an array of literature sources and where you can get these from. In conceptualising and drafting your review, we advise you against the academic evil known as plagiarism. Try to be as original as possible, paying due regard to the referencing convention of your institution. In parting, we share with you, our experiences as research supervisors. By the end of the chapter it is our hope that you will have gained understanding and appreciation of undertaking or writing a review of related literature using the acquired skills and competencies.

10.1 Introduction

The review of related literature is a critical critique and summary of past research on the topic of interest by a researcher. It identifies gaps in studies that were carried out before yours, as well as bringing into discussion knowledge and ideas by other scholars on the subject being investigated. The literature review justifies the need for a new investigation, and assists with coming up with the methodology to be followed in the new study.

10.2 Objectives

After working through this chapter, you should be able to:

- explain what reviewing literature means or entails
- outline the significance of a review of related literature
- describe the key components of a review of related literature
- list sources of literature used in a review
- Relate reviewed literature to the problem statement/research questions/hypotheses of your study.

10.3 What is a review of related literature?

As a research student, you will probably have been wondering what literature review is all about, and what its significance is to your current study. Presently, let us reflect on this critical aspect of the dissertation together.

Reviewing literature is the process of searching, systematically compiling, assessing and scholarly interrogating previous literature in order to inform or demonstrate its relationship with any current research. Such a systematic or conceptual review is a critical analysis (Cronin, Ryan & Coughlin, 2008), or summary of research on the topic of interest. McMillan and Schumacher (2010) view it as a narrative interpretive criticism of the existing literature with a view to providing an understanding of the existing knowledge. It is prepared in order to put the research problem into context, or to identify gaps and weaknesses in studies that were carried out before yours. This enables you to take and make an informed academic stand after identifying a gap (to be filled) situating the study (Chenail, Cooper & Desir, 2010). Kennedy (2007: 139) submits that being “systematic” implies that the reviewers have “...defined the research question as clearly as possible and have made a concerted effort to ensure that they have found all evidence relevant to that question”. By the time you have completed the literature review section, you should have justified the need for a new investigation and shown the relationship between the work that has been done and what you are doing now. A review of literature analyses specific aspects and concepts of the published body of knowledge. This is done through:

- summarising,
- classifying, and
- comparing research knowledge into given strands of thought.

Such research has been carried out under different conditions and during different epochs or times. In essence, literature analysis is an overarching issue for all sections of the research report or thesis. The ability to integrate literature as one explains and interrogates issues in all sections is a reflection of good scholarship. A review of literature chapter is thus, a special section of a report or thesis as presented.

According to Knopf (2006), a review of related literature section has the following two key elements:

- i. It should concisely summarise the findings or claims that have emerged from prior research efforts on the subject.
- ii. It should reach a conclusion about how accurate and complete that knowledge is; it should present your considered judgements about what is right, what is wrong, what is inconclusive and what is missing in the existing literature.

In addition, the literature section introduces the researcher to the ‘technical language of research’ and to the ‘writing and citation style(s)’ in their field.

To reflect on the definition of literature review, share your personal views by working on this activity.

Activity 10.1

Explain in your own words what you understand by the following ideas raised in the foregoing discussion.

- a. Literature study as conceptual review.
- b. How a review of related literature puts the research problem into context.
- c. How the review of related literature helps you identify gaps.
- d. What is involved in classifying the literature.

The topic for your study will contain certain concepts, which are peculiar to it. These need to be closely studied and clearly distinguished from other loose usages. This perception helps you respond to the first question, while the significance of relevant literature has to be acknowledged. It helps you focus on what is significant in your research. Regarding the third question, a review of related literature assists you to establish what has been done and what has not been done in the field. Finally, classifying your literature entails placing whatever relevant ideas you come across into categories, e.g. general ideas, theoretical views, prior findings either in agreement or in disagreement with what you are investigating. Classification may also be according to sources: journals, textbooks, or websites. Let us now turn to the issue of significance.

10.4 The significance of a review of literature

A number of scholars (Hofstee, 2006; Knopf, 2006; Kennedy, 2007; McMillan & Schumacher, 2010; Notar & Cole, 2010) have put forward a number of benefits of a review of related literature. The following are some of the benefits of a review of related literature they put forward. Literature review:

1. reveals what has already been done well, so that you do not waste time “reinventing the wheel”.
2. gives you new ideas you can use in your own research.
3. helps you determine where there are problems or flaws in existing research.
4. enables you to develop a conceptual or theoretical framework for the study.
5. gives you a good idea on how to present and analyse your data.
6. helps you reach a conclusion about how accurate and complete that knowledge is. It should present your considered judgements about what is right, what is wrong, what is inconclusive and what is missing in the existing literature or studies.
7. enables you to compile and assemble previous studies and indicate the form in which they are stored. Research material may be stored and retrieved from, *inter alia*, journals books, Internet databases, newspapers, magazines, archived diaries and radio and television programmes. Such an array provides you with rich sources, and in the process, eliminate bias or over reliance on particular sources.

8. enables you to have a good idea of the methodology that has been used to investigate the concepts that you are investigating currently. Therefore, your review of relevant literature gives you good ideas for your methodology. It may focus on methodological aspects such as research instruments, research design, data collection procedures and data analysis techniques used in previous studies. As such, the researcher, for instance is able to cross-examine the psychometric properties of instruments and situate his/her study. Such properties or aspects may include validity and reliability, and many other constructs. For instance, they must also use the review of literature to anticipate data analysis techniques. We have come to notice that some students collect data before they anticipate the latter and they get overwhelmed. With these issues in mind, the researcher may then select an appropriate instrument or methodology for the study. To this end, it is important to search, analyse and critique research designs and analytic techniques cited in a particular literature source. A researcher must use as the platform to gain insights into the research designs relevant to their research purpose.

9. As a researcher, you have a clear focus since you know what and how you wish to conduct a review. Time is also lessened since the researcher knows where to find literature. The tendency towards waffling is thus nipped in the bud.

10. enables a researcher to suggest further research niche areas based on previous knowledge. Empirical studies normally provide suggestions for future or further research on the basis of results and related literature. The same applies to desktop/conceptual, qualitative and longitudinal studies that review literature and show gaps in knowledge. You can thus place your research in a larger context, so that you can show new conclusions from your research.

11. enhances the discussion part of your research. In your discussion, you will be telling your readers about what your study has found:

- whether you are confirming previous findings;
- whether you have found something new; and
- whether what you have found is part confirmation or part refutation of what other researchers have found.

You should realise that it is impossible for you to engage in a meaningful discussion of your results if you have a sketchy review of literature. The activity below requires that you re-examine the foregoing discussion, and comment on some of the points raised.

Activity 10.2

The first three points are that a review of related literature: reveals what has already been done well; gives new ideas you can use; helps you determine where there are flaws or gaps in existing research. By closely referring to the topic you are studying, explain the extent to which the literature you have reviewed so far complies with these three expectations.

This activity calls for self evaluation. If you find that you are compliant with the three, it means you are on track! Note that although only three have been singled out of ten, you should carry out a similar evaluation exercise with the rest.

The next question we should address is: What are the key components of a review of related literature?

10.5 The key components of a literature review

In making a determination of key components of literature review, answering these questions can be a useful guide:

- What does the literature review do?
- What is it that you review?
- What should be included or omitted?
- How do we access third-party sources in our work (Chenail et al., 2010)?
- How do you do it?

Answers to these questions are encapsulated by Cronin, Ryan and Coughlan (2008: 38) who submit that the ability to review literature

...demands complex range of skills, such as how to define topics for exploration, acquiring skills of literature searching and retrieval, developing the ability to analyse and synthesise data as well as becoming adept at writing and reporting, often within a limited time scale

An important aspect is to keep your literature review focused and manageable (Cronin et al., 2008) by developing subheadings largely from the sub research questions or objectives that you will have posed (Chireshe, 2010). Thus, the subheadings are derived from the sub research questions or objectives spelt out in the introductory chapter of the research write-up. In short, review only that which is related to your study! Hence, we suggest that the chapter heading should read ***Review of related literature*** and not ***Literature review***.

The former heading keeps your study focused by compelling you to review literature that is only related to your study. The latter one renders your review a glorified academic assignment since the tendency is on commentating on any literature that you lay your hands on without focusing or aligning it to the research questions or hypotheses. If your supervisor tells you that no subheadings will be required in your work, you can use the subheadings for structuring your review. You can then remove the subheadings after you are satisfied with the structure of your review.

Now, coming to our earlier question: What are the components or elements of a review? In answering this question, let us assume that the researcher is researching on:

Management of child sexual abuse cases by female primary school heads in Zimbabwe.

The components of the review for such a topic will be:

- the problem,
- the object of study,
- the variables, and
- the gap which your study seeks to close.

We now examine each one separately.

1. *The problem* in our example is the *Child sexual abuse* scourge. We can dissect the problem by arguing or deducing that the *child* is a primary school pupil. Hence, we can review literature on *Child sexual abuse of primary school pupils* or better still *Child sexual abuse of Zimbabwean primary school pupils*. We can also look for literature on *Child abuse* or *Sexual abuse* (in schools). You may also look for synonyms of words/descriptors such as *Pupil* and *Abuse*. The words *Learner* and *Molestation* or *Aggression* respectively come to mind. You accordingly search literature containing such words or descriptors.

2. *The object/s of study* is *Female primary school heads*. The object of study is the ontological or universal premise of the study. It is that 'living thing' around which a study revolves or centres. In searching for literature you may also look for *Women Elementary school principals* as regards their leadership styles (or even management styles). Better still, you may broaden your review by looking at Leadership styles of male principals/school heads or headmasters in any country. Find out what literature says about how they manage or handle child sexual abuse cases in their schools.

3. *The variables*: You are also able to focus on the key variables of your study. In our example, variables of interest are: *Management* (of Child sexual abuse cases) and *Female* (primary school) *heads*. It may be incumbent upon you to construct or create the variables of interest if your topic does not categorically reveal the dependent and independent variable. Show the interface between the variables. In our example, in order to clearly focus our study, we would suggest variables such as:
 - *management styles of female school heads; and*
 - *leadership styles adopted by female school heads.*

Both the above two, are examples of **independent variable, or input variable**. From the foregoing topic, the cases being managed, are an example of **dependent or output variable**. The cases are measurable (individually) and conclusions can drawn about the effect of management.

In some titles, variables may be clearly stated. Examples that come to mind (**in bold**) are:

*The effect of **home background** on **academic performance** or*
*The relationship between **supervisors' personality** and the **completion rate** of postgraduate students in South Africa.*

In these examples, *Academic performance* and *Completion rate* are the dependent (exogenous) variables while *Home background* and *Supervisors' personality* are independent (endogenous) variables. As such, your role is that of delineating the variables or descriptors within a title and search for appropriate literature. The supervisor or any other reader can easily comprehend and follow the threads. Show uniqueness in your review. Demonstrate your contribution to the area of study. In the discourse, bring out the controversies, inconsistencies and congruencies in some concepts and theories. In doing so, you need to guard against regurgitating and plagiarising the works of other scholars, or merely agreeing with what they say uncritically.

A review of related literature shows the gaps which your study will fill. The following section discusses some of the gaps which a review of literature may address. Work on this activity in order to reinforce what you have read so far.

Activity 10.3

- a. Explain, with reference to a research topic of your own, what independent and dependent variables are.
- b. What is the object of study as opposed to the objective of the study?

To respond well, go over the examples given above, and relate them to your topic. Regarding object of study, this refers to that which you will be focusing on (the thing you will be studying). Objective of the study refers to the reasons for undertaking the research.

10.6 'Gap' into which your study fits

Your literature review shows the “gap” into which your study fits (Chenail, et al., 2010; Knopf, 2006; Mapfumo, 2007). It shows this by indicating what other thinkers in the area have done and therefore what you intend to do yourself. There are other important ‘gaps’ that you, as a researcher may want to fill. Such ‘gaps’, are, in essence, an addition to the existing body of knowledge in the area being investigated. The following are illustrative (Mapfumo, 2007):

- (a) *Conceptual gap*: where the concept that was investigated may have been defined and therefore understood differently. Imagine for instance that a former researcher worked on motivation of staff at a work place and the only meaning of motivation used for that study was attendance at work. You may want to provide a more encompassing definition of motivation, and carried out a similar study to see whether or not the results you get will be comparable. You mention in your review that you are defining motivation differently from the way it was defined by your predecessors.
- (b) *Geographical gap*: where a variable may have been researched in some countries and not in others. Taking the examples in 1 and 3 above, you may need to review literature from countries other than Zimbabwe and South Africa. This is quite common in Third World countries where many issues remain un- or under-researched. What you do in your literature review is to summarise the work that was carried out in different countries and then to state what it is that you want to do differently in your study. Are you for instance going to use respondents who are different? Are you going to use methods that are different? On the other hand, are you going to merely replicate the study (carrying it out as closely as possible to the way it was carried out in other countries?) You need to point out all this because that is what shows the connection between your work and the work that was done by other people before you.
- (c) *A methodological gap* where, for instance, certain research design were (over) used while others were not used. The survey research may have been used over and over in certain matters of educational research and few or no studies may have been carried out using the experimental method or case study. Some supervisors

may have compelled past students (supervisees) to use a particular (preferred) methodology and you wish to try out a different one. You thus need to state all this in your literature review to warrant your preferred design. As an author, your methodological choices particularly methodology and design should be connected (Chenail, et al., 2010)

(d) *Population or sample gap* where certain studies were restricted to certain populations and not extended to others. An example is perhaps that situation where certain people are studied much more than others e.g. studying the poor with respect to the HIV pandemic and not the rich; or studying male school heads than female school heads.

(e) *A time bound gap*: This is where the gap has arisen because the sort of research that you intend to carry out now was carried out some time ago. As such, you suspect that some variables have changed and you wish to find out whether or not your or other peoples' suspicion is borne out by the results or other aspects of the study. This is more common in longitudinal studies.

(f) *A discipline gap*: Studies are generally discipline or subject specific. Some concepts tend to be concentrated in some disciplines than others. For instance, the people who have been carrying out studies on the effect of socio-economic status on academic performance were educational psychologists and you are a sociologist. You might then wish to enter an area that has been dominated by people who "do not speak your language". You suspect that if you carry the eyes and ears of the sociologist into the area you may come up with interesting findings. Some authors tend to dominate or are associated with certain areas (discipline gurus) and you may wish to make your mark in that discipline. Hence, you challenge the traditional disciplinary conventions through refocusing or grounding some variables in your particular discipline.

In our view, these are very instructive ideas about research gaps. Many students miss out on this aspect, so we suggest that you study these closely and indicate which one(s) pertain to your area of study.

There might be aspects of a topic that researchers might have not examined yet. Whichever gap you think is worth filling the fact remains that it is a knowledge gap. There must clearly be a gap-related rationale for you to carry out your study. The gap does not speak for itself but you have to tell your reader where the gap is, and what type it is (Chenail et al., 2010; Mapfumo, 2007). If you do not do that, you may be suspected of studying an area where all the answers are already known. Highlighting the gaps demonstrates how your literature is related to your study. The biggest error is to present literature without showing how it is related to your study. Such an error renders your review or 'study' a glorified academic assignment something we need to avoid as postgraduate students.

10.7 Presenting the review of related literature

Before getting into the business of putting the review of related literature together, let us share with you some of the dimensions that make it more rigorous. You may consider carrying these dimensions in your head as you write your literature review (Mapfumo, 2007).

1. Thoroughness and completeness
2. Logic: A systematic approach to presenting the information

3. Recency of the material that is reviewed: latest publications (preferably published within the last five years) give your review some academic clout.
4. Originality of the researches that are being reviewed
5. Examining of primary rather than secondary sources
6. Critical appraisal of the material being reviewed
7. Building a case for the new study. This may be articulated in the methodology. You may want to ask yourself if or not the case is in the new geographical area in which it is being carried out or if it lies with a new population or a new sample or with a new statistical analysis.

An eighth dimension may be added, namely:

8. Varied sources: textbooks, journals, and credible websites.

A review of related literature should impose some intellectual order on the material (Knopf, 2006). You should group individual studies into larger “camps” or “schools of thought”. You can do this in terms of different methodological approaches they take, or different policies they favour or disciplines or background of authors- academics versus government officials, psychologists versus economists etc.

If you group similar studies together, rather than discuss three like-minded authors separately in three successive paragraphs, you can mention all three together in a single sentence such as X, Y and Z argue that policy B has been ineffective and proposes policy V instead (Knopf, 2006:129). We have given you an example in the section that follows.

10.7.1 Some examples of presenting the review of related literature

The skill of creating a good review of literature is every postgraduate student’s nightmare. However, if one religiously includes the components suggested earlier in your review we feel that you may come up with a good review. We provide you here with a few examples of how you may do your review. Our first example from Chireshe (2012) reveals how **the problem** can be addressed or contextualised in a review. He says that there have been reports on low throughput rates among postgraduate students (Mutala, 2009a; Khan, 2009; Council on Higher Education (CHE) (2009).

The ‘problem’ in these studies is *low throughput rates*. The variables are *throughput rates* and *postgraduate students*. In another caption of the same study, Chireshe articulates the problem of *postgraduate students’ attitudes towards supervision* elsewhere in the text by positing:

Lessing and Schulze (2002) investigated the perceptions of postgraduate students who had completed their studies towards the supervision they had received.

In another example where the *problem* was child abuse, Makura and Zireva (2011) wrote:

A substantial body of literature supports the existence of various forms of human abuse in the Zimbabwean education system (Chiroro, Viki, Frodi, Muromo, & Tsigah, 2006; Makura & Shumba, 2009; Mapfumo, Shumba, & Chireshe, 2007; Shumba, 1999, 2000, 2004a, b, 2006; Shumba et al., 2008; Zindi & Shumba, 1999).

This example also reveals views of the experts or *gurus* in the particular area or discipline as well as the recommended citing/referencing convention. In the last example, Shumba emerges as the expert on human abuse. The ability to search, identify and cite discipline experts is therefore, central to any review.

In some reviews, it may be important to provide aspects such as the topic, the problem, methodological issues, results' analysis and findings. The following example from an empirical study by Makura (1999) on Zimbabwe and Lesotho female primary school heads is illustrative:

A study by Peretomode and Agu (1990) focused on principals' instructional programme management performance as perceived by teachers in Nigeria on the basis of gender. Using a sample of 57 principals and 290 teachers, they administered a "Demographic data questionnaire" for principals and a teachers' questionnaire titled "Principals Instructional Management Performance in Rivers State" respectively, to solicit data for the study. The data collected were treated using descriptive and inferential statistics. The findings showed that principals' mean performance rating by teachers in overall management of instructional programme were high. However, there were no significant differences in instructional ratings between male and female principals. Moreover, their study revealed significant differences in the ratings of democratic and undemocratic principals, with the latter being rated more highly in instructional management. Unfortunately, the study did not group democratic and undemocratic principals by gender.

The preceding caption reveals the study title, where conducted (geographic location), sample size, instruments used, data analysis techniques and results. These data will assist you in "the discussion of your results" (Jegede, 1995: 44). The review above is thorough and complete as it contains the key review components. The information is also presented logically (from title, problem to results). However, the 1990 article was reviewed in 1999 rendering its content relatively obsolete. You need to review recent literature. A new dimension in the review example above relates to providing a personal comment or opinion (by you the author). The last sentence in our example is the writer's opinion. This is part and parcel of the critique. It is the conceptual 'gap' in the 1990 article by Peretomode and Agu. As a writer or reviewer, you should jealously watch against focusing on a single dimension. Our research supervision experiences show that most postgraduate students tend to focus on the results of the studies much to the detriment of other dimensions. Hence, we suggest that you consciously pay attention to all the aspects. In reading and sifting literature you will occasionally discover that some authors present contrasting views on the problem being investigated. Hence, when doing your review, lookout for differences in opinion (and convergence) and show how these inform your study. Below is a typical and classic example extracted from Shumba (1999: 333) commenting on the relationship between Western and indigenous thought as perceived by science teachers:

While Horton (1971) argued that there is more similarity between traditional and scientific beliefs than anthropologists have made out, Yakubu (1994) suggested that the differences between indigenous thought and practice and Western science are real and pose problems for everybody. Consequently, these blocks to falsifiability result in the lives of the people being dependent on indigenous thought and practice where generally, the techniques and technologies used in the far past are continually applied in present

circumstances with little modification or change. Cobern (1994a), Horton (1971), and Yakubu (1994) noted, however, that the differences in cultural perspectives must not be construed to suggest that Westernized scientific rationality is inherently good or that people ought to abandon indigenous cultural beliefs to embrace it.

Here is an activity to enable you to share your perceptions.

Activity 10.4

- a. Why do you think recency of related literature is critical in the review?
- b. Supervisors expect you to vary your sources (textbooks, journals, websites, and other sources). Why do you think this is important?

Recency is important because it shows that you are in touch with latest developments in the field. This does not, however, mean that researches of long ago are irrelevant. A good example is the work of Skinner(1911) on reinforcement in the context of learning. (See Horton (1971) in Shumba's (1999) example above). We call this a seminal work to which we can continue to make reference. Varying your sources signifies scholarship. There is a school of thought, which encourages more references to journal articles because of their recency.

10.8 Questions to ask and answer in a review of related literature

From the information, we have discussed about the what, why and how of review of related literature, we conclude by using Knopf's, (2006:131) questions about what a sound review of related literature asks and answers:

1. What questions have the existing literature addressed? What issues have been neglected?
2. What are the main conclusions of the existing studies? What do the studies actually argue?
3. What are the points of convergence in the literature and what are the main disagreements? Where disagreements exist, what are the bases of the disagreements?
4. What policies or evidence has the literature looked at? What potentially relevant information and alternative policies have not been examined?
5. How solid are the conclusions that have been reached? Are they based on sound reasoning, careful assessment of the evidence and well executed methodology? On the other hand, are there good reasons to doubt some of the existing conclusions?
6. What are the most important problems and gaps that require additional research?

A further question can be asked: What categories of literature can be reviewed? The following three are suggested:

i. Theoretical grounding

Theory/theories identified to facilitate addressing research questions, or testing hypotheses.

ii. *Prior studies*

Comparable up-to-date studies in the same field bearing upon the gap you identified in Ch.1

iii. *General knowledge*

General knowledge (about ideas, concepts, principles) in the field enhancing conceptualisation of the research problem

10.9 Guarding against plagiarism when writing a review of literature

One 'challenge' or let us bluntly put it: one 'academic evil' that research students do when writing a review of literature relates to copying or stealing other authors' ideas and pretend that these are theirs! This practice is referred to as plagiarism. This issue has been highlighted in an earlier chapter. This practice takes many forms. The most common relates to using such information or ideas from a documented original source without crediting the source/s. Other students "cut and paste" such information from published materials onto their manuscripts when using computers (MS word). Even cutting and pasting a reference source from a reference list constitutes plagiarism. Some students do 'word switching' i.e. replacing an original term with a synonym while others copy the presentation style. Theft of such information encompasses not only word information but also diagrams, maps, metaphors, photos and many other copyrighted literary forms. With the glut of information on the World Wide Web (WWW), some websites have become popular destinations for academic information. We have in mind Wikipedia and other open non-(peer) reviewed sources of journals now flourishing in the virtual environment.

When confronted by supervisors with evidence of engaging in academic theft, most students profess ignorance or bluntly reject the accusation. Some admit pleading 'fear of failing' or claim to lack literary capacity. Whatever the reason might be, plagiarism is an unwarranted ill. With the advancement of technology, it is quite easy to detect plagiarism particularly in a review of related literature section of your thesis or dissertation. Programmes such as *Turnitin*, and *Safe Assign* under Blackboard are illustrative. These antiplagiarism softwares are able to detect with certainty the plagiarised portions and the source/s from which the culprit obtained them as well as the extent of the plagiarism (as a percentage of the written work). Any mark above zero per cent, implies that you plagiarised something. As such, we urge you to desist from consciously plagiarising from the primary and secondary sources that you consult. For more information on finding out why students plagiarise, visit a webcast by Jason M. Stephens on the website: www.turnit.com. Moreover, it is suggested that you familiarise yourself with the legal issues around copyright law and intellectual property rights.

