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Title: **A Systematic Review: Student and supervisor variables affecting completion of postgraduate research requirements**

Student Name: Nicolette Rae

Student Number: 3476064

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Supervisor: Dr. Mario Smith

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ABSTRACT

South Africa has one of the highest postgraduate dropout rates in the world. One of the main contributing factors to the high number of unfinished Master's and Doctorate degrees is incomplete theses and dissertations. Frequently postgraduate students complete all other course requirements, but are unable to complete the independent research component. Ethics clearance was obtained from the Senate research committee at UWC. This study used a systematic review methodology to identify appropriate literature on the personal characteristics and demographic variables of postgraduate research students and supervisors and the impact that these variables have on completion rates. The study evaluated the literature for methodological quality in order to enable comprehensive identification, evaluation and meta-synthesis of the current best evidence regarding personal and demographic factors which may affect the supervisory relationship and help or hinder completion rates. This resulted in an evidence base of filtered information which can be used by individuals, institutions of higher education, and government or non-government organisations to inform individual practice, specialised training programmes and general psychoeducation. The results indicated that there is empirical evidence from good quality research that personal and demographic variables impact the working alliance between students and supervisors, and ultimately the completion of the research. Race, gender, spirituality, isolation, and socio-economic status were among the more prominent factors identified.

PLAGIARISM DECLARATION

I hereby declare that “A Systematic Review: Student and supervisor variables affecting completion of postgraduate research requirements” is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Nicolette Leigh-Ann Rae June 2015

Signed .....

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CHAPTER 1

INTRODUCTION

1.1 Thesis organization/ lay out

This thesis is comprised of five chapters. Chapter One serves as an introduction to the topic by introducing the study in context of the larger parent study of which it forms a part. The introductory first chapter also provides a background to the study, identifies a problem statement and explains the rationale for conducting the study. Chapter Two is a brief literature review. The brevity of the literature review is due to the fact that the study design is itself a review of literature. Chapter Three provides a detailed report on the methodology with a clear description of the different methodological elements such as the review question, review process and the method of analysis used. Chapter Four is a presentation of the results and discussion thereof, as well as a flowchart detailing the search process, as well as the number of studies included and excluded at each stage of the review. The fifth and final chapter is a conclusion, which serves to tie the study together and highlights its significance, the limitations of the study and recommendations for further research, as well as implications or practical suggestions for supervisors and their postgraduate students.

1.2 Background to the study

Completion rates of postgraduate research students are relatively low worldwide (Gurr, 2001). South Africa, in particular, has an insufficient postgraduate completion rate (Dell, 2010; De La Rey, 2007). Completion rates are viewed, internationally, as status indicators of the university (Wright, 2003). Universities with low completion rates or slow throughput rates are given lower ratings on performance scales and consequently receive less funding from Government and private donors (Wright, 2003). This results in a loss of revenue and places increased pressure on programmes to produce more successful graduates

(Sayed, Kruss & Badat, 1998). It is therefore imperative that the reasons for incompletion be examined and remedied. Successful submission of theses and dissertations has been found, by many researchers, to be either directly or indirectly affected by the personal or demographic variables of the student and the supervisor (Berkel, Constantine, & Olson, 2007; Grant, 2003; Kiley, 2011; Lee, 2008; Messinger, 2007; Manathunga, 2005; Nilsson, 2008; Shroeder, Andrews, & Hindes, 2009). Personal and demographic variables respectively have been reported in these studies to have the potential to impact completion in a positive or negative way. In many, but not all cases, intervention through the supervisory relationship can positively mediate negative effects caused by personal or demographic variables (Lee, 2008; Manathunga, 2005; Sterner, 2009). Alternatively, the supervisory relationship has the potential to further aggravate negative effects or even hinder any positive effects caused by personal or demographic variables (Kiley, 2011; Sterner, 2009). There are also cases in which the poor quality of the supervisory relationship is, in and of itself, seen as the cause of incompletion (Grant, 2003; Manathunga, 2005; Wisker, Robinson & Shacham, 2007). It is though important to note that there are also cases in the literature in which null findings have been reported for the hypothesized impact of the supervisory relationship on completion (Wright, 2003). The majority of students however, seem to view the supervisory relationship as the most important factor in determining their success or failure (Armstrong, Allison & Hayes, 2004; Grant, 2003; Gurr, 2001; Lee, 2008; Wisker, Robinson & Shacham, 2007). Thus an increase in awareness of the potential impact of personal or demographic variables by students and supervisors may have positive implications for the thesis endeavour. Student and supervisor perceptions of the supervisory relationships as satisfactory should also theoretically facilitate the timely completion rates despite any negative effects caused by personal or demographic variables. Wright (2003) concluded that the available literature on postgraduate research addresses mostly process, structure, and performance in postgraduate

students with minimal acknowledgement of the larger context such as, the presence of supportive relationships, as well as personal characteristics and demographic variables.

