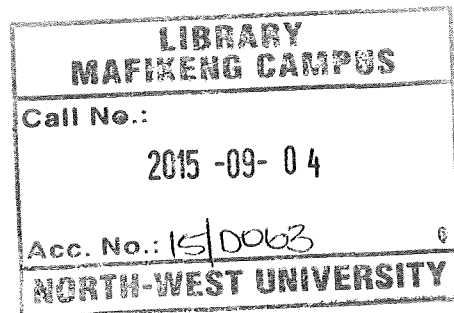


**AN INVESTIGATION INTO THE APPLICATION OF
APPROPRIATE INFORMATION SYSTEMS RESEARCH
METHODOLOGIES OF IT/IS AND MBA MINI-
DISSERTATIONS AT NORTH WEST UNIVERSITY**



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Dissertation submitted in partial Fulfilment of the Requirements for the Degree of
Master
in Computer Science and Information Systems
in the Faculty of Commerce and Administration
at the North West University
Mafikeng Campus (South Africa)

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DECLARATION

I, the undersigned, Kenneth Ohei, hereby declare that this dissertation, entitled, An investigation into the application of appropriate information systems research methodologies of IT/IS and MBA mini-dissertations at North-West University, for the degree of Masters' in Computer Science and Information Systems, in the Department of Information Systems, Faculty of Commerce and Administration, hereby submitted, has not previously been submitted by me at this or any other university. I also declare that it is my own work in design and execution. All material contained herein has been accordingly acknowledged.

Signed:

KENNETH OHEI

Date:JUNE..... 2014

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DEDICATION

To the memory of my mother, Patricia, Ijebuso-mma Ohei.

ABSTRACT

The dissertation provides a consideration of the significance of choosing an appropriate post-graduate research methodology and application in higher education institutions. Research education has become a matter of concern as there are low completion rates of masters' students in South African universities. This study addresses the issue with the application of appropriate IS research methodologies of IT/IS masters' and MBA dissertations/theses at the NWU to determine whether the research approaches used in both disciplines were relevant to their studies. The choice of an appropriate research methodology is an arduous task with which many researchers are confronted during the research process. The problem is that IT/IS masters' and MBA students use particular research methodologies inappropriately but consider these to be the most appropriate methodologies for IS research for purposes of writing their dissertations. The primary research objective was to explore IT/IS and MBA students' ideological approach towards comprehending information and understanding dissertation requirements by preparing them to undertake sound research projects that culminate in masters' dissertations and improve research completion rates. Secondly, it attempts to investigate the associated roles between students and supervisors, and to identify challenges encountered, specifically with IT MBA students that will force them to use particular research methods in their research dissertations. A quantitative research approach was adopted and a structured framework was used as an instrument for data-gathering. This structured framework was used randomly on all IT/IS masters' and MBA dissertations in the NWU library. The majority of IT/IS masters' dissertations were sourced through the Nexus Database to ensure a better return rate. The finding gathered from the use of a structured framework for purposes of investigating IT/IS masters' and MBA dissertations indicated that both disciplines, most especially the MBA dissertations, lack a conceptual matrix for research alignment, supervision guidance, and badly-structured research dissertations. There is a need for a graduate school and IT/IS department to introduce and encourage the use of an appropriate conceptual matrix underlying various research activities.

Keywords: Biases, ethics, masters' dissertation, reliability and validity, research exposure, research methodology, stress, supervision guidance and time management

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CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

The nature and the quality of post-graduate research studies in higher institutions has been acknowledged as crucial to the improvement and national economic growth (Lee & Green 1995; Pearson & Brew 2002). Research education has therefore become a matter of concern for both government and the public. There is therefore an augmented concern about low completion rates of masters' students' dissertations (Pearson & Brew 2002). Remenyi et al. (2011) aver that the impact of the way research principles and methods play an essential role during research investigation has to be investigated.

This study is aimed at investigating the application of appropriate IS research methodologies for IT/IS masters' and MBA mini-dissertations in comparison with other MBA streams at the NWU, Mafikeng Campus to emphasise the different approaches that were taken. The study also includes lists of the IT/IS masters' completed mini-dissertations in the IS Department and will include references to IT/IS masters' dissertations used in Nexus.

This is intended to determine whether the research methods used by both MBA stream students were appropriate to their studies. It also addresses the use of a problem-solution research question alignment matrix to ensure that sub-problems under investigation are properly aligned with the research questions that a researcher poses to ensure viable empirical results (Klopper & Lubbe 2011). Finally, the study looks at supervision's contribution towards MBA research outcomes (Pather et al., 2005)

In this dissertation, the keywords used to search for articles were: biases, conduct, masters' dissertation, reliability and validity, research exposure, research methodology, stress, supervision guidance and time management as derived from the problem statement. These key words have been used to search for information relating to the

topic using search engines, scholar, Google Scholar, AIS Electronic Library and the DuckDuckGo search engine.

The chapter introduces the background context which identifies and substantiates the problem, the purpose for which the study was undertaken, objectives of the study to be attained at the end of this research and the significance of the study, the keywords and the layout of the chapters. Furthermore, a detailed problem statement as well as a research design was introduced, as well as the approach of the research as to how the problem should be addressed, and the methods on how to collect, present and interpret the findings of the data, enabling one to draw final conclusions based on the results.

1.2 BACKGROUND TO THE PROBLEM STATEMENT

The post-graduate student's experience of writing a dissertation/thesis has been seen as an intensive, highly personal and distinctive experience of education. Yu Ren Dong (1998) refers to completing research dissertations as a challenging task for masters' students. It is not only because of its intensity, but because of the standard that research dissertations must reach.

There seem to be various researchable topics for a student at the masters' level (Skulmoski et al. 2007; Pather et al., 2005). For a postgraduate student to fully demonstrate a mastery level of the subject area being researched, as well as understanding of the research methods used for research, he/she should be able to produce a research dissertation by the end of the research endeavour.

According to Skulmoski et al. (2007) and Pather et al. (2005), there are quite a sizeable proportion of enrolled masters' students who never complete their research dissertations at many higher education institutions due to the research methodologies and approaches that they chose.

Mays and Pope (2000) aver that post-graduate students, especially in the areas of the masters' in Business Administration (MBA), use particular research methods for rather negative reasons due the challenges encountered during the writing of a masters'

dissertation. Perhaps they are not very good with the problem research question alignment matrix. This alignment matrix ensures that sub-problems identified in the problem statements are properly aligned with research questions (Silverman 2000; Klopper & Lubbe 2011; Mays & Pope 2000).

Accordingly (Miles & Huberman 1994; Punch 1994; Sarantakos 1998; Chapman 2001; Garrard 2004; Wellington et al., 2005; Thomson et al., 2006 & Klopper et al., 2007) state that if one were to analyse the way in which novice researchers attempt to survey literature, it would seem that the supervisor has mostly failed to fulfil his/her duty to acquaint the researcher with the different stages of conducting a proper literature review. However, the first stage of unconscious incompetence is where many researchers get stuck and stay behind; they anticipate collecting data with no defined problem statement from which they derive keywords to serve as a filter for the identification of relevant literature.

The students read the texts of each reference in detail rather than using abstracts and summaries to establish relevance, and the novice researcher starts summarising the literature without careful planning towards a specific focus in mind. The students therefore end up with a document without a proper layout, showing no consistency and progression. Authors have asserted that in many cases the researchers end up committing intentional or unintentional plagiarism because they have not adequately kept track of the sources and ideas consulted. This stage is known as unconscious incompetence and it's probably the worst situation any researcher would want to find his/herself in (Miles & Huberman 1994; Punch 1994; Sarantakos 1998; Chapman 2001; Garrard 2004; Wellington et al., 2005; Thomson et al., 2006 & Klopper et al., 2007).

Furthermore, the next stage, that of conscious incompetence, is where the researcher begins to value how he/she understood the topic, but sets out without a plan and writes unsystematically without knowing where to stop creating pages upon pages of undigested notes. The researcher relies on the supervisor's ability to provide guidance on what to leave out. Chapman (2001); Thomson et al. (2006) and Klopper et al. (2007) later state that conscious competence occurs where the researcher becomes

knowledgeable of the fact that he/she is getting to grasp what major references relate to the problems under investigation. Due to the researcher's new found self-assurance and enthusiasm, it is sometimes difficult for the supervisor to provide proper managing guidelines. As a matter of fact, the disagreements will lead to unsupported doubt on the side of the researcher (Klopper et al., 2007; Chapman 2001; Garrard 2004 & Wellington et al., 2005).

The last stage of unconscious competence is where the novice researcher has become a true researcher. This stage is known as unconscious competence. Thomson et al. (2006) and Klopper et al. (2007) in their discussion, state that post-graduate research students should produce an appropriate problem statement and drive key concepts from it that she/he can use to organise and search for refereed literature to be used in the literature review. By using key concepts extracted from the problem statement, the problem statement itself becomes the filter that ensures that only literature relevant to the problems under investigation forms part of the review. This method also enables the researcher to determine to what extent problems that he/she has identified have been solved by other researchers, enabling the researcher to remove solved problems and reformulate the original problem statement, the research objectives and the research questions (Klopper et al., 2007).

Once the appropriate literature to review has been identified the researcher commences with the literature survey proper, which entails a critical analysis of each reference to identify potential solutions to the problems under investigation. In this approach to the literature review, the researcher systematically reads each article, considers the validity of what is being read, and thereafter classifies the reference thematically (Klopper et al., 2007). The importance of using this method is that the student must realise that he/she cannot use everything in an article but should instead concentrate on those aspects that are relevant to the problem under investigation (Klopper et al., 2007). Conversely, the key concepts on the matrix therefore become the key concepts embedded in the headings in the literature review. This enables the researcher to subject all literature to critical comparative analysis (Miles & Huberman 1994; Punch 1994; Sarantakos 1998;

Chapman 2001; Garrard 2004; Wellington et al., 2005; Thomson et al., 2006 & Klopper et al., 2007).

Without being aware of these systematic processes and understanding their implications, researchers cannot proceed effectively. This therefore would lead to inadequate research outcomes and masters' students would not be able to complete their research dissertations on time. This study deals with the issues of relevance with regard to research methodologies practised by IT masters' (MBA and other streams) studies, and aligning research topics with the problem statements and themes used (Remenyi et al., 2011; Pather et al., 2005).

1.3 PROBLEM STATEMENT

The problem is that most IT/IS masters' candidates in MComm and MBA, as well as researchers from other streams, take it for granted that they can simply apply research methodology principles and research methods without carefully examining the relevancies and assumptions underpinning their chosen methodologies (Remenyi et al., 2011; Ellis & Levy 2009). However, Mauch and Park (2003) emphasize that no IT masters' (MBA students) research approaches or MBA students from other streams are inherently better than others. Moreover, there are research methodologies that match some problems well and others poorly.

Mauch and Park (2003) further assert that MBA researchers need to attempt to link each problem to the research methodologies that have the best likelihood of helping to apply human thought to solve the problems under investigation (Mauch & Park 2003). There are stages involved in systematic and ideal research processes that need to be known and considered before research begins. The use of a matrix as conceptual scaffolding at the beginning of a problem-solution focused on a research dissertation plays an important role.

This is where solutions to problems under investigation are limited while ignorance about them is more or less immeasurable (Klopper & Lubbe 2011). Not many MBA

students use the problem-solution research question alignment matrix to ensure that sub-problems under investigation are properly aligned with the research questions that researchers pose to ensure viable empirical results (Klopper & Lubbe 2011).

Most masters' research students lack the skills needed for building a conceptual matrix that demonstrates themes used in the literature review and aligning themes to the research topic. There is a possible inappropriateness of research questions in the sense that research questions are always standardised before being administered. However, the researcher is forced to use research questions that are generally good enough to accommodate them. This may be the case when IT/IS masters' MBA students and MBA students from other streams compile their questions for the instrument. There is a level of research imposition; this means that when developing a questionnaire, the researcher is making his/her own alignment. Research questionnaires that contain inconsistencies may not be precisely answered by the participants, probably because it is difficult to recall information that is related to the research question. Many do not answer the research questions (Sarantakos 1998; Garrard 2004; Wellington et al., 2005; & Klopper et al., 2007).

Non-IT/IS masters' MBA students lack IT skills and validity, create an inflexible design and also have problems with the technical part which is the structure and layout that include typeface and margins, headings and paragraphs, title, table of contents and bibliography (Seminar 2007). All these technical problems encountered by IT/IS masters' MBA and other masters' MBA students could be the result of a lack of managing guidelines supplied by graduate schools. The researcher expects that IT/IS masters' students will use a different approach from other masters' students (Wellington et al., 2005; & Klopper et al., 2007).

1.4 OBJECTIVES OF THE STUDY

The objectives of the study were to investigate IT/IS masters' students' ideological ways of comprehending information and understanding dissertation requirements; to prepare post-graduate students to undertake sound research projects that culminate in a

masters' dissertation and to increase research completion rates; to investigate the linking factors between students and supervisors, and to identify challenges encountered, specifically with IT MBA students that will force them to use particular research methods in completing their research dissertation.

1.5 RESEARCH DESIGN

A quantitative research methodology approach was used in this study (Hopkins 2008). According to Buthelezi et al. (2005), quantitative research designs are either descriptive or experimental. In this study a structured framework was designed to facilitate an in-depth analysis of the problem under investigation. The framework was used randomly on all IT/IS masters' (MBA) dissertations to systematically choose the appropriate framework and ensure a better return rate (Krejcie & Morgans 1970). According to Carroll and Swatman (2000) a structured framework is a pre-defined research process and a literature-based scrutiny of the research findings, in other words, it assists the researcher in theory building.

This framework represents the researcher's knowledge, theoretical foundations and guidelines in terms of research processes, analysis and interpretation of data collected (Carroll & Swatman 2000). They further noted that this approach makes the research process visible, records its dynamics and documents the process by which theory is developed and applied. Hopkins (2008) noted that when conducting a research study, the researcher has to have a sample of subjects to work on. In this paper, the ideal sampling technique was the stratified technique.

This method entails developing homogeneous groupings of the entire population and then taking a simple random sample (Willemse 1994). The sample size for this research paper was 369, consisting of all IT/IS MBA mini-dissertations in the university library at NWU-Mafikeng and registered MBA mini-dissertations, and masters' dissertations on Nexus for the same period. A representative stratified sample by Krejcie and Morgan (1970) table was used to ensure that all had an even chance of being selected. A

representative sample of IT/IS dissertations/mini-dissertations was studied and a comparison was done with non IT/IS dissertations/mini-dissertations.

The data gathered from the framework was analysed using the Statistical Package for the Social Sciences (SPSS) and Microsoft Excel application. In this study, the structured framework was utilised for recording and gathering the data where the researcher personally select random IT/IS masters' MBA dissertations and MBA dissertations from other streams from the NWU library and on the Nexus database. According to Krejcie and Morgan (1970) this method is most appropriate as compared to mail questionnaires; the use of interviews as a means of collecting data was also not appropriate in this research as it was considered that it might intimidate respondents into not providing their true answers to the questions (Harypursat et al. 2005).

1.6 LAYOUT OF THE STUDY

This research paper is structured in different chapters to enable the reader to follow the logic behind the arguments and the discussions done in this study. To achieve the aims and objectives as stated above, this study is divided into five chapters. Chapter Two presents the literature review, that is, the description of the theoretical perspectives and the findings that were found on the previous researchers for the problem being dealt with in this study. It also looks at the matrix which concentrates on the following contexts: Higher Education Institutions' approaches, post-graduate dissertations and expectations, how to conduct research using the appropriate methodology, priority and project management skills in terms of research processes, research methodologies and dissertations, challenges and inadequate quality control over research documentation, supervisor and research methodologies, triangulation in research methodology, ethical considerations, and definition of key terms. The research questions, the conclusion in terms of a summary, the value of the research and links to subsequent chapters are all covered in this chapter.

Chapter Three focuses on the research methods used when preparing this report. It includes a discussion of research processes, approaches and techniques employed.

Chapter Four examines the expected result based on the objectives of the study. After randomly selecting and recording all IT/IS masters' (MBA and other streams) dissertations and the Nexus database, with the use of the structured framework, and once data collection had been completed, the results and analyses would be used to help resolve many issues that were discussed in the problem statement.

Chapter Five revisits the main topic and also presents the answers of the research questions and findings, and then arrives at management guidelines, conclusions and recommendations emanating from the research.

1.7 CONCLUSION

The study provides guidelines and arrives at an understanding of and knowledge about MBA research students concerning research methods that are applicable when conducting an investigation. It looks at the contributions and role played by supervisors (Graduate School of Business & Government Leadership) in resolving challenges encountered that force them to use a particular research method.

In considering the value of the study, the researcher mainly dwelled on the importance of the research for post-graduate students in this particular field. This study is important in the sense that, once a conclusion and recommendations have been drawn, it is envisaged that it would have provided relevant strategies and valuable reference material on research dissertations. It is further expected that this study will provide a deeper understanding and new insights will be gained to help shed light on challenges encountered by MBA research students that have resulted in low completion rates.

In this chapter, the foundations upon which the entire research project will be constructed have been outlined. In so doing the Chapter outlines the background, objectives of the study, keywords, layout of the study and the research methodology used. At the end of this chapter there is a conclusion. The next chapter will be Chapter Two, which investigates the literature of other researchers to provide guidance for the research topic under investigation.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The study focuses on the application of appropriate IS research methodologies. According to Gregor (2006), IS research has continued to be a topic of attention since the origin of the discipline in the late 1970s. Orlikowski and Baroudi (1991) emphasise that IS research methodology does not comprise a particular method. Moreover, it does manifest on its own as a set of scientific assumptions concerning the fundamental environment of phenomena under investigation (Orlikowski & Baroudi 1991). Therefore, this study is intended to determine whether the research approaches used by IT/IS masters' students are relevant to their studies and in comparison with other MBA streams at the NWU.

The perceived problem is that IT/IS masters' MBA students use a particular research methodology for rather negative reasons and consider it to be the most appropriate for IS research (Mays & Pope 2000; Orlikowski & Baroudi 1991). This is because they lack the the skill to use a conceptual matrix for research alignment, supervision guidance, and furthermore, inappropriate research methodologies. Based on these problems, Orlikowski and Baroudi (1991) reflect on three extensive research methods, namely the positivist, the interpretivist and the critical. Orlikowski and Baroudi (1991) discovered that between 1983 and 1988, 97% of IS research activities chose a positivist methodological approach.

In this research investigation, the following keywords used to search for articles and journals were: biases, ethics, masters' dissertation/thesis, reliability and validity, research exposure, research methodology, stress, supervision guidance and time management derived from the problem statement. These keywords were chosen to search for information relating to the topic using search engines, scholar, Google Scholar, AIS Electronic Library and DuckDuckGo search engine.

This chapter reviews and validates the context and brief summary. In addition, the chapter covers several categories. Some of the themes discussed in this chapter are post-graduate dissertations and associated expectations, how to conduct research using the appropriate methodology, challenges and inadequate quality control over research documentation, supervisors and research questions. Each theme has been extensively researched and will be discussed under various headings based on an understanding and theoretical knowledge derived from previous authors.

2.2 HIGHER EDUCATION INSTITUTIONS' APPROACHES

According to Pather et al. (2005), South Africa emerged from the pre-1994 political dispensation with two separate types of tertiary educational institutions: Technikons and Universities. Technikons were created as career-orientated, practical content institutions with an emphasis on producing skilled graduates to meet specific needs of the country (Pather et al., 2005). Given the imperative for academics to "Publish or Perish", it is common to find South African universities accepting this stricture (Pather et al., 2005; Leder 1995). This does not involve a strong emphasis on students' involvements and excellence in research in its management strategy (Leder 1995). In fact, the Faculty of Commerce and Administration embarked on a process towards increasing research activity and research output (Pather et al., 2005).

North et al. (2011, 2012) aver that masters' students should have nothing to worry about with regards to funding for their research projects, but rather they need to concentrate on completing their research throughput. Thompson et al. (2005) highlighted that there are varieties of funding sources available for masters' students who are embarking on research degrees. Thompson et al. (2005) emphasise that while such funding is scarce, the approach in which this funding is awarded to masters' students is reasonable and may require interesting topics, either on full-time or part-time basis (Thompson et al. 2005). North et al. (2011, 2012) affirm that in South Africa the Department of Education allocates funds to universities by means of a funding method that focuses specifically on post-graduates' research throughput and academic staff-based research productivity.

Many South African universities have developed their own strategies to help improve their students' throughput and staff publication rates (North et al. 2012; Marsh et al. 2002). Buthelezi (2005) stated that the extensive use of ICT is common in the movement towards the development of higher education and the delivery that it brings is essential where universities want to attain greater success in the international market for higher education research throughputs.

North et al. (2012) found that a student's nature of qualifications and the scope of their faculties in which they study play an important role in determining the level of research output that will be produced. Furthermore, it is indicated that their research model, however, depends very largely on the fitting of a logistical model to a publishing versus non-publishing response variable (North et al. 2012). In addition, North et al. (2011, 2012; Pearson & Brew 2002) noted that faculties should introduce a restriction mechanism that will make research publication possible for each academic member of staff to be allocated to one of four possible publication-based productivity classes.

This task entails that members of staff should be able to produce, through the medium of publication or post-graduate supervision, any productivity unit points during a given calendar year (North et al. 2011, 2012; Pearson & Brew 2002). The above concept of a productivity unit count generated from a discussion among various faculties at the NWU on how they should fairly allocate the productivity units that can be linked with a published piece of work (North et al. 2011, 2012; Pearson & Brew 2002).

It could be argued that such a rule is maybe biased in terms of the point allocation process in favour of disciplines where a joint collaboration between researchers is less necessary. This effect may be mitigated by using the impact rating associated with a particular journal to adjust the productivity unit count that has been allocated to a published piece of work (North et al. 2011, 2012; Pearson and Brew 2002).

2.3 POST-GRADUATES' DISSERTATIONS AND EXPECTATIONS

According to Mauch and Park (2003) post-graduate dissertation study is a part of higher learning purportedly aimed at identifying significant problems and challenges and to investigate them in an appropriate manner, then to analyse the findings, and to relate them to concepts or concerns, finally producing conclusions and implications to others in clear, objective prose. In another context, dissertations and theses are an inspiring activity carried out by students in an increasingly strong mutual relationship with faculty members. It is a concluding and producing activity based on prior study, and it should be a launch pad for future independent investigations (Mauch & Park 2003).

An IT/IS masters' MBA dissertation is usually the final stage of the masters' degree and presents the researcher with the prospect that indicates that he/she has acquired the indispensable abilities and comprehension in order to manage and carry out a research project (Bhattacharjee 2012). It should show that you (as the researcher) are experienced in identifying areas that are researchable, such as setting research objectives; establishing, managing and, importantly, analysing the relevant primary and secondary data.

He then states that the most successful dissertations are those which are specific and narrowly focused. A dissertation is a formal document and as such, there are specific rules that obtain in terms of the way or manner in which it has to be presented (Bhattacharjee 2012). He noted that the IT/IS masters' MBA dissertation varies from other types of writing by its attempt to systematically analyse the social philosophy in expressions of the bigger picture. Furthermore, IT/IS masters' dissertations also address the underlying *why* and the ways in which to provide answers, clarifications and justifications, formulate comparisons and furthermore, arriving at either details or conclusions which can be used to extend theories on what should be done (Bhattacharjee 2012).

Bhattacharjee (2012) made a suggestion to an IT/IS masters' MBA and other MBA stream students. A good masters' research dissertation, it is argued, requires the post-

graduate student to firstly retraining his/her brain to think like a researcher. This training entails being able to visualise the abstract from actual observations and psychologically in order to identify hidden concepts and patterns, and to produce those patterns into generalizable theories that apply to other contexts beyond the domain where the initial observations were conducted.

Having seen the aforementioned arguments by Bhattacharjee (2012) where he discusses how students should think like a researcher, Harypursat et al. (2005) then lay emphasis on the effective ways of thinking styles. Harypursat et al. (2005) state that in Western society there are five individual styles of thinking as a researcher, which they outlined as a *Synthesist*, an *Idealist*, a *Pragmatist*, an *Analyst* or a *Realist* in terms of styles of thinking.

Harypursat et al. (2005) argue that some post-graduate students would prefer one or two of these styles to another, and therefore apply them to their research activities. This study also explores the ideological understanding of how post-graduate students think while conducting research projects. These thinking styles, introduced to post-graduate research students, will be used to determine their levels of comprehension with regard to IT/IS research application approaches (Harypursat et al. 2005).

Furthermore, the authors discuss each of these thinking styles in terms of their importance for IT/IS masters'/MBA students who are not quite sure where their thinking capabilities are with regard to research. The authors aver that to "synthesize" simply means for a student to be able to create something that is entirely new and innovative by an individual – something that appears to be different from his/her fellow students (Harypursat et al. 2005).

Hence, the term "Synthesists" can be described as that position where a post-graduate student would prefer to discover two or more things that no other student may have the slightest idea about at all (Harypursat et al. 2005). Harypursat et al. (2005) also state that a student who possesses the Synthesist mode of thinking would have the tendency of considering themselves to have superiority in terms of their "creativity,"

outspokenness and at times being secretive about their intelligence – and not being able to share ideas with fellow students (Harypursat et al. 2005).

Harypursat et al. (2005) note that a post-graduate student who possesses the idealist mode of thinking, would be a student who would like to endeavour to gain an in-depth view of something and have a tendency to extrapolate his/her findings from the origin of that something (Harypursat et al. 2005). These students think about the objectives, goals and are concerned about collective principles. According to Harypursat et al. (2005) a student who possesses the idealist attribute prefers to be noticed by fellow students as productive, innovative, supportive, free-minded and honest. Talking of ethical considerations, a post-graduate student who possesses this mode of thinking tends to have strong ethical knowledge and pride themselves on their high ethics. Harypursat et al. (2005) are not well-informed about their high standards. In cases where problem-solving is involved, the post-graduate student who possesses the idealist mode of thinking outshines others. This is where they have to consider certain important things, such as judgment, sensations and sentiments (Harypursat et al. 2005).

In addition, Harypursat et al. (2005) further emphasise the Pragmatist. A post-graduate student who has this mode of thinking style is one of those who are best in discovering new approaches of doing things given the resources at hand (Harypursat et al. 2005). Not only can they discover things, but they also have a tendency to approach problems piece-by-piece, stylishly, and method oriented, in other words, they do things one at a time. The Pragmatist thinker's approaches are unpredictable, flexible, and easy to cope with as compared to other post-graduates who possess other thinking styles but who also take pride to their adaptability (Harypursat et al. 2005).

Talking of the Analysts; a post-graduate student who has this thinking style sees himself as a truthful, down-to-earth, theoretical kind of student (Harypursat et al. 2005). They tend to approach problems in a vigilant, rational, methodological way and inevitably, give excessive devotion to facts. This kind of post-graduate student also has the tendency to produce a philosophy for virtually everything and they analyse and interpret things within a comprehensive context background framework that will help to clarify

things and draw a conclusion (Harypursat et al. 2005). The *Analyst* students also take pride in their great capability, in the sense that they have the knowledge of all the facts of any kind circumstances it might be (Harypursat et al. 2005).

The Realist which is the final type to be looked at in our discussion, talks about a post-graduate student whose slogan is "what you see is what you get" - in order words, which means facts are facts (Harypursat et al. 2005). A post-graduate student who possesses this attribute strongly believes that he/she would want to do thing with confidence, thoroughly and inflexibly and therefore, have this certain kind of an assumption that once things has been completely done is firmly done with (Harypursat et al. 2005).

Bhattacharjee (2012) affirms, with Harypursat et al. (2005), the arguments the propound, and therefore, further assert that a lot of thinking styles are required as post-graduate research dissertations involve constant moving back and forth from an empirical plane where observations are conducted on a theoretical plane and where these observations are then abstracted into generalizable laws and theories. This is a skill that takes not just months but several years to build up; in fact, it is not something that is taught in undergraduate or graduate programmes or acquired in industry training, and is by far the most important shortcoming in most IT/IS masters' MBA and other MBA stream students (Bhattacharjee 2012). The author also mentioned that some of the psychological abstractions needed for a masters' 'students to think like a critical researcher include unit of analysis, constructs, assumptions, operationalization, philosophies, models, induction and deduction, and so forth (Bhattacharjee 2012).

Golden and Dore (2001) and Lubbe et al. (2005) emphasise that all post-graduate research students have their expectations, but unfortunately, sometimes the preparation that IT/IS masters' MBA and other MBA-stream students receive is not what they want and it often does not expose them to enough experience to train them for the kind of jobs that they take after completing their masters' degrees. This is a fundamental challenge for the masters' students and it means that most students can waste their first year without having been equipped to begin doctoral work without the provision of

adequate training in research methods and research design (Golden & Dore 2001; Lubbe et al., 2005).

Golde and Dore (2001) and Lubbe et al. (2005) state that in South Africa, the fact that extensive effort is now being put in place to improve the post-graduate students' expectations of the quality of research preparation by introducing a standardised mechanism through the Quality Assurance Agency (QAA). Most probably, if the South African universities were distinguished to be rendering a high quality masters' experience transversely, the QAA mechanism would not have been deemed necessary (Golde & Dore 2001; Lubbe et al., 2005).

The QAA also points out that IT/IS masters'/MBA and other MBA streams research students should have the necessary managerial guidelines, support and direction sufficient to acquire the skills that they need to enable them design and in completion of research dissertation in a time (Golde & Dore 2001). In fact, it prepares them for their subsequent careers. Hence these issues with regards to post-graduates' expectation have been made open, and this is definitely an issue of some distress, that might possibly result in very low completion rates in many South African Higher Education Institutions

Lubbe et al. (2005) infer that in South Africa, the QAA has pointed out that supervisors, most especially the main supervisor, should possess or have acquired acknowledged subject expertise and should possess potential skills and experience to monitor, support and direct IT/IS masters'/MBA and MBA research students' endeavours. IT/IS masters' MBA and other MBA students should receive support and direction sufficient to enable them to succeed in their studies (Golde & Dore 2001; Lubbe et al., 2005; Pearson & Brew 2002). On the other hand, the progress made by post-graduate students should be regularly monitored and on a regular basis and feedbacks should be communicated to the students.