It is advisable that you subject your work to plagiarism detection software/s before submitting your proposal, dissertation or thesis. If the plagiarism is detected after you have graduated, the university is legally obliged to take disciplinary action (Lindsay, 2010) by rescinding or cancelling such qualification/s granted to you, as it/they would have been obtained through fraudulent means. Other consequences include being failed, sued, expelled, marked down or suspended. Surely, you do not want to experience such! So, when doing in-text and end-text referencing, endeavour to use your own words. Find out what the plagiarism policy of your university is. Use the recommended citing style or convention of your university to indicate the source of the ideas, facts, theories or any other information used to support your narrative. See the examples of *in-text* referencing under the section: **Presenting the review of related literature**. You need to distinguish your opinions from borrowed evidence using formal language.

10.10 Sources of literature used in a review

We have hinted under the significance of literature some of the sources of your literature. Hasten to say that there exist primary and secondary literature sources. These are both for quantitative and qualitative studies. However, strategies for searching literature for qualitative and quantitative studies differ (Mackay, 2007). Such sources are generally stored in manual forms (as in books, newspapers, monographs) or electronic forms (Internet, radio or television) and in the living memory of individuals. Your initial task is being able to locate such sources. Locating literature for a qualitative study is slow, complex and laborious while the process is quick for quantitative studies (Mackay, 2010). Such searches should be done systematically. The library is your first port of call. Primary literature sources are original researches by specific researchers (McMillan & Schumacher, 2010). They cite sources such as educational journal articles, scholarly monographs, periodicals, research reports, citation indexes, government documents dissertations and theses. These should be read first for you to appreciate and critique the conduct and validity of research. Other sources include recordings of interviews and diaries in a retrievable form. In qualitative research, eyewitness accounts are classified as primary sources.

Secondary sources include books, encyclopaedia, education databases and yearbooks, specialised references. Such sources report on original and opinionated information for the readers.

Activity 10.5

What challenges do you and other students face in accessing primary sources in conducting research?

Generally, poor library resources in developing countries, and lack of access to the internet can be a problem. Students end up citing names of authors and dates when their works were published as if they had read them.

10.11 Rules of thumb in a review of related literature

Knopf (2006) presents the following rules of thumb in doing a literature review.

1. Focus on the leading authorities in the area. You need to respond to frequently cited authorities in the area. The key works of these authorities should influence the direction of your study.
2. Focus on studies that are most relevant and helpful for your question of interest. You need to review literature that is directly related to your study.
3. Focus on recent studies from high-prestige or high-visibility sources. These could include books published by high-ranking universities or articles from leading journals in the field.

10.12 Lessons learnt from supervising Review of Related Literature

Our experiences as research supervisors reveal that many students face plethora challenges in crafting a good review of literature. Such challenges mainly stem from (student and supervisor) incapacity to laziness. This is further compounded by our earlier submission: that of poor library resources in developing countries. Student inability to write a good review initially emanate from the supervisor's inability to guide the supervisee. Some

supervisors have inadequate research supervision skills (Chireshe, 2012) and have themselves not published. As such, they lack the literary skills for capacitating their supervisees. We, as academic research supervisors have perfected our skill of assisting students with the passage of time. The more we have published and acquired higher degrees, the more we were, and are, able to meaningfully assist students particularly on how to develop a scholarly review of literature.

We have also experienced students presenting literature without showing the gaps their studies would fill. The literature is just presented without showing how it is related to the study. In such cases, the student's voice will be missing. Related to the above issue of students not relating the literature to their studies is, students having a tendency of writing a review of related literature just as academic assignments. They fail to demonstrate the rigorous, analytic, coherent and systematic skills in reviewing literature. Quite a number of them concentrate on the results of the previous studies, and yet all elements need to be interrogated. The inadequacy of libraries and related resources especially for ODL students have meant that most students use books as the key sources of information. And yet, journal articles and electronic resources are key to producing a comprehensive review. In addition, the students only consult outdated and secondary sources. Moreover, some students resort to plagiarising due to a lack of the requisite literary skills or sheer laziness. Invariably, several students engage in plagiarism. They present their information without acknowledging their sources.

Some institutions lack plagiarism detection softwares or stringent antiplagiarism policies. Some supervisors also demand that students submit untyped manuscripts. By doing this, some supervisors opine that the students will submit original work instead of copying, while others want to be accomplices since they are aware that handwritten manuscripts cannot be subjected to an antiplagiarism software. Consequently, students take advantage and plagiarise. Some experienced supervisors, are now able to detect and sniff out the plagiarised portions of any academic writing. We, as experienced supervisors, occasionally subject any submitted work to our institutional antiplagiarism software. We have also assisted our students with good samples of downloaded journal articles from which they can take a leaf. Such approaches have assisted our students a great deal.

10.13 Summary

Your literature review is crucial to the success of your dissertation or thesis. It enables you to have a good idea of the methodology that was used to investigate the concepts that you are investigating now. It may assist you come up with instruments for your study. You also get ideas on how to present and analyse your data. More importantly, a review of related literature will help you come up with a scholarly discussion of your findings. To this end, watch against plagiarising.

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CHAPTER 11 METHODOLOGY

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Abstract

This chapter is meant to help you with the choice, description and justification of the research design, sampling, data collection, data analysis and addressing ethical considerations to resolve your research question. It determines the credibility of your findings. The design chosen depends on the nature of the research question, which is in turn dependent on the researcher's epistemological stance. The design can be qualitative or quantitative depending on the aims of the study, or with justification it can be mixed. If qualitative, the basis for data collection should be non-probability sampling, the role of the researcher as a data collection instrument is critical and the research must be flexible as practicalities and peculiarities on the field may demand change to the original plan. The interpretation is subjective –as experienced by the subjects involved. If quantitative, data collection should be based on probability sampling, systematic with stringent controls to minimize bias and maximize objectivity in interpretation. In either approach inappropriate data analysis and failure to comply with ethical provisions threaten the trustworthiness, or validity and reliability of the findings. Whether a qualitative, quantitative or mixed approach is adopted the methodology chapter ought to be sound. The chapter also shares lessons learnt from supervising the methodology chapter, among which are: beginning with the design in mind; the fallacy about designs; the appropriateness of data analysis strategies and the importance of a full theoretical appreciation of the issues around the research question as you work through the methodology chapter.



11. 1 Introduction

You have in Chapter 1, hopefully clearly articulated your research question and stripped it down to small researchable components (research questions and hypotheses that should enable you to collect data you need to answer the question(s)). In short, you have convinced the supervisor/promoter that you know what you are looking for, and he has given the nod that it is indeed worth looking for, i.e. your problem is researchable. In Chapter 2 you reviewed related literature, which helped to put your study within some theoretical framework, shown what other researchers have done and what knowledge gaps still need to

be bridged. When you get to the Methodology chapter the supervisor/promoter wants to have a full appreciation of what you are going to look for, where you are going to look for it as well as how and why you are going to look for it, in order to resolve your research question. In this chapter you discuss the research design and the steps you will follow to resolve the research question. You present the methodology by which data will be collected and analysed. There is need to comprehensively explain the research design, providing a clear picture of what was done to allow the audience to evaluate the validity of conclusions arrived at.

11.2 Objectives

After working through this chapter, you should be able to:

- choose a research design appropriate for your research question(s);
- articulate the suitability of the research design chosen to resolving the research question (s);
- define your research population and sample;
- describe and justify the data collection instruments and procedures you use for your research;
- explain how data will be analysed; and
- address ethical issues in your research.

11.3 Importance of the Methodology chapter

All chapters in your dissertation are important, but some chapters are more important than others. Pajares (2007) argues that the methodology section is the most important section in the entire proposal as it explains each step the researcher will take in order to conduct the research. This line of thinking is easy to go with because even if you know clearly what you are looking for if you look at the wrong place, using inappropriate gadgets and means you will surely not get it. When you do not get it, but you do not have enough courage to admit you got nothing, the temptation is high to present whatever you got at the wrong place using the wrong gadgets and means, and then expect the reader to believe you. You get disappointed when the reader rejects your findings. Thus, failure to address the methodology chapter properly can lead to the proposal's rejection and even to the rejection of the final thesis by external examiners.

The chapter gives information that helps the reader to assess the believability/credibility of your findings Kumar (2012). It gives room for replication by other researchers in different settings and is thus a vehicle of expanding the researcher's influence in the discipline being studied.

It may be necessary to restate your research questions/hypotheses in this chapter to maintain a sharp focus on the techniques and procedures you will use to collect specific data, although some supervisors/promoters will be comfortable leaving the research questions/hypotheses in Chapter One. This is the design chapter, and it is a framework which shows which individuals will be studied, when, where and under what circumstances they will be studied (McMillan & Schumacher 1997). Borland (2001) and Meadows (2003) assert that a research design can generally be classified as either qualitative, or quantitative, or a combination of the two. It is in this chapter that you articulate a stance to prepare the reader for what is to come.

11.4 Going Qualitative or Quantitative?

As a researcher you hold a particular epistemological framework, which is either positivistic or anti-positivistic (see Chapter 5, which deals with the quantitative and qualitative approaches in some detail). If you believe in logical positivism you see the world as objective and your view of research is that it must be limited to that which can be observed and measured objectively. On the other hand, if you believe in anti-positivism you see the world as subjective and research having to do with understanding the behavior of phenomenon in its natural setting, and from the perspective of the people involved (Welman, Kruger & Mitchell: 2005). This broad epistemological frame should be the starting point for deciding on your methodology as it has probably influenced both your choice and framing of the research question. If you are pro- positivist you are likely to adopt a quantitative approach, whereas if you are anti-positivist you are likely to adopt a qualitative approach.

Before we delve into which design to go for, it is critical to fully appreciate that qualitative and quantitative approaches should not be viewed as polar opposites or dichotomies, instead they represent different ends of a continuum (Newman & Benz: 1998). Somewhere in the middle lies the mixed methods, which are still open choices. Should you opt for the mixed method you need sound justification for the combination. Bear in mind that the methodology follows from the research question - not the other way round - so the methodology must speak to the research question, rather than have to force the topic to speak to the methodology. The methodology is a tool for addressing your research problem and you must always begin with that in mind.

Silverman (2000) posits that the most important consideration in choosing the design emerges from the aim of the study, while Prahoo (1997) maintains that the nature of the phenomenon being studied determines the methodology to be used. Whichever approach is chosen its presentation in the chapter must not just be an account of the way data are collected, but must show how the epistemological stance (assumptions you make-implicit or explicit- about the nature of the knowledge which you regard as valid in order to resolve the research question) adopted provides a link between the aims of the research and the practicalities of data collection (Oliver: 2008). The activity below requires you to reflect on the foregoing.

Activity 11.1

- a. List any three factors that would influence your choice of either a qualitative or quantitative approach in resolving a research problem.
- b. Give, at least, two differences between qualitative and quantitative research approaches (minus the use of numbers and narrative descriptions).

Your response to the first question will be based on your full understanding of the two approaches, and of course, your personal interest. Equally, you should read what distinguishes the one approach from the other. Revise Chapter 5, which gives a detailed discussion of the approaches.

11.4.1 If you go Qualitative

The underlying rationale for going the qualitative route is that the nature of your research question calls for inductive reasoning where specific subjects will be observed in their natural setting and generalisations made. Alternatively if the research question calls for the

experiencing of human behaviour and understanding human behavior from the perspectives of the people involved then the approach has to be qualitatively inclined (Welman, Kruger & Mitchell: 2005). Further, the aims of qualitative research are to establish the socially constructed nature of reality, to stress the relationship between the researcher and the object of study, as well as to stress the value-laden nature of the inquiry, without resorting to rigorous examination or measurement in terms of quantity (Welman, Kruger & Mitchell: 2005). Subsequently, the common danger for aspiring researchers is to assume that this is an easier option than the quantitative approach which calls for rigorous statistical computations to test hypotheses-do not give your supervisor/promoter the impression you have fallen into that fallacy. Some of the most commonly used qualitative designs include:

- case studies
- historical research
- ethnographic research

The experience of many supervisors is that students preparing their dissertations at a distance tend to use the qualitative approach.

i. Sampling

If you go qualitative you will have to go the non-probability sampling route. The sampling strategies you have at your disposal according to Kumar (2012) include:

- purposive sampling (also called judgmental sampling)
- quota sampling
- snowball sampling
- convenience sampling

You have to explain how you deliberately go for information-rich cases/informants. Show that you understand that the informants are likely to be knowledgeable and informative about the question at stake. Herein lies the challenge to the researcher:

- pull out those attributes about the informants that leave the supervisor/promoter in no doubt that they are the most appropriate source of the information being sought after.
- Describe also the depth of questioning and observation that you will go into and why.
- Justify site selection-why the particular site(s) at the expense of multiple other available sites. This implies you need to have an in-depth understanding of the community/society you are researching and the phenomenon you are working on.

The sample must be as comprehensive and heterogeneous as possible so as not to lose variations of perceptions (McMillan & Schumacher: 1997). You must clearly articulate the sample size guided by the following:

- purpose of research
- focus of study
- primary data collection process
- availability of informants.

Avoid giving the supervisor/promoter the impression that the sample is fixed and final. You have to allude to the fact that because you are into qualitative research the sample size will be dynamic, *ad hoc* or phasic since one informant or piece of information may lead you to another source of data.

ii. Data collection and analysis strategies (as opposed to procedures)

It is important to note that because of the flexible nature of qualitative research, use of terms *data collection* and *analysis strategies* is preferred to data collection procedures, which would imply a sequential series of activities (McMillan & Schumacher: 1997). In this case the strategies for collecting data may overlap and can even be circular. What you present to the supervisor/promoter then is not just a listing of the strategies, rather you should strive to bring out clearly the dependability of each strategy on the prior strategy and the data it yielded.

In your plan, describe the sites, informants, and documents that would **seem** logical to yield the data you need. We deliberately say, "...that would **seem** logical' as we are conscious of the flexible nature of the research alluded to in the preceding paragraph. These may change, with sound justifications as the data collection unfolds.

Address comprehensively issues of how you intend to gain access to the informants as this will not only show the care you took, but also indicate the nature of context in which the research was done. This, in turn, gives the reader an appreciation of some of the stances you may take in your findings. You are here giving the reader a glimpse of the natural setting where behaviour is to be experienced, and thus in a way dragging him/her to the experiences. In explaining how you will gain access, clarify how you hope to establish rapport and trust with the informants.

There is need to show how you will "hear" "see" and "read" what is going on. This you do by describing in detail, and giving a justification for the direct observation, interviews, open ended questionnaires, focus groups that may be employed. It is also critical to be clear about your role in the data collection as Borland (2001) argues that the researcher who conducts qualitative research must recognise that they are the primary instruments for the research design data collection. You must convince the supervisor/promoter that you were able to play this role without bringing bias to the interpretations you make to your data.

Because in the process of collecting data you have become "part of the subjects" you have to plan and articulate your exit such that it does not disrupt the social order and affect the interpretations you make to your data, or that should there be need to come back you do not find new barriers attributable to your exit style. The analysis process ought to begin before you exit the sites to ensure you leave with a clear view of the emerging themes and complete data, but as you exit you transcend to formal analysis based on pre thought-out organisational, coding and retrieval strategies.

iii. Data analysis

Analysis may take the form of transcribing data recorded from interviews, and collating notes from observations. The data are then segmented into coherent themes (Daymon & Holloway 2002). Coding can be developed as the data are being read and understood.

iv. Trustworthiness (validity and reliability)

Because there are no rigorous tests in qualitative research, emphasis should be on trustworthiness of the findings rather than validity and reliability, which largely depend on absolute measures. Maxwell (1996) observes that the trustworthiness of qualitative research is the credibility of description, conclusion, explanation, interpretation, or other form of account. Daymon & Holloway (2002) posit that criteria for evaluating trustworthiness comprise **credibility; transferability; dependability** and **confirmability**. You

should thus convince the supervisor/promoter of the extent to which your findings approximate reality (McMillan & Schumacher: 1997). Explain clearly also how the knowledge yielded by your research from the small samples can be transferred to similar settings. Dependability refers to consistency and accuracy of the findings, and you need to explain how these were achieved in your study. For instance you are more likely to capture accurate data if you record interviews and focus groups than if you try to take down notes as you listen.

v. Ethical Measures

McMillan and Schumacher (1997) argue that qualitative researchers need to be sensitive to ethical principles because of their face-to-face interactive data collection strategies and reciprocity with participants. Because, as the researcher, you are an instrument of data collection in qualitative research, you are likely going to interact with the respondents for a longer time than would do a quantitative researcher. Issues of ethics become more pronounced. You have to convince the supervisor/ promoter not only that you are aware of the issues, but also show how and why they are critical for your research as well as explain how you will enhance compliance. Noncompliance with specific ethical provisions can render research results untrustworthy, lead to social, psychological as well as legal conflict. So the onus is on you to show the supervisor/promoter beyond reasonable doubt that you are treading on safe ground for the research informants, the society in which the sites are located, yourself, your institution as well as your study discipline. Some of the common ethical issues in qualitative research are:

- Informed consent
- Confidentiality and anonymity
- Deception, privacy and empowerment
- Harm, caring and fairness
- Language, where research subjects are not proficient in the language in which the write-up will be presented

The next activity requires that you take into account your area of study, then share your views.

Activity 11.2

- a. Formulate a research question that would require a qualitative research design
- b. Which specific qualitative design would employ to resolve this question and why?
- c. What steps would you take to enhance the trustworthiness of findings in this research?
- d. What ethical issues would be wary of in this investigation and how would you enhance compliance?

Responses to the four questions are personal, so there is no right or wrong answer. The most important guideline is to ensure that the decisions you make are informed by ideas you read in the foregoing discussion.

11.4.2 If you go Quantitative

If the focus of the research question is to study observable behavior and you aim to uncover general laws of relationships and/ or causality that apply universally, you will most likely take a positivistic or quantitative approach (Welman, Kruger & Mitchell: 2005). You need to have clearly articulated and testable hypotheses.

You must then explain which of the several quantitative designs you will use. You could take any of these:

- experimental research (where the intention is to investigate pure causality)
- quasi-experimental research (where total control of subjects is not possible or is unethical)
- non-experimental research:
 - surveys
 - correlational designs
 - longitudinal designs
 - trend designs
 - ex-post-facto designs etc.

Full explanation of these designs is given in Chapter 6 of the present volume.

Whichever design you opt for, there should be sufficient evidence that it is the most appropriate and pragmatic option to help you resolve the research question. Be very explicit about the variables being measured, and if causality is implied stream line the dependent and independent variables, show the constants and explain what controls will be put in place so that effect is clearly attributed to the said cause.

i. Population and sample

When you are clear about the design that you want to use, describe the population you wish to generalise to (Oppenheim 1996; McMillan & Schumacher 1997). It is very important that you should obtain clarity about the population to which you wish to generalise, and this can be achieved through drawing a sampling frame. Population clarity involves population size, how the population is geographically dispersed, and other demographic aspects of the population, *inter alia*.

The next very important stage to explain is the selection of a sample for the study as it is impractical and uneconomic to involve all members of a population in a research project (Welman, Kruger & Mitchell: 2005). You have the liberty to choose from:

- simple random sampling
- stratified random sampling
- quota sampling
- stratified sampling
- cluster sampling
- multi-stage sampling
- systematic sampling

The choice of sampling strategy depends on the dominant characteristics of the population Kumar (2012). Show also the link between the sampling strategy, sample size and the homogeneity/heterogeneity of the population, time available for the study, and the hypotheses being tested. You may also want to share with the supervisor/promoter what other considerations influenced the sample size, e.g. cost and labour of doing research (Lucy 2002). If a combination of sampling strategies is used there is need to explain why this is necessary, and how these are combined. Remember in quantitative research the larger the sample the better (McMillan & Schumacher 1997: 172; Welman, Kruger & Mitchell: 2005). The sample units should be described in detail.

ii. Instrumentation and Data Collection

In this section you explain the practical steps you took to collect the data. Creswell (2009) postulates that as part of rigorous data collection, the proposal developer also provides detailed information about the actual survey instrument to be used in the proposed study. The instrument(s) must be named, described and justified in terms of both structure and content. These could be:

- a questionnaire (probably the most commonly used);
- structured interview guide
- a test
- a check list
- an experiment set up, etc.

The instrument(s) must be suited to the data that are being collected as well as the subjects from whom the data are being collected. There is need to choose an instrument that will collect the required amount of data in as accurate and consistent a manner as possible. It could be an original instrument developed by the researcher, a modified instrument or an existing instrument taken as is. If modified or existing instruments are used a statement should be included to show the researcher got appropriate permission to use the instrument, and a description of established validity and reliability of scores collected in the past should be included Creswell (2009).

A description of how, when and by whom the instruments were administered is also necessary to help the reader appreciate the context in which data were collected. Instruments such as tests and questionnaires could be mailed. There needs to be a sound justification for this and an explanation of what control measures were put in place to standardise the data collection. If research assistants were used, give a justification as well as an account of control measures put in place to reduce bias that would be brought in by varied data collectors, e.g. what training/orientation were they given.

iii. Data Analysis

Whatever data have been collected and no matter how comprehensive and accurate they are, if not analysed appropriately, it will not help to resolve the research question. There is thus need to be very explicit on how the data will be analysed to answer the research sub-questions and test the hypotheses. If the aim is just to describe what is observed or just to describe what is observed, the following descriptive statistical modes can be used:

- graphs
- tables
- averages
- percentages
- Correlation coefficients.

Chapter 12 of the present volume gives guidance on these statistical modes.

However, if the aim is to make inferences about a wider population or test hypotheses, the analysis ought to transcend to inferential statistics in which case the following could be used:

- t-tests
- Chi-square
- regression analysis
- analysis of variance
- Analysis of Co-variance

Where inferential statistics will be employed to test hypotheses, the appropriate levels of significance must be set prior. The supervisor/promoter must be left in no doubt about the link among the analysis strategy, the original aims of the study, and the nature of the data collected, especially relating to it being continuous or discrete and the number of variables being treated. Statistical packages used to analyse the data need to be explained and justified fully. If the services of a data analyst or statistician will be enlisted, this needs to be highlighted and the implications thereof noted.

iv. Validity and Reliability

There is need to give an explanation of how validity and reliability were enhanced in your research. Validity is the extent to which research findings accurately represent what is actually happening in the situation. The validity of the findings hinges on the validity of the data gathering instruments, which is the extent to which the instruments measure what they purport to measure (Welman, Kruger & Mitchell: 2005). It is, therefore, vital that you explain the steps you will take to ensure your instruments yield the data that you set out to collect in order to resolve the research question. This may include, but it is not limited to pilot tests and triangulation. Correlation coefficients can also be used to improve the instrument.

The methodology chapter should give information that may be needed by other researchers to replicate your study (Kumar 2012). For the study to be replicable and the results to stand, the instruments must have high reliability i.e, they must measure consistently what they are measuring (McMillan & Schumacher 1997). Kumar (2012:145) says in determining whether research findings are reliable we should ask the question, "...will the evidence and conclusions stand up to closest scrutiny?" It is, therefore, critical to explain and justify the steps you took to ensure your data collection instruments would yield data that would lead to reliable conclusions. You have to demonstrate that your analysis of the data was sound enough for the results to be generalisable. The question here is: *how do you hope to "walk" the reader convincingly with the knowledge from your representative sample to the world out there.* It is only when your conclusions are valid and reliable that they can be generalised to the wider population.

v. Ethical measures

Ethical behaviour is important in research, especially where human beings are involved. Ethical considerations manifest themselves at three stages of a research project, viz: when participants are recruited; during intervention/measurement, and in the release of the results (Welman, Kruger & Mitchell: 2005). It is, therefore, important to explain in the methodology chapter how you will attempt not to infringe on some of the following ethical considerations:

- Informed consent
- Confidentiality and anonymity
- Plagiarism
- Protection from physical or psychological harm

Just as you did for the qualitative approach, do the same for the quantitative approach by working on the next activity.