1.3 Problem Statement

The body of literature reporting on studies that attempted to identify the impact of personal and demographic variables on completion are often so diverse in content and methodology that meaningful comparison becomes problematic. It is very difficult to compare primary texts because they generally report their findings in a summative manner with descriptive information about their methodologies. This does not provide a sense of the quality of the respective methodologies that in turn does not allow for a rigorous and systematic basis for comparison. Thus it becomes evident that there is a gap in the body of literature for filtered information, i.e. primary texts which have been consolidated after being assessed for methodological rigour and coherence along a common denominator (Uman, 2011).Thus the present study aimed to consolidate the literature into a base of good quality, empirical evidence by providing filtered information and a comprehensive meta-synthesis of studies reporting on factors impacting the ability of postgraduate students to complete the thesis component of their course requirements.

1.4 Rationale for the study

The purpose of this study was to provide a consolidated base of empirical evidence on the impact of personal and demographic variables on completion of thesis requirements by including literature that has satisfied a threshold of methodological rigour. This base or body of literature could be used to inform the individual practice of supervisors, postgraduate student orientation programmes, and strategies to develop or enhance supervisor capacity or skill including general psychoeducation about the importance of acknowledging the impact of personal and demographic aspects in the thesis endeavour. In this way the research will

underscore the psychological aspects of the thesis process alongside the educative and administrative aspects.

1.5 The parent study

The present study was part of a larger parent study. Below is a brief description of the parent study and the relative positioning of the present study.

The larger study aims to produce a concept map of the elements contained in developing research capacity in postgraduate students and early career academics at identified institutions of higher learning in the Western Cape. Postgraduate students are assumed to develop the capacity to conduct research independently and to evaluate their own work as internal supervisors through the process of thesis supervision. Thus upon qualification they are expected to be able to supervise other students and to reproduce as neophyte academics or researchers. However, research indicates that new academics struggle with the transition to academia and often feel ill equipped for the task of research supervision regardless of time since graduation. The study will aim to identify the elements of research capacity as contained in the process of thesis supervision, the perceptions of stakeholders involved in the process of facilitating the development of research capacity in the target populations, surveys of student perceptions and findings summarized from systematic reviews. The final concept map will be distilled from data generated in all four stages. Each stage was conceptualized as an independent stage with its own methodological elements. Stage 1 included four systematic reviews. Three of these will target intervention studies. The first will look at interventions with students that were aimed at increasing retention and submission rates. The second will examine interventions with new (early career) academics in order to identify the struggles they face trying to balance and adjust to all their new responsibilities in the workplace with the aim of enhancing research productivity and

publication. The third will look at interventions (e.g. supervisor training) aimed at enhancing supervision capacity in order to achieve higher completion rates, as well as facilitate internalization of the supervision process and the capacity to replicate it. Although these three studies will all be focused on interventions or strategies, they differ substantially in terms of their target groups with the first study focusing solely on students, the second solely on new academics and the third solely on supervisors. Although some new academics may also be supervisors, study two and three will not overlap in any way as the study on new academics focused solely on the research productivity of the new academics and not on their role as supervisors. This study is the fourth of the systematic reviews and is most differentiated from the other three in that it looked instead at supervisor and student variables (demographics and personal factors/ psychological characteristics) that impact the successful completion of research requirements. This study was also different from the other three in that it focused on the perspectives of both students and supervisors as opposed to solely one or the other. The dual perspective was necessary for this study as it looked at the human element involved in the thesis endeavour and this is not something that can easily be studied in isolation from one perspective or another, but must rather be viewed from all involved perspectives for a more nuanced, and less biased finding. Stage 2 of the parent project involved the construction of a questionnaire evaluating various components of thesis supervision that facilitated or hindered the development of the capacity to conduct research independently. This questionnaire will be used in a full survey in stage 3 whilst stage 4 is a qualitative study of stakeholders' perceptions. This systematic review will form part of stage 1 of the larger 4-stage project. Permission to conduct the parent study has been obtained by the principal investigator/ supervisor (Ethics clearance #13/10/57).