In conclusion Grover (2001) added that although much has been discussed on the issues of QAA, if the IS Department and the Graduate School of Business and

Government Leadership wishes to run a post-graduate programme it must require the maximum involvement from both departments in the form of clear institutional support (Golde & Dore 2001; Lubbe et al., 2005).

2.4 HOW TO CONDUCT RESEARCH USING THE APPROPRIATE METHODOLOGY

According to Swales (1995); Allison et al. (1998) at the University of Michigan, topics such as problem-solution texts, data observations, writing critiques and constructing a research paper were all introduced to masters' students in the development of dissertation writing and support. Du Plooy (1995) and Boote and Beile (2005) noted that the main purpose of this chapter is to help identify related issues to research problems, strengths and weakness handled by other researchers' and existing gaps in the literature. However, a literature survey is used to sharpen the researcher's theoretical understanding of the research and acquaint the researcher with the modern theoretical development and debates conducted by previous researchers (Du Plooy 1995; Boote & Beile 2005).

Du Ploy (1995) ; Boote and Beile (2005) also assert that it ensures that masters' students do not duplicate or copy the efforts of others, but rather that they should produce something original and productive to add to the body of knowledge by, for example, discovering a new theory (Du Plooy 1995; Boote & Beile 2005). Du Ploy (1995) ; Boote and Beile (2005) further argued that the alleged lack of importance of research alignment of the literature review in dissertations has persisted for quite some time. Hence, non-IT/IS masters' MBA students should seek guidance and discover approaches on how to improve their literature reviews (Du Plooy 1995; Boote & Beile 2005).

Lubbe et al. (2005) assert that to conduct a research survey one should use appropriate methods and select achievable topics. The researcher has to engage in a careful and systematic process of research design (Lubbe et al. 2005). Firstly, one has to determine one's research interests within a specific field of investigation and within a specific

domain, and begin one's literature survey by identifying at least one specific problem that one wants to solve by means of one's research (Lubbe et al. 2005; Boote & Beile 2005). Silverman (2000) stated that there is an assumption that if there is no research problem that needs a solution, then there is no research to be undertaken.

Lubbe et al. (2005) and Paltridge (1997) went further to encourage research students to make use of electronic resources of their institution to review on-going and completed research to ensure that their topic had not been researched before. Lubbe et al. (2005) and Paltridge (1997) suggest that post-graduate students should focus on drawing up shortlists of topics, selecting proper topics for investigation and formulating a general research question. Furthermore, Paltridge (1997) asserts the importance of spending as much time as necessary as possible to get the question right. He also pointed out that the research question needs to be worth asking and capable of being answered, in other words, the study needs to be significant and reasonable (Paltridge 1997).

Lubbe et al. (2005) and Pather et al. (2005) argue that often IT/IS masters' MBA and other MBA stream students pick a topic that could take a research team of twelve or more people six years to complete. Even, at times, they pick an interesting topic for which it would be impossible to collect appropriate data due to problems of access or confidentiality or they pick a topic that looks far more like a work-based project than an area for masters' work.

Lubbe et al. (2005) and Paltridge (1997) state that when it involves selecting a possible topic that is researchable and achievable not many IT/IS masters' MBA and other MBA stream research students are specifically able to choose their research areas single-handedly, or be able to identify an appropriate research method (Lubbe et al. 2005; Pather et al., 2005). They suggest that IT/IS masters' MBA and MBA students from other streams should, for instance, look back at their previous studies to identify an area about which they were passionate, because when you are passionate, you will be devoted, enthusiastic and passionate about your research project. Determine the most appropriate research method to solve the problem; for instance, grounded theory, case

study, ethnographic research, survey research (Klopper & Lubbe 2011; Lubbe et al. 2005; Pather et al., 2005).

Some post-graduate students think that research is largely about data-collection or doing case studies while others think it is about discovering something entirely new (Klopper & Lubbe 2011). Supervisors often encounter difficult problems when they check through a post-graduate research design only to realise that the research questions are either absent or misaligned (Klopper & Lubbe 2011). Because of post-graduates' misleading perceptions of research; they suggest that the convenient way of conducting research survey is with a conceptual matrix. Klopper and Lubbe (2007) have further recommended that non-IT/IS masters' MBA research students should use a conceptual matrix for aligning research problems, aims and research questions. This ensures that sub-problems under investigation are properly aligned with themes and the research questions that researcher poses to ensure viable empirical results (Klopper & Lubbe 2011; Boote & Beile 2005).

Klopper and Lubbe (2011) emphasise that the conceptual matrix method is powerful and a practical research tool that creates the initial scaffolding to help researchers sharpen the focus of their research and to enable them to rapidly progress from the initial state of conscious incompetence to the stage of unconscious competence. Ge and Land (2004) indicate that previous studies have been conducted on using various scaffolding techniques to facilitate post-graduates' research dissertation task in various fields. Ge and Land (2004) aver that little effort has gone into applying these strategies in research endeavours, most especially in the literature review.

Klopper and Lubbe (2011) state that in a well-designed research project the researcher will extract a specific number of sub-problems from the general problem, as well as the same number of sub-questions from the general research question in such a way that sub-questions and sub-problems are properly aligned. If this is done systematically, the answer to a specific research sub-question will provide the solution to its associated sub-problem

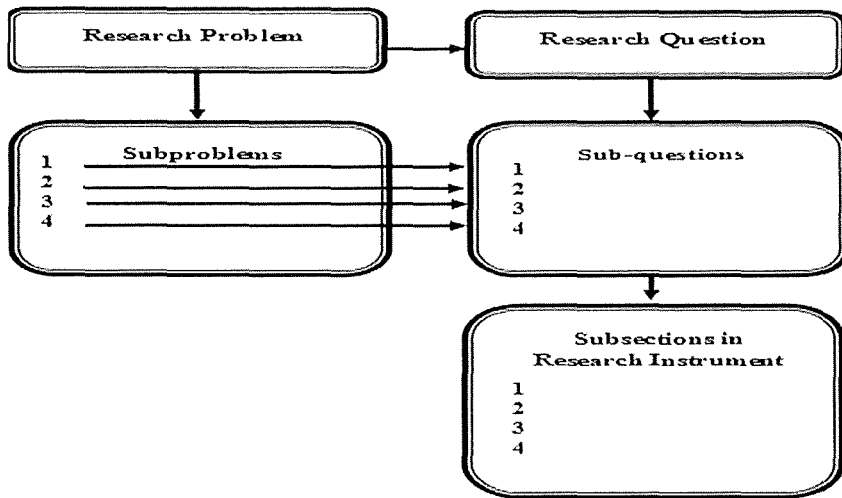


Figure 2.1: Problem research question alignment matrix

According to Klopper and Lubbe (2011), in a well-designed research project the researcher will extract a specific number of sub-problems from the general problem, as well as the same number of sub-questions from the general research question in such a way that sub-questions and sub-problems are properly aligned. If this is done systematically, the answer to a specific research sub-question will provide the solution to its associated sub-problem.

The flowchart demonstrates the alignment of a general problem and research question, and reconceptualising them in detail as properly aligned sub-problems and research questions as suggested by (Klopper 2009). Although the research problem serves as the starting point for research, the literature review, as depicted above, also serves as the foundation upon which that research is built (Ellis & Levy 2008). The presence of the research problem is usually established through the literature review.

Creswell (2005) and Ellis and Levy (2008) investigated a broader picture and arrived at a clear understanding of the concept "Research". Ellis and Levy (2008) and Mavetera (2011) laid emphasis on the true meaning of research processes and how masters' students should conduct a survey. Ellis and Levy (2008) and Mavetera (2011) deduce that research is the systematic process of collecting and analysing information (usually

known as data) and to increase our breadth of understanding of the phenomenon about which we are concerned or interested in (Ellis & Levy 2008; Mavetera 2011). According to Creswell (2005) research is a process of steps used to collect and analyse information in order to increase our understanding of a topic or issue. The key issue emerging from these definitions is that research must collect and analyse new information/data that will enhance the existing body of knowledge (Ellis & Levy 2008).

Ellis and Levy (2008) outlined many ways in which original research contributions can be made to the body of knowledge. This includes establishing causal relationships by conducting a causal-comparative study to address a documented problem, evaluating the efficacy of an approach to addressing a documented problem by conducting an experimental or quasi-experimental study (Ellis & Levy 2008) or by examining the impact of the element of time on the nature of the documented problem in a lengthy study (Creswell 2005; Ellis & Levy 2008).

2.5 PRIORITY AND PROJECT MANAGEMENT SKILLS OF the RESEARCH PROCESS

Many post-graduate students might underestimate the complexity of the research and pick a topic that is not properly focused. Such topics cannot be researched in the requisite time frame as the researcher might not get the compliance of respondents, or the topic might be too exclusive to research (Lubbe et al., 2005; Remenyi et al., 2011). Lubbe et al. (2005); Remenyi et al. (2011) further emphasise that IT/IS masters' MBA and other MBA stream research students are every now and then snowed under with work because they are not good project managers. This is often because the students have been insufficiently precise in how they have scoped their projects.

The students do not always have the ability to be good administrators (Lubbe et al. 2005). An administrator's role involves the management of a wide range of activities, from managing data-collection activities, archiving material, organising interviews, identifying key milestones and ensuring that they achieve them all (Lubbe et al. 2005). Worrall et al. (2007) even went as far as to suggest that poor management of research

philosophies is actually as bad as doing away with good management practices. It is unquestionably true that academic investigation has had a considerable negative effect on management and institutes (Worrall et al. 2007).

Mauch and Park (2003) state that a reasonable period estimation is helpful during the research process because it ensures that the research project is on track and it promotes self-controlled use of time. Moreover, they urge IT/IS masters' and MBA students from other streams to set priorities, the reason being that it improves effectiveness and the efficiency of progressive study in the overall picture, but most especially in the dissertation component. Mauch and Park (2003) further deduced that priority and research management skills can either determine the success or failure of post-graduates' throughputs' However, it advisable for IT/IS masters' research students to firstly outline the current status by identifying those tasks that are completed and furthermore circling the ones that are yet to be attended to. This will give the student a good idea of what is expected of him/her (Mauch & Park 2003).

Paltridge (1997) suggested that the use of period in planning a research activity encourages students to think ahead, and also by making engagements with fellow researchers by coming together to brainstorm with regards to their research activities, but also scheduling and managing their own time they gain a lot (Paltridge 1997).

Mauch and Park (2003) and Paltridge (1997) state that it is unquestionable that every university commonly requires that projects be submitted for final research approval and then sent to the Dissertation/Thesis committee by the required date which sometimes falls in weeks prior to the close of the semester in which the student intends to graduate. For an IT/IS masters' student to finish on time, he/she needs to work backward, estimating how many days, weeks, or rather months it will take to move from one action to the next until the current status is reached (Mauch & Park 2003; Paltridge 1997).

Furthermore, this vital activity brings into the open any discrepancies between a student's ambitious thinking and the practicality of the calendar. Most post-graduate

students may find it useful to enlist their supervisor's assistance in making time estimates and in gathering information about special considerations related to timing (Mauch & Park 2003).

Johnston (1995) notes that post-graduate students' involvement is necessary, because it creates the platform for supervisors to be able to understand what the experience is like from the students' viewpoints. Therefore, the supervisors will gain more understanding of the variety and complexity of student needs and preferences.

Furthermore, there is a need for students to be involved in the process of professional development in a meaningful and equitable way. This necessitates more than token involvement, which often takes place through inviting students as observers to discussions or expecting one or two students to represent the views of all students through a brief input to a formal programme (Johnston 1995).

2.6 RESEARCH METHODOLOGIES AND DISSERTATIONS

Generally, students do not have a clear understanding of research methodology, in general, or of the ontological or epistemological choices that they need to make in order to frame their research (Lubbe et al. 2005; Remenyi et al. 2011). Only a few of them have a thorough understanding of how to select the most appropriate methodological framework to allow them to do research on their own topic (Lubbe et al. 2005; Ellis & Levy 2009). IT/IS masters' MBA and other MBA streams students wrongly choose inappropriate research methodological approaches and techniques which are not relevant to the study in question. Many students are afraid and think that they might choose a research method that does not address the study, and there are often fears of having to manifest originality (Lubbe et al. 2005).

Galliers and Land (1987) stated that the escalating problem in choosing IT/IS research methodology approaches had been debated decades ago and little effort has gone into suggesting application of appropriate IS research methodologies. Galliers and Land (1987) argued that IT/IS masters'/MBA research students need to be academically

guided in making appropriate choices, and they need to be well-informed about the requirements and nature of an appropriate IT/IS research, and then focus on what they want to attain from conducting research in that field.

In addition to the above arguments, Lubbe et al. (2005) and Ellis and Levy (2009) went further to discuss how to present a proper dissertation. In actual fact, the scope or degree of lengthy dissertation/thesis, however, does not depict or necessarily define intellectual limitations. In other words, this means that quantity does not equal quality. Nonetheless, it is a mistake to assume that a dissertation/thesis has to be a certain length. Lubbe et al. (2005) say that a masters' dissertation should be as short as possible and as long as necessary but not to lose its contents or that which it expected to do. The length of a dissertation does not determine its quality (Lubbe et al. 2005; Ellis & Levy 2009).

At post-graduate level, most IT/IS masters' research students have numerous opinions and means of understanding and interacting within their environments (Bhattacharjee 2012). In fact, the methods by which research surveys are investigated also differ. There are specific criteria and procedures that guide a post-graduate researcher's activities and views. Such criteria or standards can be described as a research paradigm.

According to Taylor et al. (2007) a paradigm is an extensive observation of something to a certain degree. Comprehensively, they further assert that a paradigm discloses how research could be artificial and directed by a certain pattern. Taylor et al. (2007) also state that paradigms are designs of views and endeavours that control investigations within a discipline by providing those settings and practices through which the study is accomplished.

Creswell (2003) noted that in the late 19th and the 20th centuries, the ideas associated with quantitative research survey came about because of post-positivist viewpoints. These involved experimentations and the less intensive experiments known as quasi-experiments and correlational studies; quantitative research approaches deal with

difficult experiments with several variables and treatments (Taylor et al. 2007; Creswell 2003).

Taylor et al. (2007) and Creswell (2003) argued that a quantitative approach shares its theoretical foundation with a positivist paradigm. The positivist paradigm therefore originated from the philosophy recognised as logical positivism and is based on inflexible guidelines of logic and measurement, truth, absolute principles and predictions (Creswell 2003; Taylor et al. 2007). They further asserted that there is only one objective reality regarding positivist philosophy.

The qualitative methodology approach also shares its theoretical grounds, but with the interpretivist paradigm which supports the interpretation or views that there are various truths and multiple realities. This nature or paradigm or pattern focuses the holistic viewpoint of the person and environment which is not corresponding with the ideal knowledge as to why the study was undertaken (Creswell 2003; Taylor et al. 2007).

Campbell and Fiske (1959) described the quantitative or qualitative methodological approaches as those that involve collecting and analysing both forms of data in a single study. The perception of combining different methods was invented in 1959, where Campbell and Fiske (1959) used mixed methods to study the validity of psychological traits. Since then, they have encouraged others to employ their multi-method to examine multiple approaches to data-collection in a study.

Kothari (1984) and Ellis and Levy (2009) emphasise the research methodology as it is a systematic way of solving the research-related problem. Moreover, it might be assumed as a discipline of studying how research is done scientifically. The authors further state that IT/IS masters' MBA students, including MBA students from other streams, need not focus only on methodology, but they should rather also know the research methods/techniques. Kothari (1984) and Ellis and Levy (2009) also need to know which of these methods or techniques are relevant to their studies or not. Kothari (1984) and Ellis and Levy (2009) later state that a dissertation allows post-graduate students with

an opportunity to work single-handedly, at length, on a topic that mainly originates from their interests or field of study (Kothari 1984; Ellis & Levy 2009).

This is also an effective way of research preparation for assisting in developing progressive knowledgeable skills such as management guidelines, analysis and interpretive acts (Kothari 1984; Ellis & Levy 2009). So therefore, IT/IS masters' researchers also need to comprehend the rules underpinning various techniques and approaches and to know the criteria by which they can decide on the techniques that will be applicable to certain problems and others that will not. It is possible for the researcher to design his/her methodology to solve the research problem, only to find out that the methodology designed does not address the particular research problem (Kothari 1984; Ellis & Levy 2009).

Looking at the above discussion, Kothari (1984) states that a research methodology involves numerous scopes. Research methods, however, do form part of the wider notion of research methodology, and the scope of research methodology is wider than that of research methods. Kothari (1984) argues that the research methodology comprises the question as to why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis has been formulated, what data has been collected and what particular method has been adopted, why a particular technique of analysing data has been used and a host of similar other questions are usually answered when we talk of the research methodology concerning a research problem or study (Kothari 1984).

Creswell (2003), given these three research paradigms above, the research problem, the personal experiences of the researcher, and the targeted audience (s) for whom the study will be written, indicates what will solely determine the appropriate methodology suitable for the research in question (Creswell 2003), while Pinsonneault and Kraemer (1993) affirm that a research methodology is the approach to answering the research problems or testing the questions that motivated the research in the first place.

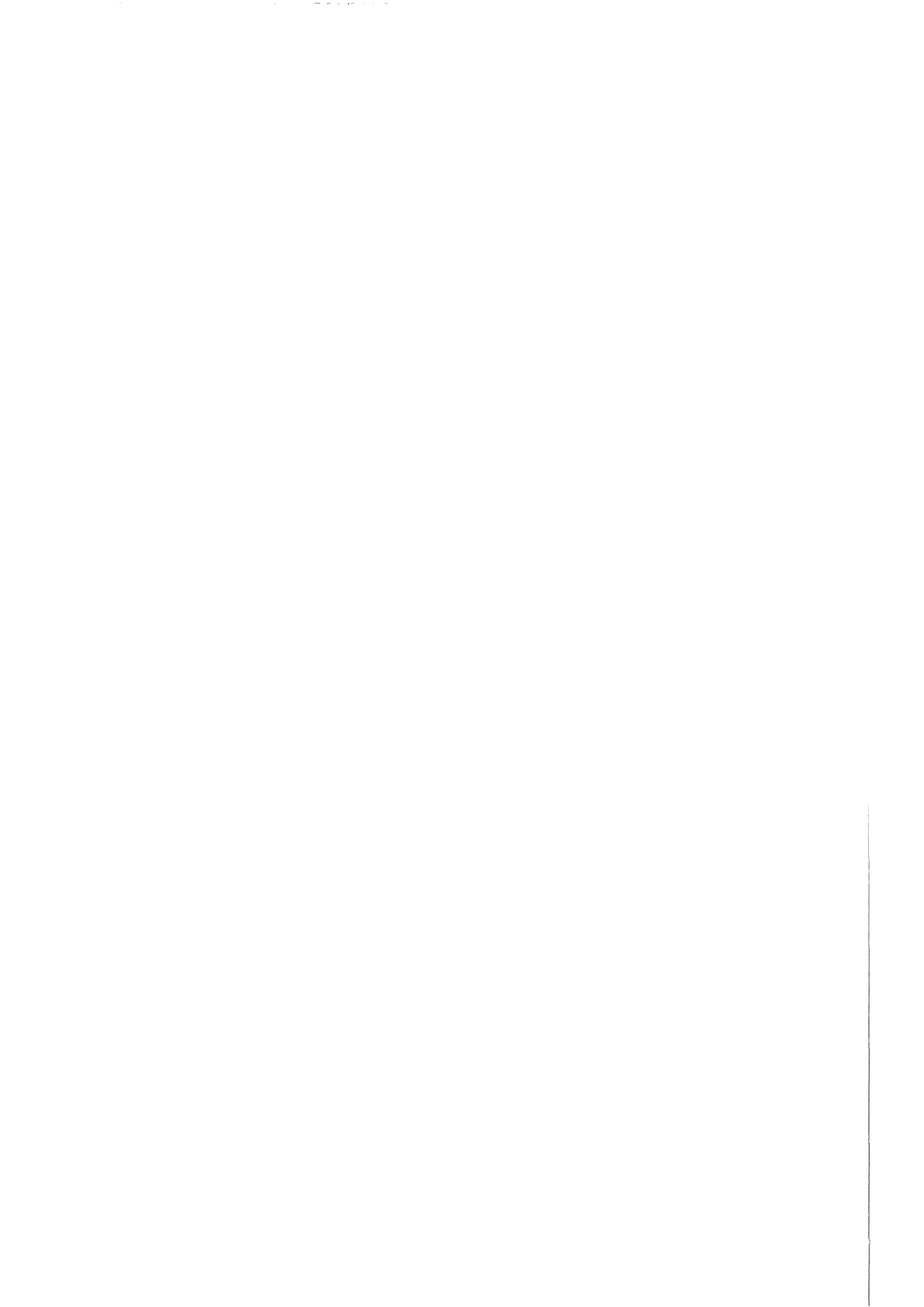
An appropriate research methodology thus depends on the problem or question the researcher wants to address. Personal experience does play an important role, for instance where the researcher is well-trained in technical, scientific writing, statistics and computer statistical programmes and is also familiar him/her with quantitative papers in the library, such a student would most likely choose the quantitative method (Creswell 2003; Pinsonneault & Kraemer 1993).

Creswell's (2003) qualitative approach incorporates imaginary methods of writing, analysis of programmes, and experience in conducting open-ended interviews and observations. Because quantitative studies are the old-fashioned approach of research, carefully worked-out procedures and rules are applicable to the research. On the other hand, qualitative methodological approaches give room to new ideas and to work more within the researcher's designed framework. He states that a qualitative approach encourages creativity, literary style writing, and a system that researchers may like to employ.

2.7 CHALLENGES AND INADEQUATE QUALITY CONTROL OVER RESEARCH DOCUMENTATION

Masters' students are faced with a lack of IT/IS skills and poor managerial guidelines in terms of research documentation which can seriously delay their masters' research completion; this happens when post-graduate students do not structure their studies properly (Davis 2001; Lubbe et al. 2005). An unstructured dissertation and non-supporting documents will affect the final research product, while the seminar suggested that masters' students should have a proper documentation system that will help him/her and the supervisor challenges in post-graduate studies to manage the content of their endeavours (Seminar 2007; Mavetera 2011).

It is amazing how many students do not index references properly and then spend valuable weeks at the end of their studies trying to rediscover lost references (Seminar 2007; Davis 2001; Lubbe et al. 2005). Lubbe et al. (2005) emphasise some of the challenges that masters' students came across when documenting dissertation/thesis.



Insufficient administration and quality control over dissertation/thesis documentation can extensively delay IT/IS masters'/MBA and other MBA streams research students from completing on time (Lubbe et al. 2005; Remenyi et al. 2011). This often occurs when masters' students do not structure their studies correctly. Inadequate and mismanaged or unstructured research dissertations and accompanying documents will hinder the shape of the final research output

Lubbe et al. (2005) and Remenyi et al. (2011) state that masters' students should have an accurate documentation system that will help assist as a guideline approach to them and their supervisor to manage the content of their research project endeavours. Referencing techniques, for instance, using Klopper and Lubbe' Matrix Analysis, are vital and students should use a consistent referencing system such as Harvard referencing (Lubbe et al. 2005). Making use of resources such as those implemented and introduced by the American Psychological Association (APA) was purported to be a good act of sourcing on how material needs to be presented. Most IT/IS masters'/MBA and other MBA streams students often start reading to get a broad picture of their topic material and note down citations for later use (Lubbe et al. 2005).

These citations that they have noted merely have the author's name and year of publication as students forget to write down the entire reference and end up producing inaccurate bibliographies that are not adequate for the purpose (Lubbe et al. 2005). Thus sometimes examiners get irritated with a poorly-documented dissertation and as a result might hold back the masters' students from completing in the required time, due to poor managing skills provided by the graduate school (Lubbe et al. 2005). The success of a good research rests on how IT/IS masters'/MBA and other MBA streams students are able to understand research requirements, in other words, the way in which research results are to be documented.

IT/IS masters'/MBA and other MBA streams students are faced with so many challenges that they often do not know which structural layout to use to write the chapters of their dissertations (Lubbe et al. 2005). A research dissertation involves technical written communication and analysis. This means that the writer should consult with his/her



supervisor for proper guidelines on how to use either the organisation or the structural layout of the research dissertation (Lubbe et al. 2005).

Lubbe et al. (2005) infer that when writing dissertation/thesis, the first chapter usually introduces the topic to the person who reads and also gives a preview of what is expected to be discussed in following chapters. It is often written in last after the researcher would have understood what he/she had written in the entire dissertation. Unfortunately, post-graduate students who fail to comprehend this will probably waste months trying to write an abstract, and end up having to rewrite the introductory chapter repeatedly.

According to Lubbe et al. (2005) a well-documented dissertation is built in this nature rather than being written sequentially. Hence post-graduate research is built progressively, as is suggested here. In the process, where post-graduate students begin to work on the research project, he/she will acquire new insights and be able to adjust from his/her continual browsing through the literature. The literature review chapters are often written in two stages; the initial stage is where you as (the researcher) identify what is new in your research domain and the other stage is where you as (the researcher) do a serious validation of philosophies presented to help resolve the unsolved problems raised in the study (Lubbe et al. 2005).

The problem with dissertations/theses is often that the literature review is presented as an index of the literature. Hence the supervisor/examiner will be anticipating a student who has made contributions from their critical skills sufficiently to be able to synthesise the literature to render a discussion of the key themes (Lubbe et al. 2005). Documenting a masters' dissertation is a gradual process that has to ensure that arguments, discussions and intentions in the previous parts of the thesis are addressed and the findings are discussed against the background of the literature study. It is amazing how many IT/IS MBA and other MBA stream students fail to interpret their findings adequately (Lubbe et al. 2005).

IT/IS masters' MBA and other MBA streams students make the mistake of not organising their studies in an orderly manner. Lubbe et al. (2005) further state that when it comes to producing a good or rather a successful dissertation/thesis, this is a crucial step. The IT/IS masters' MBA and other MBA streams student should take note of the fact that the dissertation/thesis is an intellectual endeavour and as such should be sustained by documentation.

The mistake that many IT/IS masters' students make is that they do away with their documentation after they have received their degree. This sometimes affects them one way or the other as in the case were they will have to refer again to obscure references, questionnaires and interview schedules available for the purposes of an academic audit as part of the examination process (Lubbe et al. 2005).

Lubbe et al. (2005) highlight the fact that masters' students are also beset by stress problems as most IT/IS masters'/MBA and other MBA streams cannot cope with research stress. Lubbe et al. (2005) state that the student suffers emotional problems as a result of stress, and as such needs emotional support to cope with study-related stress. IT/IS masters'/MBA and other MBA streams post-graduate stress is a fact that cannot be ignored or changed and which students and the graduate school have to adjust to and cope with (Lubbe et al. 2005).

Lubbe et al. (2005) explained that stress is common to every university/institution and a reality which post-graduate students and faculty members have to deal with. One way of coping with stress is to associate with other post-graduates who are successfully coping with similar pressures.

Much emphasis and research have been published concerning academic stress among masters' students, and papers reviewed have identified stressors as a result of many assignments, competitions with fellow students, failures and poor relationships with other students or lecturers (Murphy & Archer 1996).

Masters' students are faced with this academic stress, and when stress is experienced negatively or becomes unbearable, this is where students are likely to encounter

physical and psychological impairment (Murphy & Archer 1996). The best techniques to use to reduce stress is ensuring that that students include in their time allocation effective time management, social support, positive reappraisals and engagement in leisure pursuits (Murphy & Archer 1996).

Nevertheless, sometime students feel that they do not need any assistance in this regard, but in actual sense, they do (Lubbe et al. 2005). Maybe some of the reason why masters' students' stress increases could result from their supervisors having to criticise their efforts. Nonetheless, masters' students must be willing to have their ideas criticised without feeling that they are under attack. Supervisors should be the ones to decide if the researcher is on the right track. It is what they are meant to do, and they should have sufficiently developed inter-personal skills to ensure that their comments to students are constructive and not destructive (Lubbe et al. 2005).

2.8 SUPERVISOR AND RESEARCH METHODOLOGIES

The quality of post-graduate research dissertation supervision depends as much on the supervisor's ability to meet the needs of a student as on the student's expectation of his or her own responsibilities in relation to those of the supervisor (Kam 1997; Johnston 1995; Lee & Green 1995). This mutual understanding of role expectation is crucial to the success of the supervisory process (Kam 1997). The supervisor has a major role to play in the coaching, guiding and mentoring of the post-graduate students (Davis 2000).

However, masters' students must take personal responsibility to ensure that they meet dead-lines. At masters' level, everything has a time and place and one merely conforms to the timetable (Lubbe et al. 2005). Lubbe et al. (2005), state that, generally speaking, in the humanities and social sciences, the masters' student/supervisor relationship has been left to a traditional training ideal. The masters' student selects the supervisor on the basis of the supervisor's perceived charisma - that is, his/her extraordinary qualities as a scholar-researcher (Lubbe et al. 2005). In this case, the nature of the relationship, if it is to be a successful one, requires that the belief in the charismatic quality of the individual works in both directions (Lubbe et al. 2005).

According to Yeatman (1995) in order for the charisma of the supervisor to prove to be worth believing in, the work of the masters' student has to be of a quality such as to testify to the value of the supervisor's influence. In short, if the relationship is to be counted a success, the masters' student has to demonstrate by his own charismatic scholarly quality that he is worthy to be supervised by this particular supervisor (Yeatman 1995).

According to Shannon (1995), the widespread problem in research activity is inadequate supervision; that is, a lack of communication between the supervisor and student; the student's misunderstanding of standards, requirements and of the supervisor's role and functions (Shannon 1995). Thompson et al. (2005) and Hockey (1994) considered that it is inappropriate for masters' research students in IT/IS masters'/MBA and other MBA streams and other streams to be supervised by individuals with no research qualifications.