Activity 11.3

- a. State a research question that would need to be resolved through a quantitative research approach.
- b. Name the research design that would be suitable for the research question
- c. Formulate two hypotheses that you would test for this research question
- d. How would you test these hypotheses?

It is noteworthy that the responses you give are influenced by the problem you are investigating, and meaningful answers depend on your clear understanding of the corpus of information discussed above.

11.4.3 If you go mixed

The probability is very high that a high number of doctoral candidates, doing their research in either ODL set up or conventional institutions, will find themselves having to engage with the mixed method as they attempt to quantify qualitative aspects. Borland (2001) argues that quantitative and qualitative research are not mutually exclusive approaches, rather the most useful research findings typically result from appropriately applying both paradigms. Do not go for it because you believe it is the easiest of the routes-the nature of the research question must call for a combination of the two approaches. The major premise for combining the approaches should be that there is more insight to be gained from the combination of both qualitative and quantitative research than either form by itself (Creswell 2009). Therefore, demonstrate why one approach would not be adequate to resolve the research question.

There must be data that seek to understand behavior in its natural setting to attract the qualitative focus, as well as data that seek to explain relationships to justify the quantitative focus. Clearly show which research sub problems are amenable to each approach, and streamline the data collection and analysis. Remember you have used two approaches to seek answers to one question so allude also to the difficulties and contradictions inherent in using two approaches that are traditionally viewed to be at extreme ends of a continuum and proffer strategies for reconciliation.

The following are some considerations that should be made for data collection in a mixed approach:

- **Timing:** Will qualitative data and quantitative data be collected concurrently or sequentially? If sequentially, which will be collected first, why and what are the implications?
- **Weighting:** Will the weighting given to qualitative data and quantitative data be equal? If not what is the justification?
- **Mixing:** Will the qualitative data and the quantitative data be merged or kept separate, and why?

For the following activity, structure your response in a manner similar to what you did in the two previous ones.

Activity 11.4

- a. State a research question that would need to be resolved through a mixed method.
- b. Give three reasons that the mixed method suitable for resolving the research question
- c. What would be at least three limitations in employing the mixed method for this research question?
- d. How would you minimize the impact of the limitations on the validity of the findings?

11.4.4 Whichever way you go

Note that whichever way you go, two viewpoints should be taken into consideration, namely, what to expect in an effective methodology chapter; and what an effective methodology chapter should not be.

i. An effective methodology chapter should:

- introduce the overall methodological approach for the research question, and its sub-questions;
- show the link between the epistemological stance, the aims of the study and the research design;
- show a conceptual thread that runs from the issues in chapter one through the theories examined in chapter two-and show how data collected tie these up;
- provide a sound rationale for sample selection;
- articulate clearly the data collection instruments and the data collection process;
- be as pragmatic as possible;
- explain how data will be analysed; and
- acknowledge inherent limitations and strategies to mitigate against these.

ii. What an effective methodology chapter should not be

- an essay on research methods
- a mere narration of what was done without due justification
- a lengthy narration of issues that are remotely related to the research sub questions/hypotheses
- a means to justify the research question

NB. Tense used in the chapter: This depends on when the chapter is written. If it is written before data are collected, the future tense is used. If it is written after data have been collected, the past tense is used. For the proposal it is in future tense, but in the final draft is in the past tense.

11.5 Lessons learnt from supervising the Methodology chapter

Each research proposal that a supervisor goes through is a learning experience to the supervisor. Over the years I have learnt a lot from supervising the methodology chapter, which I share with you now.

11.5.1 Beginning with the design in mind

One challenge that faces most candidates is beginning with the design in mind rather than beginning with the research question in mind. Often you ask a candidate what they are

researching on, and the response is, “I am doing a survey on....” The answer ought to articulate the research question first, then allude to the appropriate design. I have found that those who keep focused on the research question and use it as a determinant of the methodology tend to progress faster than those who seem keen to use a particular methodology even if it is not in tandem with the research question.

11.5.2 The fallacy

There is also the fallacy that qualitative research is easier than quantitative research, leading to some candidates trying to avoid it even when it is clear that it is the appropriate approach, and instead trying to force-fit qualitative designs into quantitative inclined research questions. Ultimately the research question remains unresolved. But there are also candidates, who pursue quantitative inclined questions, then acknowledge they are not very strong in statistical analysis, and engage the services of an expert to do the data analysis for them. This is acceptable and is better than going for a qualitative design just because you think it is easy and end up with just a description of the data rather than an in depth analysis and interpretation of the findings. Qualitative research is more than mere narration. If proper data analysis is done handling qualitative data may be more challenging than handling quantitative data.

11.5.3 Playing it safe

Some candidates go for the mixed method just because they are not sure of which approach is in sync with their research question. They fail to give a comprehensive defence of why methods have to be combined, either in terms of the nature of the research question or the benefits to be accrued. The “mix” is just a way of “playing it safe”, and this compromises the progress and the results of the study. However candidates who show good justification for using the mixed method tend to come up with very rich and more comprehensive findings than those who scratch on the surface of one approach.

11.5.4 Excess baggage

Often candidates collect data that are peripheral to resolving the research question, especially demographic data that are not linked to the variables being explored. This is “excess baggage” which takes away your time, focus, resources and energy. Besides it may put off the supervisor because s/he wants to read things that relate to the question you promised you were trying to resolve. If any data will not be used in the analysis then it is not worth collecting, as it creates “noise” in the report.

11.5.5 Analysis dilemma

Some candidates compromise the good data they collect by applying inappropriate analysis strategies, especially for quantitative research. For example they are not alert to the nature of the data at hand and end up treating discrete data as if it were continuous, and using parametric statistical tests where no-parametric tests should apply. This is a serious threat to the validity of the findings. However candidates who show clarity about the appropriateness of the data analysis strategies to the data they collect tend to move fast towards convincing results.

11.5.6 Narrations as hypotheses tests

There are also candidates who state hypotheses and do not test them, preferring narrations as responses to hypotheses. Once a hypothesis has been stated it must be tested and a position taken, based on the analysis, whether the hypothesis is accepted or rejected and at what significance level. Leaving any one of your hypotheses untested is like giving an incomplete answer to the research question. If you are not going to test it do not state it, go

for research sub-questions instead. Candidates who state and test hypotheses in full tend to give more complete and convincing positions about the research question than those who leave hypotheses untested. Also candidates who articulate their research sub-questions adequately and answer them one by one tend to give more comprehensive answers to the research question than candidates who try to give a global answer to several sub-questions.

11.5.7 The irresistible temptation

Some candidates fail to resist the temptation of going into the methodology chapter (I dare say and any other chapter) without a full appreciation of the theoretical issues coming out of the review of related literature. Subsequently they fail to pull a continuous thread from the Chapter 1 through Chapter 2 to the methodology chapter. It helps to go deep and wide into relevant literature before you delve into the methodology chapter, as you may get useful hints on the appropriate design, get some data collecting instruments you can either adapt or use as they are. You will also be guided on strategies for analysis. Thus in-depth reading is not only confined to the Chapter 2, it is a requirement that transcends all chapters of the dissertation.

11.6 Summary

This chapter has highlighted the rationale and the steps in presenting the methodology chapter. It is important to note that the methodology chapter shows the practical steps of collecting and analysing data to resolve the question, and is necessarily dependent on the research questions. If an inappropriate design is employed it is unlikely that the research question will be resolved. Choice of the appropriate design is a necessary, but not a sufficient condition for resolving the research question. Also pertinent are questions of how the data collected are analysed, and the extent to which ethical concerns are complied with. The chapter after the methodology deals with the presentation and interpretation of findings, and the link between two must not be lost.

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CHAPTER 12

REPORTING RESEARCH RESULTS AND FINDINGS

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Abstract

This chapter focuses on the important aspect of research, the reporting of research results and their interpretation. In many institutions, reporting of the research results or findings is often identified with Chapter 4 of the research report, thesis, or dissertation. This chapter provides guidance on how to report research results/findings with integrity. The Chapter stresses the importance of analysing results of study and linking them to the research problem and to the research questions and/or objectives of the study. There is a wide range of ways to present your results/findings, and the few instances below serve as a reminder.



12.2 Introduction

There are five key elements that characterise any research study and the resulting research report. The first element/aspect involves formulating a research problem and its constituent research questions or hypotheses. The second aspect entails reviewing existing literature in order to gain understanding of similar studies carried out and the body of theory that exists. This serves two critical purposes in research, namely informing the current study and identifying existing knowledge gaps (or methodological approaches) which the current study aims to address. The third aspect is the methodology to be used in addressing the research problem. The fourth aspect is the reporting of research findings – what the fieldwork has yielded. The final aspect is the drawing of data informed conclusions and making recommendations. This is where the researcher makes sense of the findings of the study and

this aspect attracts the attention of readers. In simple research reports, these five aspects frame the chapters of the report. More complex reports, especially doctoral theses may include additional chapters that are usually informed by themes which form the key pillars of enquiry in the study. Figure 12.1 illustrates the five key aspects of research which are then structured into a research report. In some cases, these five aspects of the research are developed and reported in the format of Chapters of a thesis or dissertation.

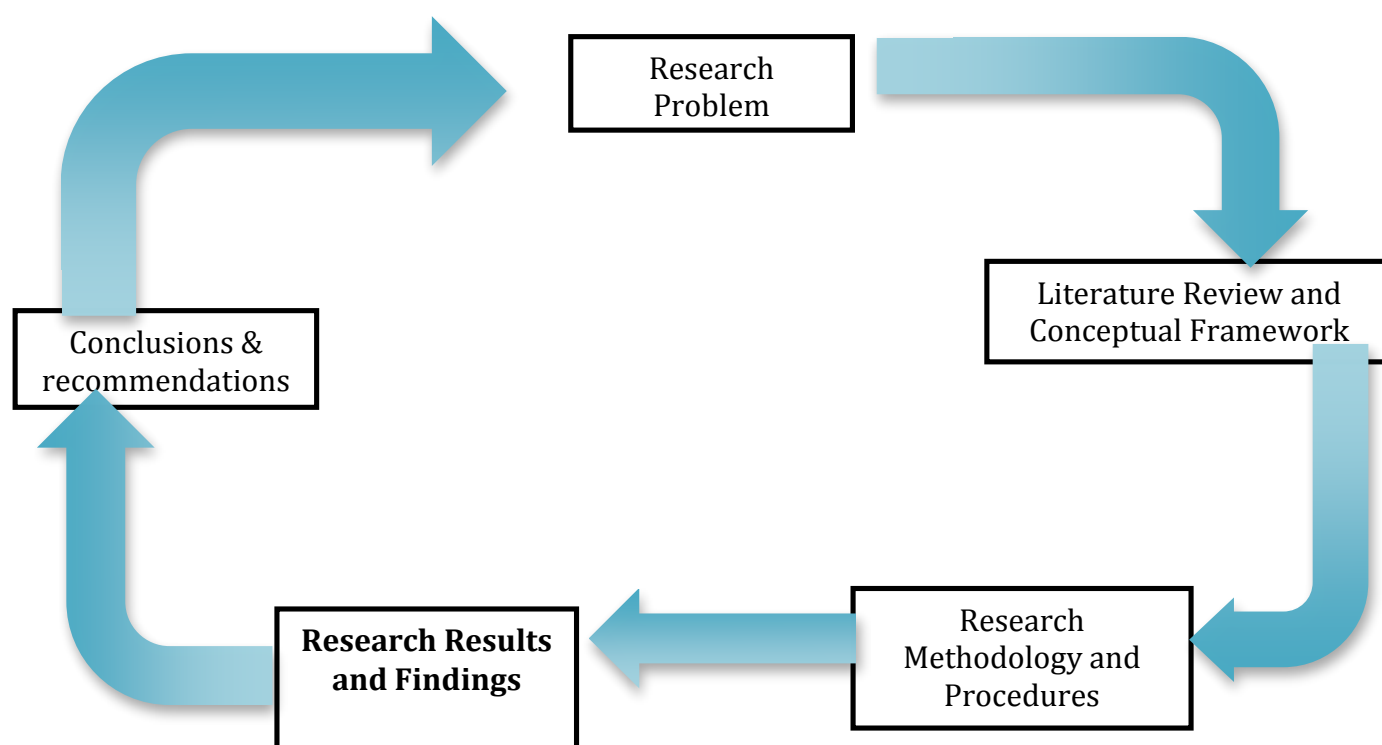


Figure 12.1: Five critical elements of the research process.

In this Chapter we focus the reader on important issues pertaining to analysing and reporting “Research Results and Findings”. Typically, this section of theses or dissertations is presented as Chapter 4. In some cases the Chapter may integrate ‘discussion’ of the results and as such titled “Results and Discussion”. In other cases, ‘discussion’ of results/findings is the subject of Chapter 5 which then takes the title like, “Discussion of Findings, Conclusions and Recommendations”.

Regardless of the structure chosen for research reports, Figure 12.1 isolates “Research Results and Findings” as both the critical purpose and the outcome of the research process. As such, particular care needs to be taken to effectively handle the analysis of the data yielded by the research and to effectively present the results and the findings. In our experience, some well designed and well executed research projects have not made their mark on policy and practice because of the lack of dexterity in the analysis, interpretation, and reporting of the results. On the other hand, we have also experienced many very poorly designed and poorly presented results which try to adopt sophisticated analytic procedures that end up misleading other scholars. We have also experienced that in the majority of educational research supervisors do not invest sufficient time to ‘data analysis’ and consequently we find that many educational researchers delegate someone else to analyse the data for them. This chapter gives hints on how to handle fieldwork data and report them

in clear and easy to understand ways, and emphasises the importance of linking such data to the research problem and to the research questions and/or objectives of the study. It is expected that the Chapter will give confidence to more educational researchers to engage with their data and to analyse and report it more potently in a way that leads to (i) meeting the researcher's goals, (ii) informing educational policy and practice, and (iii) to the advancement of knowledge and scholarship.

In this chapter we have decided to use the phraseology "results and findings" in the title, and recommend the nomenclature to other scholars. A 'result' typically tends to be associated with the data or evidence collected in the study (even before it is interpreted) while a 'finding' is the outcome of interpreting or reading meaning into the data by the researcher so that it is clear what the research suggested, revealed or indicated. It is therefore better to approach data analysis as a process of presenting the 'results' and reading meaning in the data, i.e., 'finding' what the data mean with respect to the research problem and the study questions. Now, work on this warm-up activity.

Activity 12.1

a. Think of a book or a research report that you have read before. List some of the methods that were used to report different types of data.

b. What made it easy (or difficult) for you to understand what was presented?

By working on the first question you have made a good start to the study of the critical research aspect of handling results/findings. The response to the second question helps to further clarify to yourself aspects that were problematic.

12.2 Objectives

After working through this chapter you should be able to:

- understand the importance of reporting research data in clear, systematic, and coherent ways;
- critically reflect on the various modes of organising, summarizing and interpreting research data;
- analyse and interpret research results/findings linking them to the research problem and to the research questions and/or objectives of the study; and
- distil meaning out of research data and present them effectively.

12.3 Research results and findings of a study

The research results and findings chapter provide the evidence of the outcome of the study and the meaning of data. This evidence consists of data or information collected which must be presented, interpreted and described. The presentation of the results often consists of a concise verbal description of the outcome and the summary of data presented in tables, graphs, charts and figures. It must always be kept in mind that data or information is collected on populations or sub-groups selected from the population, i.e., samples. A researcher is interested typically in finding trends or patterns of responses or behaviour within the population or sample. As such, analysis of data entails finding these patterns and trends and reporting them. For example, quantitative data uses descriptive statistics for this. These often consist of indices that summarise the central tendency, deviation from the average, and showing skew and kurtosis of the distribution of the group or sample data. The

results may become quite statistical and may involve hypothesis testing, analysis and reporting of errors, and analysing for statistical significance in the sample data.

In qualitative research, the researcher aims to explore, understand, and interpret the meaningful and symbolic content of, for example qualitative data in, for example, oral communication or audio recordings (e.g., from interviews), texts (e.g., documents, transcripts, field notes) or artefacts and models, and from images (video, photographs, paintings, drawings). Interest is centred on analysing and interpreting meaning in these by individuals or cases as well as by the group involved. All this requires a systematic approach by which to reduce extensive data sets by creating categories and concepts derived from the data, analyzing them and then reporting them (Flick, 2009; Gbrich, 2009).

12.4 Why report research results and findings

The purpose of any research study is to arrive at a solution to an identified problem. To focus the study, the problem is stated as a research question or as a research hypothesis. The entire research process should therefore be guided by the research question(s). The appropriateness of the methodology chosen, the relevance and adequacy of the data to be collected are squarely determined by the nature of the problem defined and the research questions being posed. It is critical to remember that in collecting research data, it is not any data that should be collected; rather it is only data that are relevant to addressing the stated problem which should be collected.

In the section or Chapter on 'Results/Findings', as the case may be, we stress the imperative to report the findings of the study in the light of the research problem. Research results and findings must be reported in such a way that solutions to the stated problem begin to emerge. As such, the research results and findings must be presented in a way that gives detail while avoiding overwhelming readers. In reporting research results and findings the researcher should have in mind the type of target audience, and the findings of a research study should speak eloquently and clearly enough to the audience (See Chapter 14 for further guidance on the types of audience). Above all, the researcher must present the research results and findings with honesty, integrity and transparency. Work on the next activity in order to share your views.

Activity 12.2

Find a thesis, dissertation or research article. Examine the research purpose or questions. Do the results help answer the research questions or not?

Many of our distance learners plunge into the investigation of their identified problem without accessing relevant journal articles or a completed study by some scholar. As a result, they often face problems regarding how to approach chapters, in particular the results/findings chapter. Ensure that you comply with the suggestion we make here. You may now move on to the next equally critical chapter.

12.5 Ethical responsibilities in data analysis, interpretation and reporting

Let us start by underscoring the importance of **honesty, integrity** and **transparency** as ethical responsibilities of every researcher when analysing and reporting research results and findings. Fabrication and falsification of research data and results is a very serious misconduct. This happens when a researcher makes up data or results, when a researcher omits data, or when a researcher overlooks data that did not conform to expectations.

Sometimes the researcher fails to acknowledge the use of non-representative samples or uses statistical analysis procedures with purposive samples. Missing data are not reported or are ignored. In certain cases, missing cases are fictitiously “filled-in” by the researcher. The following are some of the ethical challenges to be aware of. Evaluate for yourself the research you have read: Which of these ethical considerations were adhered to or violated?

- Failure to describe complications, such as poor instruments and missing data, attrition, and non-response, and other unanticipated events in data collection that may have occurred that lead to distortions.
- Inadvertent compromise of assurance of anonymity and confidentiality of participants, research sites, and institutions and protection of data when pictures, photographs, maps, or graphical displays are used.
- Researcher biases for example, under-representing or distorting differences within and among individuals and groups as a result of omissions or when information is included that is false or that misleads, or misrepresents how the research or analyses were done.
- Reporting inaccurately or analysing the results such that they support a researcher’s expectations, i.e., the danger of the self-fulfilling prophecy.
- Distortions in data presentation when, for example, graphs and their scales may be used to create a misleading picture. Distortion can occur, for example, in reporting percentages with small samples of 10 or less. Forty percent (40%) becomes a magnified representing of 4 out of 10.

Activity 12.3

Examine a thesis, dissertation or research article or report looking out for ethical issues. How are the above ethical considerations taken into account or violated when presenting the results?

This is a practical activity, which requires you to take action, that is, reading a number of articles so that you see ethical issues in practice. Apply this insight to your study.

Quite often in the interest of honesty, integrity, and transparency, it is good practice to provide detailed procedures and techniques used in data analysis and to ascertain that ethical considerations above are not violated. It is also imperative to ascertain that when data analysis techniques are selected, the conditions and assumptions associated with those techniques are satisfied in the present study. Rudner and Schafer (1999) gave counsel worth heeding that, “Try to use the simplest, appropriate technique for which you can meet the underlying assumptions”.

In the next section, we answer an important question.

12.6 Who should analyse and report the research results and findings?

This is an ethical question. The researcher should analyse data so he/she can master the analysis skills, and in order to enhance better understanding of data. Support may be sought from experts where necessary. It is critical to appreciate that the researcher is accountable

for the data/findings reported in the study. An important skill of a researcher is the ability to verify his/her results, to understand what the results mean, and to know how the results are derived or computed. It is considered an act of intellectual dishonesty, in our opinion, to report results without understanding how they are derived, and what they mean (see for example, Wilkinson, 1999; Rudestam & Newton (2007)). Oliver (2004:218) admonishes that a researcher must be 'close' to the analytical procedures she/he employs. Rudestam and Newton (2009) give wise counsel to researchers that "at times it may be proper to use statistical consultants to conduct analyses and assist with the interpretation of results, but this should not be seen as a means of avoiding the need to learn and apply statistics".

12.6.1 Structuring and organising the presentation of results

Presenting and communicating research results and findings meaningfully is quite important. Structuring the presentation of the results and findings is quite pertinent for their potent communication. There are ways that may be useful to structure the presentation of the results.

- First, the results and findings need to be presented in such a way that they depict particular settings, contexts, samples, and participants. It is important, therefore, to structure the results and findings section by first describing the setting and contexts, and by giving those results that summarise the demographics of the research participants. This is a useful way to read meaning of the results and findings when presented next.
- Second, the results and findings may be structured according to research questions, hypotheses or objectives as they were presented in Chapter 1 or the introduction section of research. In doing so, it is important that the research questions and hence the research results are organised from the **most significant to the least significant**. This helps to focus readers.
- Third, reporting data may also be influenced by the research methodology that is used. In a multi-method research, it will be necessary to report the results obtained according to each method used in order to articulate the significant results by each method. Sometimes, results may be presented in chronological order following the order of data collection, e.g., results of pilot tests, pre-tests, and post-tests.

The question, which our students often grapple with is: Which methods of reporting data do I use? We examine this below.

12.7 Methods of reporting data

The type of data determines how it should be presented. The underlying principle is that data should be presented in a clear and easy-to-read form. Well-reported data make it easy for the reader to discern emerging patterns. It is worthwhile for the researcher to think seriously about the best way of summarising data so that it is not presented in confusing ways. The research findings chapter should thus be well structured, and findings so organised that they can easily be linked to the research problem and to the research questions. The following questions may help the researcher in analysing and presenting the results and findings:

- Do the results or findings make sense?
- Does the evidence stand out clearly?
- What do the results prove or tell you?
- Is the finding significant or important to the research question?

The chapter on research results and findings is significant in that it attempts to transform large amounts of data by organising and summarising it in ways that will enable the meaning to be derived. Data collected in the field are transformed into meaningful information. Effective presentation of research results and findings is usually achieved by combining the use of **narrative description** (text) and **visual summaries** (e.g., tables, graphs, charts, figures, pictures, etc). Text describes and adds explanation to the meaning of the result or finding carried in these visual presentations. The Chapter provides some guidance on how to effectively present the results and findings. To comment on the foregoing, work on Activity 12.4.

Activity 12.4

Explain, with reference to your research the following methods of reporting data:

- a. the meaning of narrative description
- b. the meaning of visual summaries
- c. What are the merits of combining these methods?

You should have little difficulty responding to the first two questions. The third question is of particular importance in shaping your report of results/findings. When you clearly appreciate the merits, you will be better positioned to portray results in a convincing fashion. This begs the question about style, to which we now turn our focus.

12.8 Style and format of presentation of results

In order to enhance the presentation and reporting of the results and findings, we recommend that the researcher refers to research writing guides, for example, Swetnam and Swetnam (2009), Rudestam and Newton (2007), Oliver (2004), and others listed in the references and consults a style manual. Commonly used style manuals in social and behavioural sciences are:

- *The Chicago Manual of Style (Tarubian Style),*
- *The Publication Manual of the American Psychological Association (APA), and*
- *The Modern Languages Association (MLA) Handbook for Writers of Research Papers.*

These publication manuals provide guidance on all aspects of the research writing process including reference citations and the proper way to select and present headings, tables, figures, and Appendices. We urge universities, faculties or departments to adopt particular styles so that students of research are acquainted with systematic reporting procedures.