CHAPTER 2

LITERATURE REVIEW

2.1 Higher education landscape: South Africa does not currently have enough highly educated people in most professions (Council on Higher Education, 2009; De La Rey, 2007; & Dell, 2010). The throughput rate for Doctoral students in South Africa is estimated to be about one eighth of that in European countries (Dell, 2010). In other words, universities are "producing fewer graduates relative to the number of recurring students" (Council on Higher Education, 2009, p. xvi). This shortage has been attributed to an insufficient number of students coming through the education system successfully at postgraduate levels (Dell, 2010). Regular throughput of qualified postgraduate students is of paramount importance as without them it becomes difficult for the country to compete successfully at a national and international level (Frostick & Gault, 2013). It also affects the ability of professions within the country to "generate knowledge that is responsive to a wide range of societal needs" (Council on Higher Education, 2009, p. ix).

2.2 Challenges in postgraduate education: One phenomenon which affects the ability of institutions to produce a satisfactory amount of postgraduate students is known as the Pile-Up Effect (Nienabar, 2011; Council on Higher Education, 2009). This is the process by which "students remain enrolled for their degree for much longer than expected (or desirable)" (Council on Higher Education, 2009, p. xvi). This places strain on universities as they struggle to provide sufficient resources, specifically in the form of supervisors and support staff. In fact, "the number of postgraduate students has more than doubled over the past few years, whilst the number of permanent academics has only increased by 40%" (Council on Higher Education, 2009, p. xix). This means that many supervisors are taking on more students than should realistically be expected and this no doubt has a distinct impact on the quality of the supervision. These effects can be seen specifically in Social and Health

sciences where the number of Masters graduates relative to enrolments was 67% in 2001 and only 52% a mere four years later in 2005 (Council on Higher Education, 2009). Research has shown that for many students in the field of Social Sciences it is the thesis requirement specifically which delays timely completion as many students successfully complete all other course requirements, but get stuck with the research component (Armstrong, Allison & Hayes, 2004; Pillay & Kritzinger, 2007; Sayed, Kruss & Badat, 1998). It is therefore imperative that further research be done to determine ways in which to better facilitate the research process for postgraduate students. With regard to at-risk groups, drop-out rates are more prevalent among black and coloured students, and female students, with drop-out rates being significantly higher for the Social Sciences than Physical Sciences or Technology (De La Rey, 2007). These findings illustrate that further research needs to be done in the field of Social Sciences and suggest that demographics may be an area which needs to be further examined in relation to its role in the successful and timely completion of postgraduate research programs.

2.3 The supervisory relationship: The supervisory relationship has consistently been reported since the late 80s as an element that has a major influence on successful and timely completion of postgraduate research either directly (in and of itself) or indirectly by means of aggravating or hindering the effects of personal or demographic variables (Brown & Atkins, 1988; Garcia, Malott & Brethower, 1988; Hockey, 1991; Malott, 1986). For example, Armstrong, Allison and Hayes (1997) found that the vast majority of Masters and Doctoral students regard the relationship with their supervisor as the “single most important aspect of the quality of their research experience” (p. 211). Similar findings from more recent studies are that the quality of the supervisory relationship directly impacts a student’s potential to succeed to a large extent (Lategan, 2009; Kiguwa & Langa, 2009; Kiley, 2011; Rochford, 2003). Gurr (2001) examined postgraduate student satisfaction and found that a quarter of the

group was not satisfied with their experience of conducting research for degree purposes and 31% of this group attributed their dissatisfaction directly to the supervisory relationship.

The importance of the supervisory relationship to the research process and evidence that potentially major problems are occurring within these relationships, is an area in which much research has been conducted however, many of the existing studies have examined clinical supervision in clinical settings and in fieldwork (Everett et al., 2011; Myers et al., 2012; Reynolds & Riviera, 2012; Schwartze-Mette, 2009; Swaggler & Ellis, 2003; Veilleux et al., 2012) and significantly less research has been done regarding supervision of the research component of Masters and Doctoral programmes in any field (Subramanian, Anderson, Morgaine & Thompson, 2012). Thus the challenges associated with research supervision require more attention (Armstrong, Allison & Hayes, 2004; Subramanian et al., 2012). It is vital that we see an increase in research on the factors affecting successful completion of theses and dissertations, especially considering that the vast majority of Masters and Doctoral programmes, including clinical and professional programmes, involve a compulsory research component which must be completed before a student is able to graduate (Sayed, Kruss & Badat, 1998).