The HEFCE standard for supervision states that all new supervisors should undertake mandatory institutionally specified training. Therefore, there should be a team of at least two active researchers with relevant knowledge and skills, one of whom should be designated as the main supervisor with overall responsibility for the masters' student (Thompson et al. 2005; Hockey 1994; Shannon 1995).

Thompson et al. (2005) assert that supervisors should have obtained experience in one or more successful supervision tasks within a supervisory team. This will enable supervisor to actively support and guide the masters' student all the way through to a research degree award (Thompson et al. 2005). Thompson et al. (2005) further note that the main supervisor should normally take responsibility for a maximum of six students. The team should meet regularly with the student to report, discuss and agree academic and personal progress, with outcomes of all such interactions being recorded.

Thompson et al. (2005) assert that having two supervisors has benefits for all parties, both the supervisor and the student; it enables the student to see different perspectives and the supervisor, particularly the novice, learning on the job from the experienced

one. Also, each supervisor might bring a different, but complementary, specialist perspective, such as research method expertise. The supervisors should possess not only recognised subject expertise, but also the skills and experience necessary to monitor, support and direct the masters' student's research activities (Thompson et al. 2005; Hockey 1994).

Having realised that the supervisor's contribution towards research activity is very crucial to determining masters' students' success or failure, it is correct to assume that this lies within the powers of the allocated supervisor. However, masters' students' contributions do count in the sense that they play a vital role, hence they are the researcher, and the honour is on them to accomplish the given task. Thompson et al. (2005) outlined the role and responsibilities of masters' students and supervisors. Thompson et al. (2005) assert that masters' students must have a capacity for taking initiative and an ability to accept and discharge responsibilities, to work effectively autonomously and to take responsibility in complex and unpredictable situations.

The masters' students should maintain a jointly agreed record of personal progress. The masters' students should discuss with the supervisor the type of guidance required, agree a schedule of meetings and take the initiative in arranging further meetings if necessary, and maintain progress as required and agreed, including, in particular, the presentation of written material in sufficient time to allow for comments and discussion. Equally, supervisors should read and comment on work in a timely fashion, giving good reasons for any delay (Thompson 1995; Burnett 1999).

Hockey (1994) and Leder (1995) further outlined the responsibilities of the main or core supervisors. Supervisors should provide intellectual expertise and encourage and support the student's confidence and morale, and act as a guide, intellectual critic and general counsellor (Hockey 1994; Leder 1995). This includes guidance and criticism about the nature of the research and the standard expected in terms of the formulation of the research question, the planning of the research project and the searching for literature

Leder (1995) and Evans (1995) state that supervisors should be accessible to post-graduate students at appropriate and reasonable times. Leder (1995) and Evans (1995) also suggest that students are likely to need advice on academic problems and should give detailed advice (verbal and written) on the necessary completion dates of successive stages of the work, and expected targets and timetables so that the work may be submitted within the statutory time schedule.

According to Leder (1995) the main supervisor should take the major responsibility for the supervisory process and, though all supervisors should be bound by duty, obligation and commitment, the degree to which this is passed on should be carefully balanced. There is a real danger of spoon-feeding and over-commitment on behalf of supervisors, who can sometimes become too emotional, intimate and subjective. Reassurance, encouragement and enthusiasm are necessary to maintain the confidence of the student over such a prolonged and strenuous period of study

Although research supervision is an important academic function it is often accorded too little value, preparation or recognition (Thompson et al. 2005; Hockey 1994; Yeatman 1995). For instance, it should be formally recognised in workloads as post-graduate contact time using an appropriate formula. Increasingly, it is recognised that training and staff development should be offered (Thompson et al. 2005; Hockey 1994; Yeatman 1995). Sharing experiences with other supervisors from different disciplines may also be valuable. This is now becoming mandatory for universities in South Africa before certain bodies will fund research students (Thompson et al. 2005; Hockey 1994; Yeatman 1995).

Effective communication between masters' students and supervisors is paramount and depends on clarity. The best form of communication is face to face in a meeting, formal or informal (Bickman & Rog 1998). The purpose, frequency and duration of meetings should be determined at the outset. Although the amount of contact between the student and supervisors can vary dramatically, it is largely via this route that the student is given guidance, especially on thesis content, organisation and time-scale. The

masters' student and supervisors should agree on sensible and realistic time periods for the supervisors to read and comment on work, otherwise tensions will inevitably occur.

Meeting too frequently will not allow time for making progress and can be demoralising for the student (and supervisors); meeting too infrequently usually leads to difficulties (Thompson et al. 2005; Hockey 1994 & Shannon 1995). Burnett (1999) argues that although much has been said concerning the roles that students and supervisors played in research survey, it is also important to highlight the roles that Faculties/Departments play. Some of their roles are to organise newsletters per academic year, support research students by organising conferences and subsidising masters' students to attend such conferences.

2.9 TRIANGULATION IN RESEARCH METHODOLOGY

The term triangulation is derived from military navigation at sea where sailors triangulated among different distant points to determine their ship's bearing (Creswell & Miller 2000). Triangulation is a validity procedure where researchers search for conjunction among multiple and different sources of information to form themes. As a validity procedure, triangulation is a step taken by researchers engaging only the researcher's lens, and it is a systematic process of sorting through the data to find common themes or categories by eliminating overlapping areas. Creswell and Miller (2000) state that a popular practice is for qualitative inquirers to provide corroborating evidence collected through multiple methods, such as observations, interviews, and documents to locate major and minor themes

Campbell and Fiske (1959) introduced the idea of triangulation, describing triangulation as multiple operationalism, in which more than one method is used as part of a validation process that ensures that the explained variance is the result of the underlying phenomenon or trait (Campbell & Fiske 1959). Triangulation involves the application and combination of several research methodologies in one study (Schneider et al. 2003; Taylor et al. 2007). There are four common types of triangulation discussed within the literature, viz. data triangulation that involves time, space, and persons;

investigator triangulation which uses multiple observers; theory triangulation that uses more than one theoretical perspective to interpret the study phenomenon; and methodological triangulation that involves using more than one methodological strategy during data collection.

The use of multiple data sources and methods to cross-check and validate findings increases the depth and quality of the results and also provides valuable guidance to academic research practice. De Vaus (2002) avers that triangulation provides in-depth data, increases the confidence in the research results as well as enabling different dimensions of the problem to be considered. A combination of methods was introduced by some to improve the consistency and accuracy of data by providing a more complete picture of the phenomenon (Barbour 2001). Schneider et al. (2003) and Taylor et al. (2007) believe that triangulation is a means by which the researcher is able to capture a more complete and holistic portrait of the phenomena under study. In this study, the researcher employed quantitative methodological approach.

Schneider et al. (2003) and Taylor et al. (2007), highlight the four common types of triangulation data triangulation that involves time, space, and persons; investigator triangulation (Schneider et al. 2003; Taylor et al. 2007). Data triangulation can be described as the use of multiple sources of data to obtain differing views about a situation in a single study (Taylor et al. 2007; De Vaus 2002). For instance, in this study, data-collection was done using Krejcie and Morgan's (1970) stratified technique on IT/IS masters' MBA dissertations, comparing them with other streams and Nexus multiple data sources to help validate the findings by exploring different views of the situation under investigation (Taylor et al. 2007).

2.10 DEFINITION OF KEY TERMS

For convenience, according to Pearson and Brew (2002), they defined the term *coaching* as consisting of observing students carrying out a task and offering hints, response, reminders and new tasks aimed at bringing their performance closer to expert performance levels. Shannon (1995) stated that "research" deals with innovative and

creative activities, embarking on a systematic foundation, in accordance with thorough disciplinary conventions and methods of investigation, in order to improve human theoretical knowledge. However, this knowledge can either be acquired directly by new discoveries, or otherwise through the development of creative ideas, theoretical improvements or constructive critiques and syntheses which extend existing knowledge (Shannon 1995).

Bhattacharjee (2012) defined ethics as conformity to the standards of conduct of a given profession or group. Such standards are often defined at a disciplinary level through a professional code of conduct, and sometimes enforced by university committees called even Institutional Review Board (Bhattacharjee 2012).

Even if not explicitly specified, scientists are still expected to be aware of and abide by general agreements shared by the scientific community on what constitutes acceptable and non-acceptable behaviours on the part of the scientist in the professional conduct of science. For instance, scientists should not manipulate their data-collection, analysis, and interpretation procedures in a way that might contradict the principles of science or the scientific method or advances their personal agenda (Bhattacharjee 2012).

Yeatman (1995) referred to charismatic authority as a rule over men, whether predominantly external or predominantly internal, to which the governed submit because of their belief in the extraordinary quality of the specific person. The legitimacy of their rule rests on the belief in and the devotion to the extraordinary, which is valued because it goes beyond the normal human qualities. The legitimacy of charismatic rule thus rests upon the belief in magical powers, revelations and hero worship (Yeatman 1995), and to some extent this typifies the relationship between a charismatic supervisor and a post-graduate student. The source of these beliefs is the proving of the charismatic quality through victories and other successes, that is, through the welfare of the governed. Charismatic rule is not managed according to general norms, either traditional or rational, but, in principle, according to concrete revelations and inspirations, and in this sense, charismatic authority is irrational (Yeatman 1995) but one of the strongest motivators if used with the right kind of ethical foundations.

2.11 ETHICAL CONSIDERATIONS

The ethical issues facing information professionals today are more challenging than ever before (Allmark et al. 2009). Ethics are being put to new tests because of these evolving and emerging technologies. The fundamental changes in our society and the equity or inequity within it are also causing ethical beliefs to be challenged further (Allmark et al. 2009). According to Allmark et al. (2009), a researcher should take into account privacy, confidentiality, consent, honesty, respect, possible harm and anonymity. In relation to privacy, the interviewer may attempt to discover information by asking questions that interviewees may want to keep private (Allmark et al. 2009). The participant's involvement should be kept private by the researcher (Leedy & Ormrod 2010).

Thompson et al. (2005) argued that the entire process of masters' research dissertations should be operated within an ethical framework. Honesty, integrity, consent, confidentiality, data protection, intellectual property and copyright are all issues that should be acknowledged and addressed (Thompson et al. 2005). In adhering to ethical consideration standards, all information obtained and citations must be appropriately identified and acknowledged .and a written document in the form of a letter will be issued by the supervisor that will accompany the questionnaires to the participants for their permission to conduct this study (Thompson et al. 2005).

Thomas and Ahyick (2010) highlighted the idea that IT/IS organisations are constantly adopting new technologies and as such, it is important for every research institute to bear in mind the applicable forms of ethics. The ethical issues facing IT/IS masters' research activities today are more challenging than it has ever been before as IT/IS masters' research students continue to make use of technology to improve their research endeavours. The scope of ethical dilemmas continues to transform and the number of issues that require ethical decisions increases (Thomas & Ahyick 2010).

Thomas and Ahyick (2010) state that these issues of ethical behaviour of post-graduate research students have elicited much debate from previous writers. Many of these

arguments relate to privacy, intellectual property, copyright, government and employee monitoring and internet crime. Thomas and Ahyick (2010) emphasise that regardless of the tools used by perpetrators to commit these crimes, they suggest to IT/IS masters' MBA research students to work ethically in this ever-changing environment. The IS Department and the Graduate School of Business & Government Leadership wish to promote the pursuit of excellence, strictness, integrity and honesty present in research education (Thomas & Ahyick 2010).

Topi et al. (2010) state that IT/IS masters'/MBA students must exhibit strong ethical principles and have good interpersonal communication and team skills. However, they must understand that IT/IS professionals should be able to critically evaluate and possibly act on current ethical issues in the IT/IS MBA field by applying professional codes of conduct in collaboration with other disciplines, while Thomas and Ahyick (2010) asserted that cyber-ethics is the term used to describe the discipline that analyses the moral, legal, and social issues surrounding the computing and internet technology areas.

The author deduces that computing is a critical part of our society and that those who work in the field of IT/IS are trusted by others who do not necessarily understand how computers work. This makes it important that those who practise in the field of IT/IS act ethically and are worthy of the trust put in them (Thomas & Ahyick 2010).

Furthermore, this study is aligned with the theory of planned behaviour as introduced by Bhattacharjee (2012) where he avers that the philosophy in question can be employed to study a comprehensive collection of individual performance (Bhattacharjee 2012). However, this study aims to investigate the research methods used by IT/IS masters'/MBA students in comparison with other MBA streams at the NWU, Mafikeng Campus to emphasise the difference in approach expected. It will therefore determine if the research methods used by both MBA streams' students are relevant to their study. According to the theory/philosophy of planned behaviour, it is acknowledged that behaviour (performance) signifies a conscious well-structured choice, and is thereby formed by rational thinking and social weights.

These were some of the reasons why this theory has been chosen, as it aligns researcher (one's) objectives concerning his/her performance, which changes the purpose of the researcher's approach, toward the performance, personal standard with regards to the behaviour, and observation of mechanism over activities (Bhattacharjee 2012).

2.12 RESEARCH QUESTIONS

Four research questions were proposed for this study to shape the research methods used and ways of improving research dissertation to comply with IT/IS masters'/MBA mini-dissertation requirements. The literature review highlights various factors and these factors were:

- Do IT/IS masters' MBA students use a conceptual matrix in their dissertations to demonstrate themes used in the literature review and aligning the themes to the research topic?
- Was the IT/IS masters' MBA research project properly structured?
- What particular research method do IT/IS masters' MBA students use and what are the perceived barriers that they encounter in their research?
- What apparent reason is visible for not completing a good research project?

2.13 CONCLUSION

The literature deals with several fields of content in this study. Some of the contents are more concerned with different research methods that are being used by post-graduate students. It also elaborates more on the challenges faced by post-graduate students and influencing factors that lead to masters' students not being able to complete their research dissertations in a timely manner (Pather et al., 2005).

The study focuses on determining whether applicable research methods were used by IT/IS masters'/MBA and other MBA streams students at the NWU. The investigation highlighted the importance of masters' students being able to comprehend information

generally as well as the roles that supervisors and students play in the research environment.

The next chapter presents the process of how the data is collected, discussions of the research methodological approaches and techniques chosen. Furthermore, it provides a comprehensive understanding of the choice of appropriate IS research methodologies in this study. There is then also a discussion of the findings of the research questions and an assessment of the study in its totality.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the preceding chapter, the research problems highlighted in relation to four questions still remain unsolved. A number of literature sources were discussed with regards to the research problem; nevertheless, no clear solution was reached. This chapter presents the research methodology used for this study to provide answers to the questions raised. It deals with the tools and techniques, research design, population, sample and data-collection instrument. Furthermore, ethical issues that the researcher should be aware of and the limitations placed on the research are discussed (Leedy & Ormrod 2010).

Dawson (2002) referred to research methodology as steps or guidelines taken to integrate the research questions and the objectives to data collection, analysis, and interpretation in a logical way (Dawson 2002). Many researchers use different approaches or methodologies and as such the research methodology which is to be used for a particular research problem must always take into consideration the nature of the data that will be collected in resolving the problem (Oates 2006). Greener (2008) argued that a research method/strategy and a methodology are determined by the nature and type of the research problem at hand.

The aim of this study in section 1.1 was broken down into several objectives which are to investigate the application of appropriate IS research methodologies of IT/IS masters' MBA mini-dissertations in comparison with other MBA streams at the NWU, Mafikeng Campus to emphasise the differences in approach. The study also includes reference to the IT/IS masters' completed mini-dissertations in the IS Department and includes IT/IS masters' dissertations used on Nexus. This is to determine whether the research methods used by both MBA streams students are relevant to their study. It also addressed the use of a problem-solution research question alignment matrix to ensure

that sub-problems under investigation are properly aligned with the research questions that researchers pose to ensure viable empirical results (Klopper & Lubbe 2011). Finally, the study looks at supervision's contribution towards IT/IS MBA research outcomes (Pather et al., 2005).

The research questions that arose were: 1) Do IT/IS Masters' MBA students use a conceptual matrix in their dissertations to demonstrate themes used in the literature review and aligning the themes to the research topic? 2) Was the IT/IS masters' MBA research project properly structured? 3) What particular research method do IT/IS masters'/MBA students use and what are the perceived barriers that they encounter in their research? 4) What apparent reason is visible for not completing a good research project?

In order to derive consistency with regards to the choice of research methods, this chapter begins by defining research methods and designs.

3.2 DEFINITION OF RESEARCH

Kothari (2004) states that the research design plays an important role in every research project undertaken. It enables the smooth sailing of the various research endeavours, thus making research as effective as possible while producing maximal information with minimal expenditure of effort, time and money. Conducting good research and choosing an appropriate research methodology simple will mean following the appropriate processes. During this process, the researcher comes across adequate and suitable sources of data, analyses and interprets the data and then draws conclusions based on the evidence found (Remenyi 2008).

According to Myers (1997) the research process is based on a philosophy underlying the choice of the research questions. Oates (2008) asserts that the philosophy can also relay an individual's point of views about the nature of the world. The philosophy, however, guides and directs the researcher into choosing an appropriate approach to the research (Locke 2004; Dobson 2002).

Research is a vigorous activity where one needs to understand the research paradigm(s), moreover, it should also be understood that paradigms can only be comprehended if the necessary assumptions or philosophical groundings about the research are quite comprehensible to the researcher (Myers 1997). Furthermore, many researchers have different beliefs and ways of viewing and interacting with their surroundings; moreover, the ways in which research studies are conducted vary. There are certain standards and rules that guide a researcher's actions and beliefs. Such standards or principles can be referred to as a paradigm (Myers 1997).

3.3 THE RESEARCH PARADIGM

Guba (2004) states that a research paradigm can be perceived as a set of basic beliefs based on shared assumptions, concepts and values. It signifies a worldview which explains, for its frame, the nature of the world, the individual's place in it, and varieties of possible relationships with that world and its parts (Guba 2004). In other words, it is an approach that deals with thinking about and doing research. Mavetera (2004) sometimes referred to research paradigms as the philosophical groundings, while Orlikowski and Baroudi (1991) affirm that a paradigm is a theory that stipulates an overall set of theoretical assumptions considering three common research paradigms; positivist, interpretivist and critical.

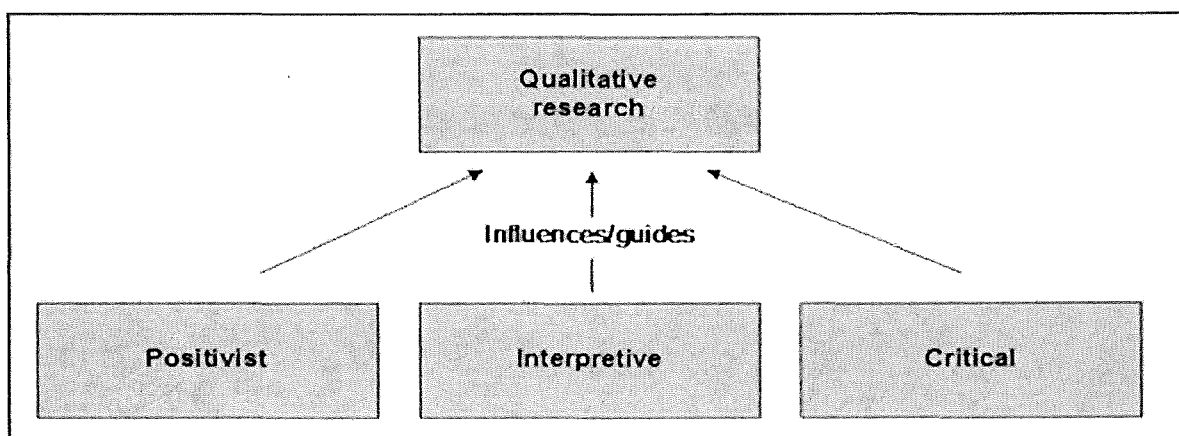


Figure 3.1: The underlying philosophical assumptions (Orlikowski & Baroudi 1991)

3.3.1 The positivist research paradigm

The positivist paradigm's point of view is extracted from that of the natural sciences and is therefore categorised by the testing of research questions/hypotheses derived from an existing philosophy. Positivism is established upon values of reason, truth and validity and there is a focus purely on facts, gathered through direct observation and experience and measured empirically using quantitative methods surveys and statistical analysis (Saunders et al. 2007 & Blaikie 1993).

Orlikowski and Baroudi (1991) infer that the positivist research paradigm generally assumes that reality is empirically given and can be defined by measurable properties which are independent of the researcher and his or her instruments. Positivist studies generally attempt to test theory in order to increase the predictive understanding of phenomena. In accordance with this Orlikowski and Baroudi (1991) classified IS research as positivist if there was evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from the sample to a stated population.

Positivism, as a research paradigm, seeks to solve major practical problems, search for laws like generalisations, and discover the underlying relationships through statistical analysis (Kim 2003). Positivists strive to use valid and reliable methods to describe, predict and control human behaviour. Kim highlighted the notion that truth exists independently of social background and can be discovered through objectively designed and applied research. Kim (2003) uses verification of a preceding research question as a means to discover the ultimate truth and immutable laws of nature (Kim 2003).

While Horkheimer (1982) argued that the positivist research paradigm falsely represented human social action. He argues that positivism has systematically failed to appreciate the degree to which the alleged social details it yielded did not exist out there, in the objective world, but were themselves a product of socially and historically mediated human consciousness. Husen (1999) affirms the claims highlighted by Horkheimer, but also states that authors should not too quickly disregard the good

qualities of the scientific method which is positivism. Rather, they are liable to make adjustments that can help improve the research objective within the social sciences by introducing the interpretive paradigm (Husen 1999).

3.3.2 The interpretive research paradigm

Kaplan and Maxwell (1994) described the interpretive paradigm as it is concerned with understanding the world derived from subjective experiences of individuals. The interpretive paradigm adopts the use of oriented methodologies, such as interviewing or participant observation, which rely heavily on a subjective relationship between the researcher and subjects (Kaplan & Maxwell 1994). Interpretive research, however, does not predefine dependent and independent variables, but focuses on the full complexity of human sense-making as the situation emerges (Kaplan & Maxwell 1994). However, the interpretive research paradigm aims to work together with others as they make sense of, draw meaning from and create their truths in order to comprehend their points of view (Kaplan & Maxwell 1994). As Myers (2003) argues, "researchers needed to understand people, their nature, and also the social context within where they live".

Walsham (1993) claims that studies generally attempt to understand phenomena through the meanings that people assign to them and interpretive methods of research in IS are "aimed at producing an understanding of the context of the IS, and the process whereby the IS influences and is influenced by the context" (Walsham 1993). Interpretive researchers start out with the assumption that access to reality (given or socially constructed) is only possible through social constructions such as language, consciousness and shared meanings. The philosophical base of interpretive research is hermeneutics and phenomenology (Walsham 1993)

3.3.3 The critical research paradigm

The critical social research paradigm in the areas of IS has been gaining prominence for some time and is increasingly viewed as a valid research approach (Orlikowski & Baroudi 1991). The common idea within critical theory is the belief that everything, such

as humans, the environmental context or society is generally established, while Clark (2005) asserts that critical social research is not a single paradigm, but rather a collection of alternative paradigms including feminism, neo-Marxism, materialism, social theorists, sociolinguists, participatory inquiry, racialized discourses, cultural studies, and queer theory (Myers 1997; Guba 2004). The aim of this research paradigm is not only to voice the concerns of the subjects or phenomena studied, but to promote changes to what is being done. Hence, the role of the researcher is to bring consciousness and liberation to the restrictive conditions of the status quo (Orlikowski & Baroudi 1991).

Critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination. The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to be emancipatory i.e. it should help to eliminate the causes of alienation and domination (Kaplan & Maxwell 1994).

3.4 APPROACHES TO RESEARCH

3.4.1 Qualitative and quantitative methodological approaches

The research problem identified defines the type of research approach that may be applied to address it (Leedy & Ormrod 2010). There are various ways in which research methods can be categorised. In simplified terms, Leedy and Ormrod (2005) classified the three research approaches as qualitative, quantitative and mixed method, which is sometimes referred to as triangulation. Each type needs to be clearly understood, their differences should be known, and there should be an understanding of which method is most suitable for which type of research.

Each of the three approaches has its benefits and drawbacks and by understanding the research that one is conducting will give one an indication of which research method to use. Conversely, Myers (1997); Henning (2004); and Leedy and Ormrod (2005) assert that the decision of choosing and applying any of the aforementioned methodological approaches is guided by the nature of the data to be sourced and the problem examined in the research.

3.4.1.1 The qualitative approach

Marshall and Rossman (1946) stated that quantitative methods involve systematic evaluation of alternative actions as a basis for choice between them. Furthermore, Marshall and Rossman emphasise that the application of quantitative methods involves setting up models of the problems to be analysed, selecting inputs to the models which quantify the judgments of those responsible for organisational decision and deriving the model's outputs from inputs. Orlikowski and Baroudi (1991) argue that quantitative research is used to answer questions about relationships among measured variables with the purpose of clarifying, monitoring and predicting phenomena.

The qualitative approach uses methods such as interviews or focus groups to focus on attitudes, behaviour and experiences (Dawson 2002). Its purpose is to acquire opinions of individuals who participate in the research. There are fewer people who participate in this research. Observation conducted by the researcher may be used to develop a theory. The qualitative approach is dependent on the information that is collected from the interviewees after which the researcher interprets the information. This information is collected in the form of text which may be used to understand the difficult aspects of a research project (Hox & Boeije 2005).

According to Johnson and Onwuegbuzie (2002), the advantages of qualitative research are that it is suitable for use in a few circumstances for a deeper study of phenomena. It is good for providing a description of a difficult phenomenon and makes possible a quick reaction to situations in smaller areas. It facilitates a better understanding and provides a description of the way in which people may feel about phenomena. The

disadvantages of qualitative research are that it may be challenging to test theories and hypotheses, the collection of data may require more time, it takes longer to analyse the data, measurable estimations are challenging to make and the researcher's bias may affect the results.

Krauss (2005) states that many qualitative researchers function under different epistemological assumptions from quantitative researchers. In other words, this means that many qualitative researchers consider that the ultimate way to comprehend any phenomenon is to perceive it in its environmental context. He further notes that qualitative researchers see all computation as incomplete in nature, considering just one small portion of a certainty that cannot be combined without losing the importance of the whole phenomenon (Krauss 2005). For most qualitative researchers, the convenient way to comprehend what is going on is to become deeply immersed in it and to move into the philosophy or society being studied and experiencing what it is like to be a part of it (Krauss 2005). Rather than approaching measurement with the idea of constructing a fixed instrument or set of questions, qualitative researchers choose to allow the questions to emerge and change as one becomes more familiar with the study content (Krauss 2005).

In addition, sometimes, most qualitative researchers also function under different ontological assumptions about the world (Krauss 2005), while Oates (2006) argued and stated that some people avoid quantitative methods because of their inability to understand and interpret statistical or computational data and models. Oates further explains that these data and models overlook help to make difficult decisions easy in different environments. Murtonen (2005) writes that qualitative and quantitative research methods are empirical and both can be equally near to or far from theory. He pointed out that a quantitative research method should be considered when conducting a research project.

3.4.1.2 The quantitative approach

A quantitative approach deals with measuring quantity or amount (Kothari 2004). It involves the collection of data that is in the form of numerical variables. This can be applied in areas that are conveyed as quantity (Leedy & Ormrod 2010). The researcher tries to search for reasons and determine what may happen in the future. This is done with the aim of creating generalisations that make a contribution to current theories. The researcher involved remains separated from the participants to ensure that they are unbiased.

It uses questionnaires or interviews to generate statistics (Dawson 2002). More people are involved in participating in this type of research; despite this, the contact between the research and the participant is quick. It is used more for statistical purposes. Researchers who use the quantitative approach want to comprehend how certain occurrences function as a whole and the thoughts, feelings and ideas of people are of importance to the researcher. It is an approach that is dependent on numerical variables (McFadzean 2007).

According to Johnson and Onwuegbuzie (2002) the advantages of quantitative research are that it takes less time to analyse data, the data-collection process is much quicker, it is suitable for use when studying a large number of people and it produces data that is accurate and measurable. The disadvantages of quantitative research are that the concentration on a hypothesis and theory testing may lead to the researcher missing out on the occurrence of phenomena, the categories that the researcher may be using may not be properly understood by some people, information that is produced could be too general and may not be able to be applicable to certain local conditions and the theories that the researcher may be using may not be properly understood by some people. Table 3.1 below identifies the main characteristics of both qualitative and quantitative approaches in research.

Table 3.1: Characteristics of qualitative research and quantitative research

Criteria	The qualitative approach	The quantitative approach
Research purpose	Enabling better understanding and used for interpretation.	To generalise, predict and explain.
Data	Interviews, observation are used to collect data.	Data is collected using questionnaires and surveys.
Participants	A selected sample that may not represent the targeted case.	A sample randomly selected that represents the targeted population.
Analysis of the data	Uses inductive reasoning, finds themes and classifications.	Uses a statistical and deductive process.
Research process	Research is done using a holistic approach.	Conducts research on a more focus based approach.
Person conducting the research	The researcher is involved and may be biased. It is more from an insider's perspective.	The researcher is removed and unbiased. It is from an outsider's perspective.
Theory	It develops a theory as the research progresses.	It tests a theory that has been developed prior to the commencement of the research.

Source: Leedy and Ormrod (2010)

3.4.2 Quantitative research methods: Strengths and weaknesses

Tero (2006) identifies the following strengths and weaknesses for quantitative research.

3.4.2.1 Strengths

According to Tero (2006) quantitative research is supported by hypotheses in searching for causes or results of a phenomenon. It allows for larger sample results to be used for passing judgment on a research topic. Different statistical techniques can be used in

data analysis in quantitative methods. The researcher may construct a situation that eliminates the confounding influence of many variables, allowing one to more credibly assess cause-and-effect relationships (Gray 2009).