Below is a practical research, which requires that you do some homework while working on your dissertation.

Activity 12.5

Google or yahoo search 'Publication manuals' and peruse the formats proposed for report content structure, for parenthetical reference, reference lists, and for structuring tables and figures.

Take some time to familiarise yourself of the particular reference system so as to ensure consistency in all the writing. In the next section advice on the use of tables is offered.

12.9 Use of tables, graphs, and figures

An important aspect of presenting the data is to present them in the format of tables, graphs, charts, figures, and pictograms. These displays of data will help you organise and summarise important results such that the reader is able to visualise them easily. Tables are used to organise and summarise data such that important results are easier to perceive. Graphs, charts and figures are used to show trends and relationships among the data being displayed. The benefit of using these tabular and graphical displays of data is that emerging patterns are discerned easily. Many readers (and certainly examiners) are attracted by tables, charts and figures for emerging trends in the data. It is important that tables and figures should always have titles that are informative, i.e. titles that depict what is reported in the table. Tables, charts and figures should be numbered and should be referred to in the text. Key aspects of the data reflected in the tables, charts and figures should be described in the text in order to draw the reader's attention to them.

There are a few important approaches to effectively incorporating the use of tables, charts, graphs and figures when writing the results and findings section or chapter. The following are useful steps to follow.

i) Introduce the tables, graphs, charts, and figures.

This may be accomplished by referring to the research purpose or research question and by describing the data collection and analysis methods or techniques. It is important to ensure that the analysis technique is appropriate for the data being analysed and the research questions.

ii) Locate the tables, graphs, charts, and figures with a reference number.

It is important to serially number each table, graph, chart, figure, photograph or any appendices. In doing so, it is not necessary to refer the reader to 'below' or 'above'. By using a reference number for each and giving a summary statement on what the particular table, graph, chart, figure, photograph or any appendices shows, the reader can follow the presentation of the results. Examples of useful phrases with reference to theoretical data in the bivariate Table 12.1 are as follows: '*Table 12.1 shows the distribution of teachers across regions by their qualification statuses* OR '*The results of analysing the teachers' qualifications by region are shown in Table 12.1*'.

Activity 12.6

Examine the website <http://www.phrasebank.manchester.ac.uk/results.htm> for some useful phrases for describing data.

Follow the link suggested in the activity to obtain the necessary information.

Table 12.1: Distribution of teachers by qualification (N = 760)

	QUALIFICATION						
REGION	Diploma		Degree		Untrained		Total
	n	%	n	%	n	%	n
A	126	59.2	38	17.8	49	23.0	213
B	117	58.2	45	22.4	39	19.4	201
C	98	69.0	14	9.9	30	21.1	142
D	5	41.7	3	25.0	4	33.3	12
E	45	60.8	24	32.4	5	6.8	74
F	52	44.1	24	20.3	42	35.6	118
Totals	443	58.3	148	19.5	169	22.2	760

iii) Check for anomalies in the data

It is a necessary exercise to check for accuracy and for any anomalies in the data. For example, you would need to check that there are no mistakes in the data for Region D and E, which between them have only 86 teachers out of the sample total. Questions may be asked:

- Was this due to inappropriate sampling procedure or some other error?
- How do you account for this anomaly?

When summarising and presenting data such as in the Table 12.1, it is important to ascertain accuracy by checking the column and row totals are in agreement.

iv) Locate and describe the most significant result

It is important after presenting a table, graph, chart, or figure to identify and describe the most significant result in the data. It is not necessary to repeat the data reported in each and every row. The following is an example of this process:

‘As can be seen in Table 12.1 the majority of teachers are Diploma (58.3%) and degree (19.5%) degree holders. Of the 22.2% of untrained teachers, the highest proportion was in region F and D with 35.6% and 33.3% untrained teachers, respectively. It must be noted, however, that Region D already has very few teachers in total, i.e., 12 out of the regional total of 760, or 1.6%’.

It is important as shown on the above that words such as ‘few’, ‘many’, or ‘several’ must be qualified with data or else must not be used. Note also that in the example, we have attempted to report results from large to small, i.e., 58.3% and going down to 1.6%. All in all, it is the researcher’s responsibility to identify from table, graph, and chart or figure what is the most significant result whether or not it is positive or negative. As noted earlier avoid the self-fulfilling prophecy by reporting only results that meet your expectations or that support your earlier conjectures including hypothesis. Data that depart from your expectations are significant to report and may be more interesting than those that do. Finally, while this may be done on the “discussion”, it is always good practice to bear in mind what each result you are reporting means in relation to the research questions or objectives. A good question to pose as you look at the results is: What does the result say about research question?

12.10 Variety of graphical presentation of results with nominal data

With the advent of computer software packages, presenting results visually with graphs and charts has become quite easy. Researchers are attracted to it, but often this can be fraught

with inaccuracies and distortions. For example, beginning researchers do not always appreciate the importance of understanding the nature and type of variables they are studying and the level of measurement scale they are employing as they observe and measure these variables. This affects the visual impression created by the graph and has the potential to distort the true picture. Note that each type of graph is best suited for particular type of data; it is important for a researcher to be able to choose the best type of graph at any one time. The best type of graph depends on the data to be reported.

We need to stress that qualitative variables are measured on the nominal and/or ordinal scale, while quantitative variables are measured on the interval and/or ratio scale. It is important to appreciate which graph or chart is appropriate with the kind of variable and its level of measurement. A variable such as gender is a qualitative categorical variable measured on a nominal scale. **A nominal scale is a naming or categorising scale** used for classifying, in this case gender is classified into male or female. The codes allocated to these, e.g. '1' for male or '2' for female, are used only for labelling and counting. Nominal data such as this can be presented in graphs and charts specifically: bar graphs, pie charts, and doughnut or radar graphs as shown in Figure 12.2 to Figure 12.4. It is not necessary to use more than one format of presentation as the information will be largely the same. There are different types of graphs that can be used to report research data.

The following points are worth noting when presenting graphs and charts.

- The axes of a graph should be clearly labelled so the reader can understand what is depicted on them.
- There should be a key which denotes what each element shows in the graph. This is particularly so where several elements are shown in a single graph.
- The attention of a reader is usually captured first by the title, which shows what it is that is being illustrated by the graph. Thus, as in tables and any other figures used in reporting findings, the title should be short but meaningful enough to capture the essence of the graph.
- According to many style manuals, the titles of graphs and figures are placed at the bottom while titles of Tables are placed at the top.
- As much as possible, the graph should not be cluttered with information as this makes it difficult for the reader to discern important information.
- It is important to always show the total sample size (N) for the data in the graph or table to be interpreted meaningfully.

Figure 12.2 is a bar graph showing the distribution of university students (N = 200) according to modes of transport they use to come to campus. Figure 12.3 is an example of a pie chart and Figure 12.4 is a radar chart showing exactly the same results. Choose only one format to present the results. The reader is reminded that in MS Word, you can change the 'chart type' to bar, pie, doughnut, bubble, radar, and others from the pull down menu under "Chart Tools".

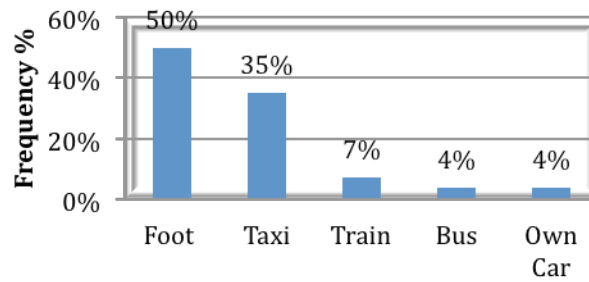


Figure 12.2: Bar graph showing the mode of transport used by students when coming to campus (N = 200).

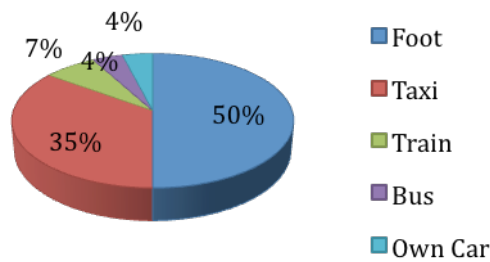


Figure 12.3: Pie chart showing the mode of transport used by students when coming to campus (N = 200).

Activity 12.6

This is a practical activity aimed at helping you develop the skill of using graphs, and apply them to your particular study. Find research reports. Look for the different types of graphs and learn how to present data using each of them. What are the variables being presented?

Responses will vary from individual to individual, so the important point is to carry out the activity meticulously.

12.11 Presentation of continuous data

Quantitative variables are measured on the interval and ratio scale of measurement. The ratio scale is the highest level of measurement. A variable such as achievement score is a quantitative variable measured on a ratio scale. This scale permits computing indices such as the mean, standard deviation, variance, skewness, and kurtosis to summarise the trends in group data. The distribution can be shown graphically by using scatter plots, histograms, and ogives. Tables are very useful to summarise the data. For example, Table 12.6 shows an example of a table that shows the descriptive statistics of a sample.

Table 12.2: Means and standard deviation of BSc and BEd students on a computational task (N = 150).

Degree Type & Gender	Descriptives	
	Mean	SD
BEd students		
Male (n = 43)	55.0	15.0
Female (n = 32)	42.0	17.0
BSc students		
Male (n = 50)	53.0	13.0
Female (n = 25)	47.0	14.0

Note: Possible maximum score = 100

The goal of the researcher here is to compare groups on the variables 'degree' and 'gender'. The dependent variable is the score achieved on the computational task. When reporting the mean scores, remember to include the standard deviation, which is the index for the average spread of scores from the mean.

12.12 Selecting, presenting and interpreting statistical data

Researchers often generate hypotheses that they explore statistically. This often involves dealing with **inferential statistics**. Inferential statistics entail those procedures that include making inferences from samples to populations, estimations and hypothesis testing, determining relationships and differences, and making predictions. These procedures require researchers to consider whether or not the results obtained are large enough such that they can be attributed to the factors under study and not chance occurrences that are caused by random errors, sampling bias, and measurement errors. The researcher asks: 'Are the results statistically significant or not?' The inferential tests involved to aid the researcher are referred to as '**tests of statistical significance**'. In fact there are two major categories of statistical tests of significance that do this.

- i) *The test of correlation or association* involves only one sample on which the observer has made two observations from the sample. Examples are the test for correlation (r) and the chi-squared test (χ^2).
- ii) *The test of difference between samples or groups on a dependent measure.* Examples of statistical tests for this are the Student t-test (for two groups) and the analysis of variance (ANOVA) (for three groups or more).

A researcher must know when and under what conditions each of these tests may be used. He or she must understand how to present and interpret the results correctly. Essentially each data set collected will lead to computation of the test statistic, i.e., a value of r , t , F or χ^2 as the case may be. This can be achieved by statistical packages such as Statistical Package for the Social Sciences (SPSS). Such computations will yield the value of the statistic, degrees of freedom for the test statistic, and a p -value, i.e., the probability level at which the test statistic would be significant. In reporting the results, the researcher does not need to report the actual calculations that produced the result (Oliver, 2004) but rather only the summary figures and the indices associated with the statistic (i.e., p -value and df).

In order for the researcher to make a decision about whether or not a result (represented by the test statistic) he/she must compare this p -value to the level of significance or alpha level α set by the researcher a-priori. Educational researchers often use the .05 level of significance (which is the 95% confidence level). If p -value is greater than (α), do not reject the null hypothesis, i.e., the result is not statistically significant, the result is too small and could be due to random errors. If p -value is smaller than α , reject the null hypothesis, i.e., the result is statistically significant. For the .05 significance level, $p > .05$, result is not statistically significant and $p < .05$ the result is statistically significant. We exemplify the presentation of data and the interpretation of statistical significance for the four tests above.

12.12.1 Test for correlation (r)

This test is conducted with a research question where one is exploring the strength of the relationship between variables (i.e., it explores a bivariate relationship). The research question may be in the form: 'Is there a statistically significant relationship between two variables?' To effectively present the data, the researcher presents the following in the order:

- Table of descriptive statistics and/or Scatter plot
- A correlation analysis table (called a correlation matrix table)
- Description and interpretation/explanation of the correlation.

For example, data on the age of students (independent variable) and their scores in a statistics course (dependent variable) were explored with a class one of the authors (Shumba) teaches (Figure 12.6 and Table 12.3).

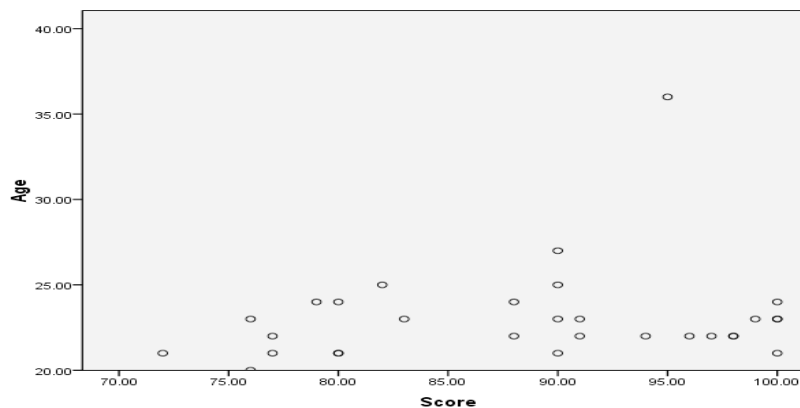


Figure 12.5: Scatter plot for age and scores of BSc students (N = 30)

Table 12.3: Correlation matrix for age and scores in statistics (N = 30)

Variables	Score	Age
Score	1.000	.196 (p (2-tailed) = .300)
Age	.196 (p (2-tailed) = .300)	1.000

This result shows that correlation coefficient $r = .196$ ($p = .300$) in a two tailed test. At the .05 level of significance this would imply $p > .05$. The correlation between age and the scores in this case is not statistically significant.

12.12.2 Test for association

A test of association is typically based on bivariate tables, e.g., contingency or cross-tabulations, for the researcher to evaluate questions of the following nature:

- Do the number observations that fall in each category differ significantly from the number you would expect?
- Is this difference between the expected and observed due to sampling error, or is it a real difference?

A test of association is thus evaluating significant differences in the frequencies or counts in the categories. The Chi-square tests, for example, the chi-squared goodness-of-fit test and the chi-squared test for independence represent some of the appropriate tests for the statistical significance of the strength of associations between categorical variables.

Suppose a head of a school does not want to register students in subjects traditionally known to be unpopular, e.g., Mathematics, Chemistry, Biology, and Physics. The head expected the number of students choosing the subjects to be as follows: Chemistry (20%), Biology (30%), Mathematics (10%), Physics (10%), and Technology (20%). It happens that he admits 150 students and asks them to choose their preferred subject with the results summarised in Table 12.4. The results are presented in the contingency in Table 12.4, which

shows the observed and expected frequencies of student choice of subject for the 150 students. The expected frequency (E) is based on the percentages predicted by the head.

Table 12.4: Observed and expected frequencies of student choice of subject (N = 150).

Subject	Frequencies			$\chi^2 = 26.95; df = 4; p < .05$
	Observed (O)	Expected (E)		
	n	n	%	
Chemistry	35	30	20	
Biology	50	45	30	
Mathematics	30	15	10	
Physics	10	15	10	
Technology	25	45	30	
Totals	150	150	100	

The researcher reports that $\chi^2 = 26.95; df = 4; p < .05$. Comparing the p -value to the significance level of .05, the result is statistically significant suggesting that there is a statistically significant difference in the expected choices of students and their actual choices of subject.

12.12.3 Tests for difference in group means

Two major tests are used for the researcher to assess the statistical significance between two or more comparison group means. The Student t-test is used with two group means and the analysis of variance (ANOVA) with for three groups or more. The basic question for these two tests is approximately: 'Is there a significant difference between the mean scores of two or more groups on a dependent variable?' To effectively present the data, the researcher presents the following in the order:

- Table of descriptive statistics
- A table for the t-test or the ANOVA table
- Description and interpretation/explanation of the correlation.

In order to exemplify the one-way ANOVA we refer the reader to the example in Table 12.4 where he compares the achievement scores on a graphing skills test of 14 students in three groups: Group 1: Scientific Calculator ($n = 4$; mean score = 26.8); Group 2: Pencil and Graph Paper ($n = 5$; mean score = 33.6); Group 3: MS Excell ($n = 5$; mean score 38.2). The one-way ANOVA is being used to compare where or not the achievement score of the three sub-groups of students are statistically significantly different. If two sub-groups were being compared, a t-test would have been adequate to use. We are interested in the format of Table 12.4 for a one way ANOVA that includes the descriptives and the interpretation of its results.

Essentially, the researcher extracts the results relating to the test statistic used for ANOVA, i.e., is the F-statistic (6.21) and the p -value (0.01) at which this F-value would be significant. This F-statistic is a ratio of the variability between groups reflected in this case by mean square (MS) between (146.056) the compared to the variability within the groups reflected in the MS within (23.520) which is the mean square of the error.

Table 12.4: One way ANOVA for Graphing Skill Scores students by method used to practice graphing (N = 14).

Source	df	Sum of Squares (SS)	Mean square (MS)	F-value	p-Value
Between	292.11	2	146.056	6.21	.01
Within	258.75	11	23.520		
Total	550.86	13			

The results show that $F = 6.21$ and $p < .05$. The F-ratio is statistically significant and therefore there is as statistically significant difference in graphic skill test scores of who used different media to practice graphing. It is important for the researcher to invest time in learning the meanings of the concepts associated with this and other tests. For the ANOVA, it is useful to learn about the concepts represented in the table as well as to understand two or three way ANOVA.

Activity 12.7

Study each of the mentioned inferential statistics.

- What type of educational research questions can be studied with them?
- Find research reports where some of the statistics used.
- For what purpose are they used? Are these statistics relevant to the study?
- Are they used and reported correctly?

In order to respond to the questions, first, read the foregoing lucid explanations carefully. Second, relate your answers to personal experience, and the work by other scholars.

12.13 Reporting quantitative data

As shown above, quantitative research usually involves hypothesis testing where various statistical tests are used to analyse and make inferences from the data. These entail use of statistical symbols and formulae that can be confusing for ordinary readers to comprehend. Whilst these statistical tools are important in research, care should always be taken not to make the reports inaccessible to the target audience. The whole idea in carrying out statistical tests is to draw appropriate conclusions from research data. This is why above, we have stressed the importance of the researcher identifying important statistical results. It is therefore vital for the researcher to explain the essence of whatever test is used in order to guide the non-statistical reader. The outcome of the test, rather than the test itself is what should be emphasized. It should be clear what the test sought to reveal, why that particular test was selected, what the results of the tests show in relation to the issue under investigation and what the likely conclusions are. As explained, it may not be necessary to show statistical computations and formulas; these may be included as part of the Appendices for technical oriented readers.

We may note that many educational research students use fairly limited quantities of data, which does not lend itself to rigorous statistical testing. The general principle in using statistical tests is that there should be large quantities of data to work with. Even where simple computations like means are used, it only makes sense where means of many

occurrences are computed. Calculating the mean of only five occurrences is not worth it. The student should not be preoccupied with theory at the expense of the practical implications of the results in relation to the problem at hand.

12.14 Analysing and presenting qualitative results and findings

We believe that interactions and transactions involved in educational processes are qualitative processes. They are best studied and analysed employing qualitative designs and analytic techniques. Many students of educational research usually include in their research designs the collection of qualitative data. Students pursuing degrees in education disciplines typically collect data involving questionnaire surveys with open-ended questions, individual and group interviews, field observation notes, analysis of documents, analysis of learners' written and drawn exercises, and images carried in video, film, and photographs. They need not only value these data, they need to explore, analyse and interpret them accurately, insightfully and effectively. It is disappointing that, in our experience, there is still some certain inertia among supervisors of educational research in learning and adopting qualitative methodologies.

In the remainder of this Chapter our aim is to underscore, first, the importance of qualitative research data in education research and, second, to stress the need for systematic, insightful, and effective analysis of the data. We provide insights and hints on how to analyse and properly present and interpret qualitative data. We want to caution that a section such as this one cannot fully address the intricacies of carrying out these procedures. What we hope to achieve is to encourage research students in education and their supervisors to ensure that they recognise the importance of systematic analysis and invest time in learning the mentioned procedures.

12.15 Analysis of the qualitative data

We start by observing that there are many qualitative data approaches as informed by the many research paradigms and epistemological postures informing research in the social sciences. For example, Carol Grbich (2007) identifies analytical approaches informed by ethnography, grounded theory, phenomenology, and feminist paradigms. In terms of analysing text or documentation she identifies procedures involving the following: content analysis, narrative analysis, conversation analysis, discourse analysis, and semiotic structural and post-structural analysis (Grbich, 2007). Our critical advice is that a researcher needs to invest time and energy to fully grasp the substance of these approaches and with what kinds of research questions and data to employ them. For the purpose of this chapter, we observe that these approaches, in the final analysis aim to explore themes (Gibson & Brown, 2009) and the underlying meaning from largely the perspective of the research participants. Gibson and Brown (2009) define thematic analysis as "the process of analysing data according to commonalities, relationships and differences across a data set" (p. 127). This suggests that the above rich sources of qualitative educational data must be properly systematised and qualitatively analysed. How is this done?

12.15.1 Phases of qualitative data analysis (QDA)

The answer to the above question is complex and is best obtained by examining specific kinds of research questions, relevant data sets, and appropriate analytic techniques as informed by the various paradigms guiding particular methodologies. Admittedly this section is too simplified and generalised but we believe it serves well the purpose of encouraging systematic and insightful interaction and interrogation of qualitative data collected as part of various educational researches. We may wish to note that QDA starts with preliminary analysis conducted in the field during data collection and continues after field-work, i.e., post-data collection (Grbich, 2007). We suggest that qualitative data may be analysed in

phases beginning at transcription, through coding, and interpretation to create coherent sets of concepts and theory to explain the relationships of these concepts as they relate to the research problem and specific themes within the data. Grbich (2007) counsels researchers to 'respect' the data collected and to always keep in mind the voice of the participants. As such Flick (2009) suggests that it is imperative to always be able to distinguish between participants 'voices' or constructions and those of the researcher. We urge researchers to be reflective and critical and insightful as they examine their qualitative data, it has loads of meanings with respect to educational materials, processes, and transactions.

12.15.2 Transcription

One important aspect of qualitative data involving interviews and observation field notes often omitted by beginning qualitative researchers is their transcription into text. Transcription involves re-presenting data from the way it was given by participants into a form such as text which the researcher can work with more easily (Brown & Gibson, 2009). For example, oral interview data transcribed into a text and this text is in the format of a document, the transcript. A good transcript must truly reflect what was said or observed in the field and thus the researcher must be wary of potential for bias if they choose aspects of the interview to transcribe or aspects of the transcript to focus on as they analyse the data. This transcript serves as the data for qualitative research and especially serves as the source of segments of texts or excerpts that are cited to illustrate typical or atypical responses or trends in a text. The researcher selects illustrative text or excerpts, a process Flick (2009) labels 'selective plausibilisation'.

Brown and Gibson (2009) suggest that transcription and transcripts serve two aims. First, it provides a guide to a given set of data as it is difficult to work with oral data and their recordings. They can more easily go over and over the data set to check and re-check accuracy of their analysis. Second, it provides the researcher with an analytic focus on a given data set. It provides one level of engaging with the data set as to understand it. Transcription is thus a central aspect of qualitative data analysis and not antecedent to it (Gibson & Brown, 2009). In our opinion, researchers need to transcribe them so as to be as exact with the original form of data as possible. While the concern with exactness should not predominate (Flick, 2009) we recommend that researchers choosing qualitative research methods invest time in transcribing their data as an important phase of its analysis.