Many of the studies researching factors affecting research completion have looked at the technical and intellectual issues involved in postgraduate research such as level of academic preparedness with regard to academic writing ability and knowledge on how to conduct research independently (Bynard, 2005; Gascho-Rempel, 2010; Govender, 2011; Mullen, 2000), and the skills of the supervisor (Lategan, 2009; Lessing, 2011; Peluso, Carleton & Asmundson, 2011; Williams-Nickelson, 2009). While these are all important factors to consider, the independent research requirement is an incredibly complex process and due to its challenging and personal nature, the human element becomes just as important to study as the academic element (Lin, 2011; Peyton et al., 2001; Subanthore, 2011). Students

and supervisors are not people existing in a vacuum as purely “supervisor” and “student,” they are real people each with their own gender, race, socioeconomic status, personal characteristics, beliefs and expectations (Peyton et al., 2001; Subanthore, 2011). The supervisory relationship is often viewed as one in which the participants are expected to be “anchored to the stable institutional positions of supervisor, student and thesis, but Grant (2003) underscored that it is important for supervisors to realize that supervision is first and foremost a relationship occurring between two or more people”. This author goes on to say that the nature and intensity of the supervisory relationship is unlike any other form of teaching as it requires from the supervisor a unique blend of academic knowledge, teaching ability, and therapeutic and relationship skills. Manathunga (2005) adds to this view by suggesting that postgraduate students do not merely require academic support from their supervisors, but also guidance regarding social integration into the research community, as well as emotional support. Therapeutic skills and emotional support are consistently reported as elements of the supervisory relationship which play a significant role in improving the experience of the research process for the student (Flynn, Sanchez & Harper, 2011; Hyun et al., 2007; Kiguwa & Langa, 2009; Lee, 2008; Peyton et al., 2001; Poyrazli & Kavanaugh, 2006; Wisker, Robinson & Shacham, 2007).

2.4 Factors impacting completion: The thesis writing endeavour is so complex that it makes it difficult to highlight specific factors which may help or hinder the process however; several possibilities have been proposed throughout the literature with some factors occurring more frequently than others. Below is a brief exposition of the more frequently mentioned factors.

2.4.1 Perceived isolation: One of the factors most commonly seen in the literature is perceived isolation (Grant, 2003; Manathunga, 2005; Wisker, Robinson, & Shacham, 2007; Wright, 2003). Postgraduate research is a fairly isolated process, generally consisting of a

student working with one or two supervisors. This is quite a drastic departure from undergraduate and postgraduate classroom dynamics where students are surrounded by their peers from whom they can draw social and academic support. So when transitioning into postgraduate research, some students may struggle to adjust to the new one-on-one learning dynamic (Wisker, Robinson, & Shacham, 2007).For example, Wright (2003) found that many students viewed their postgraduate research experience as incredibly lonely and that this sense of social isolation often resulted in them feeling overwhelmed and sometimes even depressed. One participant claimed that she basically had to teach herself and went on to say "I had to give myself my own kind of emotional and intellectual support...I was basically left alone" (Grant, 2003, p. 176). I use the term "perceived isolation" to emphasize the fact that it is irrelevant whether or not the supervisor is distant and unavailable. If, for example, the supervisor felt that s/he was performing her/ his duty well, but the student feels inadequately supported this will adversely affect their relationship and ultimately the student's perception may affect the student's ability to complete.

2.4.2 Expectations: The second contributing factor that has been identified in the literature, is when students and supervisors hold inaccurate or unrealistic expectations of each other (Kiley, 2011; Lessing, 2011; Lessing & Schulze, 2003; Wisker, Robbinson & Shacham, 2007). Wisker, Robbinson and Shacham (2007) found that problems sometimes arise when the expectations of the student regarding the supervisory relationship and research experience and those of the supervisor do not match. Similarly, Kiley (2011) postulated that it can be problematic when either supervisor or postgraduate student does not meet the expectations of the other. Failure of either student or supervisor to let go of these unrealistic expectations and adapt to the reality of the situation can lead to a variety of frustrations and misunderstandings later on.