3.4.2.2 Weaknesses

According to Oates (2006) the following weaknesses are identified in quantitative research methods, which are applicable in this research. The researcher's theories that are used may not reflect local constituencies' understandings (Kothari 1985); the researcher may miss out on phenomena occurring (Tero 2006); and knowledge produced may be too abstract and general for direct application to specific local situations, contexts, and individuals (Gray 2009).

3.4.3 Types of quantitative research

3.4.3.1 Empirical research

According to Tero (2006) empirical research intends to study some aspects of the reality of a problem. This means that empirical research has to be used in this research to study and understand the reality of the problems identified in the problem statement in Chapter One. Empirical research uses the following data-gathering techniques or methods, questionnaires, observation, interview, and many more, but for this research, a questionnaire was used.

3.4.3.2 Theoretical research

This method studies a problem, a given concept is investigated (Tero 1996), and a case study, collection of relevant documents, data analyses are the methods that are considered in data gathering techniques in theoretical research.

3.5 RESEARCH METHOD USED IN THIS DISSERTATION

Depending on the type of research study that is undertaken, a research type will have to be chosen. This research project used a quantitative research method. The quantitative

approach is used based on the aim of the research, that is, to look at the application of appropriate IS research methodologies. Furthermore, this method seeks for nothing but an in-depth understanding of human behaviour and why people behave the way they do or why things happen the way they do (Leedy & Ormrod 2010).

Furthermore, this study is aligned with the theory of planned behaviour as introduced by Bhattacharjee (2012) where he avers that the philosophy in question can be employed to study a comprehensive collection of individual performance (Bhattacharjee 2012). According to the theory/philosophy of planned behaviour, it is acknowledged that behaviour (performance) signifies conscious well-structured choices, with these formed by rational thinking and social weights. These were some of the reasons why this theory was chosen, as it aligns the researcher's objectives concerning his/her performance, with the performance and personal standard with regards to the behaviour, and observation of mechanism over activities (Bhattacharjee 2012).

3.6 DATA REQUIRED

3.6.1 Primary and secondary data

The primary data is the raw data that has not been changed by the researcher, that is, it is in its basic form and it cannot be found in books or articles (Tjalsma & Rombouts 2010). In the event of choosing a method, the researcher should consider whether the method will provide good, rich data and be cost-effective, be feasible in terms of the subtleties of the setting and the resources available for the investigation (Marshall & Rossman 1946).

Oates asserts that secondary sources include books, journal articles, and reports (Oates 2006). A questionnaire was used to acquire primary data; and secondary data was drawn mostly from organisational annual reports, company magazines and available literature in the academic field. Secondary data is that which comes from the primary data, which is the data that the researcher or previous researchers transformed (Tjalsma & Rombouts 2010). It consists of a grouping or a regrouping of data used to

communicate to the outside world. This type of data can be either published or unpublished data.

3.7 DATA-COLLECTION METHOD

3.7.1 Methods for collecting primary data

Data-collection methods are the tools that are used to collect the required data for the research (Dawson 2002). A research methodology that has been selected for the research study determines what type of data tools to be used. Time constraints can also play a role in the selection of data-collection methods. There are different methods that can be applied to the research study to collect data.

3.7.1.2 Survey

According to Glasow (2002) a survey may be referred to as a tool that can be used to collect, from a group of individuals, useful information about their characteristics, actions and opinions. Other uses of surveys may include assessing needs, looking carefully at impact and evaluation of demand. It can be applied in collecting descriptive information. The benefits of using surveys are that it is possible to acquire information from huge samples of the population - demographic data and, in the cases of problems in measuring attitudes using observational techniques, a survey is able to get information about attitudes (Glasow 2005).

Where knowledge of historical context of phenomena is necessary, a survey is not appropriate to be used. Absence and accuracy of response from participants may lead to the possibility of bias. Participants may not be able to properly remember the situations that led to their behaviour. Some behaviour of the participants may be misreported or behaviour that is unsuitable may be hidden which can make the survey yield surprising results.

3.7.1.3 Questionnaire

A questionnaire contains a series of questions that a participant has to answer. Dawson (2002) defines three questionnaire types that can be used - these include closed-ended, open-ended questionnaires and a combination of both types of questionnaires. Questionnaires are used in surveys or interviews.

3.8 METHODS CHOSEN FOR DATA COLLECTION

Methods used for data collection are determined by the type of research methodology chosen for the study (Dawson 2002). In this study a structured framework will be adopted in order to facilitate an in-depth analysis of the problem under investigation. The framework will be used randomly on all MBA dissertations to systematically choose the appropriate framework and ensure a better return rate (Krejcie & Morgan 1970). This framework represents the researcher's knowledge, theoretical foundations and guidelines to research processes, analysis and interpretation of data collected (Carroll & Swatman 2000).

The data is collected using the structured framework table. This framework was in the form of hard copy, where the researcher use it randomly to select the IT/IS masters'/MBA and MBAs from other disciplines' mini-dissertations as submitted to the NWU library and the Nexus Database. Furthermore, the data was summarised on a statistical spread sheet, and analysis of data was done through the use of Excel. The Department of Statistics at the University was consulted on the statistics used in the study.

3.8.1 Conceptual framework

In this research project, where the researcher is investigating the application of appropriate IS research methodologies of IT/IS masters' MBA mini-dissertations in comparison with other MBA streams, the researcher is concerned with exploring whether the research methodologies used by both MBA streams students are relevant to their study fields. In order to examine these ideas as stated in the preceding chapter,

the researcher wanted an intellectual perception. The perceived assumption is that IT/IS masters' MBA students often use a particular research methodology inappropriately and perhaps for negative reasons and consider it to be the most appropriate for IS research (Mays & Pope 2000; Orlikowski & Baroudi 1991).

The research problems, objectives, questions and assumptions in combination lead to the development and use of a conceptual framework as well as the research design and ways of studying the authenticities of the situation (Smyth 2004). According to Dix (2007) a conceptual framework offers a fundamental structure and a practical instrument that allows a researcher to reason through the means of tackling things. Frameworks are usually denoted as organised tables with visibly defined interconnected ideas. However, frameworks are also illustrated in diagrammatic form and are often referred to as models.

Smyth (2004) referred to a conceptual framework as a set of philosophies and ideologies extracted from appropriate grounds of investigation which are then used in building a subsequent presentation (Smyth 2004). When clearly developed and implemented, a conceptual framework possesses possible usefulness as an instrument in framing the research. However, the framework is a research instrument proposed to help a researcher to improve responsiveness and comprehension of the surroundings under investigation. As with all investigations in the social world, the conceptual framework turns out to be the heart of the study as the research gained momentum. It increasingly frames, strengthens and keeps the research on track by

- Providing strong links from the literature to the research goals and questions informing the research design;
- Providing reference points for the discussion of literature, methodology and analysis of data;
- Supporting the credibility of the study (Smyth 2004);
- Providing a broad foundation for the investigation; and
- Increasing the transparency of writing.

Smyth (2004) nonetheless states that there are some details that the researcher should be aware of when making use of a conceptual framework. Firstly, the framework helps in the structure of knowledge, confirmed by the life-world experiences of the person implementing it and should not for any reason be portrayed as being something that it is not. Secondly, the landscape of a conceptual framework means that it intentionally or unintentionally illuminates thought and practice by collectively increasing researcher understanding (Smyth 2004). Thirdly, no researcher can believe that all data will be analysed using the framework without running the risk of limiting the results from the investigation (Smyth 2004).

The good thing about the conceptual framework is that it is practically helpful as a research tool, is demonstrated by the researcher's ability to identify and explain the activities and actions in the data through the descriptors in the cells of the framework (Smyth 2004). The most important outcome for this research will be that a conceptual framework must have established its potential as a data-gathering tool by accomplishing the aforementioned criteria set for it. By the conditions outlined it will be possible to judge whether it is a suitable research tool in the study for which it was developed (Smyth 2004).

Table 3.2: Framework outline

A brief disclaimer describing the purpose of the study -Refer to Appendices	
Conceptual Matrix - Refer to Appendix A	
Table of construction - Refer to Appendix B	
Conceptual Framework – Refer to Appendix C	
Chi-Square Test tables and Regression - Refer to Appendix D	
Ethical Clearance Refer to Appendix E	
Demographic Section	Ask general biographical data on the respondents including year, date of submission, and qualifications
Section 1, 1.1 to 1.4	Ask questions on the use a conceptual matrix
Section 2, 2.1 to 2.6	Focus on specific questions with regard to research structure
Section 3, 3.1 to 3.10	Ask questions on the IT/IS MBA research methods
Section 4, 4.1 to 4.7	Focus on questions on the challenges faced by IT/IS

3.9 SAMPLING METHOD

According to Dawson (2002) sampling involves making a small selection of the population to make it easier to manage the investigation. A sample can be selected using two methods, viz. probability samples and purposive samples. Probability samples involve the probability of people being chosen for the research study (Dawson 2002). The researcher makes use of this type of sampling for generalising, predicting or explaining the whole population. When the aim is description, purposive sampling is used. As compared to probability sampling or purposive sampling, the probability of one person being selected for the sample makes it difficult to specify and this makes it difficult in the beginning to specify the total number of people to be contacted.

Sampling includes determining the sampling size, that is, the number of people who will be participating in the study. The size is determined by the research type and the purpose of the results (Dawson 2002). For the purposes of this study, the ideal sampling technique will be the stratified technique. This method entails developing homogeneous groupings of the entire population and then taking a simple random sample (Willemse 1994). The sample size for this research paper was 369, consisting of all MBA dissertations in the university library at the NWU Mafikeng and registered MBA and other masters' dissertations on the Nexus Database for the same period.

A representative stratified sample using the Krejcie and Morgan (1970) table was used to ensure that all are randomly done and recorded. A representative sample of IT/IS dissertations/mini-dissertations was investigated as well as a comparison done with non IT/IS dissertations/mini-dissertations.

3.10 DATA ANALYSIS

Data analysis is a composite of approaches that assist in defining evidence, identifying designs, improving clarification and examining theories. It is used in all social science research (Levine 1996). The way the data is analysed depends on the type of research

methodology used (Dawson 2002). There are two ways to analyse data, either using a qualitative data analysis approach or a quantitative analysis approach.

3.10.1 Quantitative data analysis

In the quantitative data analysis, the data gathered from the structured framework was analysed using the Statistical Package for the Social Sciences (SPSS) and a Microsoft Excel application. In this study, the structured framework was utilised in recording and gathering the data where the researcher personally selected random MBA dissertations from the NWU library and Nexus database.

According to Krejcie and Morgan (1970) this method is most appropriate as compared to mail questionnaires, and the use of interviews as a means of collecting data is also not appropriate in this research as it may intimidate respondents into not expressing their true answers to the questions (Harypursat et al. 2005).

This process of using computer software such as SPSS in analysing data is quick and easy (Dawson 2002) and the advantages of it in a quantitative data analysis are that it reduces the time to perform activities, is suitable for difficult searches, is able to detect certain facts that the researcher may have missed and it is useful for those that need to complete their work quickly due to a limiting deadline.

3.11 CONCLUSION

This chapter provides an in-depth discussion of different research paradigms and possible research methodologies. The three major types of methodological approaches that were discussed are the qualitative, quantitative and critical methods. The quantitative research methodology was chosen as a good research method for this research (Oates 2006).

Some of the questions asked in the structured framework sections were Likert scales and Yes/No approach. Likert scales approach answers question in a scale of one up to four, such as, like Strongly Agree, Agree, Disagree or Strongly Disagree (Lubbe &

Klopper 2005). Each optional answer is assigned a number so that the answer can be identified and allocated where it belongs. Hence the study adopted a structured framework approach, due to the fact that it was seen to be the best and appropriate method considering the aim of the study (Lubbe & Klopper 2005).

The following chapter presents the discussion and analysis of the data gathered through the structured framework. The data was analysed, conclusions were drawn and recommendations for future studies were made.

CHAPTER FOUR

DATA AND RESULTS ANALYSIS

4.1 INTRODUCTION

The preceding chapter discussed and emphasised the research design and methodology of the study. This chapter presents the data analysis and interpretation. The Statistical Package for Sciences (SPSS) version 22 and Microsoft Excel (showing descriptive and inferential statistics such as frequencies, tables, figures, percentages, and correlation tests) were used in the data analysis and summaries.

The research was undertaken to investigate the application of appropriate IS research methodologies of IT/IS masters' and MBA mini-dissertations in comparison with other MBA streams at the NWU, Mafikeng Campus. This was to determine the difference in approach, coupled with research question alignment. The analysis of data was carried out keeping the research objectives in mind.

The chapter begins with the return rate and composition of the sample and the demographics of the respondents. The next section presents the cross-correlations for demographic variables. Furthermore, ways to improve on IT/IS masters' dissertations were also identified based on the responses given by the respondents from the conceptual framework.

4.2 RATE OF RETURN

An ideal sampling technique using Krejcie and Morgan's (1970) table was used with a population of 369 of all IT/IS masters' and MBA completed dissertations in the university library at the NWU Mafikeng Campus. Also included were all registered MComm dissertations on the Nexus Database for the same period (2013). The researcher used a structured framework to record and gather the data. The researcher selected IT/IS masters' and MBA dissertations from the NWU library and the Nexus Database to

ensure that the sample was random. This process continued until 200 samples, as illustrated below in Table 4.4.1, had been achieved to ensure that a representative sample was obtained.

Table 4.1: Composition of the sample

	Population	Sample	Distributed	Response
MComm /Nexus Database	150	103	103	103
MBA	103	97	97	97
Total				200

4.3 ANALYSIS OF RESULTS

4.3.1 Demographic variables

This section analyses the results in connection with the research objectives. These results were organised in frequency tables and figures. Respondents' biological data such as age, gender, title, academic year and qualification are provided

4.3.1.1 Year distribution

South Africa emerged from the pre-1994 political situation with three distinct types of tertiary educational institutes, viz. the traditional universities; the universities of Technology ('Technikons') and the comprehensive universities. According to Pather et al. (2005), emphasis was placed on producing graduates to meet the needs of the country. Given the imperative for graduates to publish papers, the Faculty of Commerce and Administration at the NWU embarked on a process of increasing research activity and research outputs.

Figure 4.1 can be explained as below; out of two hundred (200) samples of MComm and MBA students' dissertations, 4% completed their dissertations in 2000, 4% in 2001

and 4% in 2002. Between the years 2003 to 2008 the completion rate increased from 4.5% to 11% but dropped again in the following year to 4%. In 2010, the completion rate picked up to 4.5%; in the years 2011 to 2012 completions were 15% and 13.5% respectively. The NWU yielded a number of students who completed their degrees in the minimum time required. This is an excellent achievement by the institution (NWU 2011).

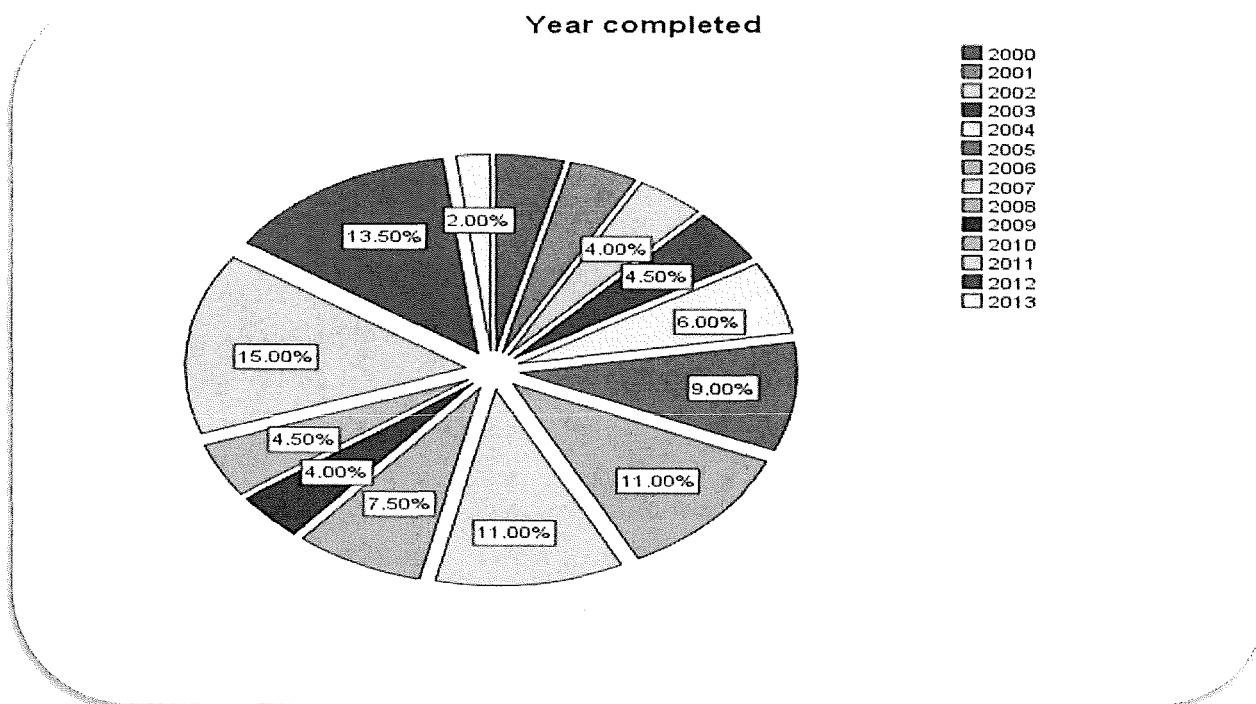


Figure 4.1: Year of completion.

4.3.1.2 Month of submission distribution

Mauch and Park (2003) state that procrastination is common among post-graduate students. Most students are likely to postpone their research activities year after year until they are far behind schedule. At times some will manage or control this procrastination by mapping out timeframes and deadlines for themselves. Mauch and Park (2003) further highlighted that a reasonable estimation of the time period is

advantageous during the research process. It ensures that the research project is on track and it promotes self-controlled use of time.

The results presented in Figure 4.2 illustrate the time of the year when research was submitted. Many of the students were most likely to submit their dissertations in November (35%). This indicates that most students are keen to impose a submission deadline to combat postponement. In both July and August of 2000-2004 and 2005-2009 21% they submitted. This implies that students were able to submit their dissertations at that time. The respondents who submitted in January, February, March, April, May, June, September, October and December were in the minority as they made late submissions.

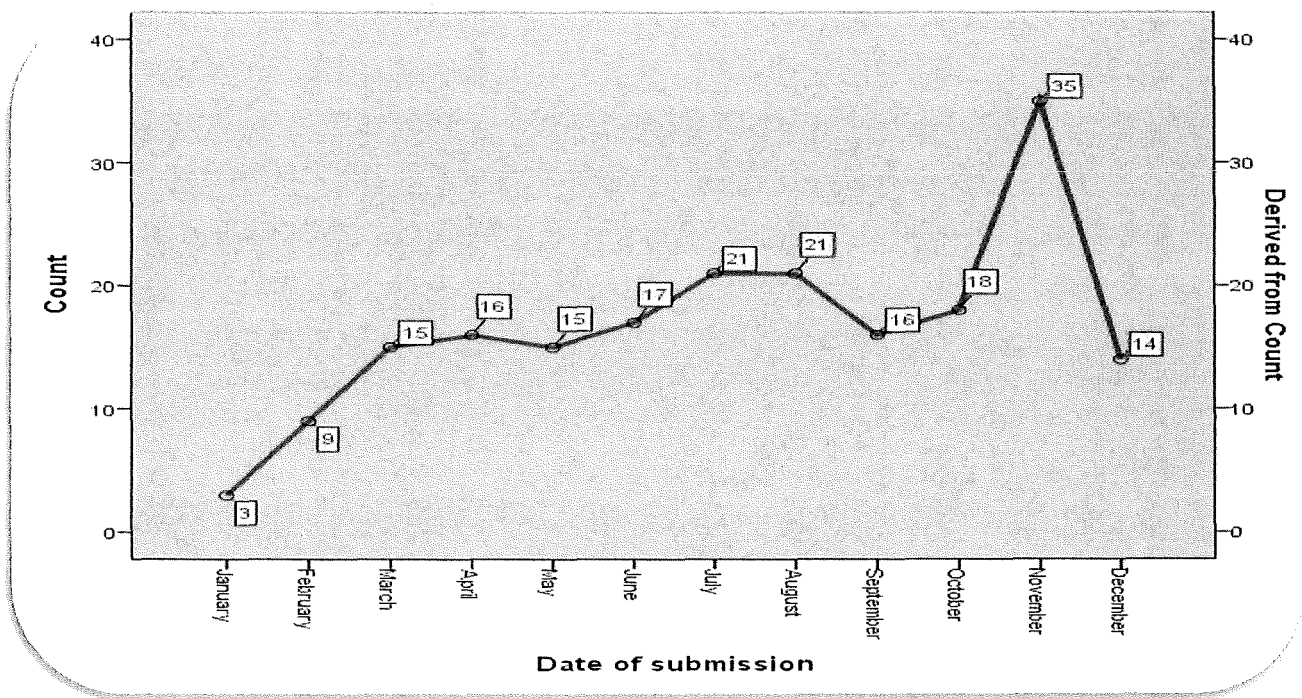


Figure 4.2: Month of submission.

Mauch and Park (2003) argue that IT/IS masters' and MBA students should set priorities to encourage effectiveness to make progress in their study overall. Looking at the percentages from the months of submission distribution, Table 4.2 shows that not

many students were able to submit in the minimum time. This was due to procrastination, delays and not being able to meet the deadlines that were set by the institution because people most probably did not have properly formulated research problems, literature reviews and struggled with data collection and interpretation of results.

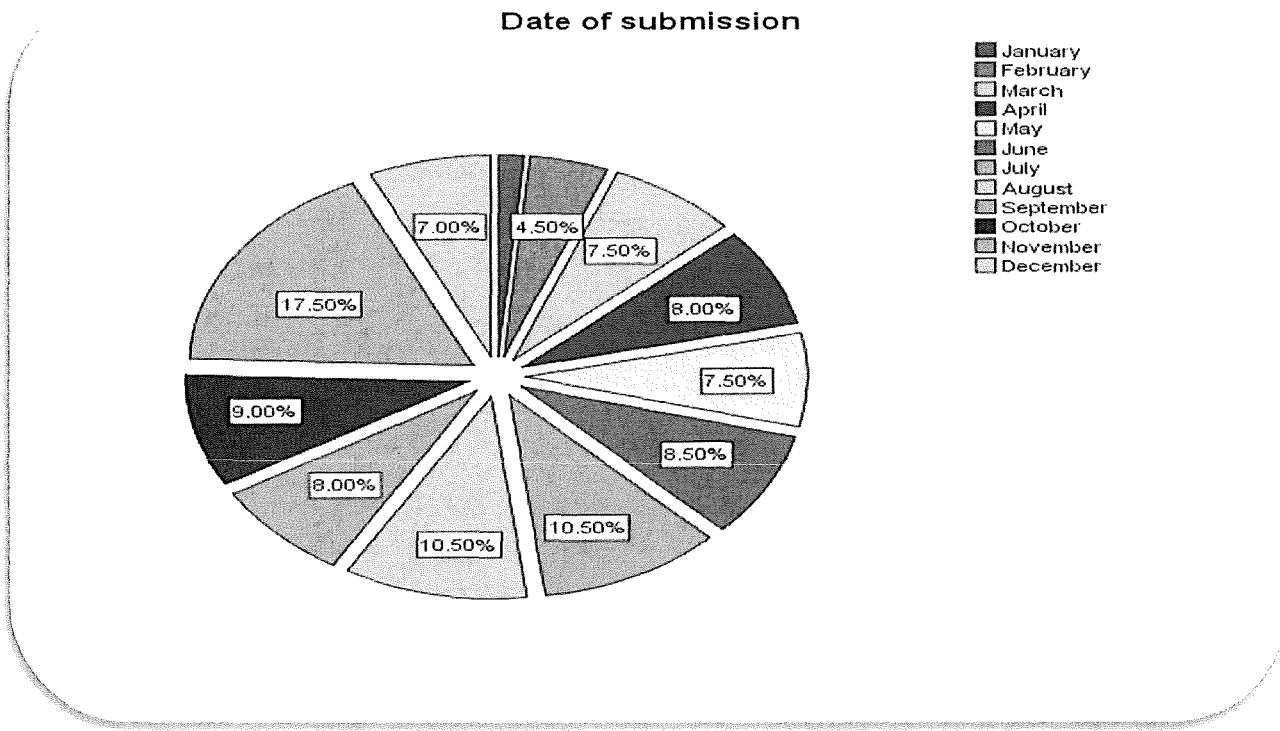


Figure 4.3: Month of submission.

4.3.1.3 Degree/Qualification distribution

The Nexus Database was used to source MComm IT/IS masters' dissertations to use in comparison with other MBA streams. This Nexus Database lists all dissertations in South Africa and provides information on fields. The sourced information gathered on dissertations from the Nexus Database was combined together as MComm, as the NWU library contains insufficient IT/IS masters' dissertations. Table 4.2 revealed how the researcher arrived at the figures for MComm (51.5%) and MBA (48.5%).



Table 4.2: NWU Library Call no Distribution of Respondents.

	Frequency	Per cent	Valid Per cent	Cumulative %
MComm TH 338 (NWU)	5	2.5%	2.5%	2.5%
MBA TH 658 (NWU)	97	48.5%	48.5%	51.0%
MComm (Nexus Database)	98	49.0%	49.0%	100.0%
Total	200	100.0%	100.0%	

In Table 4.2 the "TH 338" represents the Commerce Department and the "TH 658" represents the MBA Department at the NWU library. According to Bhattacharjee (2012) IT/IS masters' or MBA dissertations are usually the closing stage of a masters' degree. This demonstrates that the student has attained the skills, capabilities and comprehension to manage a research project. Figure 4.4 reveals that of the respondents (200) gathered on the use of conceptual framework, 51.5% were students who registered for the MComm degree.

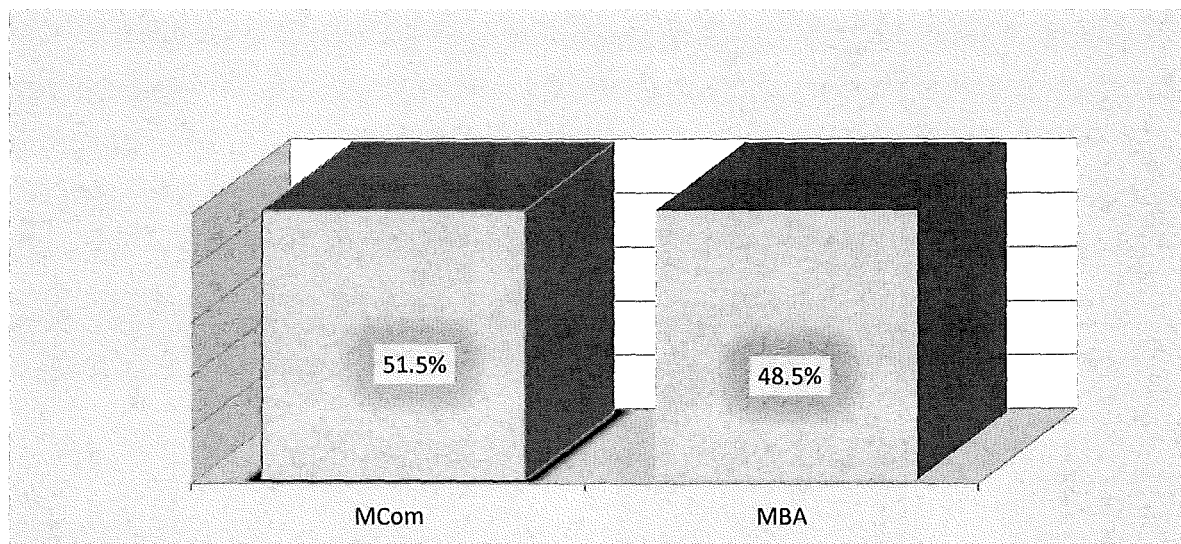


Figure 4.4: Degree/Qualification.

4.3.1.4 Institution Completed Distribution

The Figure 4.5 illustrates that this study was mainly conducted on the Mafikeng Campus. It also made use of the Nexus database to source MComm IT/IS masters' dissertations. The Potchefstroom Campus and Vaal Campus were not included because of logistics. The Mafikeng Campus is one of the three campuses that merged in the year 2004 to form the North-West University.

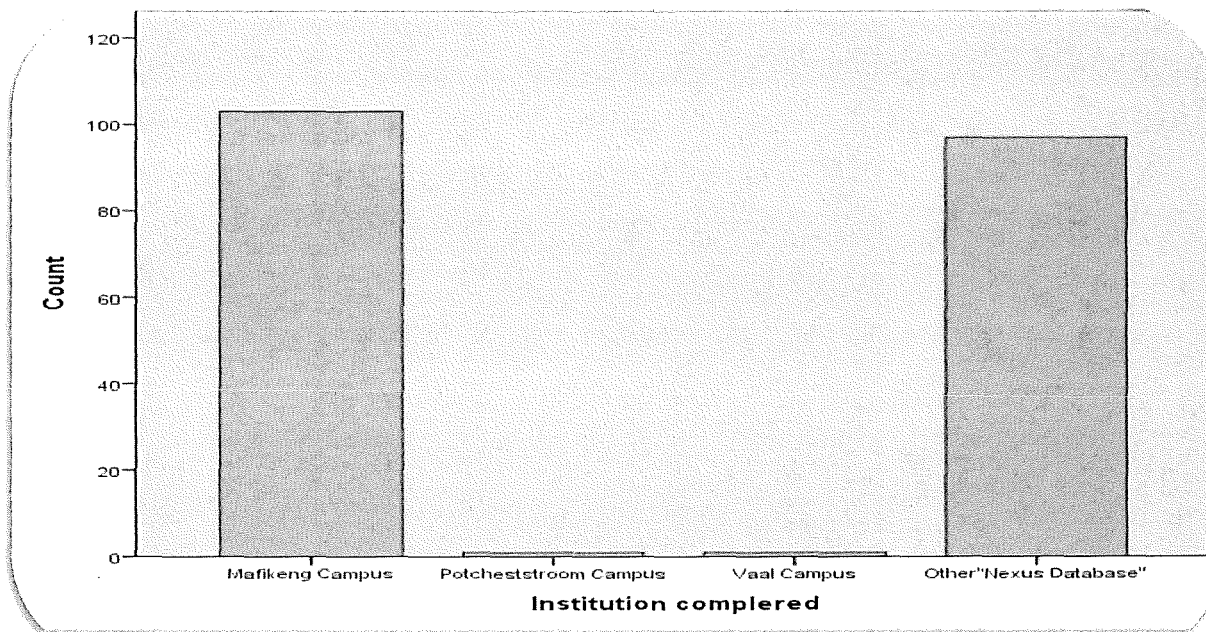


Figure 4.5: Institution Completed.