12.15.3 Photographs as qualitative data

Noteworthy is that qualitative data may be visual images such as the case with photographs. Photographs are an important method of presenting findings and can depict reality more accurately than other forms figures by providing a visual record. For example, a photograph can be used in educational research to show how students progressively learn a skill, e.g., the proper handling of apparatus and instruments such as microscopes, pipettes, burettes, etc. When they are used to report research data, the photographer must ensure that the relevant details are captured to make them conspicuous enough for the reader. Textual description of the photograph must also be given and reference should be made to the different parts of the photograph (e.g. Centre, top left, top right, bottom left, bottom right, foreground, background of the photograph). Colour photographs show phenomena more vividly than black and white.

12.15.4 Enumerative content analysis

Beginning researchers often encounter the need to do content analysis of their qualitative data. There are two options: to conduct either a quantitative or a qualitative content

analysis. Both approaches entail some form for thematic analysis. Quantitative content analysis (also referred to as enumerative content analysis (Gbrich, 2007)) entails identifying the core words, concepts, themes, phrases, or sentences within set or sets of text data. These are then counted and their frequency tabulated and graphed. For example, the question might be explored through an interview: ‘What modes of transport do university students use to come to campus?’ The modes of transport occurring in the text may be identified and counted, and presented in tabular formats or graphic forms such as the radar graph in Figure 12.4.

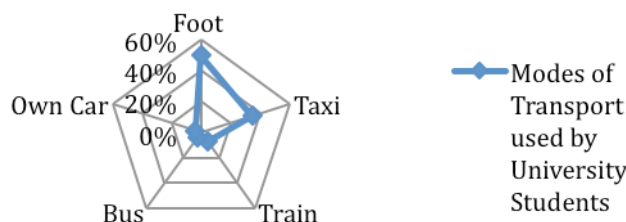


Figure 12.4: Radar chart showing the mode of transport used by students when coming to campus (N = 200).

The quantitative or enumerative content analysis enables a researcher to report frequency of occurrence of certain responses in the data. Many researchers often miss this opportunity, when for example they report ‘many’, ‘several’, ‘few’, or the ‘majority’ when dealing with open-ended responses. It is important to provide the counts and report them as part of the content analysis. These can then be backed by a selection of representative quotes or excerpts from the transcript. We stress that analysis needs to be systematically done so that the entire data set is represented in the results reported. On the other hand we counsel that in qualitative research the concentration is not so much on the quantification of concepts but rather on the explication of meaning of educational processes, interactions and transactions.

12.15.5 Qualitative content analysis

This is achieved via qualitative content analysis which we shall illustrate with narrative analysis and grounded theory analysis. Qualitative content analysis entails some form of thematic analysis (Gbrich, 2007; Gibson & Brown, 2009). Approaches to thematic analysis are many and each approach has its own unique features that must be studied and understood. For example, ethnographic approaches, narrative analysis, discourse analysis, and grounded theory approaches are just some highly technical approaches that also have nuisance variations within them. For example, grounded theory approaches follow Straussian or Glaserian approaches (Gbrich, 2007; Flick, 2009). As noted by Patton (2002), Flick (2009), and Gibson and Brown (2009) many approaches to qualitative data analysis involve a systematic process by which data such as interview transcripts, observation schedules, field notes, photographs, and so on are analysed for themes. As Patton explains, the aim is to identify the underlying “core consistencies and meanings” in a text (Patton, 2002). Gibson and Brown (2009; pp. 128-129) identify the following three aims of thematic analysis which may be pursued through various qualitative data analysis techniques:

- Examining commonalities in the data by pooling together all examples into specific categories that are then subjected to further analysis.
- Examining differences to identify the distinctive features and contrasts in the categories within a data set.

- Examining relationships among the different categories and how they may relate to core themes occurring within a data set.

A researcher needs to be imaginative and insightful to discern the commonalities, differences, and relationships among categories, themes, or other elements occurring within a data set.

12.15.5.1 Narrative analysis

In narrative analysis the focus is on stories told by participants in the research (Gbrich, 2007; p. 124) and this requires the insightful mind of the researcher as they listen and observe during field visits. Therefore the challenge is for the researcher to be able to see through other people's voices and to make meaning out of their views. Unless this data is succinctly captured through detailed narrative descriptions (of what was observed and of the convergent and divergent views of research subjects) it remains hidden to the reader. Gibson and Brown (2009) suggest that narrative analysis is an important component of how people make sense of themselves and their lives and thus narrative analysis is used to build and use accounts and narratives (p. 98). Critical narrative analysis of classroom events can yield information on questions such as: How does a particular learner explain how she makes sense of subject matter? How does learning of the subject matter make sense to the learner? Such questions can lead to gaining insight into the learning processes of a particular subject matter. Narrative analysis is thus a technique and procedure relevant to data being collected via interviews and observations.

The researcher thus gains a lot of insights by carefully analyzing and narrating the information elicited from or observed of subjects, as much as possible illustrating this through direct quotations or images such as photographs. The act of teasing out verbal and written information from research subjects falls under what is commonly referred to as discourse analysis – the process of interpreting the powerful meaning or discourses underpinning text. Critical analysis of textual information reveals the meaning behind the text and every text is conditioned and inscribes itself within a given discourse, hence the term Discourse Analysis. Discourse analysis is a very important skill that enables a researcher to distil valuable insights from research data. This is a very important aspect of research findings and needs to be handled with care.

12.15.5.2 Grounded theory approach to QDA

Among the many approaches to grounded theory approach to qualitative data analysis, is the approach developed and advanced by Strauss and Corbin (1990) as described by Flick (2009). The Strauss and Corbin approach can be simplified to three qualitative data coding procedures. In this approach the researcher develops codes, categories and themes which the researcher identifies with concepts as they are reflected in the data. Through iteration and reflection, the researcher generates theories that attempt to explain relationships among categories, themes and the concepts that they represent are understood (Oliver, 2004; Flick, 2009). As Flick (2009) explains the 'anchoring point' of ground theory analysis is interpretation of the qualitative data set. What do the three levels or procedures of coding and categorising data entail?

It must be clarified that coding is a process by which categories are created and used to describe a general feature of, or some commonality in the data set. Each category will relate to a range of examples that will be found in the data set (Gibson & Brown, 2009). Codes that are developed prior to the examination of the data are apriori codes and those that are generated through the exploration and examination of the data are empirical codes or

emergent codes. Empirical codes are said to 'emerge from' or to be 'grounded' in the data and serve largely as the basis for 'grounded theory' approaches (Flick, 2009; Gibson & Brown, 2009; Rudestam & Newton, 2007).

- Open coding entails breaking down, classifying, naming, comparing, and categorizing the phenomenon under study line by line, sentence by sentence, and paragraph by paragraph or the whole text (these are the units of analysis, and determining them has been described as 'unitising' (Rudestam & Newton, 2007). Open coding results in codes and categories attached to the text accompanied with their definitions or explanations. These codes and categories will reflect certain themes in the data.
- Axial coding entails identifying and classifying the links between substantive categories found by open coding. This helps to elaborate the relations among the main categories and their subcategories and finding those most relevant to the research questions.
- Selective coding is the third level or procedure of coding which reflects a higher level of abstraction than axial coding. Relationships among categories are further elaborated and compared to tell the story of a case and compare each case with other cases. Relationships and patterns of the categories and concepts are explained and a theoretical framework for these relationships and patterns emerges.

An important aspect of the coding procedure is the persistent engagement in reflecting upon the data as they are being organised into coherent categories and themes and what they mean to achieve fuller interpretation. These reflections needed to be recorded as coding taking place, a process labelled as *memoing*. These memos help the researcher to recall their earlier thoughts as they refine codes and categories and the emerging links among them. It is always of necessity to keep asking oneself: Do the results and findings derive sensibly from the analysis? We also need to take caution that researcher dealing with qualitative data can introduce errors of three kinds (Flick, 2009 citing from Kirk and Miller, 1986). A Type 1 error may occur whereby a researcher sees and reports a result showing a relation or principle where one does not exist or is incorrect. On the other hand a researcher can make a type 2 error by rejecting a relation or principle when in fact it is correct. A type 3 error occurs when the researcher asks the wrong question.

Activity 12.8

Find a qualitative research paper or report. What are the qualitative approaches used to analyse the data? How is thematic analysis done in that research? What are the special features in the report that would make it different from a qualitative report?

12.16 Summary

This chapter has highlighted numerous issues pertaining to analysing and reporting of research results and their interpretation and linking these to the research problem and to the research questions and/or objectives of the study. It is the responsibility of the researcher, through his or her insightful mind to distil what the findings of a study are. This is where the researcher's expertise comes in, massaging large quantities of numerical or qualitative data from the field into meaningful and coherent findings (research discoveries or outcomes). Thus, in research, meaning is distilled from data and information gathered from the field. It is important to ensure and to assure other scholars that the evidence can be found in the data set to support whatever conclusions or insights claimed in the data. The

reader is encouraged to follow up the many references that have been included in order to advance his/her own comprehension and confidence with data analysis and interpretation.

We would like to draw important cues from McMillan and Schumacher (2006; p. 38) who pose the following questions to reflect on comprehensiveness of the analysis: Are the perspectives of the different participants clearly presented? Are words and comments quoted? Is there sufficient detail and depth provided? Are multiple perspectives presented? Are the results well documented? Are assertions and interpretations illustrated by results? Are the interpretations reasonable? Finally as we close the Chapter, we remind the researcher, of his or her ethical responsibility to analyse and report results honestly. As such we have urged the reader invest time to study closely the chosen data analysis techniques and their procedures. This can make data analysis and their interpretation less of a challenge.

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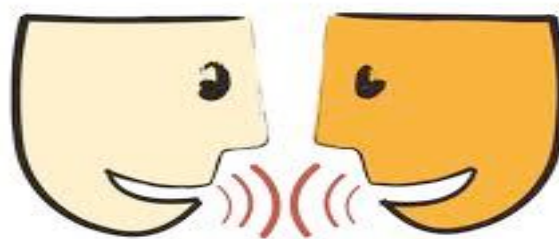
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CHAPTER 13 DISCUSSION

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Abstract

Chapter 13 focuses on the fifth chapter of the dissertation, and aims at giving guidance on the purpose of discussion, and what the student ought to include. The image below captures the essence of discussion. The chapter begins by clarifying the position about overlaps between the two sequential chapters (Chapters 4 and 5), then makes a statement about the chapter heading. This is followed by a brief recapitulation of the focus of the four chapters prior to the discussion chapter. The structure of the chapter, supported by a typical examples is explained. The significance of chapters, other than the five dissertation chapters is underscored in so far as they relate with the Discussion chapter. The chapter is concluded with a pointer that the Discussion chapter is a critical part of the dissertation.



13.1 Introduction

The conventional structure of a dissertation/thesis comprises five chapters, namely, Introduction (Chapter 1); Literature Review (Chapter 2); Methodology (Chapter 3); Results/Findings (Chapter 4) and Discussion (Chapter 5). It is noteworthy that the title of the final chapter of the dissertation write-up could be headed differently in different universities. For example, you may find that it is headed: *Summary, Conclusions and Recommendations*. Sometimes the findings/results section of a dissertation comes in the same chapter as the discussion. You will need to check with your supervisor what your university department's rules are regarding these two sections. Whatever the case, there should be two sections if they are in the same chapter; one for findings/results and the other for the discussion of those findings. We wish to observe that there is no hard and fast rule about the heading, but what is of importance is there should be concurrence on the contents of the final chapter.

Universities which prefer the heading *Discussion*, argue that it is more inclusive because in addition to summary, conclusions, and recommendations, it also includes your contribution to knowledge, implications, and suggestions for further research. Thus, if we were to list each of these subheadings to be included in the chapter title, that title might indeed be rather too long, so the argument goes. Having made this observation, we shall, therefore, use the chapter heading *Discussion* for our last chapter of the dissertation.

On the whole, this is the last chapter of your research study, that one writer calls the "so what" and heart of your research. In this chapter, you confirm your problem statement,

discuss the findings of the study and reach a final judgement on how the problem you were investigating was resolved (Assan, 2008). By the time you come to this chapter, you have analysed and presented the data you collected. You have your findings clearly stated. Well done! You are almost at the end of the very long process which you started a while ago.

13.2 Objectives

After working through this chapter, you should be able to:

- summarise your whole study up to chapter 4;
- check that you have addressed your research questions/hypotheses, limitations and assumptions;
- reflect on your study to explain its contribution to knowledge; and
- draw recommendations from your study.

13.3 Purpose of the Chapter

Why discussion chapter? This is a question some students find difficult to answer. In our experience many research students have problems when producing the last chapter of their research. The main problems are how to summarise all the work that has been done so far, how to discuss the study to ensure that it is worthwhile, how to link it with existing research and how to draw recommendations for the study. Another weakness is that the chapter may be too long and use language that is not clear. In brief, the purposes of Chapter 5 are to:

- a) answer the questions you stated in chapter 1
- b) state your interpretations and opinions
- c) explain how the results support your answers
- d) explain how the answers fit in with existing knowledge on the topic
- e) explain the implications of your findings and
- f) make recommendations for practice and for future research.

At the expense of repeating what you are already familiar with, let us begin with a summary of what the previous four chapters purported to do. This, nevertheless, helps us place the Discussion chapter in its clearest perspective.

13.4 Recapitulation

To recapitulate, Chapter 1 (Introduction) is an expansion of the material in your Proposal, and signposts the content of the rest of the dissertation. The purpose of Chapter 2 (Literature Review) was to show that you are aware of where your own piece of research fits into the overall context of research in the field. To do this you:

- described the current state of research in your defined area;
- considered whether there are any closely related areas that you also need to refer to;
- identified a gap in the literature; and
- explained how you plan to attend to that particular research gap.

(cf. <http://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/writing-dissertation>)

Chapter 3 (Methodology) was a description of how you conducted the research, showing, among other considerations, the design, sampling procedures, research methods, data collection instruments, as well as how data were analysed.

Chapter 4 (Findings/Results), on the other hand, was concerned with a dispassionate presentation of data with minimal or no value judgment. You checked which style of reporting is preferred in your field. For example, in one field there would probably be very clear separation between the results and the discussion of those results; whereas in

another, they might have an overall chapter called Findings/Results, bringing the results and their discussion together.

Finally, your Chapter 5 (Discussion) is where you review your own research in relation to the wider context in which it is located. Usually, this is where you give:

- a succinct summary of results/findings;
- conclusions drawn from that;
- implications;
- limitations of the study,
- contribution made to knowledge;
- recommendations;
- further research; and
- appendices.

You can refer back to the rationale that you gave for your research in the literature review, and discuss what your own research has added in this context. It is important to show that you appreciate the limitations of your research, and how these may affect the validity or usefulness of your findings. Given the acknowledged limitations, you can report on the implications of your findings for theory, research, and practice.

Revisit the discussion on what is expected of you in the first four chapters of the dissertation, as detailed in the foregoing relevant chapters, then work on the following activity.

Activity 13.1

Tick in the box that shows a reflection of your understanding of a given item, then read on.

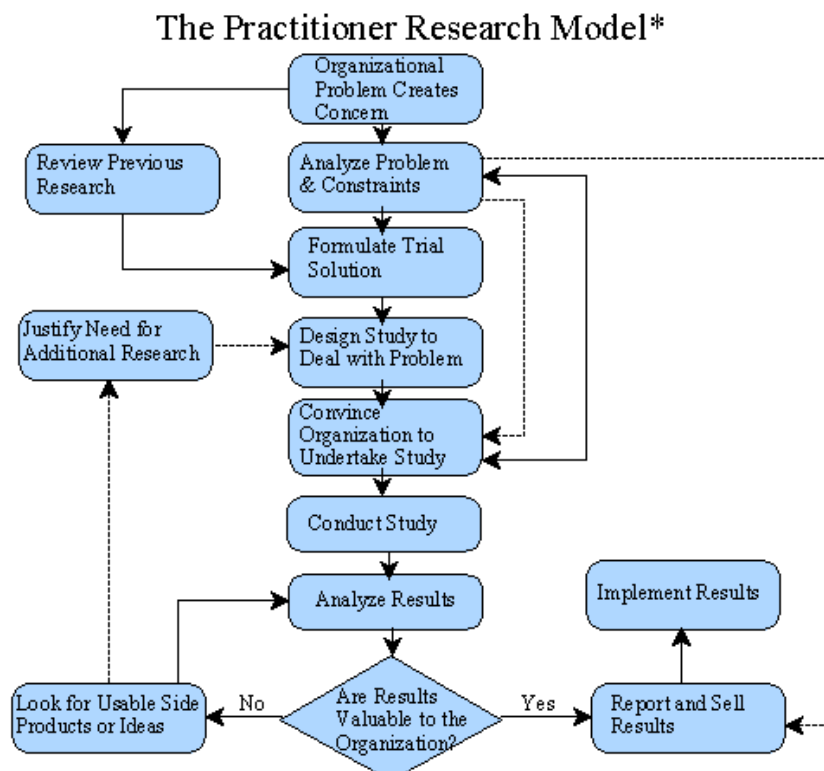
Item	Have full understanding	Have partial understanding	Do not understand
1. What to include in Chapter 1: Introduction			
2. What to include in Chapter 2: Review of related literature			
3. What to include in Chapter 3: Methodology			
4. What to include in Chapter 4: Results/Findings			
5. What to include in Chapter 5: Discussion			
6. The logic of presenting the chapters in this sequence			

You will probably, by now, tick that you have a full understanding of the first four items, which would be commendable. However, if you either still have partial understanding or still do not understand, revisit the relevant chapters, then engage in discussion with your supervisor (or peers) for further clarification. As for item 5, you may possess only partial understanding. This should not be discouraging simply because you still have to read on and establish what the present chapter focuses on. Regarding item 6 you will probably have a good grasp of the logic behind the sequencing of chapters, and reading the present chapter would enhance further insight.

13.5 The Discussion

You have conducted your research, analysed your findings and written your results. You are also tired, and the last thing you want to do is to keep on writing. So, what is discussion? Arguably, the most demanding part of writing the dissertation awaits you, and that is the discussion. Here, the expression to use is that in the discussion you are ‘scaling the heights’. This is the place where you stitch up the various threads of your investigation into a cohesive narrative. As observed in <http://www.apa.org/gradpsch/2006/01.aspx>, where all along you have been focusing on the trees (the individual chapters 1 – 4), here you are concerned with a whole jungle, that is, all the trees put together. While the results section allows for no personal opinion, the dissertation discussion is the right place to produce your assessment and evaluation of the obtained results under the direction of the research questions/hypotheses and the theoretical model you have chosen. This is the brief conceptualisation of ‘discussion’ from the research point of view.

The following model, which captures the entire cycle, and reminding us of the nature of research (See Chapter 1 of the volume for more explanation), can be helpful to you as you work on the final chapter.



* Adapted from Boehm, V. R. 1980. Research in the “real world” - A conceptual model. *Personnel Psychology*(33): 495-504.

13.6 Structuring the chapter

By now you will have read many instructive volumes about the conduct of research for purposes of preparing your dissertation. Let us share the structure of Chapter 5 proposed by one research scientist, in concurrence with others, namely, Atherton (n.d.) (<http://www.doceo.co.uk/academic/dissertation.htm#ixzz29Aj89Vhu>).

His view is that your chapter should have a clear structure, and experience by supervisors shows that many candidates are at a loss what to include. The following sections, in one form or the other, should be evident.

i. Introduction

Begin with a restatement of your research question(s), followed by a statement about whether or not, and how much, your findings "answer" the question. These should be the first two pieces of information the reader encounters. Tell the reader what the answers were, based on your findings, using words like, "The present study was designed to..., The results showed that..." Stay very close to the data (**be empirical not theoretical**) and describe the main findings relevant to the main purpose of the experiment.

Here is an example of an introduction.

This study investigated the effect of mentoring on the professional development of teacher education students of Masvingo Teachers' College. The study was a qualitative case study of mentoring at Masvingo Teachers College. Data were collected from some of the schools in the Masvingo province districts of Bikita, Masvingo and Gutu in which students were deployed for teaching practice. Data were collected through document analysis, observation, in-depth interviews and personal accounts of mentoring from mentors and college lecturers and of being mentored from student teachers.

Adapted from Chakanyuka (2002).

Work on the next activity, in order to reflect on the importance of the introduction.

Activity 13.2

- a. Reflect on your own study, and write brief points on what would form your introduction.
- b. Share these with a colleague, a workmate, or your spouse.
- c. Does the introduction, cited above, capture the essentials of an introduction to chapter 5?

Note that, in distance education, it is important to discuss issues about your study with someone. The ability to verbalise your ideas is useful for your study. The researcher restated the research problem, methodology, data collection instruments and context of the research. The purpose of the study, its significance and the outline of the chapter are not stated.

ii. Summary of the study

This is the section where you give an overview of the entire study, beginning with a re-statement of the problem, research questions, design of the study, type of data collected, and the key findings relative to research questions/hypothesis. Remember that it is the problem and the research questions/hypotheses that determine procedures throughout the

investigation. You should give a brief statement regarding contents of the literature reviewed, especially your theoretical grounding or the model preferred. Capture important elements from the methodology chapter, reflecting the population from which the sample was drawn, and data collection methods. Let us examine highlights from a sample summary extracted from the Internet:

Summary

Purpose of the Study

The purpose of this study was to examine the perceptions of selected school board members regarding the quality and condition, maintenance, and improvement and renovation of existing public school facilities.

Restatement of Research Questions

The research questions for this study were:

- (1) How do selected school board members perceive the quality and condition of school facilities within their district?
- (2) How do selected school board members perceive the maintenance of existing public school facilities in their district?
- (3) What actions have been taken by selected school boards to address the improvement and renovation of existing school facilities?

Research Methodology

The researcher used descriptive research methodology and survey techniques to collect data from selected school board members across the country. Data collected from the survey respondents represented their perceptions regarding the quality and condition, maintenance, and improvement and renovation of existing public school facilities within their district. Non-respondents were sent reminder letters and additional questionnaires following the initial mailing (Appendix G & H).

A coded stratified random sample was selected from the population of school board member subscribers to The American School Board Journal (Table 2). Respondents completed a survey questionnaire that addressed their perceptions regarding the quality and condition, maintenance, and improvement and renovation of existing public school facilities in their district (Appendix B).

Excerpt from:

<http://scholar.lib.vt.edu/theses/available/etd-82098-1946/unrestricted/chapter5.pdf>

iii. Findings/Results

Devote a short paragraph on the review of the findings, qualitative or quantitative. These should occur in the same sequence as they were presented in Chapter 4. They should be presented factually and in an organised narrative.

iv. Limitations

Provide a statement in which you acknowledge limitations, their source, and mitigation. While acknowledging limitations, avoid wimpish statements such as "the sample size was too small" or any general, negative statements, unless you have evidence to support or contradict them. Conclude that your experiment was valid, unless there is clear evidence it

was not. Believe your findings. Try to maintain an upbeat, positive tone. Do not dwell on the negative.

Remember that sampling procedures followed (probability and non probability), delimitation, and ethical issues can lead to limitations you did not think about at the beginning. These are impactful on validity and reliability of findings and conclusions drawn. You should, therefore, articulate these as clearly as you possibly can.

v. Conclusions

These are based on the research questions posed in Chapter 1, and are drawn from the findings/results. Normally, you should present them in the same order as the research questions, and this brings the research full cycle. You ought to be very clear how you state conclusions and the discussion of those conclusions. This chapter is anything and everything that the researcher thinks about the study. Therefore, ensure that there are some references in this chapter, to support what is being said. Please note that such references are not meant to bring in new arguments, but they are rather confirmatory. You can refer quite liberally to citations presented in earlier chapters. As we say, you should transcend the facts, and engage in productive speculation. Here, you tie everything together, analyse, synthesise, and evaluate what was found in research with what you think – you discuss!

Put differently, set up the Discussion section as a ***"dialogue" between Results and Theories - yours and everyone else's***. In other words, for every experimental result you want to talk about, you find results from other publications bearing the relationship to your result that you want the reader to understand. Most often, your result either ***agrees with*** (corroborates), ***extends, refines,*** or ***conflicts*** with another person's result.

vi. Implications and Recommendations

Implications are practical suggestions of the impact of the study for purposes of addressing the issues that have been raised in the research. These are suggestions of what should be done and how that can be done. Within discussion of implications, you do well to also include what your study has contributed to knowledge at theoretical, application, and any other levels. Based on implications, you will then provide recommendations.