2.5 Demographic factors: Research also reported significant impacts of demographic variables on completion. For example, Religion and spirituality (Berkel, Constantine, & Olson, 2007; Tummala-Narra & Claudius, 2013); Sexual orientation (Long, 1997; Massey &Walfish, 2001; Messinger, 2007); Language (Albertyn, Kapp & Bitzer, 2008; Alwasilah, 1991; Jacob & Greggo, 2001; Malan, Marnewick & Lourens, 2010; Wan, Chapman & Biggs, 1992); Culture (Fuller, 2007; Hyun et al., 2007; Nilsson, 2008; Poyrazli & Kavanaugh, 2006); Race and ethnicity (Kiley, 2011; Mahtani, 2004; Shroeder, Andrews, & Hindes, 2009; Williams, Brewley, Reed, White, & Davis-Haley, 2005) and gender (Humble, Solomon, Allen, Blaisure, & Johnson 2006; Grace & Gouthro, 2000; Grant, 2003; Lee, 2008; Mahatani, 2004; Manathunga, 2005). These demographic variables all have the potential to impact completion directly. The most prevalent demographic issues identified in the literature were language and gender.

2.5.1 Gender: With regard to gender, female students often feel pressured to put on a front and maintain a strong facade lest they be perceived as soft or weak (Lee, 2008; Manathunga, 2005).This variable by itself reportedly can negatively affect the thesis endeavour in various ways. However, the supervisory relationship can positively moderate or further exacerbate the negative effects of the variables and make them more or less of a significant hindrance to completion. In the case of the above example, if the student perceives the supervisor to be supportive, caring and non-judgemental they may be more likely to be open and honest in communicating and seeking guidance from their supervisor (Grace & Gouthro, 2000). Alternately, if the student perceives the supervisor to be chauvinistic and critical she may distance herself even more than usual and would thereby further aggravate the negative effects of gender and hinder completion (Humble et al., 2006).

2.5.2 Minority students: Minority statuses, such as underrepresented racial or religious groups, female gender or homosexuality as demographic variables can make the

thesis endeavour difficult when they occur in isolation, but situations in which minority demographic variables occur in combination seem to be the most challenging for students to navigate (Mahtani, 2004; Subanthore, 2011; Williams et al., 2005). For example Williams et al. (2005) stated that the challenges women of colour must navigate in postgraduate education at a predominantly white institution go far beyond pure academic ability. Women of colour studying in predominantly male fields must deal not only with misinformed negative attitudes surrounding affirmative action from both students and supervisors who believe them to be under qualified students who gained acceptance solely because of the colour of their skin, but they must also overcome the social barriers that exist as a result of male supervisors bonding in a social manner with male students (Mahtani, 2004; Williams et al., 2005). Mahtani's 2004 interview with a tenured geography professor found that "geography departments are extremely hostile to women of colour unless they are the cleaning women or the secretaries. Not many people want to be in a place which is so unwelcoming" (p. 93).Due to this reality the professor emphasized that she could not "in good faith encourage students of colour to consider geography because of its whiteness and parochialism" (Mahtani, 2004, p. 94). Williams (2005) found that some students dropped out of their degree in their Masters year, not because of any academic difficulties encountered in the research process, but because they grew tired of trying to gain acceptance and respect from their lecturers and supervisors. Some of these students moved to a more welcoming field of study while others dropped out entirely. The research illustrated that race and gender in combination with each other appeared to have played a significant role in the experiences of postgraduate students whilst conducting research. Research has also found that many students, women and men, who self-identify as belonging to minority racial groups identified the supervisory relationship as the most important factor determining success or failure in the completion of their theses or dissertations (Flynn, Sanchez & Harper, 2011; Levin, Jaeger & Haley, 2013; Maton et al.,

2011) and that a satisfactory supervisory relationship could compensate for the overall experience of discrimination present within the university or institution (Levin, Jager & Haley, 2013; Maton et al., 2011; Subanthore, 2011).

2.6 Personal factors: A number of personal difficulties were also found to have bearing on completion rates, the most common of these were issues surrounding health and financial problems (El-Ghoroury et al., 2012; Lee, 2008; Lightfoot & Doerner, 2008; Sayed, Kruss & Badat, 1998). Personal problems, however, did not seem to lead to incompletion of studies (Wright, 2003). What appears to have more bearing on completion rates is the relative approachability of the supervisor as perceived by the student. Manathunga (2005) found evidence that many postgraduate students felt unwilling or unable to approach their supervisors regarding personal issues. This author also found that a large proportion of students believed that their supervisors do not care about them at all. One student claimed "my supervisor doesn't even recognize me in the hallway...I doubt she'd care [if I disappeared for a while]" (Manathunga, 2005, p. 225). Alternatively, Albertyn, Kapp and Bitzer (2008) found when students perceived their supervisors as caring and approachable they were able to share their personal difficulties and in many cases the support they received within the supervisory relationship assisted them to persevere to completion when they may otherwise have dropped out. Additionally, Wright (2003)found that positive personal characteristics such as inner strength, confidence, and self-determination have the ability to enable an individual to succeed despite negative circumstances.