4.4 To investigate whether IT/IS masters' and MBA students use a conceptual matrix in their dissertations to demonstrate themes used in the literature review and aligning the themes to the research topic

4.4.1 The research conceptualisation matrix

In determining the use of a conceptual matrix in the IT/IS masters' and MBA dissertation, respondents were asked questions about the use of conceptual matrix.

4.4.2 Distribution of whether IT/IS masters' MBA students use a conceptual matrix in comparison with respondents from both degrees

Some post-graduate students think that research is largely about data collection or doing case studies while others think it is about discovering some entirely new facts (Klopper & Lubbe 2011). Klopper and Lubbe (2011) state that in a structured research project the researcher should be able to extract some number of sub-problems from the general problem, as well as the same number of sub-questions from the general research question. This must be done in such a way that sub-questions and sub-problems are properly aligned. If this is done systematically, the answer to a specific research sub-question will provide the solution to its associated sub-problem. These statements are purported by Ellis and Levy (2008) and Mavetera (2011).

When comparing the respondents, one can identify which of these students used a conceptual matrix. Figure 4.4 illustrates the differences between students from both degrees. Out of 200 students, results revealed that more IT/IS students used a conceptual matrix as compared to MBA students.

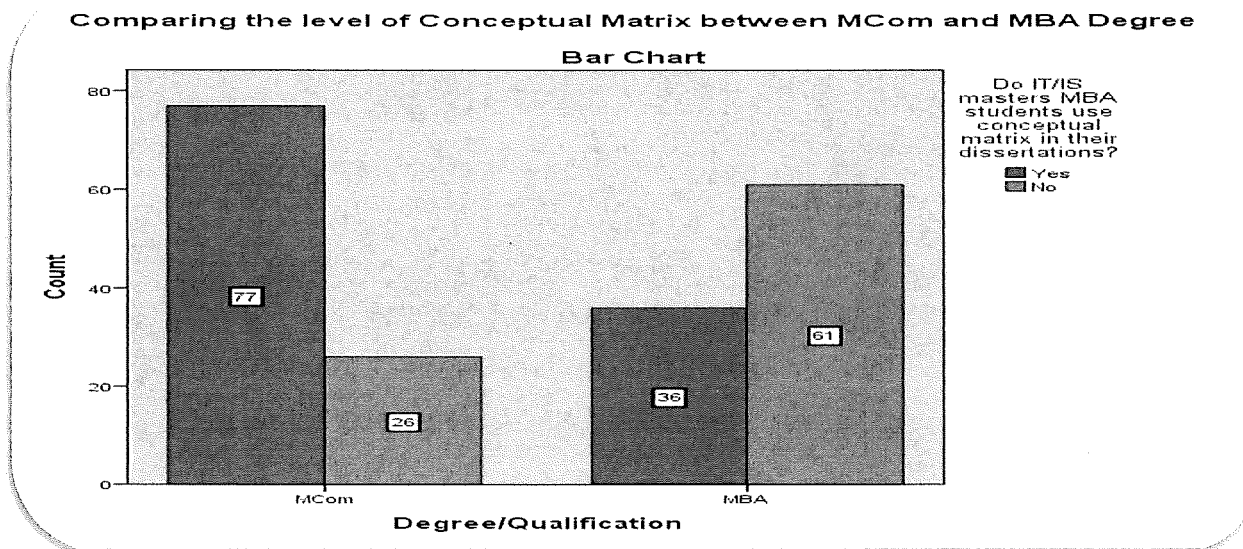


Figure 4.6: Comparing the use of a conceptual matrix between MComm and MBA degrees.

Figure 4.6 and Table 4.3 also show that out of 103 respondents (representing IT/IS masters' students in MComm), 77 (74.8%) used a conceptual matrix to align their research problem and theme and further, 36 (25.2%) did not align their study. When compared to MBA students, 36 (37.1%) respondents made use of a conceptual matrix in their dissertations while 61 (62.9%) did not make use of the conceptual matrix. This was in agreement with Klopper and Lubbe (2007) who state that not many MBA students use the problem-solution research question alignment matrix to ensure that sub-problems under investigation are properly aligned with the research questions to ensure viable empirical results.

Table 4.3 shows the results when students were asked about "do IT/IS masters' and MBA students use a conceptual matrix?" The result depicts the reality that that 56.5% of correspondents would answer this question in the affirmative. Most IT/IS masters' students in MComm showed agreement. Klopper and Lubbe (2007) and Boote and Beile (2005) further recommended that non-IT/IS masters' and MBA research students should use the conceptual matrix for aligning research problems, aims and research questions

Table 4.3: Do IT/IS masters' MBA students use a conceptual matrix in their dissertations?

		Degree/Qualification		Total
		MComm	MBA	
Do IT/IS masters' MBA students use conceptual matrix in their dissertations?	Yes	77%	36%	113%
	No	26%	61%	87%
Total		103	97	200

4.4.3. Distribution by 'Is there any reference list present that contains the information about the article's publication date, authors, sources consulted apart from the bibliography references listed.?'.

Figure 4.7 indicates that not many students use an appropriate technique in identifying the authors consulted and referencing styles. Of 200 respondents, 108 (54%) concurred about a reference list that contains authors' names and publication dates not being present in their research dissertations.

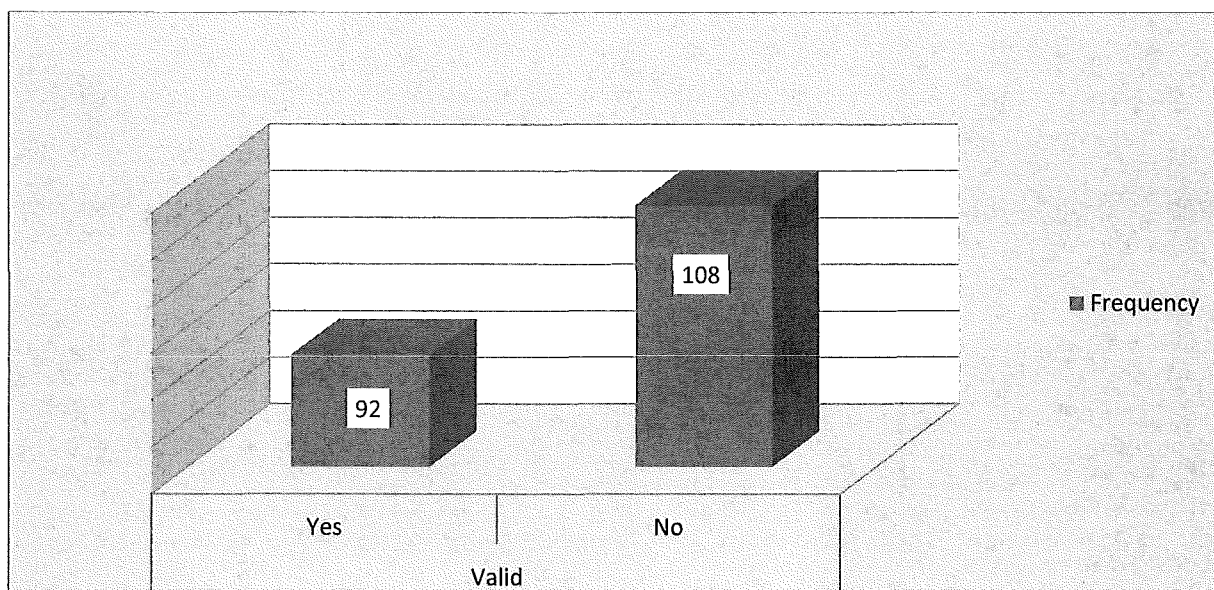


Figure 4.7: Any reference list present that contains the information about the articles' publication date, author's sources consulted apart from the bibliography references.

When students do not index references properly there is a tendency for such a student to spend weeks at the end of their studies attempting to rediscover lost references (Seminar 2007; Davis 2001; Lubbe et al. 2005; Remenyi et al. 2011). These are difficulties that masters' students encounter in referencing their dissertation/thesis. Therefore inadequate administration and control over plagiarism issues can delay research students from completing on time

4.4.4 Distribution by 'were the key concepts embedded in the conceptual matrix table found present in the literature review in the dissertation?'

Respondents were asked "were the key concepts or themes embedded in the conceptual matrix table reflected in the literature review in their dissertation?" In Table 3, the result establishes that the majority of 61 (62.9%) did not make use of the conceptual matrix during their research projects. This also had a negative impact on the outcome shown in Figure 4.8. Out of 200 represented, only 92 respondents (46%) were marked yes. This indicated that students would randomly generate themes and concepts during their literature reviews without checking whether those concepts were in alignment with their research problems, aims and research questions by using a conceptual matrix (Klopper & Lubbe 2011; Boote & Beile 2005).

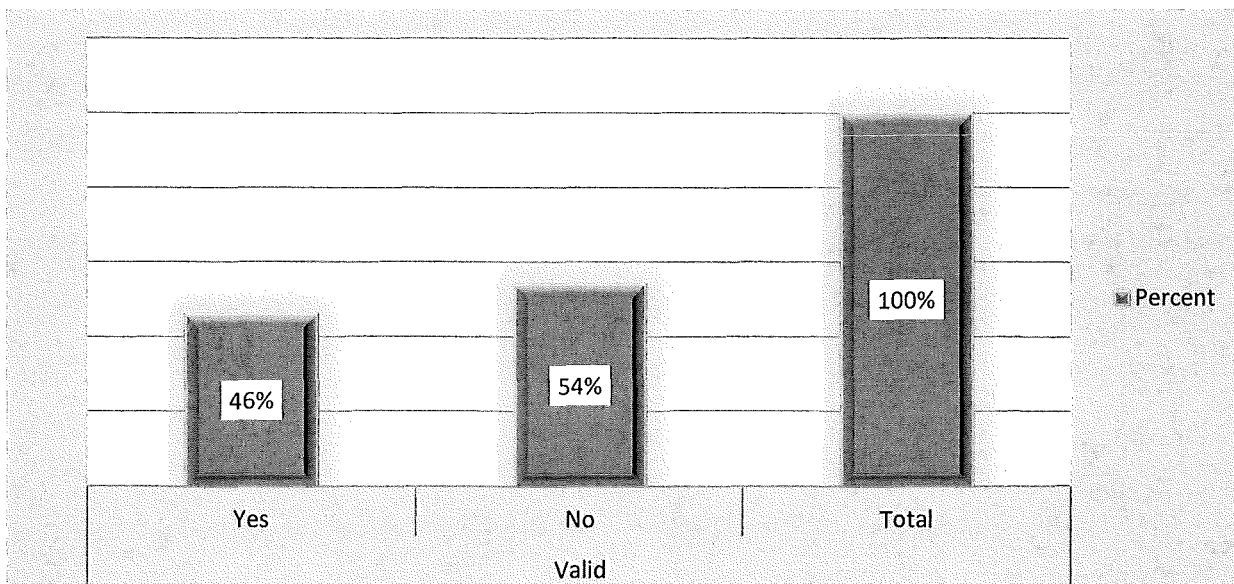


Figure 4.8: Were the key concepts embedded in the conceptual matrix table found present in the literature review in the dissertation?

One mistake with dissertations is that the literature review is presented as an index of the literature. Hence the supervisor/examiner will be looking for students who have made contributions from their critical skills to be able to synthesize the literature to underpin the key themes (Lubbe et al. 2005).

4.4.5 Distribution by 'was the conceptual matrix added as part of the appendices in the dissertation?'

The matrix technique of literature review guards neither the examiner nor the supervisor against unconscious assumptions about the research theme at a point where the researcher becomes helpless due to lack of information about the topic under investigation (Klopper & Lubbe 2011; Boote & Beile 2005). Figure 9 depicts the fact that many of the respondents, 116 (58%), did not add the matrix as part of the appendices in the dissertation.

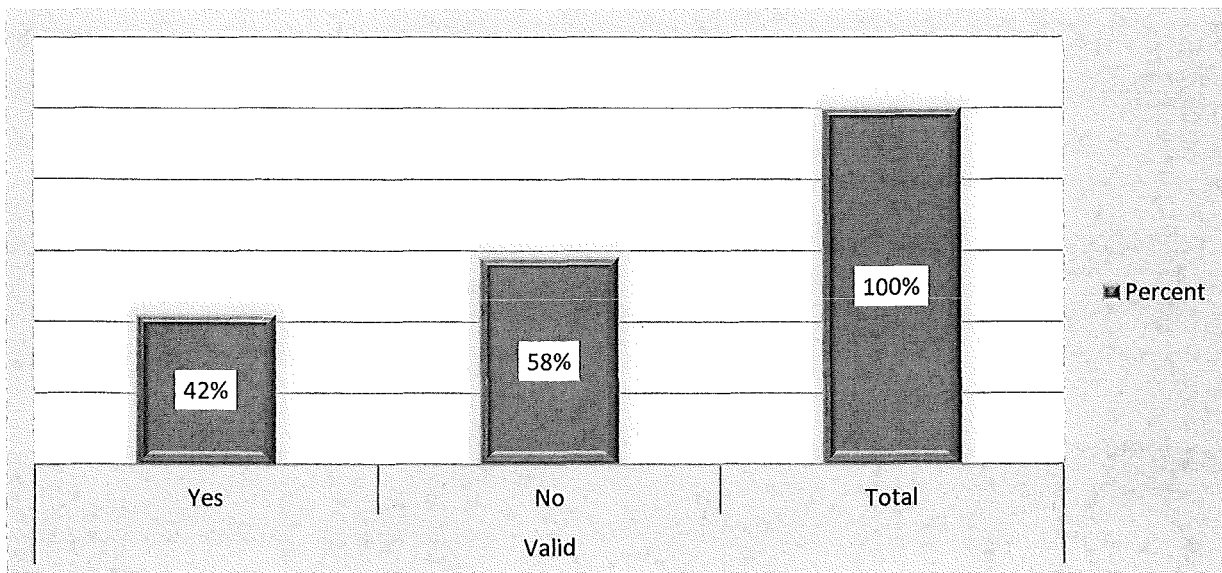


Figure 4.9: Was the conceptual matrix added as part of the appendices in the dissertation?

4.4.6 Distribution by 'was the research themes properly aligned with the research topic in the dissertation?'

In examining the level of research alignment between IT/IS masters' and MBA students, the framework addressed the issue about how aligned their research themes were with the research topic in the dissertations.

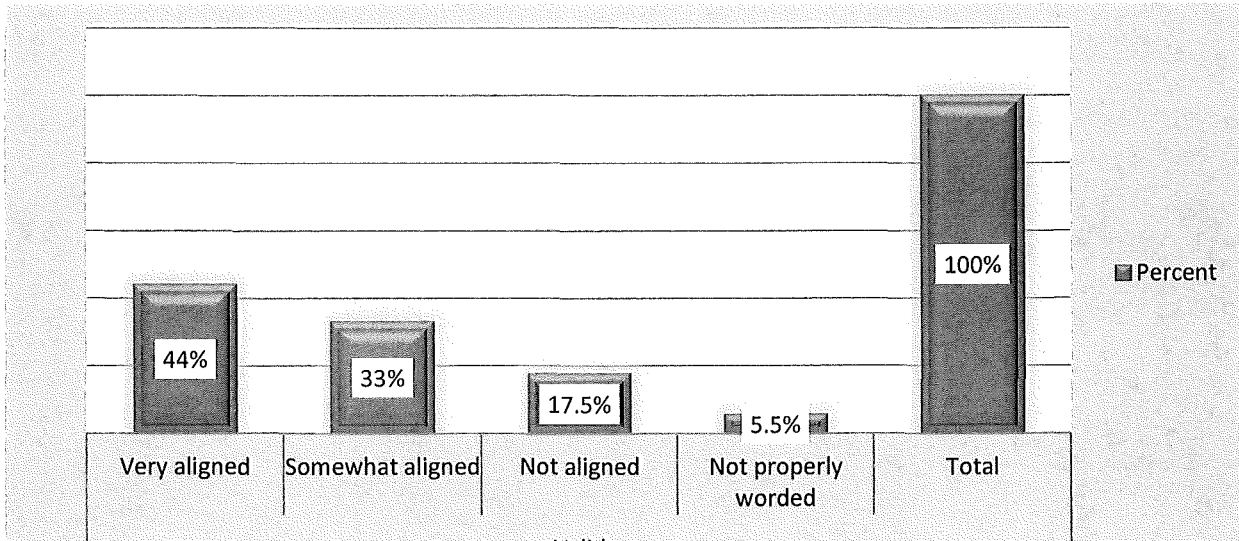


Figure 4.10: Were the research themes properly aligned with the research topic in the dissertation?

The responses “aligned and somewhat aligned” are merged to represent *aligned* or *affirmative* and the responses “not aligned” and “not properly worded” are merged to represent *not aligned* or *negative*. 44% were ‘aligned’; 33% were ‘somewhat aligned’; while ‘not aligned’ respondents were 17.5% and ‘not properly worded’ were 5.5%. When merged, the majority of dissertations, 77% were affirmative. The reason behind this was a result of MComm IT/IS masters’ dissertations which showed that students are positive towards the research question asked. Figure 4.11 illustrates how dissertations from both degrees/qualifications, were evaluated in terms of the research question that was posed to them and how each degree varied.

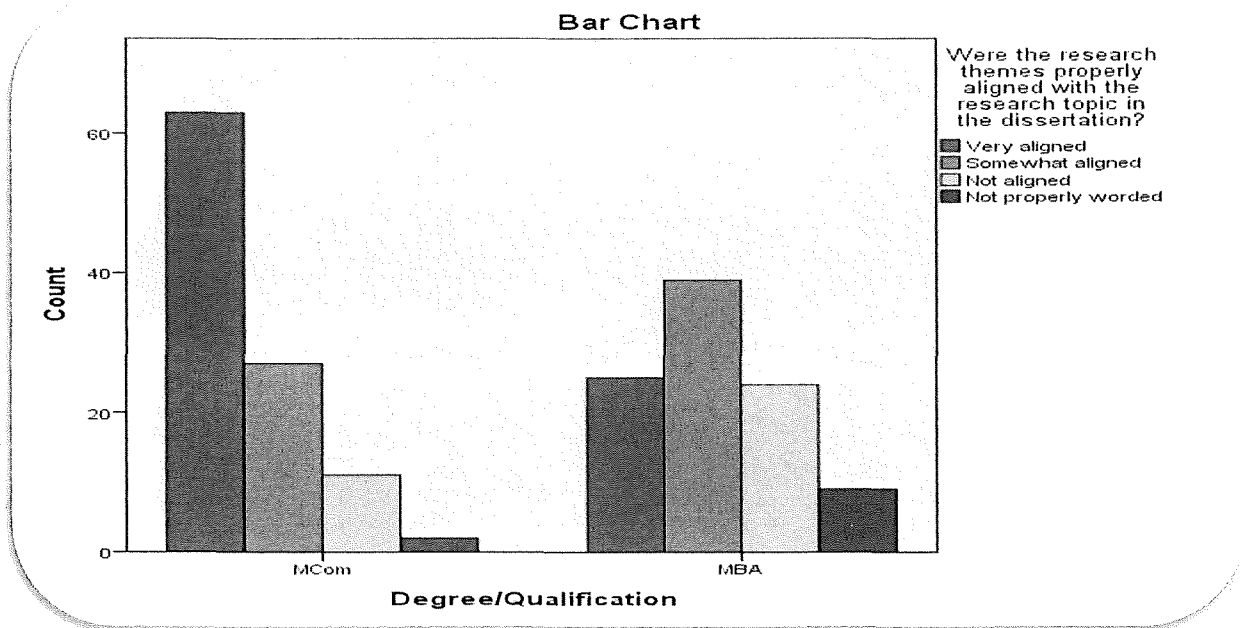


Figure 4.11: MComm compared to MBA.

4.5 To determine whether IT/IS masters' and MBA research projects were properly structured

In an attempt to understand how the students structured their dissertations, seven different questions were used to evaluate IT/IS masters' and MBA dissertations. The outcomes from each question are as follows.

4.5.1 Distribution by 'is the dissertation properly documented and well-structured?'

The results "agree" and "strongly agree" were merged to represent agree or affirmative and the "disagree" and "strongly disagree" were merged to represent disagree or negative. Of 200 students' completed dissertations, 76 of (38%) "Strongly agree", 66 of (33%) "Agree". The result established that the majority of students' dissertations, 142 (71%) showed that their dissertations were properly documented and well-structured.

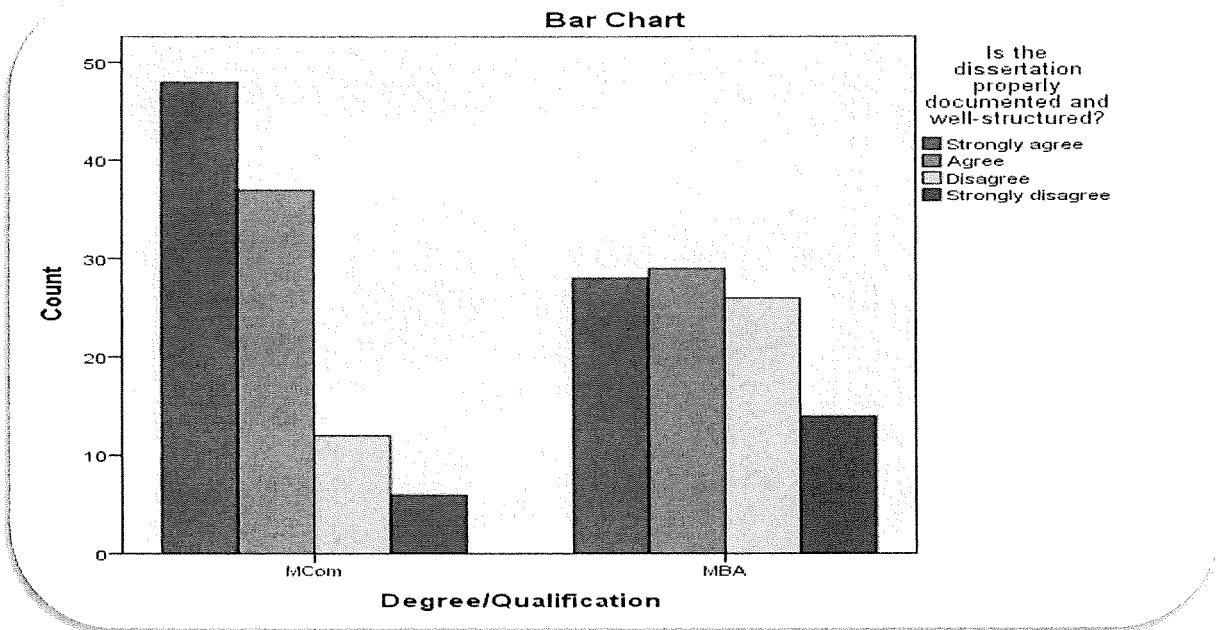


Figure 4.12: Is the dissertation properly documented and well-structured?

4.5.2 Distribution by 'is the language certificate attached as an appendix in the dissertation?'

It is compulsory that all IT/IS masters' and MBA dissertations must be submitted for language editing to ensure that the requirements for presenting a properly written and argued document are satisfied. Figure 4.13 shows that of 200 students, 116 (58%), the majority, indicated that their research had gone through language editing with proof attached in the appendix.

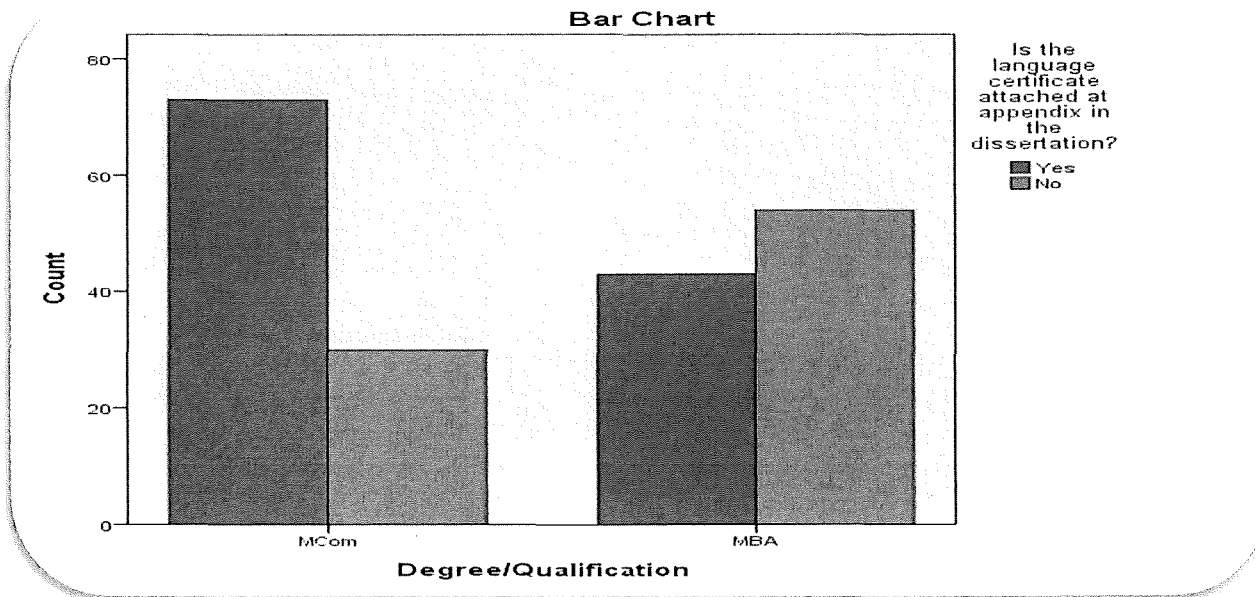


Figure 4.13: Is the language certificate attached at appendix in the dissertation?

4.5.3 Distribution by “the application of IS research methodology was appropriate”

In this section, the researcher focused on the application of appropriate IS research. First one need to gain insight into what constitutes appropriate IS research. According to Galliers and Land (1987), it is worthwhile for a researcher to firstly reflect on the nature of IS as a whole, and then to look at what he/she aims to achieve from conducting research in that field. Galliers and Land (1987) further assert that IS is a meta-subject that spans Multi-Inter and Trans-disciplines. Subsequently, research that is perceived to be appropriate in other disciplines is likely to be inappropriate in the IS field of research (Galliers & Land 1987). Confirmation of these arguments can be found in this study where the IT/IS masters’ and MBA students were examined on the application of appropriate IS research.

Figure 4.14 shows that the application of IS research methodology is appropriate in their studies. Out of 200 correspondents, 43 (21.5%) strongly agree; 27 (13.5%) agree; while 18 (9%) disagree and 15 (7.5%) strongly disagree. These were respondents from

among the MComm students. Of the MBA students, 22 (11%) strongly agree; 33 (16%.5) agree. This indicates that the students from both qualifications agreed that the application of IS research methodology was appropriate 125 (62.5%).

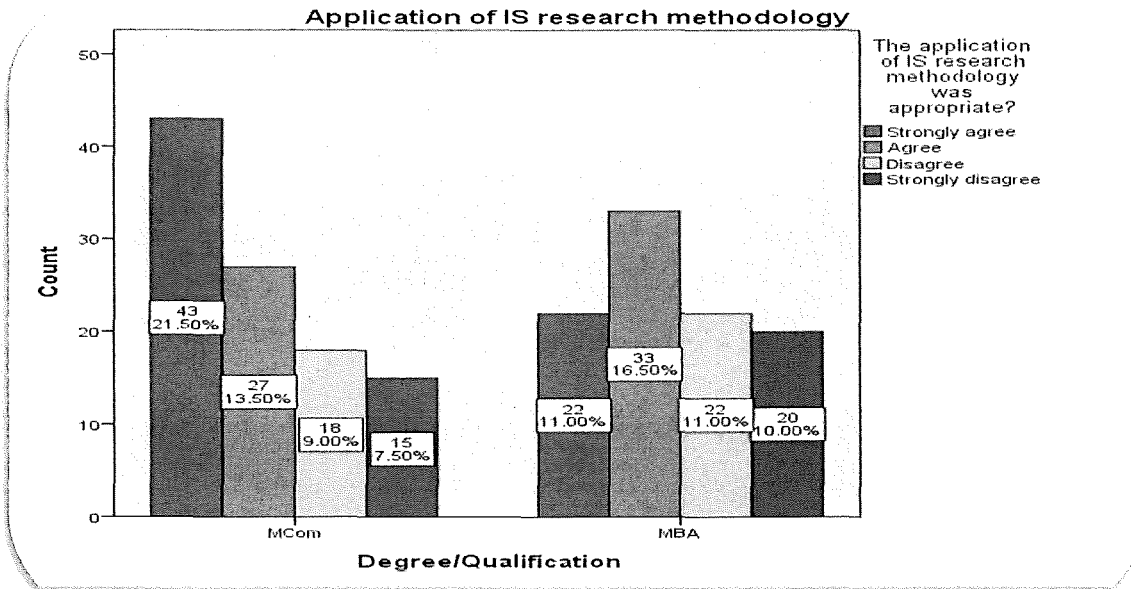


Figure 4.14: The application of IS research methodology was appropriate.