Recommendations should derive from conclusions, which you arrived at in testing hypotheses or answering research questions. Many students rush to make recommendations, which they already had in mind before conducting the research, even when these are not linked to empirical evidence from the study.

Many students have problems formulating recommendations. Firstly, they erroneously state, at the beginning of the study that one of their objectives is to make recommendations. That is not the point, because recommendations come as a result of the study. The statement they make sounds as though they already know what recommendations they want to make well before conducting the study. Secondly, some students make recommendations that have nothing to do with the implications or conclusions drawn from results/findings.

The recommendations of your study show the outcome of the research questions and how it influences or changes understanding about the topic studied. Recommendations are usually of two types, that is:

- Recommendations for further research - what new questions, needing further research, are arising from the study; what other gaps in knowledge your study shows?
- Recommendations for practice, showing the impact of the research or the use of the study and how it will impact on practice in the field. In this section you have to give practical suggestions on what is to be done as a result of your study. Here is an example of how to put across your recommendations.

Based on the findings of this study to examine the perceptions of selected school board members regarding the quality and condition, maintenance, and improvement and renovation of existing public school facilities, it is clear that practitioners and policy makers hold different perceptions regarding the overall quality and condition of their school facilities. In order to address these differences, it is recommended that school district superintendents and their staffs make consistent efforts to ensure that board members are kept informed about these issues.

Additionally, because the findings regarding funding sources for the improvement and renovation of school facilities did not focus clearly on any one resource, especially one that is aligned with perceptions of adequacy, it would be important to conduct a study that examines this issue in more detail. Are there successful practices that have creatively addressed this issue? Finally, it would be important to conduct a study that examines more closely whether or not a large percentage of board members across the country have similar or different perceptions from practitioners in the field regarding the quality and condition of their schools.

Excerpt from:

<http://scholar.lib.vt.edu/theses/available/etd-82098-1946/unrestricted/chapter5.pdf>

vii. Future research

When you reviewed related literature, you probably identified gaps in prior research, guided by your research questions. Give some thought about what could be further studied in the field you have investigated, indicating why it is important. Provide a rationale for why the additional research should be done. Two kinds of future research are possible:

- one based on what the study did and found; and
- the other based on what the study did not do or find.

Judd, Smith and Kidder (1991) argue that your recommendations must clearly address the following issues:

- On the basis of your findings what recommendations, clearly corroborated by your study, are you making and to whom?
- What gaps still remain and what research do you recommend which should be carried out to fill the gaps?

viii. Summary/Conclusion

The summary actually concludes the dissertation, signifying that thereafter, nothing will follow. Normally, it begins with a brief statement of the purpose, followed by an overview of findings and conclusions. The last words of the chapter should give the 'walkaway message', the enduring ideas or conclusions that you wish readers to keep when they have gone through your study. These should be presented in the simplest possible form, being sure you preserve the conditional nature of your insights. Here is a summary at the end of Chapter 5,

based on a topic to do with the evaluation of a distance education in-service programme on teacher and learner effectiveness.

This final chapter started with a review of the first four chapters. Focus then turned to the main findings, followed by an account of limitations of the study and then an assessment of its contribution at theoretical, descriptive and applicational levels. This led naturally on to discussion of implications and then recommendations, which included those relating to further research. In this respect, several propositions were made with a view to encouraging scholarly enquiry in areas related to talk among teachers and learners.

Through the quasi-experiment at the heart of this study, it was verified that the Litraid language-based in-service intervention course had considerable influence on patterns of classroom interaction. By reflecting during the course on why they ask certain questions; on the effectiveness of such questions in terms of teaching and learning goals; on the effect such questions had on learners; and on the way learners responded to different linguistic input, teachers developed the capacity to use discourse more purposefully for the negotiation of learning through enhanced learner initiative. At the simplest level it was demonstrated that whenever learners are encouraged to participate in talk, they have to think about what to say, as well as think about what they hear from teachers and peers. Logically, therefore, one of the opportunities school should offer learners is that of being able to exploit interaction with teachers and peers to develop their thinking, learning and understanding. The benefits of the Litraid course for teachers and learners, as revealed by this study, should be taken cognisance of also by teacher educators, curriculum planners, policy makers and researchers interested in applications of discourse analysis. Mercer (1995:6), who views the use of language as a social mode of thinking, makes the following conclusive observation:

By using language to learn, we may change the language we use. This is why an analysis of the process of teaching and learning, of constructing knowledge, must be the analysis of language in use.

Reflecting on my study, the view to investigate the Litraid programme as a useful applied linguistic intervention instrument proved fruitful, and it opens up further a debate whose educational implications can be far-reaching. While education systems in Southern Africa are becoming aware that language, in particular teacher talk, is inextricably bound up with the negotiation of learning, they should now be prepared to go beyond the erroneous view that only teachers of English (or the relevant medium of instruction) are the custodians of what should happen when language is used in various learning contexts. Talk should now be regarded in all classrooms as a powerful facilitating force for learning rather than being treated as disruptive noise, lacking in seriousness of purpose.

Adapted from Tichapondwa (2007)

After reading the summary or chapter conclusion more closely, comment on the extent to which it meets the criteria of a good summary.

Let us now reflect on the ten features of Chapter 5 as we work on the activity below.

Activity 13.3

In the first column is a list of typical features of Chapter 5. After closely reading what each feature involves, write one sentence (in your own words), stating what you are expected to include in writing about that feature in the final write-up of the chapter. You may want to be guided by a write-up, which you are currently working on.

Feature	Expectation
1. Introduction	
2. Summary of study	
3. Findings	
4. Limitations	
5. Conclusions	
6. Implications	
7. contribution of the study	
8. Recommendations	
9. Future research	
10. Summary	

Check your personal statement in the second column with information, which is detailed under each feature as discussed in the foregoing text. If the statement aptly summarises the essence of the feature, commit it to mind as you write the chapter. Remember to do the same with features of the foregoing four chapters of the dissertation. In the next section, let us attempt an illustration of how the structural features can be applied in context.

13.7 Application

To reinforce the above ideas, here is an example of a PhD student who worked on the topic:

Benchmarking Quality University Education: A case for University X

The primary question of the study was:

To what extent does University X consciously practise benchmarking?

When the candidate came to Chapter 5, having worked on the four previous chapters, he presented **an introduction** in which content to be covered in the chapter was briefly summarized.

This was followed by **a summary** of the entire study beginning with re-statement of the problem, namely that:

...although there is much talk about benchmarking in university education, it is not clear whether there is a shared understanding of that concept by key stakeholders.

There was also a brief statement that **data were collected using the questionnaire** based on 50 benchmarks by McKinnon, Walker and Davis (2000), as well as the use of oral interviews. The **population** comprised top management and lecturers. **A gap** was identified, namely, that there was no literature available to address benchmarking among Southern African universities, though there was literature elsewhere, for example, in Australia.

One of the **major findings**, being an answer to the primary question, was that 82% of respondents were not aware of what benchmarks are, nor was there conscious application of the same. The **main limitation** that was identified was that only one institution had been investigated with its performance measured against the 50 benchmarks. No other university had been examined in comparison. The **mitigation** was that the use of benchmarks would serve as **objective measures**. Based on the finding where 82% of respondents lacked awareness, **the conclusion** that there was limited awareness among practitioners was arrived at.

The **implication** that practitioners were operating without precise knowledge about benchmarking was raised. Closely linked to the implication was the **finding** that benchmarking could be objectively measured using criteria applied elsewhere to increase awareness by practitioners, and in turn improve quality university education.

The **contribution** was, therefore, at **theoretical level** where a theoretical model by McKinnon, Walker, and Davis, (2000) was confirmed to be an enhancer of practice within a different, but comparable university environment. Thus, the contribution of the study was at both the theoretical and practical levels.

That contribution served as a good foundation for **the recommendation** that lecturers, administrators, and managers within a university should be exposed to ideas about benchmarking in a more systematic manner.

Regarding **future research**, the researcher noted that there was a gap in the literature, and that his study had focused on one institution only. To him, that was a limitation, hence motivation for a more sustained study that would include two or more institutions. This would make a more compelling case for extrapolation, leading governments to seriously consider strategies for benchmarking towards quality provision of university education.

Let us look for the connecting thread, the golden thread, which links chapters in your final chapter. It is noteworthy that you should create a logical connection. Chapters are not discreet entities, if we may use that term. There must be a conscious demonstration of coherence, which is often brought out by what you may call *cross referencing*, *forward and backward referencing*, or *iterative referencing*. In the oversimplified case study cited above, there is, to a reasonable extent, interpretation and application to a broader context. This is evident in the manner the researcher completes these tasks:

- explains and interprets the results obtained during the research;
- provides answers to the primary research question;
- evaluates the strong and weak points of the study, relative to limitations;
- explains the significance of the theoretical model used to illuminate the investigation;
- spells out implications and contribution made by the study; and
- speculates about future research.

After reflecting on the case study, work on the next activity.

Activity 3.4

Go through the discussion chapter of a dissertation. This could be one you are working on, or one you identify from the internet.

- a. Read it carefully bearing in mind the features discussed above.
- b. Make a careful note of either the presence or absence of a particular feature.
- c. Suggest how the chapter meets or fails to meet expectation.

Note that this is a practical activity, and there are no right or wrong answers. Its aim is meant for you to reinforce the ideas we have shared so far. After working on the activity, you may want to discuss with someone close to your situation. Although you may be operating at a distance from your supervisor, it is always proper to send e-mail with specific questions. Your supervisor will only be too happy to assist.

13.8 The Link with enhancers

Prior to reading the present chapter, you will have gone through the others chapters of the present volume, which do not necessarily focus on what to include in a given chapter. We call them *enhancers*, because they help shape your ideas about the entire research process, that is, they enhance the research activity. Examples are chapters on the nature of academic research; getting started; academic standards and research ethics; student/supervisor roles; quantitative and qualitative approaches; data handling analysis, to name some. Whether consciously or sub-consciously, your tackling of the final chapter (the Discussion chapter) operationalizes all the distilled wisdom from the chapters referred to as enhancers. For that reason a special word is considered pertinent here.

The chapters form a strong foundation on which your individual chapters and the research processes involved are constructed. They enhance your scholarship by exposing you to the discourse of research. For example, many research students seem to have challenges distinguishing between *strategy* and *method*, *method* and *technique*, *paradigm* and *approach*, *research method* and *research instrument*. The list is long. The enhancing chapters are enabling, in the sense that they illuminate procedures and research orientation.

The last three chapters of the present volume fall into the category of enhancers because they too give guidance on critical issues: the dissertation write-up; challenges faced by supervisors and students; and using technology in the conduct of research. Enhancers should, therefore, be read with the thinking that it is suicidal to plunge into writing the Proposal or indeed any of the five chapters, without sufficient grounding. Students separated by transactional distance from their supervisors tend to have limited opportunity to discuss relevant ideas with significant others. They are, therefore, well advised to invest a bit of time on those chapters. As already observed, Chapter 5 is the confluence of all effort, thus enhancers are most requisite. As you read each of the chapters, bear in mind the question: How does the chapter enhance my insight into my study?

13.9 The Heart of the Dissertation

Considering repeated experience we have in supervising dissertations, Chapter 5 is perhaps the most crucial because it presents your contribution to the research literature, for example. Actually, some cursory readers will attend to this chapter only. Your *Discussion* chapter (summary, conclusions, implications, contributions, limitations, further research, and recommendations) is, as Theobald (1991) aptly observes, the heart of the dissertation. It is the confluence of all empirical intentions. This is where you tie together the research

questions or hypotheses, the data you have unearthed, and the previous research and models and arguments. In a sense, anything goes in this chapter, except that if it is separate from the *Findings*, there should be no new information or data. It is all about the potential meaning(s) of data you have already reported, whether yours or that of previous researchers.

What must run through the chapter, though, is this continual knitting of the present material and the previous research. Moving away from the mundane aspects, this is a conversation between the present and the past, to adopt Oakeshott's (1989) metaphor, and both sides need to be heard. You can now speak in your own voice, as it were, although you do not have to switch from third-person to first-person if you are using the former convention. You have led the reader systematically through the research process, and this is where you can point out what it all adds up to: if you have done it properly, you are now expert and you have earned the right to be heard. In a sense you are saying, "According to me..."

This is also where you should, in some measure, evaluate your efforts and their limitations. If the research design did not prove up to the task, say why and how that qualifies the results. If the survey suffered from a poor response rate, do not try to cover it up, but discuss how this might have upset the sampling. The supervisor will already have noticed these limitations anyway, so there is no point in trying to conceal them, but you show your professionalism by the way you address them. For the simple reason that your supervisors have substantial experience supervising different chapters, you will find the following lessons from their experience beneficial to your handling of Chapter 5.

13.10 Lessons learnt from supervising Chapter 5

Supervisors have learnt numerous lessons when examining the Discussion chapter. The following, though not exhaustive, are some of the lessons.

- Students tend to have no guidance on how to structure the chapter, and approach it unsystematically.
- The key areas, in many flawed discussions, are not linked with research questions or hypotheses.
- Some students already know what recommendations they want to make even before conducting research, and this is betrayed by recommendations, which have nothing to do with conclusions drawn from results/findings.
- Some students introduce new references at this late stage, when that could have been done in the introductory chapter, or the chapter dealing with review of related literature.
- Often, it does not come out clearly what the study has contributed to the wealth of knowledge.
- When the attempt to show some form of contribution, it is not explicit at what level the contribution is made – applicational, descriptive, or theoretical.
- Cross-referencing with foregoing sections of the write-up is often missing. For example, many students do not bring out more explicitly how the point they will be making at any point either supports or refutes a particular scholar cited previously.
- It has also been observed that many students come out with findings contrary to what they had hoped to find. They do not bring this out, thinking that it will be a weakness. On the contrary, it is a strength, which they should bring out as a strength, showing originality of their particular research.

13.11 Summary

It is not possible to exhaust ideas about a chapter as important as Chapter 5 of a dissertation, within the scope of a guide. What counts is a brief sharing of key ideas on how to present the chapter, as well as to specify key expectations. The following points reflect highlights of what we covered in our discussion.

- An explanation of the situation to do with where to place the discussion vis-à-vis results and conclusions was made at the outset.
- Closely linked to the above, the issue of chapter heading was also explained, underscoring the point that there should be no hard and fast prescriptions since styles vary from institution to institution, and are, therefore, circumstantial.
- The four foregoing chapters were recapitulated in order to signify how Chapter 5 is logically connected with them.
- We engaged in a dialogue about how best to structure the chapter, and the discussion was followed by a simplified example from the work of a hypothetical candidate.
- The Chapter was concluded with a motivating statement aimed at helping the reader to regard Chapter 5 as the 'Heart of the Dissertation'. The section provides orientation on key research ideas. This is considered critical for the researcher who may be preparing the dissertation at a distance.

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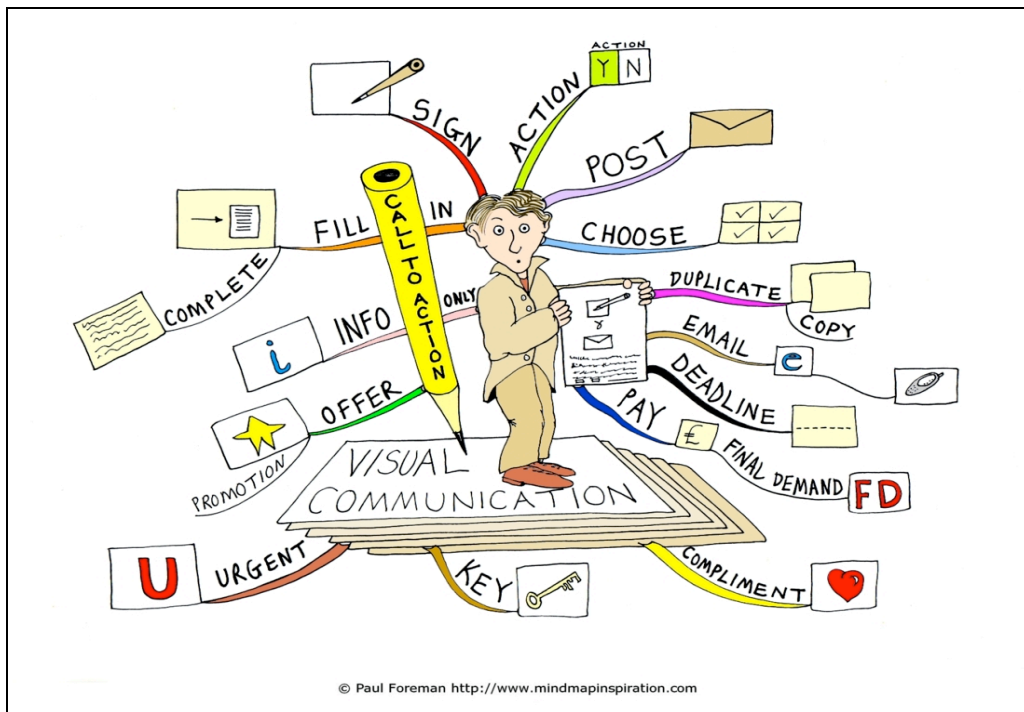
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CHAPTER 14
THE DISSERTATION WRITE-UP
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Abstract

Unlike reading, speaking, or listening, writing is the most demanding skill, and involves broadened decision-making by the researcher. This is illustrated below. This chapter is about how to turn your research (once it is done) into a readable multi-chapter document. You need to figure out what to include, how to organise it, and how to present it. Among other considerations are: what goes into a dissertation; who your audience is; planning the and organising the dissertation; and how to present it in order to make things easy for readers. It highlights the critical issue of coherence, and renders advice on the best way to prepare the Abstract. The write-up, therefore, involves a wide range of writing and organisational skills.



14.1 Introduction

The fallacious view is that if you have written the several related chapters, each one endorsed by the promoter, you simply staple them together to get a dissertation. Why do you think this is a fallacy? First, a thesis should cohere. Ideally, it should feel like *one* long paper. Second, it should provide added value: there should be people who would prefer reading it to simply read your conference papers. Otherwise writing it would be a meaningless exercise.

A typical thesis will *motivate* why your new idea is needed, *present* the new idea, *convince* the reader that it is good and new and might apply to the reader's own problems, and *evaluate* how well it worked. Overall, the result must be a substantial, original contribution to scientific knowledge. It signals your official *entrance* into the community of scholars. Treat it as a chance to make a mark, not as a 900-page-tall memorial to your graduate student life.

14.2 Objectives

After working through this chapter, you should be able to:

- explain the writing –up process from before and during the activity;
- list and explain the key aspects to consider;
- define your audience and demonstrate their significance;
- prepare a coherent write-up, which communicates proficiently; and
- verify the extent to which your write-up conforms with expectations.

14.3 Before the final write-up

Let us begin with an activity.

Activity 14.1

- a. What do you consider to be the correct timing for your dissertation write-up?
- b. Suggest the major considerations to take into account when working on the write-up.

This activity sets you thinking more seriously, given that some people say after completing each chapter you are done with it, and what remains is to simply put all chapters in a sequence before handing the dissertation in for examination. The other view is that the write-up involves going over all chapters with a checklist to ensure a smooth flowing dissertation. The latter is the more acceptable. However, complying with it involves taking into account some hints. These are discussed below, so read what follows carefully.

The final write-up is what you hand in to your supervisor for examination. However, before that is accomplished, many students have misconceptions of a varied nature, among them poor planning and lack of timing. The University of Reading gives invaluable advice to students

<http://www.reading.ac.uk/internal/studyadvice/Studyresources/Essays/sta-writingdissertation.aspx>). You will, no doubt, be familiar with some of the hints they give, and we think they are worth repeating.

i. Managing your time

Do not panic! Your dissertation might seem like an endless project, but you can break it down into a list of tasks. Having a plan for using your time to complete those tasks will get it done.

ii. Plan an overall work schedule

Break down your dissertation into stages and **plan backwards from your deadline** to fit them all in.

- Start with your preliminary literature review
- Think about your methodology
- Identify primary sources
- Identify secondary sources, if appropriate
- Write as you go along

- Organise and analyse your material
- Write up
- Redraft / check / proofread

iii. Do a little bit on a regular basis

- Decide in advance when you're going to work on your dissertation, that is, set aside time each week or have a particular day to work on it
- Give yourself a specific task to do in that time
- Do difficult tasks at the times of day you work best
- Do easy tasks when you're tired / less motivated

iv. Have a contingency plan

No one ever sticks to their plan perfectly, and you cannot predict all the things that might intervene, so build in some extra time for "catching-up". Also be aware that mechanical tasks like sorting the bibliography and proofreading will take longer than you think. Computers and printers do not know when you're in a hurry and will break down at the most inconvenient moment.

v. The chapters don't have to all be the same length

Some can be longer because they are more detailed (like the literature review), and others can be shorter because they are summarising and finalising information (like the discussion).

vi. Write up as you go along

Your dissertation may be the longest piece of writing you have ever done, but there are ways to approach it that will help to make it less overwhelming.

It is much easier to keep track of how your ideas develop and writing helps clarify your thinking. It also saves having to churn out thousands of words at the end.

vii. You do not have to start with the introduction

Start at the chapter that seems the easiest to write. This could be the literature review or methodology, for example. Alternatively you may prefer to write the introduction first, so you can get your ideas straight. Decide what will suit your ways of working best, then do it. Negotiate with your supervisor about this.

viii. Think of each chapter as an essay in itself

A chapter should have a clear introduction and conclusion. The introduction should inform what the chapter is going to discuss. Use the conclusion to link back to the overall research question, or problem as spelt out in the introductory chapter.

ix Your dissertation as a river

Think of the main argument of your dissertation as a river, and each chapter is a tributary feeding into this. The individual chapters will contain their own arguments, and go their own way, but they all contribute to the main flow of the argument.

x. Write a chapter, read it and do a redraft - then move on

This stops you from getting bogged down in one chapter.

xi. Write your references properly

Referencing must be done properly right from the beginning. Among the various referencing systems should be the one preferred by your faculty, and this should be used consistently. Our experience is that there are many students who do not know what a reference system is. They simply refer to sources as they wish. In the majority of such cases, there are inconsistencies. The two commonly used, out of several, are the American Psychological Association (APA) and the Harvard Referencing System.

xii. Talk to friends or your supervisor about what you're doing

You will be amazed how talking to your spouse or friends about what you are writing can clear obstacles. Explaining where you are in your project and how it is going can help clarify your thinking.

The foregoing views have been echoed by writers and research supervisors (cf. Thomas, 2009; Clarke, 2010). Read them more carefully, and reflect on how each one contributes to the writing of a scholarly write-up. In the next activity, two ideas from the discussion have been singled out. Share your views about them.

Activity 14.2

What are your views about these two ideas?

- a. You should have a contingency plan.
- b. You do not have to start with the introduction.

Your response to the first question should demonstrate that you understand what a contingency plan is, then relate that to the process of writing the dissertation. The second view might sound strange, but there is merit in starting with your preliminary review of related literature, for example, before working on the introductory chapter. The literature sheds more light on what you raise in Chapter 1. This does not mean when you start with that chapter, it is final. You will, obviously, have to revisit it as you work along.