2.6.1 Personal resources: Wright(2003) reported that some students who encountered personal difficulties with poor supervisory support during their postgraduate research asserted that they were able to push through the tough times by drawing solely on inner resources. They were thus able to succeed despite unsatisfactory supervisory relationships. However, students who did not possess sufficient inner resources and received inadequate supervisory

support often failed to complete their research and dropped out (El-Ghoroury, 2012).The literature appears to support the notion that inherent or acquired personal characteristics and attributes greatly affect the ability of a student to complete their studies. It stands to reason, therefore, that supervisors need to become aware of the internal attributes of their students in order to provide appropriate levels of support and guidance.

2.7 Gaps in the literature: An examination of the literature has provided support for the significant effects or impact that several demographic and personal factors have on completion. Two gaps emerged strongly in the literature: First, the majority of current literature available on the topic examined supervision practices in clinical or field settings only (Everett et al., 2011; Myers et al., 2012; Reynolds & Riviera, 2012; Schwartze-Mette, 2009; Swaggler& Ellis, 2003; Veilleux et al., 2012). There is a lack of studies addressing research supervision and the challenges associated with research completion (Armstrong, Allison & Hayes, 2004; Subramanian et al., 2012). To move forward with the conceptualization of research that can address this gap, there is a need to more clearly define or clarify what the recommended foci are for future research on this topic. In other words, a process is needed whereby future direction can be provided based on a systematic evaluation of the available literature or research.

Second, there is a need for the findings of all primary studies to be assimilated and assessed along a common denominator in order to produce an evidence base of filtered information so that all factors can be considered alongside each other with a high level of reliability and validity and minimal bias. The review of the literature also revealed that there were no previously reported filtered information available on the impact of personal and demographic variables on research completion. This study aimed to address both these gaps by finding, filtering and consolidating information on factors affecting research completion in order to identify the existing knowledge on the topic, as well as the quality thereof. In doing

so, clearer recommendations for future research can be formulated to assist researchers by highlighting potential avenues for further research.

CHAPTER 3

METHODOLOGY

3.1 Aim of the study

The aim of the study was to identify the demographic and personal variables that impact the ability of postgraduate students to successfully complete the thesis or dissertation components of their Masters or Doctorate programme.

3.2 Objectives of the study

- To identify the impact of demographic variables in students and supervisors on the completion of postgraduate research reported in methodologically rigorous research
- To identify the impact of personal variables in students and supervisors on the completion of postgraduate research reported in methodologically rigorous research

3.3. Design

This study incorporated a systematic review methodology. A systematic review is a "high-level overview of primary research on a particular research question that tries to identify, select, synthesize and appraise all high quality research evidence relevant to that question in order to answer it" (Cochrane Collaboration, 2013). The fastidious and standardized structure of systematic reviews also serves to increase transparency and limit bias which effectually improves the reliability and validity of any reported findings (Mulrow, 1994). A systematic review is, as the name suggests, incredibly systematic and involves the researcher following clearly pre-defined steps one at time, with each stage being peer-reviewed, which both ensures that the research process is detailed and comprehensive and also serves to minimise the selection bias that can sometimes become part of a narrative review (Uman, 2011).This makes a systematic review the highest form of evidence (Cook,

Mulrow & Haynes, 1997). This methodology was appropriate for the present study as it provided a systematic summation of studies reporting on the content and methodological rigour which is lacking in current research on the topic. A systematic review enabled the researcher to compile and synthesize data from relevant sources that satisfy the inclusion criteria whilst minimizing the influence of bias in an effort to effectively answer the proposed research question. The review focused on:

1) Target group: Masters or Doctoral students completing a thesis/ dissertation in partial or full requirements for their course and/or research supervisors;

2) Methodological design elements such as the theoretical orientation or underpinning; the scope of the study, and the nature of the study (e.g. surveys, interviews etc.);

3) Methodological rigour

3.4 Inclusion Criteria

3.4.1 Time period: 2000 –2013. The time period adopted in the parent project was 2003 – 2013 based on the assumption that the most recent research would be reflected in a five to ten year period from the date of conceptualization (December 2013). In order for the current study to be aligned with the parent study, this time frame was adopted. During the initial search a significant number of articles published between 2000 and 2003 were found and based on this the researcher determined that an expansion of the time frame would add to the comprehensiveness of the study.