4.5.4 Distribution by “it seems as if the student who compiled the dissertation was insufficiently guided and supported”

Many authors repeatedly emphasise that the quality of masters’ research dissertations is highly dependent on supervision, guidance and support, as it is the responsibility of supervisors to attend to the needs of a student (Kam 1997; Johnston 1995; Lee & Green 1995). The supervisor has a role to play in the coaching, guiding and mentoring of the post-graduate student (Davis 2000).

Nevertheless, masters’ students must take responsibility to ensure that they meet deadlines. The masters’ student is allocated a supervisor on the basis of the supervisor’s field of experience, that is, his/her specific qualities as a scholar-researcher. In this case, the nature of the relationship, if it is to be successful, requires

that the belief in the charismatic quality of the individual works in both directions (Lubbe et al. 2005).

The report portrays that there is evidence that supervisors provide proper guidance and support to the best of their ability. Respondents 121 (60.5%) disagreed with the statement that was posed to them. They illustrated that they were not badly supervised.

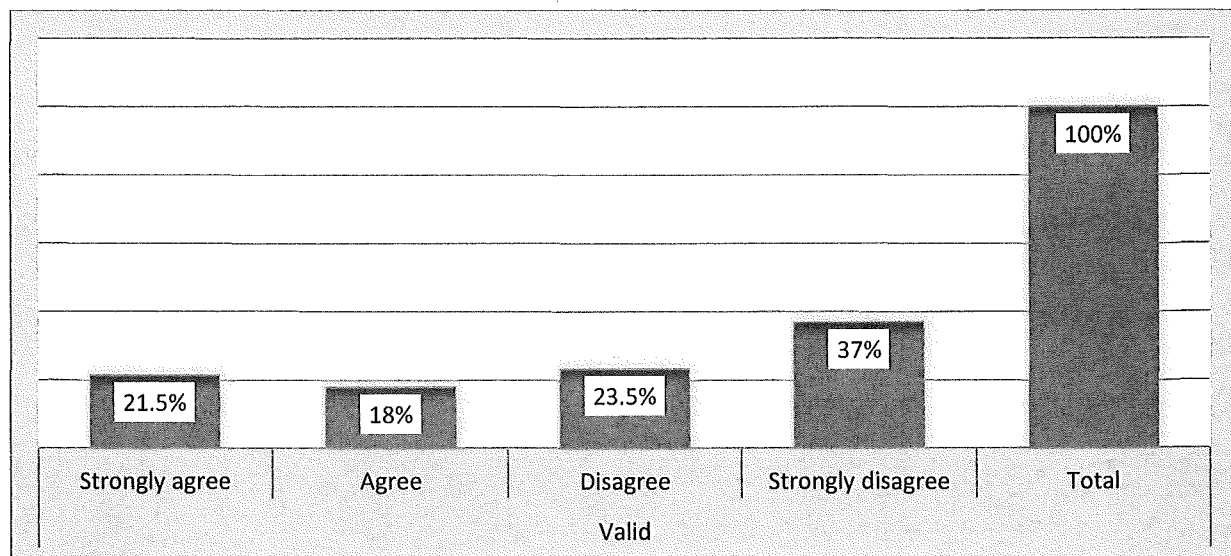


Figure 4.15: It seems as if the student who wrote the dissertation was insufficiently guided and supported.

4.5.5 Distribution by 'was a research question or hypothesis used?'

The result establishes that most IT/IS masters' and MBA students would rather choose to use research questions as opposed to hypothesis testing in their dissertations. Respondents' dissertations were skimmed to determine "whether a research question or hypothesis used", 125 respondents (62.5%) used research questions in their dissertations, and 75 (37.5%) used hypothesis testing.

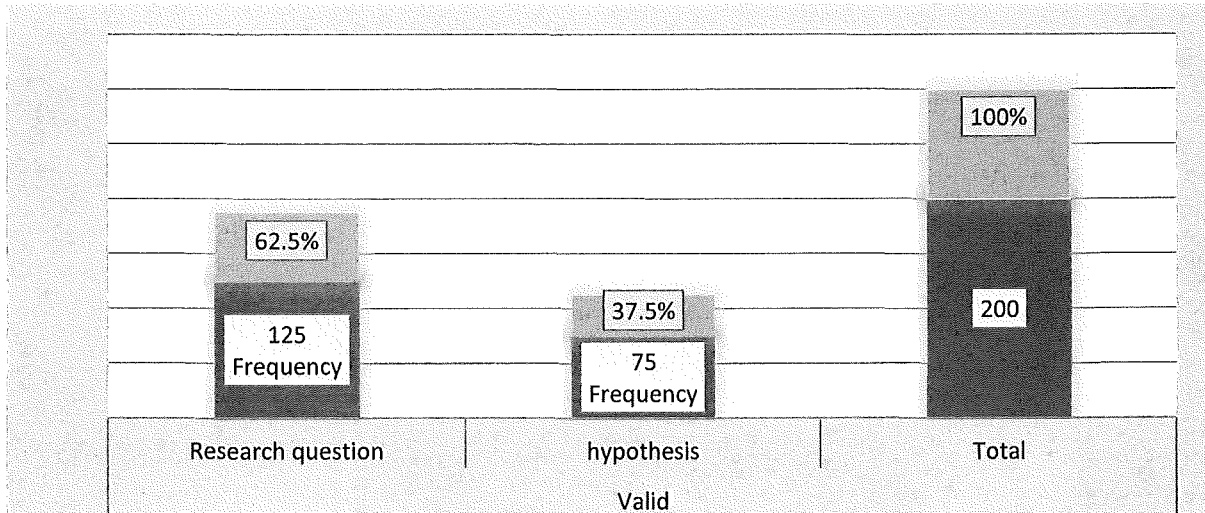


Figure 4.16: Was a research question or hypothesis used?

4.5.6 Distribution by 'If hypothesis was used, was it alternative and null hypothesis or not properly worded?'

In this section, 0 is devoted to "not applicable" that represents those students who used a research question and not hypothesis testing. Respondents 61% replies were not applicable; students who made use of alternative and null hypothesis were 16.5% while 45 respondents (22.5%) did not properly state if it was alternative or otherwise.

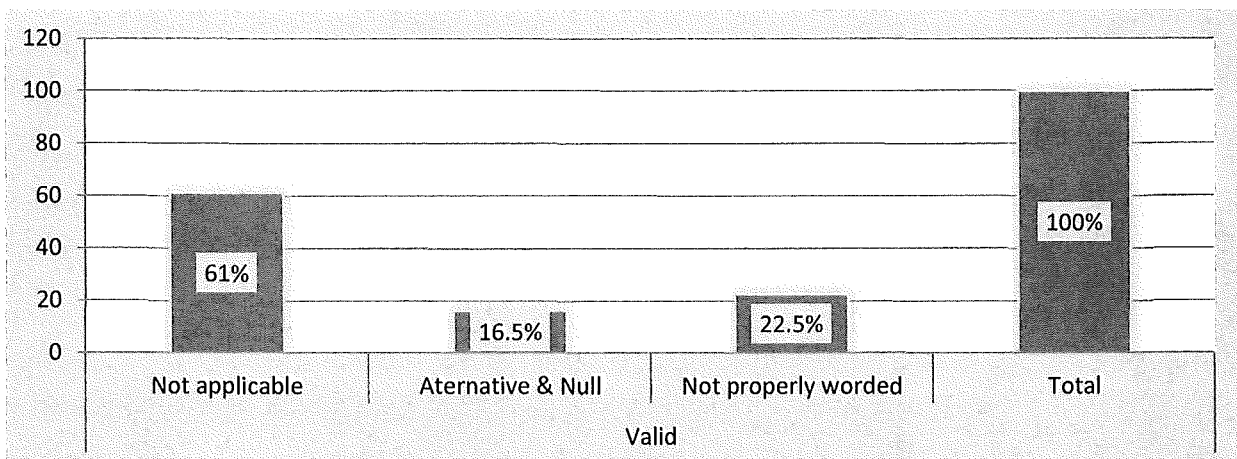


Figure 4.17: If a hypothesis was used, was it an alternative or a null hypothesis or not properly worded?

4.5.7 Distribution by ‘was it theoretically motivated?’

The “yes” represents affirmative and the responses “no” and “not sure” were merged to represent the negative. Of the 200 dissertations 59 (29.5%) were not applicable: these represent students who chose a research question, not a hypothesis; 71 dissertations (35.5%) were students who made use of hypothesis and were theoretically motivated. However, students’ dissertations that showed no or were not sure were 70 (35%). The difference between those whose research was theoretically motivated and to those who were not is not big.

If research is not theoretically motivated, it is as good as not taking part in a research project. With this outcome illustrated, Du Plooy (1995) and Boote and Beile (2005) suggested how to ensure that those masters’ students do not plagiarize. They should present innovative and productive work, unique to the body of knowledge by discovering new theories or supporting present studies.

4.6 To examine what particular research method IT/IS masters’ and MBA students use.

4.6.1 Distribution by ‘is the purpose and objectives of the study stated in the dissertation?’

In a research study, it is vital for one to set clear objectives and purposes at the start-up stage. It implies that the researcher is knowledgeable, skilled and experienced in identifying areas for a research project. Successful dissertations are those that are specific and narrowly focused (Bhattacharjee 2012; Mauch & Park 2003).

Figure 4.18 illustrates that 175 (87.5%) respondents were masters’ candidates who stated their objectives and purpose of the research. This is reasonable in the sense that not many IT/IS masters’ and MBA research students are able to choose their research areas by themselves, nor can they be able to identify relevant objectives and purpose of their study (Lubbe et al. 2005; Pather et al., 2005).

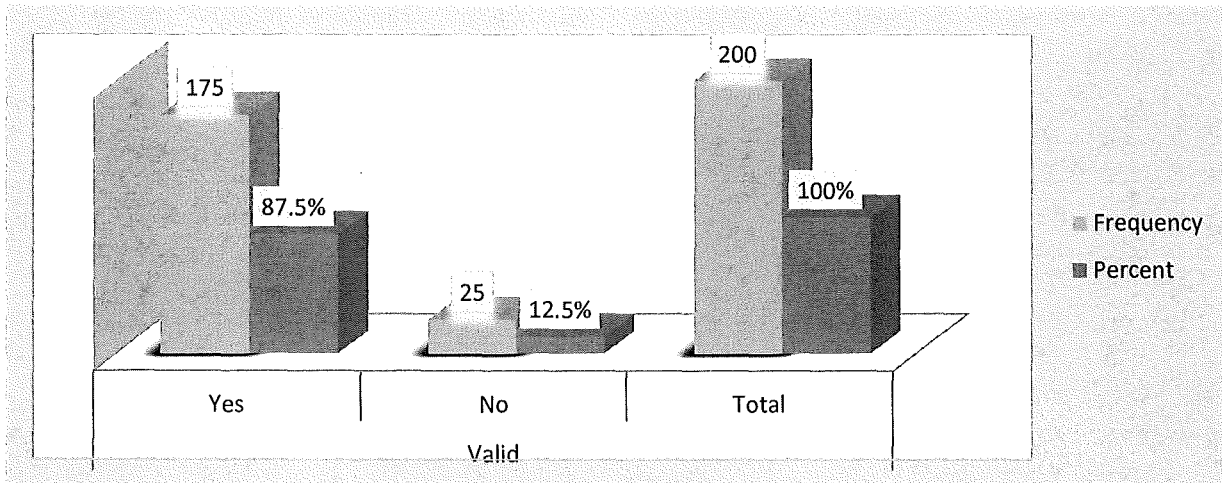


Figure 4.18: Are the purpose and objectives of the study stated in the dissertation?

4.6.2 Distribution by 'what methodological approach was chosen for the study in the dissertation?'

It was assumed that IT/IS masters' and MBA students use a particular research methodology that may be inappropriate. They might consider it to be appropriate for IS research (Mays & Pope 2000; Orlikowski & Baroudi 1991). The choice of research methodology is problematic and a challenging stage in research practice. Many research students battle with a frustrating question of how to choose a suitable methodological approach for the research problem and question that she/he is trying to investigate (Lubbe et al. 2005; Remenyi et al. 2011).

Generally speaking, most students do not have an understanding of research methodology, or of the ontological or epistemological choices that they need to make in order to frame their research (Lubbe et al. 2005; Remenyi et al. 2011). Only a few of them have an understanding of how to select an appropriate approach to allow them to understand the research (Lubbe et al. 2005; Ellis & Levy 2009). Students choose inappropriate research methodological approaches and techniques that are not relevant to the study.

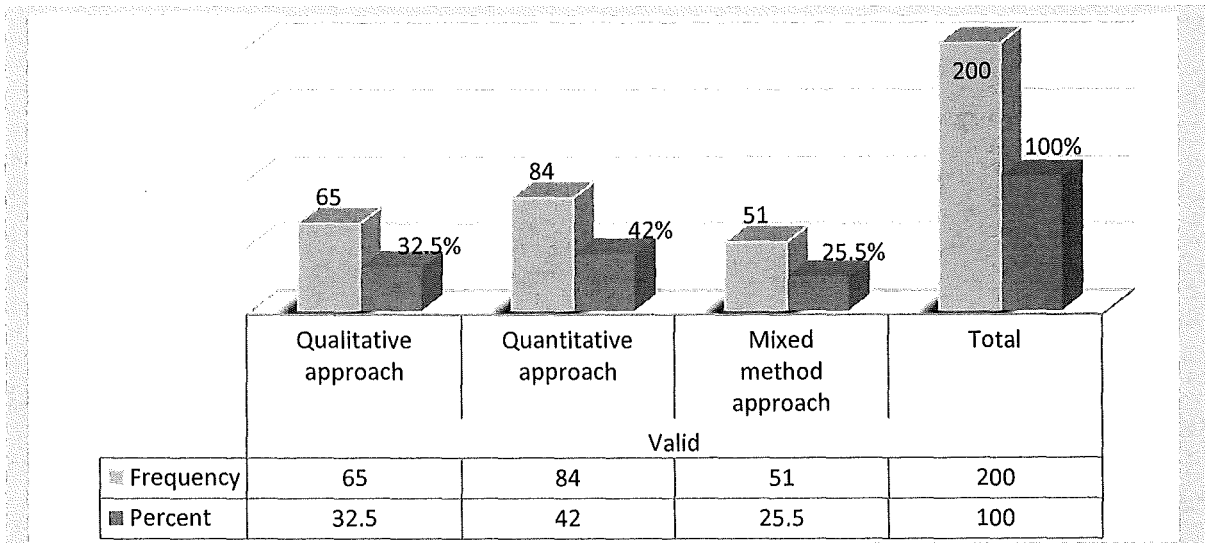


Figure 4.19: What methodological approach was chosen for the study in the dissertation?

The results establish that of 103 MComm students, 39 (19.5%) and 43 (21.5%) would choose either qualitative or quantitative research methods. Students who choose mixed method approach were 21 (10.5%). Out of 97 MBA students, respondents who chose qualitative or quantitative methodological approaches were 26 (13%) and 41 (20.5%) respectively and those who would choose a mixed method were 30 (15%).

When both programmes were merged, it was revealed 65 (32%) chose a qualitative research approach, the quantitative approach came to 84 (42%) and the mixed method approach 51 (25.5%). This result is in accordance with Orlikowski and Baroudi (1991) where they reflect on three extensive research methods, the positivist, the interpretivist and the critical. They discovered that between 1983 and 1988, 97% of IS research activities used a positivist methodological approach which is sometimes referred to as quantitative method (Orlikowski & Baroudi 1991).

4.6.3 Distribution 'by what data-collection method was used for the study in the dissertation?'

Methods used for data collection were determined by the type of research methodology chosen for the study (Dawson 2002). In this study respondents adopted different research methods to facilitate an analysis of the problem under investigation. Respondents 57 (28.5%) used the interview as a data -collection tool, 95 (47.5%) used a questionnaire; 12 (6%) used participation observation; document analysis was used by 6 (3%); focus group by 2 (1%) and finally, the students who used a combined technique, which is interview and questionnaire, were 28 (14%).

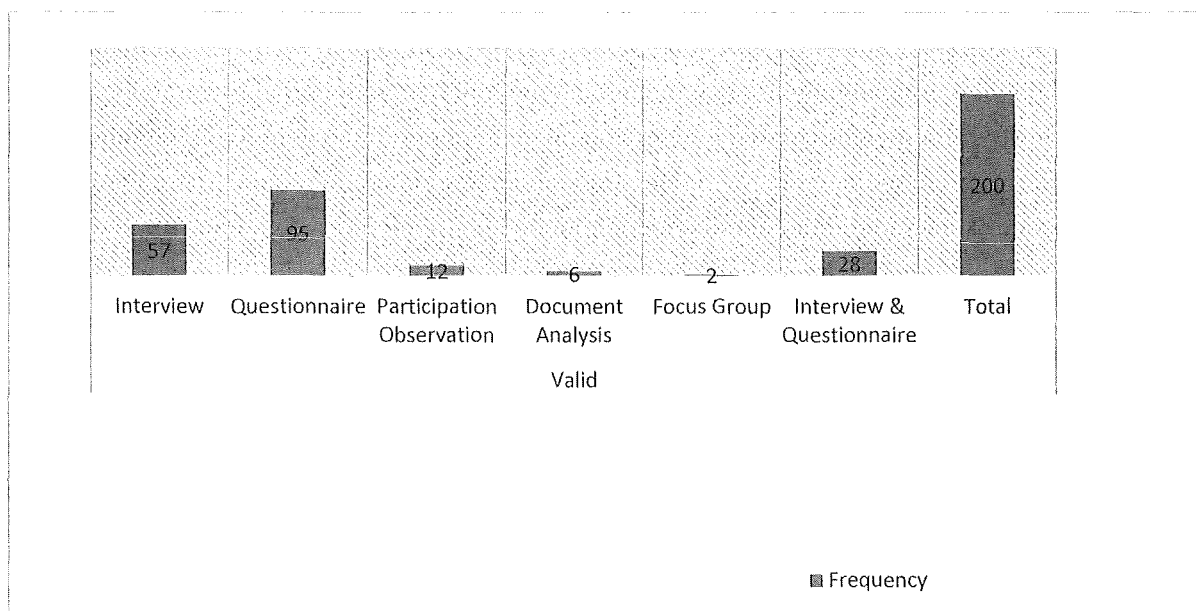


Figure 4.20: What data-collection method was used for the study in the dissertation?

4.6.4 Distribution by 'were any reason(s) for choosing this particular research methodology mentioned in the dissertation?'

The majority of the respondents remarked that there were reasons that made them choose that particular method. Out of 200 respondents, 125 (62.5%) had reasons for using that particular method.

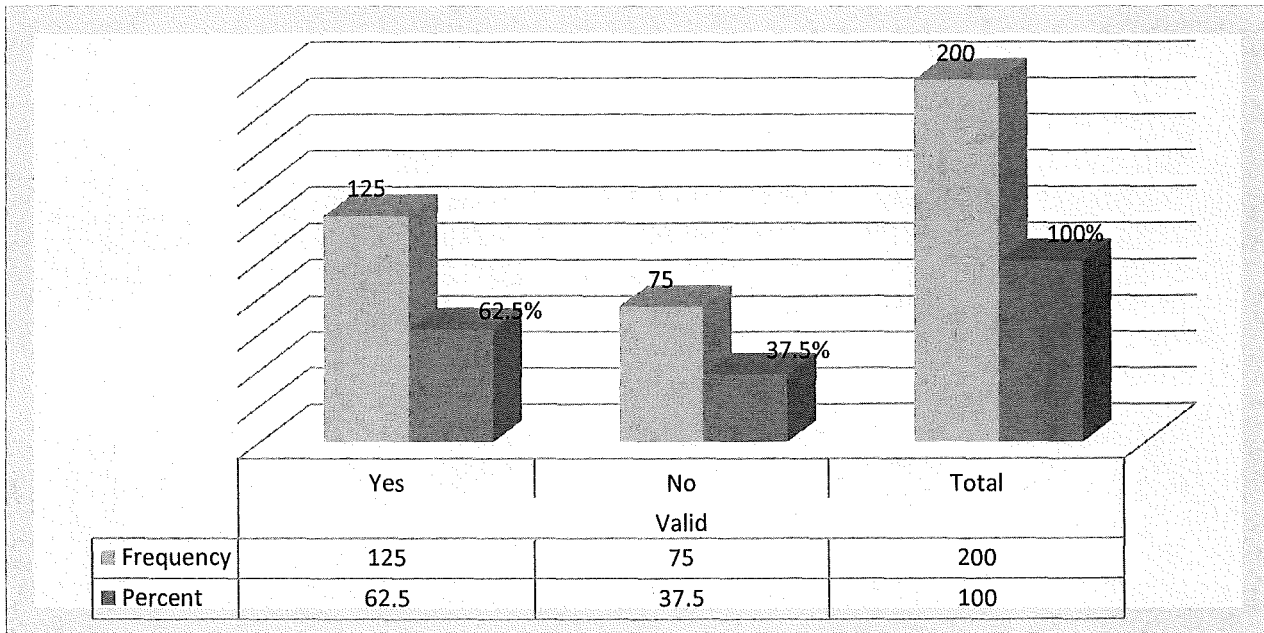


Figure 4.21: Were any reason(s) for choosing this particular research methodology mentioned in the dissertation?

4.6.5 Distribution by sample size and population

Dawson (2002) stated that sampling includes making a small selection of the population to make it easier to manage the number. Moreover, a sample can be done using two techniques, the probability sample and purposive sample. Respondents' dissertations had to show whether the sample size and population were mentioned in their dissertations. Of 200 respondents, many (60%) indicated that they had mentioned the population and sample size in their respective dissertations.

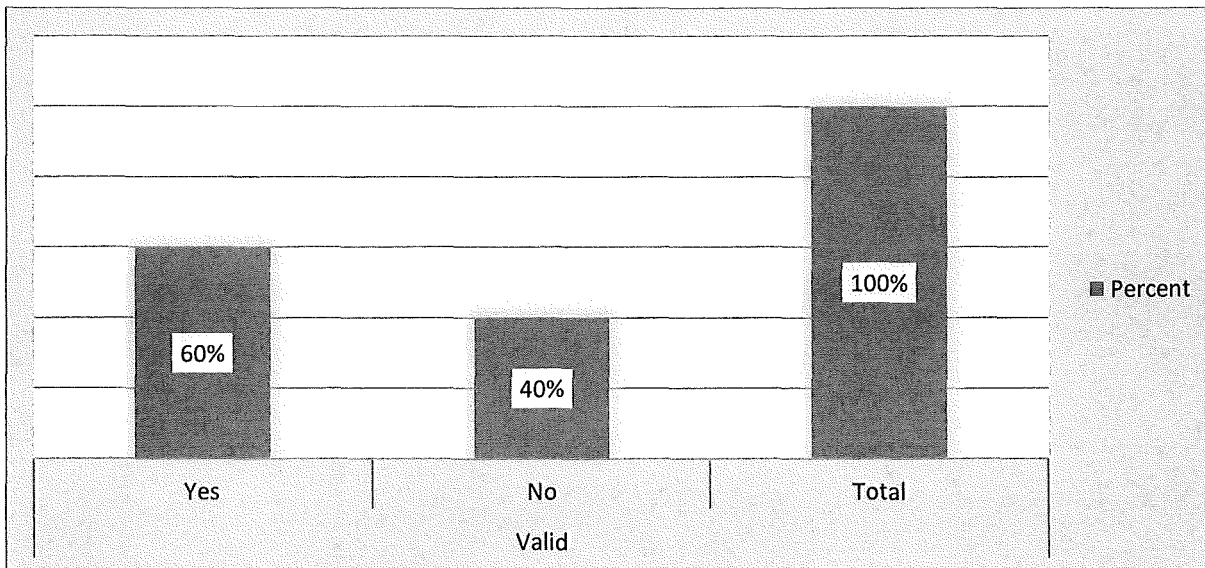


Figure 4.22: Were the sample size and the population mentioned in the dissertation?

4.6.6 Distribution by stratified sampling

Not many IT/IS masters' and MBA students used stratified sampling techniques. Results have shown that the majority of respondents did not make use of the stratified approach (136, 68%).

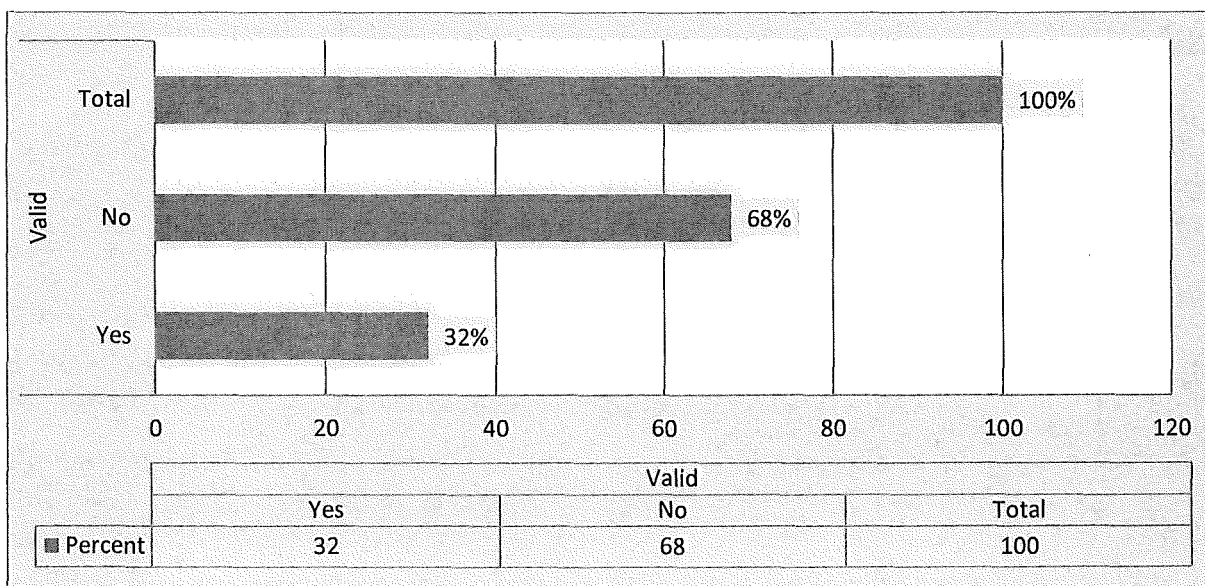


Figure 4.23: Will the sample be stratified?

4.6.7 Distribution by instrument(s) used in measuring, analysing and interpreting the results attached as appendix in the dissertation

It is important for a researcher to be able to defend his/her research before a panel of experts. This is why it is crucial for a researcher to be able to provide proof of instruments used, articles or books consulted during the research activities. Looking at the result below, Figure 4.24 depicts that 126 respondents (63%) had proof of instruments used in measuring, analysing and interpreting the result.

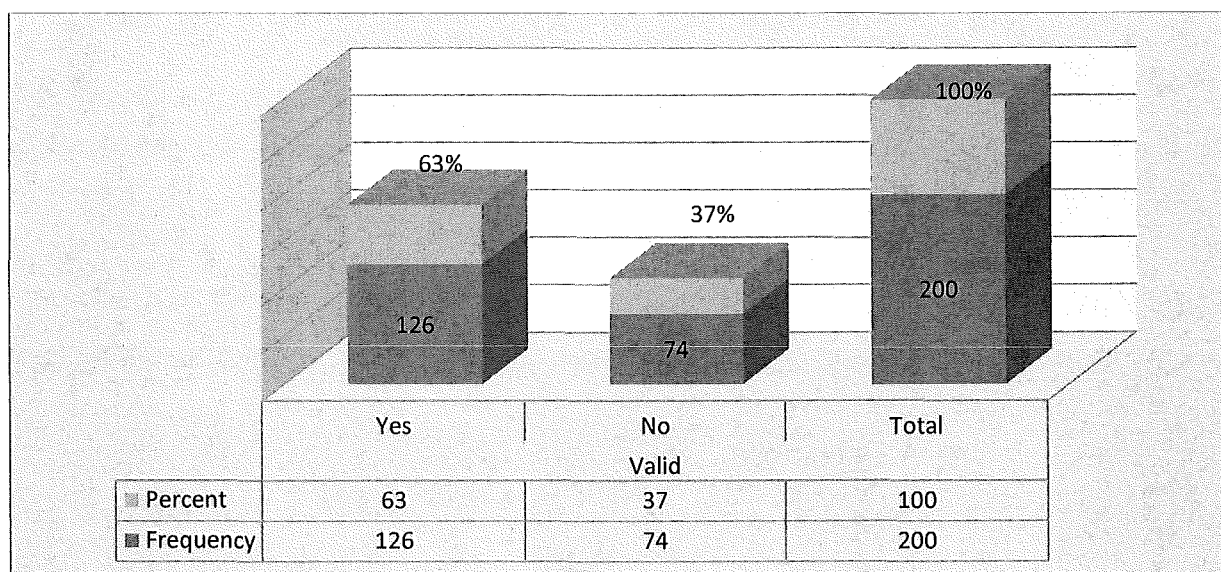


Figure 4.24: Were the instrument(s) used in measuring, analysing and interpreting the results attached as appendix in the dissertation?

4.6.8 Distribution of 'was permission granted for recording information during the data collection procedure mentioned?'

A post-graduate research endeavour needs to be approved and accepted by the institution's HDRC (Higher Degree Research Committee), where permission is granted or withheld about continuing with the research. Figure 4.25 establishes that ethical clearance and permission to go ahead to carry-out research activities had been given. Of the 200 correspondents, all IT/IS masters' and MBA students (100%) concurred they had ethical clearance and permission to carry on with their research. This is in line with

Harypursat et al.'s (2005) theory of an ideologist mode of thinking as a student. A post-graduate student who possesses this mode of thinking tends to have strong ethical knowledge and prides himself on his ethics. In instances where problem-solving is involved, the post-graduate students who possess the idealist mode of thinking perform very well. This is where they have to consider certain important things, such as judgment, sensation and sentiments (Harypursat et al. 2005).