14.4 Aspects to consider

You have completed all your chapters, and satisfied yourself that all that requires inclusion has been considered. Is there still anything to consider? Eisener (<http://cs.jhu.edu/~jason/advice/how-to-write-a-thesis.html>) gives advice that you should: integrate the pieces; expand and contract where necessary; re-read and contextualise ideas,

guided by research questions and hypotheses; and acknowledge whatever is worth acknowledging. We examine each item briefly.

i. Integrate the pieces

- Craft a substantial introductory chapter that ties the work together and highlights the novel contributions.
- Reorganise the remaining presentation into a series of chapters that support and develop your story from the introduction.
- Make the notation, terminology, and style consistent throughout.

ii. Expand the text

- Make the text clearer and more thoughtful.
- Add more examples and intuitions to help the reader.
- Consider counter arguments, variations, and alternative explanations.

iii. Contextualise the ideas

Check that you have:

- opened the thesis with a paragraph of what sells the work to a general audience;
- discussed alternative solutions that you rejected or are leaving to future work; and
- pointed out connections to other areas, including other possible applications of your ideas.

iv. Acknowledge help

- Acknowledge any collaborators on this work, such as your advisor.
- Acknowledge financial support on this work, and perhaps also other financial support you have received as a graduate student.
- Thank other people who have helped you technically, administratively, socially, or emotionally over your graduate student career.
- State which parts of the thesis text (if any) have appeared in your previous publications. Remember to get permission to republish if you are no longer the copyright holder of those works, or if you had co-authors

Just a word of advice: Students should try and make the acknowledgements sober and controlled, and not get carried away with the prospect of completing the doctorate degree. This is illustrated with a sample from a student (see below). After reading the excerpt, work on activity 4.3.

It would be a serious and unprecedented oversight and grossly unfair to enjoy all the credit for the success of this study without giving special thanks where it is due. My acknowledgement for this self-enriching Thesis goes to my Supervisor –Professor XX who was more than good enough in his guidance. If resources permit, I would embark on a second Doctorate dubbed: ‘What’s in Professor XX’ as a thank you to his sterling work... They were the artists who were busy pruning and re-pruning my stuff whenever there was need. They fed me with ‘*academic alcohol*’ and kept me academically drunk throughout the study. It will be a ‘crazy fulfilment’ if I cannot acknowledge the sterling cooperation obtained from Bulawayo women entrepreneurs for providing me with the data that made this thesis a success. In fact ‘*give me time-‘super ladies’ -an Academy of women entrepreneurs in Bulawayo for a start- is my dream and will be a consolation prize for your sacrifices –God permitting.*’ My co-researcher Y, thank you for assisting me. If there was a way of splitting the doctorate I would have done so. Sorry my fellow Doctors (Class mates),

I almost had forgotten to mention you-I will never forget your support –particularly the joke: ‘*Hai Doctors without Portfolios-Pull up your Jeans mhani (you guys)*’.

Activity 4.3

- a. What do you consider to be the weaknesses of the Acknowledgements (cited above) from the academic point of view?
- b. Explain how you would modify the Acknowledgements to make them more suitable for a dissertation.

Remember we said (just before the acknowledgements text) that acknowledgements must be sober and controlled. By applying that measure, the probable weakness is that the author seems to get carried away, and uses colloquialisms that border on the sentimental. Removing the discourse of endearment, and replacing it with more scholarly one could modify the acknowledgements. Also, redundancies could be shed off, thus making it shorter and precise.

v. take responsibility

- Do not expect your advisor to be your co-author. It's *your* Ph.D, therefore, you are sole author this time and the responsibility is on your shoulders
- If your prose is turgid or thoughtless, misspelled or ungrammatical, oblivious or rude to related research, you are the one who looks bad.

This means even after you finish writing all chapters, you have to do the needful in preparation for the academic write-up. Re-read and ensure your responsibility is well placed in every section. We now move on to the critical aspect of the audience.

14.5 Know your audience

Fairbairn and Winch (1996); and Fairbairn and Fairbairn (2001) render valuable advice about knowledge of audience.

You are now doing the final write up, and there are a number of responsibilities to undertake.

First, consider your target audience. You will, obviously, have done so when you interacted with your supervisor as you were working on the Proposal. That crucial early decision will tell you what to explain, what to emphasise, and how to phrase and organise it. Checking it with your advisor might be wise.

Pretty much everything in your thesis should be relevant to your chosen audience. Think about them as you write. Ask yourself:

i. What does your audience already know?

You can safely assume that your readers have some prior familiarity with your research area. Just how much familiarity, and with which topics, is a judgment call. Again, you have to decide who your intended audience is.

In practice, your audience will be somewhat mixed (See James and Slater, 2013 for a more detailed explanation). Up to a point, it is possible to please both beginners and experts by covering background material *crisply* and *in the service of your own story*. How does that work? As you lay out the motivation for your own work, and provide notation, you will naturally have to discuss background concepts and related work. But do not give a *generic* review that someone else could have written! Discuss the background in a way that motivates and clarifies *your* ideas. Present *your detailed perspective* on the intellectual landscape and where your own work sits in it. This is a fresh take that keeps tying back to your main themes and will be useful for both experts and beginners.

In short, be as considerate as you can to beginners without interrupting the flow of your main argument to your established colleagues. A good rule of thumb is to write at the level of the most accessible papers in the journals or conference proceedings that you read. So, the point being made is that even at this stage, it pays to revisit the background section of the introductory chapter.

ii. What do you want your audience to learn from the thesis?

You should set clear goals here. Just like a paper or a talk, your dissertation needs a point: it should tell a story. Writing the abstract and chapter 1 at the start will help you work out what that story is. The section dealing with the purpose of study will require a revisit in order to ensure that the contribution your story purports to convey is carefully articulated.

iii. What does your audience hope to get out of the thesis?

This is different from what the audience will learn. Why does anyone crack open a dissertation, anyway? I sometimes do. Especially for areas that I know less well, a dissertation is often more accessible than shorter, denser papers. It takes a more leisurely pace, provides more explicit motivation and background, and answers more of the questions that I might have.

According to Wallace and Wray (2006), there are other reasons one might look at your dissertation. Some of these are to:

- better understand your good idea: your grand vision, how you think about it, and what you did.
- look up details, clarification, or further results after reading a shorter version of your work.
- get a sense of what your field or area is all about.
- read a thorough summary of work in your area, via your literature review.
- describe your work accurately in a paper one may be writing.
- check whether a paper one is writing (or reviewing) needs to cite you.
- decide whether to give you a Ph.D.
- help your supervisor write a recommendation or promotion letter.

Readers with different motivations may read your thesis in different ways. The strong convention is that it is a single document that must read well from start to finish (cf. Clarke, 2010). The research committee of your university will read it that way. But it is worth keeping other readers in mind, too. Some will skim from start to finish. Some will read only the introductory and concluding chapters (so make sure those give a strong impression of what you have done and why it is important). Some will read a single chapter in the middle, going back for definitions as needed. Some will scan or search for what they need: a

definition, example, table of results, or literature review. Others will flip through to get a general sense of your work or of how you think, reading whatever catches their eye.

Note that three characteristics of presentation should be pervasive throughout the write-up:

- i. the dissertation should, at all possible turns, show how it is **advancing the frontiers of knowledge**.
- ii. The dissertation should **reflect originality**. Although this often comes out clearest in the contribution section of your Chapter 5 – Discussion – strive to make this clear in the different chapters.
- iii. It is the way you present your ideas that captures the interest of the audience. The need for the dissertation to be written using **tentative language** cannot be overemphasised. This means, you have to avoid presenting information in absolute terms, especially in qualitative research where trustworthiness is more critical than validity.

Activity 4.4 draws our attention to ways of remaining focused to the needs of the audience.

Activity 4.4

The foregoing discussion focused on the audience.

- a. Who is the primary audience for the dissertation? Support your view.
- b. Why do you think it is helpful to assume that your audience has a bit of knowledge about what you are writing?
- c. Why do you expect the audience to learn something from your written dissertation?

The general view is that your supervisor is the primary audience, and that is for a number of reasons. Some of them are that it is the supervisor who interacts with the dissertation, in the first instance. Secondly, it is the supervisor who helps you shape the ideas you will document. Concerning the second question, no audience would seriously read something they have no interest in. Minimum interest will signify possession of some background in the theme under discussion. The reason for reading is to gain something. Your response should, therefore be a demonstration of what it is that the two or three audience types will benefit.

When all the foregoing has been taken account of, issues of organisation come to the fore.

14.6 Organisation of the dissertation

Once you have chosen your target audience, you should outline the structure of the thesis. Again, the convention is that the document must read well from start to finish. Some further tips for good organization are shared below. Advisors on preparing the research write-up (e.g. Rudestam & Newton, 2007; Thomas, 2009) have given vital guidelines on the matter.

i. Keep your focus

Keep your focus. Length is not a virtue unless the content is actually interesting. You do have as much space as you need, but the reader does not have unlimited time and neither do you.

Use space as needed for clarity and to flesh out and support your story. If you feel like your thesis is too short, it may need more ideas, thoughtful discussion or experiments, talk to your advisor.

ii. Get to the good stuff

A newspaper, like a dissertation, is a hefty chunk of reading. So it puts the most important news on page one, and leads each article with the most important part. You should try to do the same when reasonable.

Get to the interesting ideas as soon as possible. A good strategy is to make Chapter 1 an overview of your main arguments and findings. Tell your story there in a compelling way, ***including a taste of your results***. Refer the reader to specific sections in later chapters for the pesky details. Chapter 1 should be especially accessible: make it the one chapter that everyone should read.

The same strategy works within a chapter. Start by telling your readers what the chapter is about and why they should read it. Then unfold your ideas and results. The order of your presentation should be natural and logical (e.g. some motivation before experimental design and before results). Keep the reader turning pages. Seek reasonable ways to move the boring bits to later sections or later chapters (<http://www.reading.ac.uk/internal/studyadvice/Studyresources/Essays/sta-writingdissertation.aspx>).

iii. Include a road map

Chapter 1 traditionally ends with a "road map" to the rest of the thesis, which rapidly summarises what the remaining chapters or sections will contain. That is useful guidance for readers who are looking for something specific and also for those who will read the whole thesis. It also exhibits in one place what an awful lot of work you have done.

14.7 Defining terminology

Basic terminology, concepts, and notation have to be defined somewhere. But where? You can mix the following strategies:

i. Retail

You can define some terms or notation individually, when the reader first meets them. Then they will be well motivated and fresh in the reader's mind. If you use them again later, you can refer back to the section where you first defined them.

ii. Wholesale

On the other hand, there are advantages to aggregating some of your fundamental definitions into a "Definitions" section near the start of the chapter, or a section, near the start of the dissertation. The advantages are that this:

- sits readers down and gets them oriented all at once;
- makes the definitions harder to overlook;
- highlights how the definitions are related to one another;
- gets the definitions out of the way, so they don't have to interrupt the flow of your argument later; and
- gives readers a place to check if they forget what you meant by.

You may use the "bumptiousness" model. This is an alternative where you include a summary of notation and a glossary at the back of the dissertation, and advertise their existence.

The downside is that such sections or chapters can seem boring and full of not-yet-motivated concepts. Unless your definitions are novel and interesting in themselves, they block the reader from getting to the new and interesting ideas. So if you write something like "Chapter 2: Preliminaries," keep it relatively concise. The point is to get the reader oriented.

14.8 Making things easy for your readers

Now we get down to the actual writing. A dissertation is a lot to write. But it is also an awful lot to read and digest at once! You *can* keep us readers turning pages and following your argument. But it's a bigger and more complicated argument than usual, so you have to be more disciplined than usual. Get back to the five or so chapters, which you have finished writing, and have received the blessing of the supervisor. Re-read and check whether you abide by some of these expectations.

14.8.1 Break it down

Fairbairn and Fairbairn (2001) have correctly observed that long swaths of text are like quicksand for readers and writers. To keep us moving without sinking, use all the devices at your disposal to break the text down into short chunks. Ironically, short chunks are *more helpful* in a longer document. They keep your argument tightly organized and keep the reader focused and oriented. This principle has guided the way this book has been written, and our experience is that it takes skill and effort to write communicative short chunks. The temptation to write long chunks is the easiest.

If a section or subsection is longer than one double-spaced page, consider whether you could break it down further. This one-page threshold may seem surprisingly short, but it really makes writing and reading easier. Some devices you can use:

i. Subsectioning

Split your section into subsections (or sub subsections) with meaningful titles that keep the reader oriented.

ii. Lists

If you are writing a paragraph and feel like you are *listing* anything (e.g., advantages or disadvantages of some approach), then use an explicit bulleted list. Sometimes this might yield a list with only two or three rather long bullet points, but that is fine. it breaks things down.

iii. Labeled paragraphs

Label a series of paragraphs within the section, as a kind of lightweight subsectioning. Your experimental design section might look like this:

Participants: The participants were 32 undergraduates enrolled in ...

Apparatus: Each participant wore a Star Trek suit equipped with a Hasbro-brand Galactic Translator, belt model 3A ...

Procedure: The subjects were seated in pairs throughout the laboratory and subjected to African poetry broadcast at 3-minute intervals

Dataset: The African poetry corpus (available on request) was obtained by passing the later works of Wole Soyinka through the Systran translation system.

These points are confirmed by Wallace and Wray (2006).

iv. Captions

Move some discussion of figures and tables into their captions. A helpful caption provides guidance on how to interpret the figure or table and what interesting conclusions to draw from it.

14.9 Now tie it back together

Now that you have chopped your prose into bite-sized chunks, what binds it together?

i. Coherent and explicit structure

Your paragraphs and chunks have to tie together into a coherent argument. Do everything you can to highlight the structure of this argument. The structure should jump out at the reader, making it possible to read straight through your text, or skim it. Else the reader will get stuck puzzling out what you meant and lose momentum.

Make sure your readers are never perplexed about the point of the paragraph they are reading. Make them want to keep turning the page because you have set up questions to which they want to know the answers. Do not make them rub their eyes in frustration or boredom and wander off to the fridge or to the bathroom.

So how exactly do you "highlight the structure" and "set up questions"? You do so, mainly to give guidance and to ensure the reader is kept motivated to read on. As you re-read what you thought were complete chapters, new insights will come through, and these will enhance the write-up.

- Ask questions explicitly and then answer them, as I just did. This is a great device for breaking up boring prose, communicating your rhetorical goals, and making the reader think.
- Explicitly refer back to previous text, as when I wrote, "So how exactly do you 'highlight the structure' and 'set up questions'?"
- Use lots of transitional phrases (discourse connectives). Note that it's fine to use these across chunk boundaries; that is, feel free to start a new subsection with "For this reason, ...", picking up where the previous subsection left off.
- Section and subsection titles pop out visually at the reader. So use them to provide explicit, helpful guidance.
- As you start a section, explicitly state how it will be organised, or how it fits into the larger organisation.
- As you come to the end of a section, remind the reader what the point was. If possible, this should lead naturally into the next section. See how chapters of the present volume are presented.
- If a section is skippable, or chapters can be read out of order, do say so. But do not use this as an excuse for poor organisation or long distractions. Some readers tend to read straight through, and in particular, your advisor or committee may feel that they *must* do this.

ii. Lots of internal cross-references

A dissertation deals with a lot of ideas at once. Readers can easily lose track. Help them out:

- Use plenty of references to your equations, sections, figures and tables. This is really helpful to a reader who might be getting confused, or who is skimming the thesis or

reading it piecemeal or out of order. For example, do not just say "as defined earlier," or "we will see below". Give the section or chapter number, e.g. '*...as explained in Chapter 1...*'; '*see paragraph 2.5 for more detailed explanation*'; or '*...This is explained later in section 5.7*'.

- Each figure or table should be mentioned in the main text, so that the reader knows where to look for it. Conversely, the figure's caption may point the reader back to details in the main text (stating the section number). A caption may also refer to other figures or tables that the reader should be sure to compare.
- **Boldface** terms that you are defining, as a textbook would. This makes the definitions easy to spot when needed. You may also want to generate an index of boldfaced terms.
- Be very consistent in your terminology. Never use two terms for the same idea; never reuse one term or variable for two ideas. As examples, students use: method, instrument, technique, and approach as if they meant the same thing.
- Be cautious about using pronouns like "it," or other anaphoric references such as "this" or "this technique." With all the ideas flying around, it will not always be obvious to everyone what you are referring to. Use longer, unambiguous phrases instead, when appropriate.

iii. Be concrete

As I read a dissertation, or a long argument, I often start worrying whether I am keeping the pieces together correctly in my head. Something that has become deeply familiar and natural to you (the world expert) may be rougher going for me. If I can see some concrete demonstration of how your idea works, it helps me check and deepen my understanding.

- *Examples* keep the reader, and you, from getting lost in a morass of abstractions. Examples of cases figured in your thinking can help the reader, too. Invented examples are in order, but using "real" examples will also show off what your methods should or can do.
- *Running examples* greet the reader like old friends. The reader will grasp a point more quickly and completely, and remember it better, when it is applied to a familiar example rather than a new one. So if possible, devise one or two especially appropriate examples that you can keep revisiting to make a series of points.
- **Pictures** serve much the same role as examples. They are concrete and they share how the ideas *really* look inside your head. A picture is worth *at least* a thousand words (equal to double-spaced thesis pages).
- *Experimental results* are also concrete. You don't have to wait for the experimental section. It is acceptable to foreshadow your experiments before you present them in full. When you are developing the theory, you can say "Indeed, we will find experimentally in section 5.6 that ..."
- *Commitments* keep the reader anchored. As noted earlier, your dissertation should discuss alternative solutions that you rejected or are leaving to future work. That's scholarship. But make

iv. Content conformity

There is nothing as helpful as going over and over what you wrote to ensure that the content under each sub-heading conforms with that sub heading. Too often, supervisors come across headings, which promise the reader that certain information will be discussed. However, upon engagement, it will be discovered that the content is something else. This is transgression of the worst order, and the final write-up should ensure this anomaly is addressed.

v. Get the write-up edited

It pays to get somebody to edit your write-up, even if it means having to pay something. This is critical at postgraduate level to ensure that the work you have written is quality assured. There are certain simple things we miss no matter how many times we read our own work. Worse still, we are likely to miss out on the more

complex ones. Get someone to edit for: content accuracy; language; and general layout. Under normal circumstances, somebody familiar with the field you are studying will be the best bet for content editing, while a language person can assist with language.

vi. The Abstract

This may be one of the shortest sections of your thesis or dissertation, but it is worthwhile taking great care to write it well. Essentially, the Abstract is a succinct summary of the research. It should be able to stand alone in representing why and how you did what you did, and what the results and implications are. It is often only one page or less long, and there may be a word limit to adhere to. The Abstract is an important element of the thesis, and will become a document in its own right if the thesis is registered within any database.

The examiners will therefore assess your Abstract both as part of your thesis, and as a potentially independent document. It can be best to write the Abstract last, once you are sure what exactly you are summarising. Alternatively it can be useful to write the abstract earlier on, as an aid to identifying the crucial main thread of your research, its purpose, and its findings, which could then guide the structure of the dissertation. Attending to the very restrictive word / space limit, while at the same including all the relevant material is quite a challenge. The Abstract must be brief, accessible, and comprehensive.

14.10 Lessons learnt by supervisors

Thus far, our discussion will have shown that your supervisors are concerned about the way the majority of candidates approach the write-up. It has also been amply demonstrated that the write-up is a process, which involves numerous activities and considerations. It is multi-dimensional. Activity 4.5 requires that you closely examine the dissertation you are writing up. Go through the checklist below, and tick as appropriate.

Activity 4.5

By relating the criteria listed in the first column to your study, tick **Fulfilled/ Partially Fulfilled/ Not fulfilled**

Criteria	Fulfilled	Partially fulfilled	Not Fulfilled
1. Time was well managed during the process			
2. A work schedule was followed			
3. There was a contingency plan			
4. Each chapter was treated as an essay in itself			
5. A number of drafts were prepared before finally writing each chapter			
6. One particular reference system was followed			
7. It was made sure ideas were contextualised			
8. Acknowledgement section is presented soberly			
9. There has been clarity about the audience types			

10. The write-up assumed the audience had some knowledge about the research			
11. It was made clear what the audience would learn			
12. The write-up has a clear roadmap			
13. Key terms have been appropriately defined			
14. The numbering of sections is not confusing			
15. It was made certain that ideas are coherent			
16. The content of all sections agreed with each subheading			
17. The write-up consciously included internal cross references			
18. The write-up was edited by a scholar			
19. Ideas were illustrated whenever necessary			
20. The Abstract was written taking into account all content written			

Good that you have responded. Feel elated about those criteria where you ticked **Fulfilled**. Be a bit disturbed about the criteria where you ticked **Not Fulfilled**. Take action immediately by re-reading the write-up and address concerns. The same applies to criteria ticked as **Partially Fulfilled**. Partial fulfillment is not good enough, therefore, revisit relevant sections and fulfill expectations.

14.11 Summary

This is one of the enhancing chapters, whose main objective has been to ensure a quality write-up. The caveats to the supervisee were wide-ranging, and are reflected in Activity 14.5. Briefly, the chapter covered these broad areas:

- What to do before doing the write-up.
- It gave guidelines on the critical aspects to consider.
- The audience types to be taken into account were then discussed.
- The issue of organizing and structuring the dissertation received substantial attention.
- A research is communicative mainly because specialist registers are explained. This aspect of the chapter was also covered.
- A write-up that lacks coherence does not communicate the intended message successfully. The chapter explained features of coherence as a guide to a communicative dissertation.
- There was a discussion about writing an Abstract. This is a critical component of the dissertation write-up.

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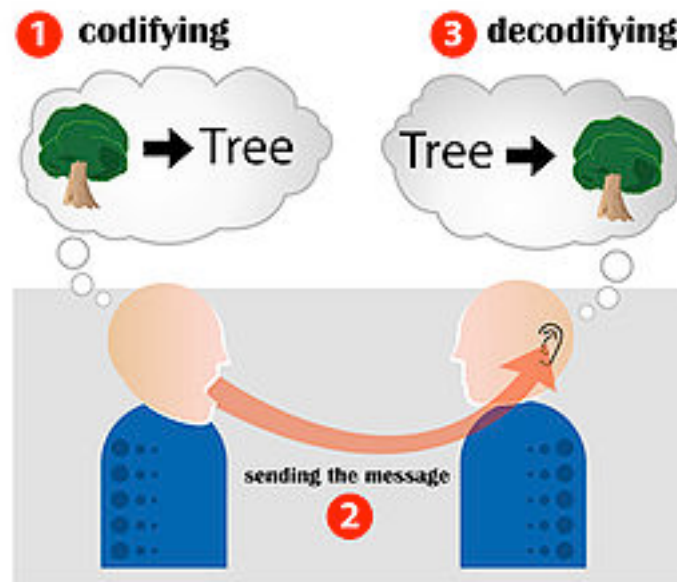
CHAPTER 15

CHALLENGES EXPERIENCED BY SUPERVISORS AND STUDENTS

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Abstract

This chapter focuses on the challenges that can impact negatively on the desired progress of research by the student conducting such enquiry at both undergraduate and postgraduate levels for purposes of acquiring academic qualification and service to society. The discussion is centred around the tri-pedal relationship between the student, supervisor, and institution promoting the research without delving much into the prescribed roles and functions of each one of the three treated elsewhere in the book. A few key factors have been identified – personal interest and expertise, availability, commitment, responsibility, technology, language, fundamental ethics, socio-academic mobility. Typical instances of challenges are reflected through 20 episodes of lived experience. Many of them have to do with the issue of communicating and understanding what the other party is putting across.



15.1 Introduction

Looking at Africa, for example, there exists a major disadvantage that militates against the ever growing thirst for knowledge and education by many, especially at higher levels of learning, that of shortage of supervisors. In an article under the heading *PhD supervisors – a rare African commodity, for Research Africa*, Ndlovu (2012) observes that the shortage of supervisors hampers PhD training in Africa, and that a supervisor in some African Universities can be called upon to supervise as many as eleven Open and Distance Learning students at a time.

The production of a book like this one is a noble idea, which will benefit many people interested in learning at a distance by research. By devoting this chapter to the challenges or problems, the intention is not to negate and disregard the multitude of opportunities and benefits ODL supervisors and supervisees enjoy in research work. With the specific roles, functions, and expectations of the supervisors and supervisees having been treated in earlier sections, the main focus of this chapter is on the administrative tenets of dissertation/thesis at an institutional level. It is grounded on the fundamental assumption that, for a

dissertation/thesis to be born there are three basic considerations to be addressed according to:

- the institution which can be society in general or/and an academic institution such as a university or other human organization;
- the supervisor or promoter; and
- the student, candidate or researcher.