3.4.2 Types of participants: This review considered studies that included postgraduate students and/ or thesis supervisors, specifically Master's and Doctorate students in any fields individually or jointly as the unit of analysis.

3.4.3 Types of studies: All designs were considered for inclusion to enable the identification of current best evidence. The review considered studies that used quantitative and qualitative methods of data collection and analysis. Only articles reporting on primary studies were included. Studies were eligible for inclusion if they reported on personal and demographic factors which influence postgraduate research completion as outcome measures. This influence may either be presented empirically as evidenced by significant findings on statistical tests or qualitatively identified by participants as an important aspect of their subjective experiences. In both cases the findings had to pertain to the impact of student and/or supervisor variables impacting on completion of research requirements at a Masters or Doctoral level.

3.5. Exclusion Criteria

Due to the fact that this study forms part of a larger parent study including three other systematic reviews, measures were taken in order to avoid duplicate information and ensure the individuality of each study. This was helped by the fact that this study explored personal and demographic factors while the other studies did not. In cases wherein duplicate articles were found, a discussion was held to determine into which study the duplicate article best fit.

Studies were excluded if they were not peer-reviewed, were not published within the designated time period, or could not be found in one of the UWC databases as a full text article Studies were also excluded if they did not include our target population, required payment for viewing or accessing the full text i.e. those that are not in the public domain, or were foreign-language studies.

3.6. Review process

The review process occurred in four steps namely 1) Identification; 2) Screening, 3) Eligibility and 4) Summation. Each step in the review process has a set of operations that will

be described below. To provide a timeline of the review process, the months in which each respective step took place is indicated in parentheses under the relevant subheadings.

3.6.1 Step 1 identification: This step entailed the identification and retrieval of potential studies for inclusion in the review. The retrieval strategy to find published studies was conducted in three-steps (June-July 2014). First, key word identification; Second, a comprehensive search of databases at the University of the Western Cape (UWC) was undertaken using the keywords and index terms identified; Third, consulting other sources.

3.6.1.1. Keywords identification: The researcher and the supervisor worked together to identify possible keywords. The initial keywords identified were: “Personal characteristics”, “demographics”, “postgraduate research student”, “research supervisor”, “completion of research requirements” from the review of the literature. These keywords were tested in an initial limited search of Cinahl and PsycArticles to identify the related terms and test the efficacy of key words for subsequent searches. The final list of keywords were:“Personal characteristics”, “demographics”, “research requirements”, “thesis completion”, “research supervisor”, “graduate student”.

The identified keywords were then developed into Boolean phrases and tested on the two abovementioned databases. This study chose to make use of Boolean phrases because linking several keywords together with Boolean operators such as AND, OR, and NOT, adds power to the search and enormously increases the efficiency thereof (Terre Blanche et al., 2006). The Boolean phrases were adjusted and retested repeatedly until the researcher and supervisor were satisfied with the results, at which point the phrases were finalised. To optimize the search and increase the comprehensiveness thereof, the following three Boolean phrases were decided upon:

Boolean Phrase 1: (Personal characteristics OR demographics) AND research requirements AND (Research advisor OR graduate student)

Boolean Phrase 2: (Personal characteristics OR demographics) AND thesis completion AND (Research supervisor OR graduate student)

Boolean phrase 3: (Personal characteristics OR demographics) AND thesis completion AND (Research supervisor OR postgraduate student)

The variations in terminology adopted within the three phrases allowed the researcher to identify a wider range of studies from different countries. For example, Boolean phrase 3 yielded many results from South African authors which Boolean phrase 1 did not and Boolean phrases 1 and 2 called up many results from the USA and the UK which Boolean phrase 3 did not. The term “thesis completion” in Boolean phrase 2 yielded several new additional results to those called up by “research requirements” in Boolean phrase 1.

3.6.1.2. Database search*:* This step is also referred to or known as the title search. The data bases in the library of the university are organized or catalogued by discipline. Each discipline has a list of databases that are considered primary or secondary for that discipline. This is based on the nature of publications housed in that database and the frequency with which authors from specific disciplines publish in the subscribed journals (lib.uwc.ac.za).Table 3.1 reflects the disciplines identified for the purposes of this review.