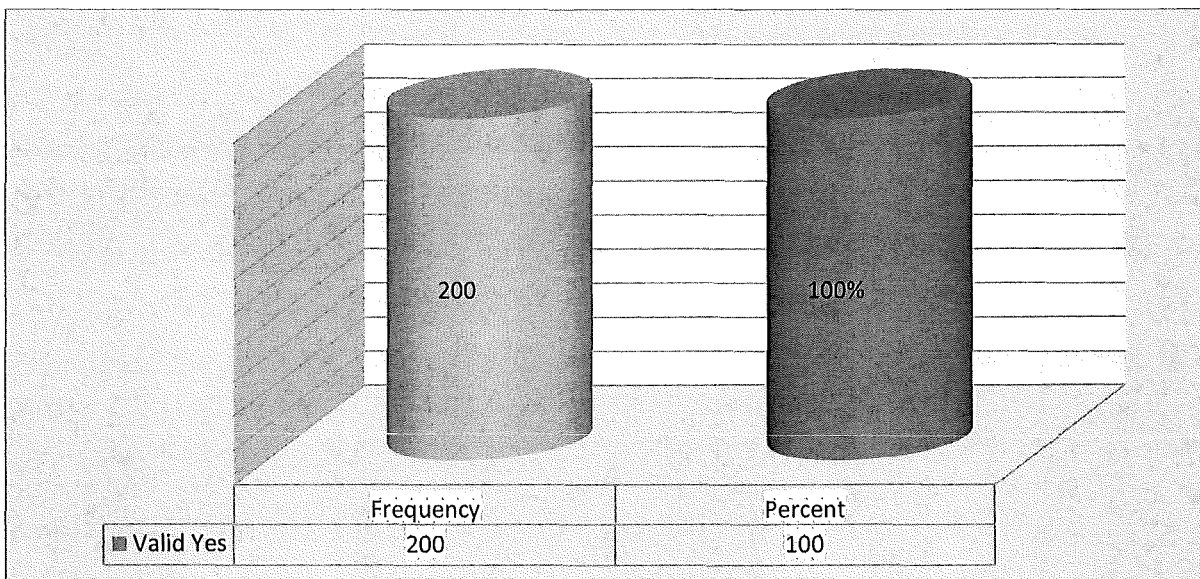


Figure 4.25: Was permission granted for recording information during the data-collection procedure mentioned?

4.6.9 Distribution by ‘were the research problem and the research questions aligned?’

In this section, the numeral 0 is devoted to “not applicable” – that is, respondents who represent those students who made use of hypothesis testing and not a research question. *Not applicable* respondents were 76 (38%); respondents whose research questions and research problems were in alignment came to 73 (36.5%) and respondents whose research questions were not in alignment came to 51 (25.5%).

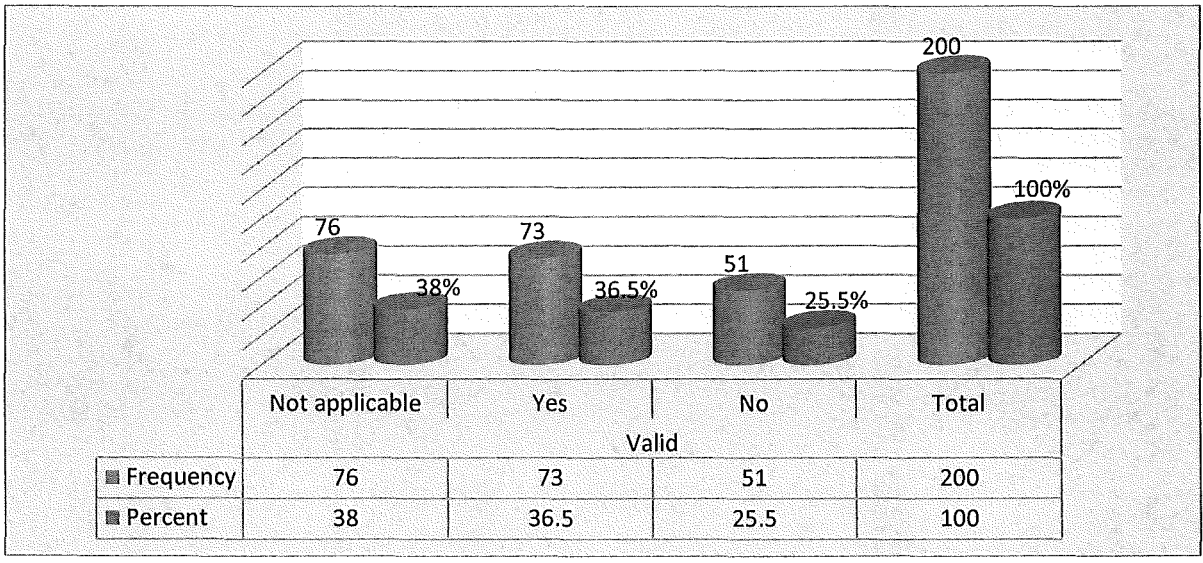


Figure 4.26: ‘Were the research problem and the research questions aligned?’

4.6.10 Distribution by ‘was/were the research question(s) answered?’

The “yes answered” and “somewhat answered” were merged to represent *answered* or *affirmative* and the “not answered” and “not sure were merged to represent *not answered* or *negative*. Figure 4.27 illustrates that 78 respondents (39%) were not applicable, and 47 respondents (23.5%) indicated questions were answered. This reveals the total number of respondents who 96 (48%) had research questions answered. Between merging respondents whose research questions were “not answered” and “not sure” (11 5.5% and 15 7.5% respectively) the total number of students whose research questions were not answered were 26 (13%).

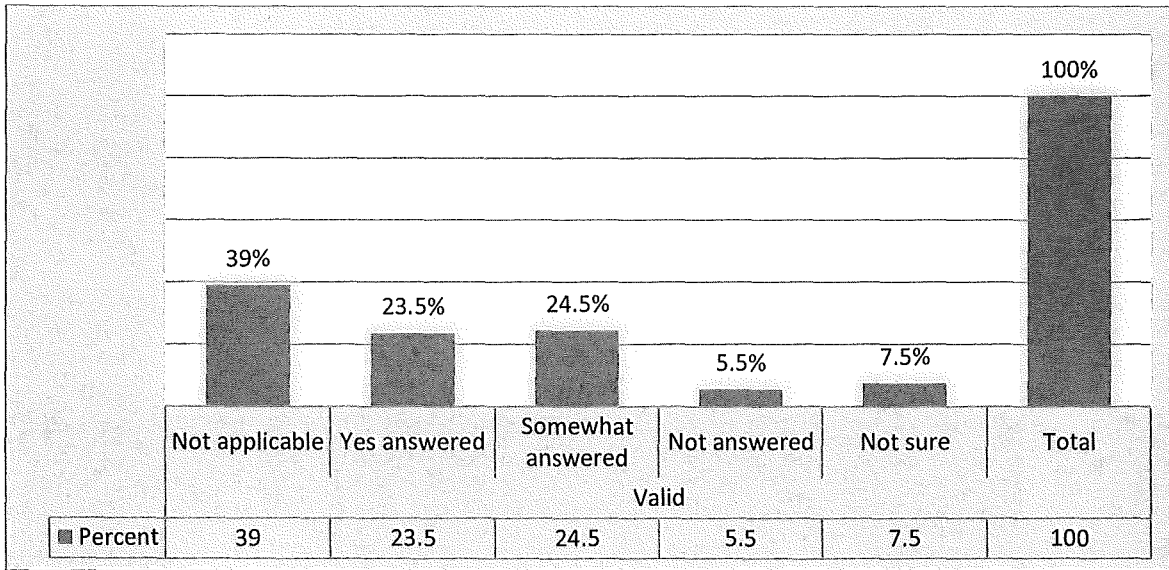


Figure 4.27: 'Were the research question(s) answered?'

4.6.11 Distribution by "was the hypothesis proven?"

Figure 4.28 reveals that 'not applicable' respondents were 122 (61%), 'yes' 21 (10.5%), 'somewhat answered' were 28(14%); 'not answered' were 15 (7.5%) and 'not sure' were 14 (7%). In total, 49 (24.5%) students that used hypothesis had their hypothesis proven.

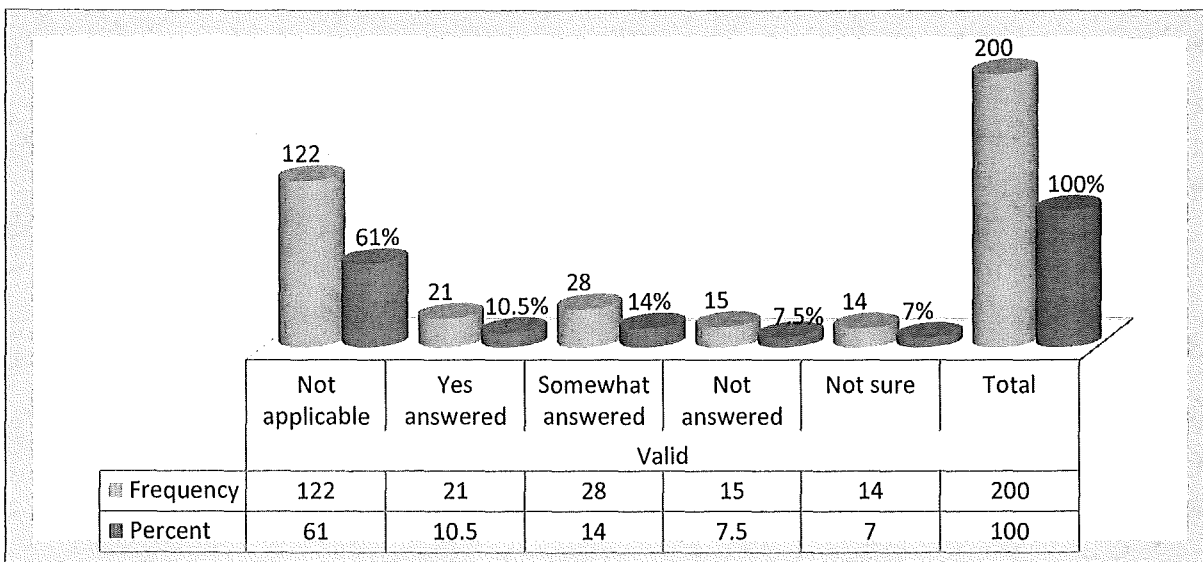


Figure 4.28: Was the hypothesis proven?

4.7 To explore the challenges in carrying out a proper research activity

Lubbe et al. (2005) highlight that masters' students encounter stress problems as most IT/IS masters' and MBA students could not cope with research stress. When stress is observed negatively or becomes unbearable, students are likely to encounter physical and psychological impairment (Murphy & Archer 1996). The best techniques to reduce stress are that students should include effective time management, have social support, receive positive reappraisal, and organize engagement in leisure pursuits (Murphy & Archer 1996). Aronson (2001) argues that the stress problem is common to every post-graduate student. One way of coping with stress is to associate with other post-graduates who are successfully coping with similar pressures (Lubbe et al. 2005).

In this study, the challenges that students encounter were as a result of badly-structured dissertations, bad referencing or citations, choice of research methodology, and many more. Shannon (1995) adds, in conjunction with the challenges that IT/IS masters' and MBA students are facing, that the prevalent problem in research activity is inadequate supervision; in other words, lack of communication between the supervisor and student; the student's misunderstanding of standards, requirements, and of the supervisor's role and functions. Thompson et al. (2005) and Hockey (1994) concur that it is inappropriate, for masters' research students to be supervised by individuals with no research qualifications.

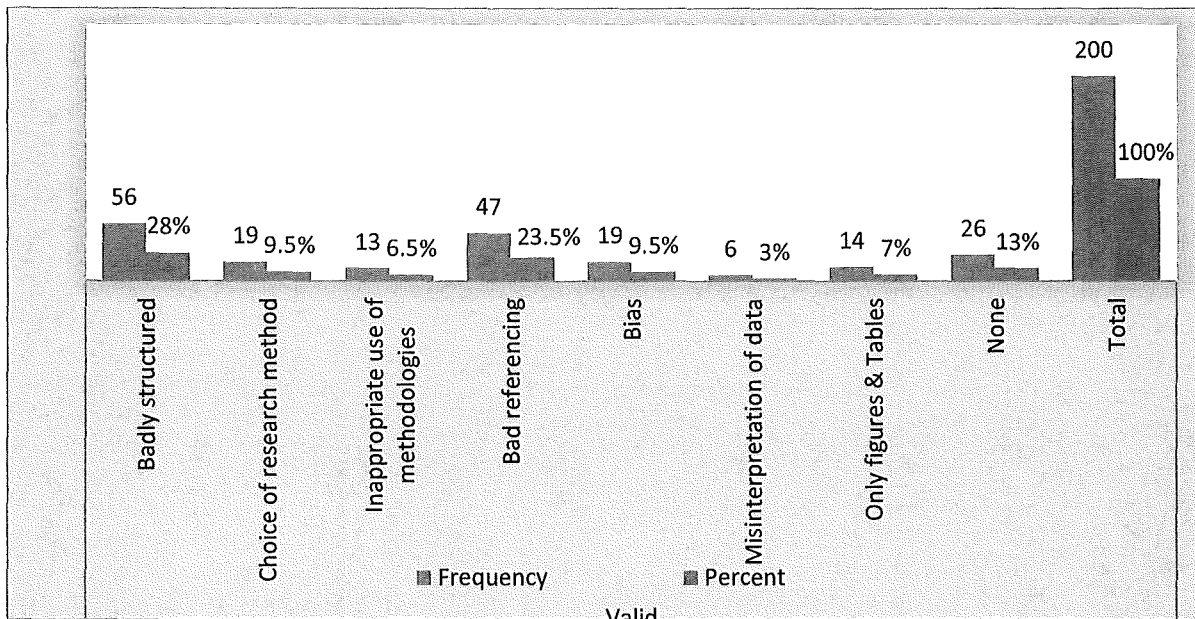


Figure 4.29: “What apparent reason is visible for not completing a good research project?”

Figure 4.29 shows that it was noted by some respondents, 56 of (28%) that the reason lay in a badly-structured dissertation; followed by 47 (23.5%) whose dissertations had bad referencing and citations. Students whose choice of research methodology, inappropriate use of methodology, research bias, misinterpretation of data and only figures and tables present were 19 (9.5%); 13 (6.5%); 19 (9.5%); 6 (3%) and 14 (7%) respectively. Only a few dissertations showed that their research dissertation was exceptional with 26 (13%).

This result implies that IT/IS masters’ and MBA students are challenged. This is in accordance with other authors’ viewpoints about masters’ students. In their theories they confirm the result illustrated above, that masters’ students fail to complete their degrees as a result of misunderstanding the nature of masters’ research; losing focus on the masters’ activity; lack of research administration skills, and supervisor guidance; inappropriate research documentation and time management, to mention but a few (Shannon 1995; Yeatman 1995; Lubbe et al. 2005; Seminar 2007 & Mavetera 2011). All

these were as a result of IT/IS masters' and MBA students not being able to facilitate a masters' project and therefore this leads to a low completion rate.

4.8 Discussion of Results

4.8.1 'Do MBA students differ in the application of conceptual matrix to demonstrate themes and concepts?'

This section investigates the use of conceptual matrix by IT/IS masters' and MBA students in their dissertations to demonstrate themes used in the literature review as well as aligning the themes to the research topic. In all, five areas were looked into using a chi-square test. When the p value is less than or equal to 0.05 $p \leq 0.05$, statistically there is a significant difference between the variables and when the p value is greater than 0.05 $p > 0.05$, statistically there is **NO** significant difference between both variables. However, note that p indicates probability.

4.8.1.1 Use of a conceptual matrix

Table 4.4 reports the breakdown of the findings as well as differences in presentation with respect to year of completion, type of degree, and campus location. As revealed by the results, many (56.5%) of the students were found to have used a conceptual framework in their dissertations. Comparatively, students (80.0%) from the 2010-2013 year groups were found to have used a conceptual framework more than any other year group. As regards the use of tables containing information about articles consulted and other sources, some (54.0%) were found not to have used them. Among the three categories of year of completion, the 2005-2009 year groups were found to have used tables most, compared to the other year groups. The remaining areas that were also looked into were "key concepts embedded in conceptual matrix table present on literature review", "where the conceptual matrix was added as part of appendices" and finally, "were the research questions properly aligned with the research topic".

In order to assess whether there were differences among students in the use of a conceptual matrix, chi-square tests were conducted in relation to year of completion and

the results reported in Table 4.4. At the 0.05 level of significance, the results indicate that students differed significantly in the use of a conceptual matrix in their dissertation since the p-values of the chi-square statistics are all less than 0.05. In particular, students differ significantly in the use of a conceptual matrix in their dissertations since p-value (chi-sq=32.4627) <0.0001.

Table 4.4: Chi-Square Test

	Year completed								χ^2	P-Value
	TOTAL		2000-2004		2005-2009		2010-2013			
	No.	%	No.	%	No.	%	No.	%		
Used conceptual matrix in dissertations?									32.4627	<.0001
Yes	113	56.5	12	26.7	45	52.9	56	80.0		
No	87	43.5	33	73.3	40	47.1	14	20.0		
Used table containing information about articles, consulted other sources?									35.8089	<.0001
Yes	92	46.0	7	15.6	35	41.2	50	71.4		
No	108	54.0	38	84.4	50	58.8	20	28.6		
Key concepts embedded in conceptual matrix table in present on literature review?									36.5182	<.0001
Yes	92	46.0	8	17.8	33	38.8	51	72.9		
No	108	54.0	37	82.2	52	61.2	19	27.1		
Conceptual matrix added as part of appendices?									46.7080	<.0001
Yes	84	42.0	4	8.9	30	35.3	50	71.4		
No	116	58.0	41	91.1	55	64.7	20	28.6		
Research themes properly aligned with research topic?									24.5234	<.0001
Fully aligned	88	44.0	8	17.8	35	41.2	45	64.3		
Partially/Not aligned	112	56.0	37	82.2	50	58.8	25	35.7		

Similarly, the remaining p-values and chi-sq are as follows; (chi-sq=35.5089) <0.0001; p-value (chi-sq=36.5182) <0.0001; p-value (chi-sq=46.7080) <0.0001 and p-value (chi-sq=24.5234) <0.0001. At the 0.05 level of significance, the results indicate that students differed significantly in the use of a conceptual matrix in their dissertations since the p-values of the chi-square statistics were all less than 0.05.

4.8.1.2 Key determinants of the use of a conceptual matrix

In an attempt to investigate the key determinants of students' use of a conceptual matrix, logistical regressions with year of completion, type of degree and institution completed were run as independent variables. As revealed by the results, only two factors were found to be key determinants in the use of a conceptual matrix, viz. year of completion and type of degree/qualifications, but not institution completed/campus location. The results show that students who graduated between 2005 and 2009 are 4.748 times more likely to have used a conceptual matrix in their dissertations than those students who graduated between the years 2000 and 2004. Similarly, students who graduated between 2010 and 2013 are 12.080 times more likely to have used a conceptual matrix compared to those students who graduated between 2000 and 2004.

Regarding the use of tables containing information about articles consulted and other sources, the results indicated that among the year categories grouped together, students from 2005-2009 are 5.380 times more likely to have correctly referenced their articles, publication date and other sources consulted and have listed them in their dissertations than those students who graduated in the year groups of 2000-2004. In addition, students who graduated during the year groups of 2010-2013 are 14.279 more likely to have presented tables containing the articles consulted and the publication date in their final dissertations as opposed to those students in the year groups of 2000-2004 and 2004-2009.

4.8.2 Are there any differences in the structure of IT/IS masters' and MBA dissertations?

4.8.2.1 Aspects relating to structure of dissertation

This section reports on the structure of IT/IS and MBA research students' documentation in their research applications. In an attempt to predict these results, several areas were looked into using a chi-square test to investigate whether IT/IS and MBA research was structured with respect to year of completion, type of degree, and institution completed/campus location. As indicated by the results, most (71.0%) of the

students were found to have properly structured their dissertations. Comparatively, more students (90.0%) from the 2010-2013 year groups were found to have correctly documented and structured their dissertations. Concerning the area where students were asked about the language certificate present in the appendix, the majority (58.0%) signified that language certificates were present in their dissertations. As regards the application of appropriate IS research methodology, 62.5% were found to have used an appropriate research methodology. Based on the chi-square test conducted, at the 0.05 level of significance, the results revealed that students significantly differed in the aspect relating to structure of dissertations since the p-values of the chi-square statistics are all less than 0.05.

On the other hand, for the variables "language certificate attached in the appendix" and "types of hypothesis used" were found not significantly different with (chi-sq=5.8396) <0.5603 and (chi-sq=0.5603) <0.7557). In addition there was no significant difference in the aspect relating to dissertation structuring, since the (chi-sq=2.7024) and the p-value of (0.1002) is greater than the significant level of 0.05. Therefore, the report reveals that there is no difference.

4.8.3 Do MComm and MBA students differ in research method chosen?

A chi-square test was conducted for assessing the difference in the application of research methodology used in student's dissertations. The level of 0.05 is seen as significant. The Chi-Square test between "Were the dissertation purposes and objectives stated" and "what research methodological approach was chosen" at the 0.05 level of significance, both variables were tested where their p-value (chi-sq=4.5563) 0.1025; p-value (chi-sq=2.4410) 0.6552. The breakdown shows that students do not differ significantly in research methods used since the p-values of the chi-square statistics are greater than 0.05. There is no association in the aspect of research methodology chosen and purposes and objectives

The chi-square testing between "Reason(s) for choosing data-collection method stated" and "Sample stratified" at the 0.05 level of significance gave the p-values 0.9476 (chi-

sq=0.1077) and p-value 0.2768 (chi-sq=2.5691). The report shows that students do not differ significantly in research methods application since the p-values of the chi-square statistics are greater than 0.05. There is no association between the aspects of choosing data collection method and sample stratified.

For the Chi-Square testing between “Research instrument discussed, other results attached in appendix” and “Research problem and the research questions aligned” at the 0.05 level of significance, the results show that students differ significantly in the aspect relating to research methodology chosen in their dissertation. On the other hand, for the variables “How was the research question(s) answered”, “Was the research problem and research questions aligned”, and “Were the research instrument discussed, other results attached in appendix” were found to differ significantly since their p-values of the chi-square statistics are all less than 0.05 significance. Therefore, there is an association in the choice of methods chosen in their dissertations.

Table 4.5: Chi-Square Tests

	Degree/Qualification							χ^2	P-Value
	TOTAL		MComm		MBA				
	No.	%	No.	%	No.	%			
Dissertation purpose and objectives stated?								8.6506	0.0033
Yes	175	87.5	97	94.2	78	80.4			
No	25	12.5	6	5.8	19	19.6			
Research methodological approach chosen?								4.0595	0.1314
Qualitative	65	32.5	39	37.9	26	26.8			
Quantitative	84	42.0	43	41.7	41	42.3			
Mixed methods	51	25.5	21	20.4	30	30.9			
Type of data-collection method used								6.2478	0.0124
Interview/Questionnaire	180	90.0	98	95.1	82	84.5			
Part. Observation/Doc. Analysis/Focus Groups	20	10.0	5	4.9	15	15.5			
Reason(s) for choosing data collection method stated?								13.6136	0.0002
Yes	125	62.5	77	74.8	48	49.5			
No	75	37.5	26	25.2	49	50.5			
Sample size and population discussed?								7.0597	0.0079
Yes	120	60.0	71	68.9	49	50.5			
No	80	40.0	32	31.1	48	49.5			

	Degree/Qualification						χ^2	P-Value
	TOTAL		MComm		MBA			
	No.	%	No.	%	No.	%		
Sample stratified?							0.3828	0.5361
Yes	64	32.0	35	34.0	29	29.9		
No	136	68.0	68	66.0	68	70.1		
Research instrument discussed, other results attached in appendix?							10.6000	0.0011
Yes	126	63.0	76	73.8	50	51.5		
No	74	37.0	27	26.2	47	48.5		
Research problem and the research questions aligned?							8.3234	0.0039
N/A	76	38.0	26	25.2	50	51.5		
Yes	73	36.5	53	51.5	20	20.6		
No	51	25.5	24	23.3	27	27.8		
How was/were research question(s) answered?							10.3309	0.0013
N/A	78	39.0	26	25.2	52	53.6		
Fully answered	47	23.5	38	36.9	9	9.3		
Partially answered/Not answered	75	37.5	39	37.9	36	37.1		
How were study hypotheses answered?							0.6702	0.4130
N/A	122	61.0	75	72.8	47	48.5		
Fully answered	21	10.5	6	5.8	15	15.5		
Partially answered/Not answered	57	28.5	22	21.4	35	36.1		

4.8.4 What are the apparent reasons in determining the quality of research outputs by IT/IS masters' and MBA students?

In Figure 4.29 above, the report revealed that IT/IS masters' and MBA students were also challenged by documentation of the research. It demonstrates the breakdown of the findings as well as differences in presentation with respect to year of completion, type of degree/qualifications and institution completed/campus location. It was revealed that the problem areas were dominant in the year group of 2000-2004 where 33.3% of students had structured their dissertations badly. In that same year group, only 11.1% had made a bad choice of research methods and in appropriate use of methodologies and 26.7% had bad referencing more so than any other year group. Comparatively, as regard to the degree/qualifications, the MBA had 29.9% of badly structured dissertations as opposed to MComm students at 26.2%. It is evident that those students who were categorised in the 2000-2004 year group were not comprehensively informed and well versed in research requirements and documentation. The findings denote that the year

group and degree/qualifications studied also play a part in the measurement of quality of research projects.

As revealed by the report, these challenges that students encountered were as a result of badly-structured dissertations, bad referencing or quoting of citations, choice of research methodologies and many more. Shannon (1995) affirmed that the continuing problem in research activity is sometimes caused by inadequate supervision. This means a lack of communication between the supervisor and student, while Thompson et al. (2005) and Hockey (1994) added that it is inappropriate for masters' research students to be supervised by individuals with no research background/qualifications.

4.8.4.1 Key determinants of quality of dissertation

In order to examine the determinants of the level of quality of MComm/MBA dissertations, logistic regressions were run and the results summarised. From all indications, three variables were found to be the key determinants; research dissertation/thesis alignment with research topic, the use of instrumentation, and whether the research questions/ hypotheses were addressed. In particular, the results indicate that students whose research themes were aligned were found to be 3.552 times more likely to produce high-quality research than those students whose research themes were partially/not aligned.

Comparatively, with regards to how research questions/hypothesis were addressed, students whose research questions/hypothesis were fully addressed were found to be 11.767 times most likely to have produced high-quality research as opposed to those students whose research questions were not answered/partially answered.

4.9 CONCLUSION

This chapter deliberated on the findings that were derived from the conceptual framework designed to capture data in an attempt to explore and to determine the use of a conceptual matrix, the application of appropriate IS research methodologies and approaches chosen to address the research questions and objectives. In addition, it

also addressed the issues that led to low completion rates of MComm and MBA students' dissertations and to improve the quality of research outputs. All these contributed to the main focus of this investigation in this chapter.

From the findings of the research study, the challenges which MComm and MBA students encounter were the result of badly-structured dissertations, bad referencing or citations, choice of research methodologies, to mention the most important. Furthermore, as revealed by the results, the use of a conceptual matrix is also a challenge to the MBA students as they are not properly informed about the use of a matrix. Figure 4.6 shows that between the MComm and MBA students, 103 respondents of IT/IS masters' students who used a matrix to align their research problem and themes (amounting to 74.8%) as opposed to MBA students with 37.1% while the majority (62.9%) did not make use of the conceptual matrix during their research projects. A progressive strategy should be put in place to enhance high standards of conducting an appropriate research approach.

The next chapter contains the summary, ways of improvement, recommendations and conclusion for both disciplines to adhere to in the application of IS research.

CHAPTER FIVE

SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

In the preceding chapter, the data gathered by ways of structured framework was analysed and interpreted. This chapter presents a summary of the entire study, followed by discussions reflecting on the findings obtained from the analysed data.

5.2 SUMMARY

The purpose of this research study was to investigate the application of appropriate IS research methodologies of IT/IS masters' dissertations in comparison with other MBA streams at the NWU, Mafikeng Campus. The study also included the IT/IS masters' completed dissertations in the IS Department and includes IT/IS masters' dissertations recorded in the Nexus Databases. This study was triggered by an emphasis on low completion rates of post-graduates and an increasing need to improve research throughputs (Pearson & Brew 2002).

Chapter one dealt with introducing the research, providing an overview of the study, including the objectives and purposes for undertaking the study as well as outlining the research design and methods.

Chapter two was devoted to the literature review related to IS research applications. This chapter dealt with the description of the theoretical perspectives and the findings that were found on the previous researchers for the problem being dealt with in this study.

Chapter three described the research design and methodology used for the study. It defined the type of data chosen to be collected, the conceptual framework as a chosen means to collect the data, the targeted population and the sample.

Chapter four presented the data analysis using the quantitative method and interpretation of the results through which the findings and recommendations were derived.

5.3 FINDINGS

The findings from the research study are presented in this portion in relation to the four research questions that were formulated to address the issue of IS research application, where an IT/IS masters' and MBA student would use a particular research method for rather negative reasons, and in addition, to improvise ways of improving research dissertations to comply with IT/IS masters' and MBA dissertation requirements.

Do IT/IS masters' MBA students use a conceptual matrix in their dissertations to demonstrate themes used in the literature review and aligning the themes to the research topic?