The interactive relationship binding these three players can be influenced negatively by a variety of challenges to the detriment of research progress. The author is an academic administrator responsible for research degrees at the Zimbabwe Open University (ZOU), this is, therefore, a naturally compelling drive to share real life experience with others. A lot of information can be drawn from such email extracts as this one from an apparently perturbed candidate:

Episode 1

Thanks very much Dr. X. I'll be working to incorporate your advice. My second issue is about having a co-advisor based in Country Y who can attend to some of my queries and provide advice when needed. It seems my supervisor Dr. Z is slow in responding to my questions (and at times does not respond to at all). I know I must be in command and dictate the speed at which I do things, however, he is supposed to check and advise on the quality of work that I present to the university.

I hope this issue will be given due consideration.

Regards,

J...

This can only signify troubled inter-personal relationship calling for appropriate remedy. One of the main aims of this chapter is to highlight and trigger discussion on some of the major issues that must be considered when dealing with obstacles capable of impeding the smooth running of supervision. The (Research) Supervisor's Friend, supervisorsfriend.wordpress.com/.../how-do-you-recognise-th (2012) concurs by stating that "research supervision poses a range of problems". Yet supervision as a process can also be regarded as involving complex academic and interpersonal skills (Creswell, 1996; Aspland and Edwards, 1999; Bartlett and Mercer, 2001; Taylor, 2002; Bak, 2004; Mapesela and Wilkinson, 2005).

Elsewhere in the present volume various scholars have discussed a plethora of research issues from the proposal stage to the final chapter of the report. This chapter attempts to proffer an administrative and complementary spicing of these works using original information from ODL higher degrees candidates.

15.2 Objectives

After working through this chapter, you should be able to:

- unpack and highlight practical examples of challenges encountered in the supervision of ODL degree students;
- spur research scholars to take more interest in the study of graduate and postgraduate research;
- entice higher research supervisors to move in the direction of establishing a more common and harmonized approach to ODL supervision;

- pre-warn higher degree students against falling into the pitfalls of taking research for granted at this level;

15.3 Interactive relationship between the partners

It is generally believed that the relationship between supervisee, supervisor, and the institution should be free, secure, and trustworthy. *The Student Learning Development* describes the relationship as highly dependent upon interpersonal skills, (www.student-learning.tcd.ie/ - 20k). We can imagine in what direction the relationship reflected in the following communication exchanges between the supervisor and the supervisee is likely to move. The supervisor writes thus welcoming the assigned supervisee:

Episode 2

... Your topic is exciting, and is topical in terms of developments in education. I am already doing a few academic tasks in that area and would be happy to learn along with you, though I will be your senior learner
...

A few weeks later the supervisee raises alarm bells thus:

Episode 3

Dear Dr. X

From the language being used here it is clear that the supervisor is no longer interested in continuing supervising me. He has also not signed the change of supervisor form as is required, and I am not in a position to force him. In the circumstances, can you authorise Dr Y to supervise me, as per my earlier request. Dr X has indicated to me that he is willing to supervise me. I really need your assistance, as I intend to make the proposal defence as soon as possible
Hoping to hear from you soon

Regards

M...

This is certainly good food for thought for the reader and us all likely to be involved in such situations. Roles are in conflict. But both the supervisee and the supervisor here subscribe to general principle of Open and Distance Learning (ODL), which views such learner as being free from the prescriptions of age, space, time, pace, and even qualification in some cases. This chapter will discuss some of the selected factors commonly known to affect the triple alliance of supervisor, supervisee, and the institution relationship. Mouton (2001) argues that the problems encountered by students in research could be due to either the inexperience of the student, to poor supervision, or to an inefficient system. Studies by Rademeyer (1994), Hockey (1994) and Smith and West-Burnham (1993) established that the successful completion of a dissertation was just as much a function of the abilities of the student as those of the supervisor. The triad can be completed by adding the sponsoring institution's contribution. Seagram et al. (1998), (cited in Ismail, 2011), suggest that a good supervisor-student relationship is the key factor in the success or failure of students' research work.

The problem arises when the candidate over-assumes for a spoon-feeding package from the supervisor. At the same time the supervisor probably has a lion's share of the challenge. Mutula (2009), in studies conducted in Central, Eastern, and Southern Africa, found that the supervisor-supervisee relationship was affected by the following:

- delays in receiving feedback,
- lack of guidelines stipulating supervision,
- poor supervision - no schedule for meetings, no records of discussions, etc.,
- no mechanisms for redress,
- 40% supervisors were always too busy to meet students, and
- heavy teaching loads for supervisors.

Lubbe, Worrel, and Klopper (2005) also found that in the United Kingdom, the number of failed or unhappy PhD students who seek to resolve their issues through the courts was on the increase with several institutions accused of insufficient 'duty of care' to their students. This echoes some of the ideas raised in the chapter dealing with supervisor/student roles. Let us share our personal experiences by doing the activity below.

Activity 15.1

- a. As a student, cite one example of a misunderstanding you experienced with your supervisor when communicating at a distance.
- b. As a supervisor, cite one example of a misunderstanding you experienced with one of your students when communicating at a distance.
- c. For either a. or b. above, suggest how the misunderstanding interfered with your role, and state how you resolved it.

As you will notice, this activity is meant for either the supervisor or the student. It is meant to set you thinking creatively about typical situations and how you could consciously deal with them. Your view is, therefore, vital. Share with peers or with your supervisor, then move on to the next aspect of critical importance.

15.4 Area of specialisation, expertise, and interest

Experience, typified by the example in the previous section, has shown that supervisees and supervisors alike obviously get worried when circumstances force them to be paired with someone who appears to come from a different field of specialisation. The following mismatch demonstrates this. In this case mutual understanding and agreement prevailed.

Episode 4

I write requesting for a supervisor. You had allocated me Prof M who had however indicated that he is not comfortable with my topic as "management" is not his area of speciality. My topic is, "Towards gender equality and equity, opportunities and challenges to women advancement to senior educational positions: The case of Matabeleland South Region". Thank you.

But it does not always follow that all those that follow the correct direction of choice and land in their areas of interest always produce good results. Candidates have been known to disappear and never return soon after receiving offer letters which may suggest that the letters are used to secure entry to other institutions elsewhere. There will always be a few

that care to give notice. The same applies to recruited supervisors who may do it primarily to inflate their curriculum vitae. Such supervisors end up being removed from the register of supervisors. Researches like that of Golde and Dore (2001) suggest that up to 50% of the students who begin post graduate studies do not complete their studies at all because there are a wide variety of problems that students face, top of the range being supervisor-supervisee relationship. Lubbe et al. (2005) add on and suggest that not much is being discussed and researched in that area possibly because it is an embarrassment to supervisors.

The following are respective examples of supervisors who are waiting to receive communication from the newly enrolled candidates and a notice of withdrawal from the programme.

Episode 5

Dear X

To date I have not had any communication with the two students indicated as allocated to me. Mr L... M... has literally cut communication. Please regularise.

Regards

Professor O...

Episode 6

Just to inform you that none of my two DPhil students responded to my earlier request for our first supervision meeting. The contact details (both phone and email) of C... K... appear not connecting. The private email for A... K... also appears not connecting. May you kindly confirm their current or updated contact details.

*Kindly advise alternative means of communicating with Scholars
Once again, thank you for the support.*

Dr S.M.

DPhil Supervisor

Episode 7

*Thanks for the communication. For personal reasons I am not able to continue with the programme. Apology for the inconvenience that may be caused
F...D...*

How do you feel when reading the communication above? Especially if the supervisor has spent time at the library and internet familiarising himself/herself with the area under review.

Continuous refresher training and induction are necessary to keep the supervisors abreast with the ever changing technology and other educational practices. While in ancient times it was normal practice for a research student to work with one supervisor thereby

strengthening interpersonal affinity, the danger today is that a single supervisor cannot keep abreast of all the developments and new knowledge more so when that same supervisor has other pressing chores to care for. Distance between supervisee and supervisor is a further compounding factor. No one supervisor can be an expert in all the research methodologies (Hay 2008). But it is generally accepted that academics and professionals involved in the supervision of postgraduate research must generally have the right expertise to play the role of promoter/supervisor (Mutula 2009).

Tustin (www.otago.ac.nz/study/...) also presents what he refers to as the 10 most substantial problems faced by students in graduate research supervision. These are also found featuring in ODL as the author has observed. With reference to the third such challenge, “the supervisor lacks commitment and interest”, just as the students can decide to unilaterally defer candidature after enrolment and registration without notice. Some supervisors are found to be unwilling to take up students for supervision preferring to hide into oblivion. If students are assigned to them they turn this down, citing grounds of non-specialist area. The other problems listed are:

- The supervisor is too busy to be effective in their role
- Poor feedback
- Tensions or conflicting perspectives from within the supervisory panel
- Poor communication and disagreements about the project
- Conflicting or unrealistic expectations of each other
- Selfishness and disrespectfulness
- The supervisor is not up-to-date with the field
- The supervisor lacks experience in research and / or supervision
- Personality clashes

It will be clear that these are serious issues, and the next activity requires that either as supervisor or supervisee you carefully reflect on the selected ones and give a personal suggestion on how to mitigate the particular problem.

Activity 15.2

A problem is listed in the first column. In the second column, against each problem, briefly suggest what you think (as supervisor/supervisee) should be done to address the problem.

Problem	Proposed solution
The supervisor is too busy to be effective in their role	
Conflicting perspectives from within the supervisory panel	
Conflicting or unrealistic expectations of each other	
Poor communication and disagreements about the project	

Note that in this activity you are dealing with matters that are real when it comes to supervision and conduct of research. As observed earlier, these can be embarrassing

examples, but if we do not face them openly, no matter how committed we may be, the given study is bound to be compromised. So, think carefully about what possible steps to take with each aspect.

15.5 Supervisor/supervisee allocation ratio

Allocation is yet another aspect of concern in our discussion. There are many ways of matching and allocating supervisors and supervisees. But while it may be easy to control the number of supervisees any one supervisor may supervise, it is not easy to institute limits when it comes to how many other institutions the same supervisor may be contracted to serve. At higher degrees, for example in Africa, the ratio is not good as noted by Ndlovu (2012) who observed that a supervisor may be responsible for up to eleven candidates at a university. This is indeed a common problem. A 1:3 supervisor supervisee ratio is reasonable. For the supervisor, the more the students the greater the remuneration, but the poorer the service even within their own area of expertise and interest. The following can depict an overloaded supervisor.

Episode 8

Good day to you Dr. X

I am facing a challenge and need your help. ... My supervisor, Dr K... has been busy and says he can only give me feedback ... next week. ...

Kindly advise if there is any way my request to present can be accommodated.

Thank you in advance.

Regards

R...

Here is someone who decided to remain incommunicado even after the good news of being offered a place.

Episode 9

Dear Dr.X

I received the acceptance letter below I am sorry that I could not act upon the offer at that time due to limited financial resources. I am still grateful for the offer and now want to act on it. May I know if I am still eligible, how much is due and by which date. I also want to thank you for continually sharing your communication with other candidates in your list. I have valued each piece of information. I shall await your kind advice.

Sincerely

C.N. T...

Some research topics fail to attract the interest of potential supervisees thereby at times forcing institutions to arbitrarily assign supervisors. Candidates and supervisors who leave for whatever reason without going through proper termination procedures can create serious problems and distortions for the supervisor-supervisee ratios. See communication below.

Episode 10

Dear Professor N...

I am one of your D Phil mentees. I had a few challenges which I am afraid forestalled my progress and I am determined to resume my studies. I wish to apologise for the long silence.... I have since advised the Director that I was contacting you so that you may continue to set me on track....

Once more I am sorry about this prolonged silence.

Please accept my apology.

Yours sincerely

N... C. M...

As you read this, how do you feel? There are real issues to contend with, and that is why sometimes the University opts for allocating co-supervisors. However, it too has its challenges. The allocation of co-supervisors or co-promoter has its own merits and demerits. While it may offer the candidate alternative opinion, it can be a recipe for conflict especially in the event where the two academics differ in opinion. A student was supervised by two such supervisors, one quantitativist and the other qualitativist. The student nearly terminated her candidature when she could not decide which instruction she should follow. It must be borne in mind that the engagement of a co-supervisor means that at all stages of the research process the co-supervisor must be fully involved not just informed. Further, the co-supervisors may not have met, in the first instance, to share expectations. Distance might also have something to do with this anomaly. Experience also shows that co-supervisors may not be mutually respectful of each other. Notwithstanding these concerns, co-supervision should be regarded as enriching, and the onus is on the institution to provide guidance on the *modus operandi*.

The challenges do not just end there. There are issues of attitude and related notions to contend with as some of the challenges. Let us share these below.

15.6 General attitude, perception and temperament

There are some people who are fond of being critical about almost anything. Such negative attitude can create serious problems in ODL supervision. Both the supervisor and the supervisee must be prepared to accommodate other people's ideas and actions without undue controversy. Some students can become so sensitive to, and irritated by a slight delay in being allocated a supervisor an action that might appear legitimate especially when one has just paid one's fees. But it can also be employed as a clandestine self defense mechanism to cover up a characteristic weakness. The same applies to supervisors who can easily be offended by delays in remuneration settlement. Some times temperamental behavior can be triggered by failure to appreciate that while the supervisee may be entitled to claim ownership of the research, the supervisor can also claim to be the big brain behind it all. The supervisor below represents those supervisors weak on progress reports and related information. The issue of inactive students is the corporate responsibility of the supervisor and administrative authority.

Episode 11

Dear X

Greetings. I write to enquire about the claim I made for supervising B... S.... I resubmitted the correct supervision claim forms in June and to date I have not heard

anything..... I was supervising some students (D...C... & P... S...) only to learn that they had not paid their fees. Supervisors should be informed of inactive candidates
Awaiting your response
Regards
Dr CN C

This supervisor is not prepared to wait any longer irrespective of the prevailing situation. However, at the outset of the chapter it was observed that the institution is a key player in supervision. Delays in honouring remuneration for supervisors who meet expectations can be inevitably frustrating.

So is this supervisor who cannot tolerate mismatch of candidate selection against late submission of choice.

Episode 12

Good Afternoon

It appears that you have given me supervisees that I didn't request. ... I showed interest in K...L... J...; N... N... K...; C...V...; and C...M... because of the topics they chose for their research. I am afraid I am not interested in curriculum issues.

Regards

TJ N...

The following student might have thought that he was not being informed correctly about the complexities involved in world class supervisor recruitment process. He soon found the truth for himself.

Episode 13

I have also been trying to look for a supervisor from the accounting or auditing profession, but so far I have not got anyone who is interested. As previously discussed, I have asked Dr. M. to guide me and he has agreed and we are now working together.

Thank you.

E H M M...

This one believes the supervisor is anti-candidate progress.

Episode 14

Dear X

It would appear that the supervisor is putting too many obstacles in the way. I can't see myself making progress if this continues in this manner. Why should we spend time arguing about procedures? ... Surely the supervisor should be happy that I have produced something, and should exhibit some interest in finding out what I produced. To me this is an indication that he is not prepared to supervise me.

Regards
M...

Some supervisors may approach an issue or problem of supervision with an attitude that is heavily tinted with the supervisor's own experience as a supervisee either way, for better or for worse. Now, turn to the next activity and share your views.

Activity 15.3

The foregoing section dealt with general attitude, perception and temperament. It also gave typical examples of each item in the columns below, cite an example of each, either from personal experience or from what you heard from peers regarding supervision.

Aspect	Example
Attitude	
Perception	
Temperament	

Note that there is no right or wrong answer. The important thing is to show what you have experienced or what others have gone through. Share this with colleagues. The next section deals with commitment, yet another critical aspect.

15.7 Commitment and responsibility

Just like what can be talked about the factor of attitude, commitment and responsibility can be viewed in a variety of formats. Both student and supervisor sign an undertaking of commitment to duty but there is always a small percentage that lacks dedication to duty. For instance, in an article entitled "The 10 most important qualities of the ideal graduate supervisor" – www.otago.ac.nz/study/masters, Tustin singles out supportiveness as the quality that PhD students value most highly in supervisors. The other qualities, which can be presented under different labels by different authors, are:

- Availability
- Interest and enthusiasm
- Knowledge and expertise in the field surrounding the PhD
- Interest in the student's career
- Good communication
- Constructive feedback
- Provides direction and structure
- Approachability and rapport
- Experience and interest in supervision

The author's observation in ODL is that some students neglect their work while some supervisors neglect their supervisees. Normally the student is expected to take the initiative. When ODL allows one to work at her/his own pace it does not mean sloth or carelessness. It is always important for the student and supervisor to produce regular progress reports that will indicate the development of the research process and how closely the two are working together.

In the following case we see a candidate who is not keeping his supervisor informed of his progress.

Episode 18

Dear Dr X

Following our telephone conversation regarding my new supervisor I phoned Dr J.D. M... about how I was to send my three chapters to him and he informed me that his internet was on his phone so he cannot print out my chapters because of the cost so I have to send him hard copies through courier services which I agreed to after I had worked on comments from my former supervisor Prof C... My slight problem is on communicating now and the turnaround period of his responses to my work.

...

Thank you

T... S... DPhil Student

The supervisor should make sure that he/she refers the student to appropriate resources, (Hay 2008).

15.9 Language proficiency and fluency

Theses and dissertation writers use the same words and expressions as prescribed by the rules and norms of the language. A certain degree of linguistic skill is necessary in order to produce an acceptable thesis document. While orators and artists have their own house styles, in thesis writing one is expected to use suitable academic language. Many students and some supervisors find this to be quite an obstacle of worrisome magnitude. Some terms and expressions with popular colloquial application have to be allowed to receive general acceptance into the academic forum, after all language is dynamic and can easily be influenced by social change. The situation is made worse if the language in use is not the mother tongue. In the light of all this, can time be considered as a significant supervision challenge by arguing that more time is spent when supervising a candidate for whom the official language is not the candidate's first language? This idea derives from supervisorsfriend.wordpress.com/.../the-problem-with-research... of 2012, which uses English as the official language in question.

Kastens, Pfirman, Stute, Hahn, Abbott, and Scholz (2009) provide useful tips on the use of language when writing for modern international readership emphasizing that thesis writers should write for brevity rather than length but with all necessary information given. The author has witnessed the submission of bulky thesis documents up to the examination stage only for the prospective graduand to be asked to prune the dossier. Some of the suggestions of Kastens et al. include the following:

- Put as much information as possible into figures and tables.
- Don't assume that readers are familiar with the geography or the stratigraphy of your field area.
- Use shorter sentences. Avoid nested clauses or phrases.

15.10 On ethical and malpractice issues

Cases of malpractice have been received though it is sometimes difficult to present prima facie evidence for such cases. Students can only talk and not write about their ill treatment by the supervisor in these isolated but critical situations. Hence cases of unscrupulous supervisors that will, as it were, extort financial tips from candidates have only been heard of. Consultation sessions in such incidents will be made conditional to the student tipping off

the supervisor with some money. The same may apply to the student being granted clearance to progress to the next stage in the research process.

15.11 Failure to respect and adhere to institutional house style

Normally institutions set up their own recommended procedures and practices which must be conformed to by the supervisors and students in conducting all aspects of the research process. Some supervisors as well as students can be slow in accepting such instructions for one reason or another. This can impede research progress. The conflicting use of such expressions as 'literature review', 'review of related literature', and 'related literature review' have caused a few problems. Some university systems consider the first three chapters of the thesis to constitute the proposal of the research while others expect a proposal to be a document separately prepared to serve as the plan of the thesis. Failure by the candidate to observe institutional house style is not as serious as when the supervisor does so. Let us look at one such negligence.

Episode 19

Good day! I hope this email finds you in good health. I am sorry to say I am disappointed because you continue not to follow the Handbook. I hope this time you will be more serious and follow the handbook and my comments. Time is running out if you want to complete this year which I question.

*Warm
Dr. L.T. N...*

regards

The problem is that some candidates and supervisors too do not even bother to read these rules and procedures preferring to go straight into the writing. Giving tips on role expectations in supervisory relationships Hay (2008) advises that the supervisor should be familiar with the university's policies, procedures, guidelines and codes.

15.12 Supervisor/candidate change

This can be caused by several factors including those beyond human control such as death. Hence the saying "A change is as good as a feast" may not find application. Change can result from agreement or lack of it between the university, candidate, and supervisor. It is generally accepted that change is inevitable, ubiquitous, and overwhelming. It must be accommodated with greatest care. ODL is mainly characterized by the physical separation in space and sight between the supervisor and the student, yet you still hear people talk about 'need for face-to-face contact' and candidates asking for a supervisor nearby.

This particular candidate inserted hereunder is expecting a core supervisor to move around with him so it would sound.

Episode 20

Dear Dr.

...

I asked if I can have a core supervisor based in Botswana where I'm now based and you promised me to look into the matter in due course. I'm trying to settle in and in two weeks' time will be back to my studies.

Complements of the new season!
Regards,
J... M...

In ODL face-to-face contact is not forbidden as such whenever and wherever possible. So to insist on a nearby supervisor/student is to defeat the whole purpose of ODL.

15.13 Dishonesty and untrustworthiness

Supervision at postgraduate level can also be bedeviled by the malpractice of cheating in its various forms. Both the supervisor and the supervisee can connive to sign claim forms for supervision sessions that never took place with the intention of having the supervisor remunerated for such non-existent or over-claimed consultations. Prevalent too are cases where research students can claim and contend that 'there is no research carried out in this area' or 'there is no literature in this field ...'. Cases of plagiarism are not uncommon among the students. There are also some supervisors that can easily divulge in public certain weaknesses of the candidate against the wish of the candidate.

15.14 Lack of a common understanding of expectations among supervisors

The whole essence of this volume has been to harmonise expectations by supervisors – among themselves- of what students are expected to bring out in a given chapter of the write-up, for example. Similarly, the volume also aims to harmonise expectations between supervisor and supervisee. Obviously, these responsibilities are the most difficult to align due to their highly academic nature.

Some of the commonest misunderstandings, especially between student and supervisor might be the lack of prior induction before the student embarks on the research. This is an academic privilege commonly facilitated in conventional universities, but not so readily available in ODL institutions. When the student sets out in this mindset, it will come as a frustrating experience to be told to do certain things, e.g. the supervisee might find it difficult to:

- State a research problem. Many students tend to state aims instead.
- Appreciate what to include in the literature review section. In many cases students include a string of quotations, which may have little relevance to the problem.
- Present a particular chapter in an acceptable manner. This is typical when the supervisee has received no prior induction.

These and many other examples buttress the need for some formal induction for the distance education researcher, and the present volume precisely serves that purpose. Where the supervisors of a particular institution are, like their students, scattered allover the world, the present volume becomes a unifying factor.

15.15 Lessons learnt

Both supervisors and supervisees have learnt many lessons about challenges faced in the supervision process. The entire chapter has been all about challenges, and what remains is to close it with an activity where the student is the key player in the next activity.

Activity 15.4

Several challenges have been discussed above. Against each challenge tick: it is: a problem or not a problem regarding your study or regarding someone you supervise.

Challenge	A problem	Not a problem
Dishonesty		
Allocation ratio		
Temperament		
Attitude		
Perception		
Commitment		
Access to resources		
Language		
Ethics and malpractice		

Which ones have you ticked? Good if all of them do not pose a problem to you. However, if you ticked that some are a problem, take your time to establish why, then go beyond that to make suggestions on how to mitigate. Make certain you take action, and here we mean positive action. That way, we hope you will do your research with minimum problems of a public relations nature.

15.16 Summary

The chapter has attempted to identify and reveal to readers some of the major challenges encountered by both candidates and supervisors in undergraduate and postgraduate research project supervision based on live examples selected from the ZOU experience. Those responsible for the administration of such programmes must deal with these challenges with diligence and objectivity. The focus must ultimately and perhaps, always be placed on the success of the candidate.

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