In Table 3, Table 4.4, and Figure 6, the findings mentioned above have an influence on the way in which the application of IS research methodologies is perceived. In this study the findings show that despite the autonomous responses, when comparing the students from both disciplines, one can easily identify which of these students used a conceptual matrix or not. Of 200 respondents, 74.8% of IT/IS masters' in MComm used a conceptual matrix during their research activities as opposed to the MBA candidates with 37.1%. This was in line with Klopper and Lubbe (2011) where they state that not many MBA students' use the problem-solution research question alignment matrix to ensure that sub-problems under investigation are properly aligned with the research questions that researcher poses to ensure viable empirical results.

Respondents were asked about "is there any table row present that contains the information about the articles' publication date, authors sources consulted apart from

the bibliography references listed". Figure 4.7 indicates that not many students use appropriate techniques in identifying the authors consulted and referencing styles. Of 200 respondents, 54% concurred that the table that contains authors' names and dates on which articles were published, was not present in their dissertations/theses, while 46% of the respondents stated otherwise. The finding also implies that key concepts used in the literature review were not found in the conceptual matrix as most students did not make use of a matrix in their respective studies.

Judging from the findings above, authors laid emphasis on a confirmation of students' negligence (Seminar 2007; Davis 2001; Lubbe et al. 2005; Remenyi et al. 2011), when students do not index references properly, there is a tendency that such students would spend weeks at the end of their studies attempting to rediscover that lost reference. These are some of the difficulties that masters' students encounter in documenting dissertations/theses.

Was the IT/IS masters' MBA research project properly structured?

Every research dissertation/thesis needs to be presented in a suitable academic style and plan to ensure that the particular objectives of the dissertation have been met. It is essential that the goals and intentions of the research dissertation are significantly conveyed and are attainable within the constraints of the dissertation structure. Numerous research questions were posed in examining how properly structured IT/IS masters and MBA students' dissertations were. Among students who strongly disagreed were (10%) and strongly disagreed were (19%). The result establishes that the majority of students concurred (71%) that their dissertations had been properly documented and well-structured.

In Figure 13, it is revealed to what extent it was compulsory for all research dissertations/theses to undergo a language check to ensure that the requirements of carrying out a proper research activity had been complied with. The findings illustrated that of 200 correspondents, 58% indicated that their research had gone through language editing with proof which had been attached at the appendix. The report in

Figure 4.14 indicates clearly that it is evidence that supervisors provide proper guidance and support to the best of their ability. Nonetheless, authors have constantly highlighted the fact that the nature and quality of masters' research dissertations are very dependent on supervision, guidance and support in as much as it is the responsibility of supervisors to apprehend the needs of a student (Kam 1997; Johnston 1995; Lee & Green 1995). The supervisor has a major role to play in the coaching, guiding and mentoring of the post-graduate students (Davis 2000). Nevertheless, it is also the post-graduate student's obligation to notify their research co-ordinator of improvements and to lead the progress of the dissertation. However, problems must be communicated at the time they are encountered.

What particular research method do IT/IS masters' MBA students use and what are the perceived barriers that they encounter in their research?

It is alleged that the MComm and MBA students use a particular research methodology inappropriately. The choice of research methodology is a difficult stage in the research and students must be well-versed in the selection of appropriate methodologies (Lubbe et al. 2005; Ellis & Levy 2009). The results establish that (19.5%) and (21.5%) were found to have chosen a qualitative and quantitative research method or a mixed-method approach (10.5%).

In total, between MComm and MBA students, it is reported that qualitative methods were (32%); quantitative methods (42%) and the mixed-method approach (25.5%). This result is in accordance with Orlikowski and Baroudi (1991) where they reflect on three extensive research methods, the positivist, the interpretivist, and the critical. Orlikowski and Baroudi (1991) discovered that between 1983 and 1988, 97% of IS research activities chose a positivist methodological approach which is known to be a quantitative method.

What apparent reason is visible for not completing a good research project?

In reference to findings of respondents, it clearly revealed that the post-graduate students did not understand the requirements and the purpose of conducting

appropriate IS research. Only a few masters' correspondents indicated that they comprehended the masters' dissertation requirements, protocols and roles. Lubbe et al. (2005) acknowledged that masters' students are challenged by stress as most students could hardly keep up with research stress. This happens when stress is perceived negatively or becomes unbearable, which leads to physical and psychological impairment (Murphy & Archer 1996).

Arising from the findings, the apparent reason for not completing a good research project would be the result of badly-structured dissertations, bad referencing or citations, choice of research methodologies and many more. Shannon (1995) added in confirmation that IT/IS masters' and MBA students are faced with life challenges, and affirmed that the prevalent problem in research activity is the inadequate supervision; in other words, lack of communication between the supervisor and student; the student's misunderstanding of standards, requirements, and of the supervisor's role and functions (Thompson et al. 2005; Hockey 1994), and concurred that it is inappropriate for masters' research students to be supervised by individuals with no research qualifications.

In Figure 29, the result shows that the majority of respondents (28%) indicated that the problems were badly-structured dissertations; followed by respondents (23.5%) whose dissertations were badly referenced and citations that were incomplete. Between students whose choice of research methodology, inappropriate use of methodology, research bias, misinterpretation of data and only figures and tables present were (9.5%); (6.5%); (9.5%); (3%) and (7%). Only a few students could affirm that their research dissertations were exceptional as compared to others (13%).

5.4 RECOMMENDATIONS

In order to deal with the application of appropriate IS research methodologies and how relevant the research methods chosen were, it should be considered whether these either contribute to or affect their studies. Based on the findings from this study, it was clearly identified that many of the respondents are of the opinion that they were not

taught how to use a conceptual matrix by the graduate school to facilitate well-documented research. This is because they lack the IT skills and have an inflexible design. However, Klopper and Lubbe (2011); Boote and Beile (2005) further recommended that non-IT/IS masters' and MBA research students should use a conceptual matrix for aligning research problems, aims and research questions. Consequently, few research discussions have been conducted about the low completion rates of masters' students, probably because it brings shame to most supervisors. Inadequate post-graduate performance should at all times be deliberated about openly.

Lubbe et al. (2005), Boote and Beile (2005) and Silverman (2000) made recommendations on how post-graduates should undertake research; the researcher has to engage in a careful and systematic process of research design, reflect on the nature of IS as a whole, and then to look at what he/she aim to achieve from conducting research in that field (Lubbe et al. 2005; Galliers & Land 1987). Secondly, determine your research interests and begin your literature survey in identifying at least one specific problem that you want to solve by means of your research (Lubbe et al. 2005; Boote & Beile 2005). It is assumed that where there is no research problem that needs solution, there is no research to be carried out (Silverman 2000).

5.5 CONCLUSION

This survey was undertaken as a result of inappropriate application of research methodologies towards masters' students which sometime affect the completion rate of masters' dissertations. Therefore, the study was carried out on IT/IS masters and MBA post graduates' completed dissertations. This was projected to determining whether the research methods used by both disciplines were appropriate to their studies. It further looked into the use conceptual matrix and problem research question alignment matrix to ensure that sub-problems are properly aligned with the research questions.

In this chapter a summary of the study was provided, In general, the results indicate that some postgraduate students uses inappropriate methods to carry out their research

activities, on the other hand, most students are knowledgeable of choosing the right methods, but the application are a challenge to them. Most of the MBA students are not aware of about the use of a conceptual matrix and research problem alignment matrix as opposed to the MComm students, it is evidenced that lack of these tools contributed to ill-structure of their dissertations.

The findings have been revealed and recommendations were drawn for students in both disciplines to continually meet the expectations and requirements of good quality research projects. The four sections of the research questions, together with findings from the data collected and analyse have been answered and analysed in this chapter.

It can then be concluded that for a postgraduate student to embark on a sound research project, he/she needs to understand the research requirements. Postgraduate students should be able to engage in a careful and systematic process of research design, in determining of their research interests and then to look at what he/she attain to accomplish from conducting research. Findings revealed that non-IT/IS masters' and MBA students are challenged in the areas of research alignment, lack of a conceptual matrix and badly structured dissertations. This therefore has negative impact on students completing their studies as purported time.

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APPENDIX A: CONCEPT MATRIX

CONCEPT MATRIX

Concepts	References	8	10	14	6	15	10	15	8	4	3
Concepts per source	References per concept	8	10	14	6	15	10	15	8	4	3
1	1			1							
1	1									1	
1	1								1		
3	3		1								1
1	1							1			
1	1			1							
1	1							1			
1	1										
1	1										
3	3										
1	1										
2	2										

<i>Creswell (2005)</i>	2			1		1				
<i>Creswell and Miller (2000)</i>	1								1	
<i>Davis (2000)</i>	2					1	1			
<i>De Vaus (2002)</i>	1								1	
<i>Ellis and Levy (2008)</i>	2			1		1				
<i>Evans (1995)</i>								1		
<i>Galliers and Land (1987)</i>	1					1				
<i>Ge and Land (2004)</i>	1			1						
<i>Golde and Dore (2001)</i>	2		1				1			
<i>Grover (2001)</i>	1		1							
<i>Harypursat et al. (2005)</i>	1		1							
<i>Hockey (1994)</i>	1							1		
<i>Johnston (1995)</i>	3		1				1	1		
<i>Kam (1997)</i>	1							1		
<i>Klopper (2009)</i>	1			1						
<i>Klopper and Lubbe (2011)</i>	5			1	1	1	1	1		
<i>Klopper et al. (2007)</i>	2			1			1			
<i>Kothari (1990)</i>	1					1				
<i>Krejcie and Morgan (1970)</i>	2							1	1	
<i>Leder (1995)</i>	2	1						1		
<i>Lee and Green (1995)</i>	1							1		
<i>Leedy and Ormrod (2010)</i>	1									1
<i>Lubbe et al. (2005)</i>	6		1	1	1	1	1	1		
<i>Marsh et al. (2002)</i>	1	1								
<i>Mauch and Park (2003)</i>	2		1		1					
<i>Mavetera (2011)</i>	3			1		1	1			

<i>North et al. (2012)</i>	1	1								
<i>Orlikowski and Baroudi (1991)</i>	5		1	1		1	1		1	
<i>Paltridge (1997)</i>	3		1	1	1					
<i>Pather et al. (2005)</i>	3	1		1		1				
<i>Pearson and Brew (2002)</i>	4	1	1				1			1
<i>Pinsonneault and Kraemer (1993)</i>	1					1				
<i>Remenyi et al. (2011)</i>	3				1	1	1			
<i>Schneider et al. (2003)</i>	1								1	
<i>Seminar (2007)</i>	1						1			
<i>Shannon (1995)</i>	4		1	1				1		1
<i>Swales (1987)</i>	1			1						
<i>Taylor et al. (2007)</i>	2					1			1	
<i>Thomas and Ahyick (2010)</i>	1									1
<i>Thompson et al. (2005)</i>	3	1						1		1
<i>Worrall et al. (2007)</i>	1				1					
<i>Yeatman (1995)</i>	2							1		1
<i>Topi et al. (2010)</i>	1									1

APPENDIX B: TABLE OF CONSTRUCTION

RESEARCH QUESTION DEVELOPMENT

Research question construction

	Research question		Survey questions	Variable(s) and /or relationship measured	Question types	Date type
D1	Demographic	D.1 D.2 D.3 D.4 D.5	Year completed? Month of submission? Degree/Qualification Library Call no. Institution completed/campus location	Demographic question Demographic question Demographic question Demographic question	2000-2005,2006-2010,2011-2013 – Jan, Jul- Dec Master of Com, Masters in Business Administration TH 338 –TH 658	Discrete Discrete Dichotomous Dichotomous
RS1	Do IT/IS Masters MBA students use a conceptual matrix in their dissertations?	S.1 S1.2 S1.3	Do IT/IS Masters MBA students use a conceptual matrix in their dissertations? Is there any table row present that contains the information about the articles' publication date, authors sources consulted apart from the bibliography references listed? Were the key concepts	The use of conceptualisation matrix The use of conceptualisation matrix The use of conceptualisation matrix	Yes-No (Likert Scale) Yes-No (Likert Scale) Yes-No (Likert Scale)	Ordinal Ordinal Ordinal

		S1.4	embedded in the conceptual matrix table found present on the literature review in the dissertation?	on matrix The use of conceptualisation on matrix	Yes-No (Likert Scale)	Ordinal
		S1.5	Were the conceptual matrix added as part of the appendices in the dissertation Were conceptual matrix added at the appendixes in the dissertation? Were the research themes properly aligned with the research topic in the dissertation?	The use of conceptualisation on matrix	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree- (Likert Scale)	Ordinal
RS2	Was the IT/IS Masters MBA research project properly structured?	S2.1	Is the dissertation properly documented and well-structured?	The level of dissertation Structure	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree- (Likert Scale)	Ordinal
		S2.2	Is the language certificate attached at appendix in the dissertation	The level of dissertation Structure	Yes-No (Likert Scale)	Ordinal
		S2.3	The application of IS research methodology was appropriate?	The level of dissertation Structure	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree- (Likert Scale)	Ordinal
		S2.4	It seems as if the student who compiled the dissertation was insufficiently guided and supported?	The level of dissertation Structure	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree- (Likert Scale)	Ordinal
		S2.5	Was a research question or hypothesis used?	The level of dissertation Structure	Yes-No (Likert Scale)	Ordinal
		S2.6	If hypothesis, was it	The level of dissertation Structure	Alternative & Null/ Not	Ordinal

		S2.7	Was the hypothesis theoretically motivated?	The level of dissertation Structure The level of dissertation Structure	properly worded Yes-No-Not sure (Likert Scale)	Ordinal
RS3	What particular research method do IT/IS Masters MBA students use and what are the perceived barriers that they encounter in their research?	S3.1	Is the purpose and objectives of the study stated in the dissertation	Research and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.2	What research methodological approach was chosen for the study in the dissertation?	Research design and methodology question	Qualitative, Quantitative, Mixed methods	Ordinal
		S3.3	What data collection method was used for the study in the dissertation?	Research design and methodology question	Interview, questionnaire, participation observation, document analysis, focus groups, interview & questionnaire	Ordinal
		S3.4	Were any reason(s) for choosing this particular research methodology mentioned in the dissertation	Research design and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.5	Were the sample size and the population mentioned in the dissertation?	Research design and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.6		Research design and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.7	Will the sample be stratified?	Research design and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.8	Were the instrument(s) used in measuring, analysing and interpreting the results	Research design and methodology question	Yes-No (Likert Scale)	Ordinal
		S3.9		Research design and methodology	Yes-No (Likert Scale)	Ordinal

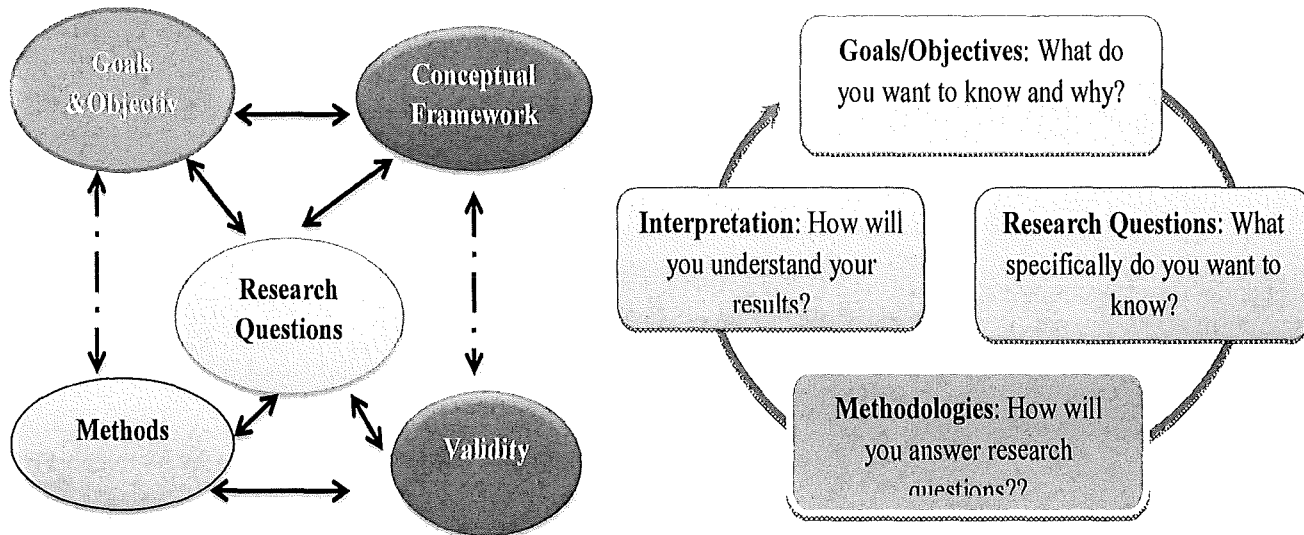
		S3.10	attached as appendix in the dissertation?	question	Yes-No (Likert Scale)	Ordinal
		S3.11	Were permission granted for recording information during the data collection procedure mentioned?	Research design and methodology question	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree-(Likert Scale)	Ordinal
			Were the research problem and the research questions aligned?	Research design and methodology question	Strongly Agree-Agree-Undecided-Disagree-Strongly Disagree-(Likert Scale)	
			Was the research question(s) answered?	Research design and methodology question		
RS4	What apparent reason is visible for not completing a good research project?	S4.1	What apparent reason is visible for not completing a good research project?	Factors influencing the quality control of the research dissertation	Badly structured, Choice of research methods, Inappropriate use of methodologies, Bad referencing, Bias, Misrepresentation of data, Only figures & tables, none	Ordinal

APPENDIX C: CONCEPTUAL FRAMEWORK

CONCEPTUAL FRAMEWORK

Topic: The application of appropriate IS research methodologies of IT/IS and MBA dissertations

Interactive framework of research design



Source: Maxwell 2005

The research objectives of this study in alignment with the research question.

The objectives of the study are to investigate IT/IS masters' students ideological ways of comprehending information and understanding dissertation requirements; To prepare post-graduate IT/IS masters' students to undertake sound research projects that culminate in a masters' dissertation and increase research completion rates; To investigate the linking factors between students and supervisors, and to identify challenges encountered, specifically with IT MBA students that force them to use particular research methods in completing their research dissertations. These objectives will be properly aligned with the research questions as soon as the literature review is finalised.

Other please specify

Section 1: Do IT/IS masters' MBA students use a conceptual matrix in their dissertations to demonstrate themes used in the literature review and aligning the themes to the research topic? (Yes / No)

Do IT/IS Masters MBA students use a conceptual matrix in their dissertations Yes No

S.1.1. Is there any table row present that contains the information about the articles' publication date, authors sources consulted apart from the bibliography references listed? Yes No

S.1.2. Were the key concepts embedded in the conceptual matrix table found present on the literature review in the dissertation? Yes No

S.1.3. Were the conceptual matrix added as part of the appendices in the dissertation? Yes

S.1.4. Were the research themes properly aligned with the research topic in the dissertation?

- Very aligned
- Somewhat aligned
- Not aligned
- Not properly worded

Section 2: Was the IT/IS masters' MBA research project properly structured? (Tick one appropriate box)

S.2.1. Is the dissertation properly documented and well-structured?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

S.2.2. Is the language certificate attached at appendix in the dissertation? Yes No

S.2.3. The application of IS research methodology was appropriate?

- Strongly agree
- Agree
-
-

Disagree

Strongly disagree

S.2.4. It seems as if the student who compiled the dissertation was insufficiently guided and supported?

Strongly agree

Agree

Disagree

Strongly disagree

S.2.5. Was a research question or hypothesis used?

Research Questions

Hypothesis

S.2.6. If hypothesis, was it

Alternative & Null

Not properly worded

S.2.6.2 Was the hypothesis theoretically motivated? Yes

Not sure

Section 3: What particular research method do IT/IS Masters MBA students use and what are the perceived barriers that they encounter in their research?

(Tick appropriate box)

S.3.1. Is the purpose and objectives of the study stated in the dissertation?

Yes

No

S.3.2. What research methodological approach was chosen for the study in the dissertation? Qualitative

Quantitative

Mixed methods

S.3.3. What data collection method was used for the study in the dissertation?

Interview

Questionnaire

Participant Observation

Document Analysis

Focus Groups

Interview & Questionnaire

Other Please specify

S.3.4. Were any reason(s) for choosing this particular research methodology mentioned in the dissertation? Yes No

S.3.5. Were the sample size and the population mentioned in the dissertation? Yes No

S.3.6. Will the sample be stratified? Yes No

S.3.7. Were the instrument(s) used in measuring, analysing and interpreting the results attached as appendix in the dissertation? Yes No

S.3.8. Were permission granted for recording information during the data collection procedure mentioned? Yes No

S.3.9. Were the research problem and the research questions aligned? Yes No

S.3.10. Was the research question(s) answered?

Yes answered
Somewhat answered
Not answered
Not sure

S.3.11. Was the hypothesis proven?

Yes answered
Somewhat answered
Not answered
Not sure

Section 4: What apparent reason is visible for not completing a good research project? (Tick as many as possible box)

Badly structured
Choice of research methods
Inappropriate use of methodologies
Bad referencing
Bias
Misrepresentation of data

Only figures & tables

None



APPENDIX D: CHI-SQUARE TEST TABLE AND REGRESSION

APPENDIX D1: The likelihood of predicting the use of conceptual matrix

APPENDIX D2: The structure of MComm and MBA dissertations

APPENDIX D3: Measure of quality of research project

APPENDIX D4: Event modelled in “High Quality Research”

Dep. Var.						
V6 Used conceptual matrix in dissertations? Ref=No	Analysis of Maximum Likelihood Estimates					
	Parameter		V6	Estimate	Odds Ratio	Pr > ChiSq
	Intercept		Yes	-0.3484		0.3493
	V1new <i>Year completed</i>	2005-2009	Yes	1.5578	4.748	0.0006
		2010-2013	Yes	2.4915	12.080	<.0001
		2000-2004 (Ref)	-	-	1.000	-
	V3 <i>Degree/Qualification</i>	MBA	Yes	-1.7134	0.180	<.0001
MComm (Ref)		-	-	1.000	-	
V7 Used table containing information about articles, consulted other sources? Ref=No	Analysis of Maximum Likelihood Estimates					
	Parameter		V7	Estimate	Odds Ratio	Pr > ChiSq
	Intercept		Yes	-1.1400		0.0083
	V1new <i>Year completed</i>	2005-2009	Yes	1.6827	5.380	0.0007
		2010-2013	Yes	2.6588	14.279	<.0001
		2000-2004 (Ref)	-	-	1.000	-
	V3 <i>Degree/Qualification</i>	MBA	Yes	-1.5286	0.217	<.0001
MComm (Ref)		-	-	1.000	-	
V8 Key concepts embedded in conceptual matrix table in present on literature review? Ref=No	Analysis of Maximum Likelihood Estimates					
	Parameter		V8	Estimate		Pr > ChiSq
	Intercept		Yes	-0.8973		0.0307
	V1new <i>Year completed</i>	2005-2009	Yes	1.4981	4.473	0.0023
		2010-2013	Yes	2.6447	14.079	<.0001
		2000-2004 (Ref)	-	-	1.000	-
	V3 <i>Degree/Qualification</i>	MBA	Yes	-1.8390	0.159	<.0001
MCom (Ref)		-	-	1.000	-	
V9 Conceptual matrix added as part of appendices? Ref=No	Analysis of Maximum Likelihood Estimates					
	Parameter		V9	Estimate		Pr > ChiSq
	Intercept		Yes	-1.7041		0.0016
	V1new <i>Year completed</i>	2005-2009	Yes	2.2728	9.707	0.0002
		2010-2013	Yes	3.5143	33.591	<.0001
		2000-2004 (Ref)	-	-	1.000	-
	V3 <i>Degree/Qualification</i>	MBA	Yes	-2.1420	0.117	<.0001
MComm (Ref)		-	-	1.000	-	

V10 Research themes properly aligned with research topic? Ref=Partially/Not aligned	Analysis of Maximum Likelihood Estimates					
	Parameter		V10new	Estimate		Pr > ChiSq
	Intercept		Fully aligned	-0.9652		0.0193
	V1new Year completed	2005-2009	Fully aligned	1.5164	4.556	0.0016
		2010-2013	Fully aligned	2.1178	8.313	<.0001
		2000-2004 (Ref)				
	V3 Degree/Qualification	MBA	Fully aligned	-1.5435	0.214	<.0001
		MComm (Ref)				

The structure of MComm and MBA dissertations

	Year completed									χ^2	P-Value
	TOTAL		2000-2004		2005-2009		2010-2013				
	No.	%	No.	%	No.	%	No.	%			
Dissertation properly documented and well-structured?										21.9994	<.0001
<i>Agree/Strongly agree</i>	142	71.0	23	51.1	56	65.9	63	90.0			
<i>Disagree/Strongly disagree</i>	58	29.0	22	48.9	29	34.1	7	10.0			
Language certificate attached at appendix?										5.8396	0.0539
<i>Yes</i>	116	58.0	21	46.7	47	55.3	48	68.6			
<i>No</i>	84	42.0	24	53.3	38	44.7	22	31.4			
Application of IS research methodology appropriate?										17.4978	0.0002
<i>Agree/Strongly agree</i>	125	62.5	18	40.0	52	61.2	55	78.6			
<i>Disagree/Strongly disagree</i>	75	37.5	27	60.0	33	38.8	15	21.4			
Dissertation insufficiently guided and supported?										31.6554	<.0001
<i>Agree/Strongly agree</i>	79	39.5	32	71.1	34	40.0	13	18.6			
<i>Disagree/Strongly disagree</i>	121	60.5	13	28.9	51	60.0	57	81.4			
Research questions or hypotheses used?										11.7073	0.0029
<i>Research question</i>	125	62.5	21	46.7	50	58.8	54	77.1			
<i>Hypothesis</i>	75	37.5	24	53.3	35	41.2	16	22.9			
Type of hypotheses used										0.5603	0.7557
<i>N/A</i>	122	61.0	19	42.2	49	57.6	54	77.1			
<i>Null & Alternative</i>	33	16.5	11	24.4	14	16.5	8	11.4			

	Year completed									χ^2	P-Value
	TOTAL		2000-2004		2005-2009		2010-2013				
	No.	%	No.	%	No.	%	No.	%			
<i>Not properly worded</i>	45	22.5	15	33.3	22	25.9	8	11.4			
Hypotheses motivated?									21.9853	<.0001	
<i>N/A</i>	59	29.5	13	28.9	30	35.3	16	22.9			
Yes	71	35.5	8	17.8	23	27.1	40	57.1			
<i>No/Not sure</i>	70	35.0	24	53.3	32	37.6	14	20.0			

Measure of quality of research project

	Measure of quality of research project?																				χ^2	P-Value
	TOTAL		Badly structured		Choice of research methods		Inappropriate use of methodologies		Bad referencing		Bias		Misrepresentation of data		Only figures and tables		None					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
Year completed																			32.2169	0.0037		
<i>2000-2004</i>	45	100.0	15	33.3	5	11.1	5	11.1	12	26.7	2	4.4	3	6.7	2	4.4	1	2.2				
<i>2005-2009</i>	85	100.0	19	22.4	11	12.9	1	1.2	19	22.4	12	14.1	3	3.5	10	11.8	10	11.8				
<i>2010-2013</i>	70	100.0	22	31.4	3	4.3	7	10.0	16	22.9	5	7.1	0	0.0	2	2.9	15	21.4				
Degree/Qualification																			7.9380	0.3381		
<i>MComm</i>	103	100.0	27	26.2	5	4.9	8	7.8	27	26.2	11	10.7	4	3.9	6	5.8	15	14.6				
<i>MBA</i>	97	100.0	29	29.9	14	14.4	5	5.2	20	20.6	8	8.2	2	2.1	8	8.2	11	11.3				
Campus location																			6.5122	0.4814		
<i>Mafikeng</i>	103	100.0	30	29.1	14	13.6	5	4.9	21	20.4	8	7.8	3	2.9	8	7.8	14	13.6				
<i>Other</i>	97	100.0	26	26.8	5	5.2	8	8.2	26	26.8	11	11.3	3	3.1	6	6.2	12	12.4				

Event modelled in “High Quality Research”

Analysis of Maximum Likelihood Estimates				
Parameter		Estimate	Odds Ratio	Pr > Chi Sq
Intercept		-5.6296		<.0001
V10new	Fully aligned	1.2676	3.552	0.0333
Research themes properly aligned with research topic?	Partially/Not aligned (Ref)	-	1.000	-
V24	Yes	1.6739	5.333	0.0320
Research instrumentation indicated, other results attached in appendix?	No (Ref)	-	1.000	-
V27new	Fully answered	2.4653	11.767	0.0021
How was research question(s) answered?	Research questions not used	1.7008	5.478	0.0419
	Partially/Not answered (Ref)	-	1.000	-

APPENDIX E: ETHICAL CLEARANCE



NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
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The Department Head
North West Department
Mafikeng
2745

22 April 2014

To whom it may concern

Dear Sir/ Madam

Kenneth Ohei - student number: 20846444 is a Masters student at the North West University.

Ethical clearance has been granted to proceed with his research.

The Ethical Clearance number is: NWU-215-13-A9.

Project Title: Application of appropriate research methodologies.

Kind regards,

A handwritten signature in black ink, appearing to read 'JB van Lill'.

.....
Prof. JB van Lill
Director

LANGUAGE EDITOR'S LETTER

Declaration

This is to declare that I,

Annette L Combrink

Accredited language editor and translator of the

South African Translators' institute

have language edited the

dissertation by

Kenneth Ohei

Student number: 20846444

**AN INVESTIGATION INTO THE APPLICATION OF APPROPRIATE
INFORMATION SYSTEMS RESEARCH METHODOLOGIES OF IT/IS
AND MBA MINI-DISSERTATIONS AT NORTH WEST UNIVERSITY**



Prof. Annette L Combrink
Accredited translator and language editor,
South African Translators' Institute
Membership no. 1000356
Date: 2 June 2014