Table 3.1

Disciplines included in database search (n=15)

Disciplines
Dietetics
Dentistry
Education
Human Ecology
Industrial Psychology
Nursing
Occupational Therapy
Physiotherapy
Psychology
School of Natural Medicine
School of Pharmacy
School of Public Health
Social Work
Sociology
Sports, Recreation and Exercise Science
Women and Gender Studies

As mentioned before, each discipline had a list of primary and secondary databases that were predominantly used in research. Appendix A contains a printout of the primary and secondary databases per discipline included in the study. The researcher then examined these lists and compiled a meta-list of data bases that occurred frequently or consistently across the identified disciplines. Table 3.2 reflects the composite or meta-list included the following databases.

Table 3.2

Composite List of Databases

Core Databases	Additional Databases
ScienceDirect SpringerLink BioMed Central CINAHL Cochrane SA ePublications EbscoHost: Academic Search Complete CINAHL Plus with full text Dentistry and Oral Sciences Source ERIC Health Source: Nursing MEDLINE Africa-Wide NiPAD PsycArticles SocINDEX Woman's Studies International	Sage Research Methods Online (SRMO) JSTOR SCOPUS Cambridge Journals Online Sage Journals Online

A comprehensive search of databases on the composite list was conducted using the Boolean phrases identified earlier. The titles of potential articles identified from the database search were reviewed on the perceived relevance of the title to the review question. The Title summary sheet was used to record the title information obtained from the database search and the recommendation regarding its further inclusion in the review (Appendix B).

3.6.1.3. Other sources: Two additional sources were consulted for the purposes of identifying potential articles for inclusion in the review. First, titles identified in the database searches of the other researchers working on the parent study were evaluated for inclusion. The collaborating researchers on the parent project were briefed fully on the inclusion criteria of the respective systematic reviews and forwarded titles that they had excluded to see if they were relevant to the present study. Second, the study made use of reference mining. The reference lists of all articles and reports identified were examined to identify potential records that might not have been identified through the database search.

3.6.2 Step 2- screening: This step is also known as the abstract level assessment. The abstracts of all articles recommended for inclusion during the title search were retrieved and screened relative to the inclusion and exclusion criteria discussed earlier (August 2014). Each abstract was given a recommendation for further inclusion or exclusion from the review. An abstract summary sheet was used to record the information extracted from abstracts, the outcome (inclusion/ exclusion), as well as the information regarding the reasons for exclusion (Appendix C).

3.6.3 Step 3 - eligibility: The full texts of all abstracts that were successfully screened were assessed for methodological rigour prior to decision-making or recommendation about inclusion in the review using a critical appraisal tool (September-October 2014). A range of critical appraisal tools are available (e.g. Human Resources Unit, 2006; Letts et al., 2007; Long, 2005; Long et al., 2002). The majority of these tools are informed by the published guidelines for qualitative and quantitative methodologies based on authors such as Letts et al. (2007) and Law et al. (1998) respectively. The available tools tend to have been developed for use with specific types of studies and therefore assess a specific design or approach. For example, cross sectional studies (Guyatt, Sackett & Cook, 1993), randomized controlled trials (Human Resources Unit, 2006), and qualitative studies (Mays & Pope., 2000). Because inclusion criteria for this study were not limited to specific designs or approaches, a tool that assessed more generic elements of methodology was required. Tools that were not design-specific were very simplistic and lacked in a rigorous definition of methodological quality and coherence (e.g. Booth, 2009; Shea, 2007; Sleith, 2014).These tools were not sensitive enough and would not discriminate effectively between studies. Thus a tool was required that was designed or structured in such a way that it assessed the appropriateness of methodological elements e.g. designs used rather than the strength of the design. At the method of data collection and analysis, the tool also had to assess in parallel forms the

conventions of qualitative and quantitative methodologies. Therefore, in a response to the need for a more generic and inclusive tool, the critical appraisal tool developed by Smith, Franciscus and Swartbooi (under review) was used. This tool consists of eight sections: “Purpose” which assessed the rationale, problem statement and aims of the study as well as the extent to which the aims were related to the problem statement. The “Sampling” section looked at the extent to which aspects of sampling, such as size, type, inclusion/ exclusion criteria and techniques to ensure optimal size were reported on.“Design” examined the theoretical orientation of the study and the elements of the chosen design, as well as the relationship between the design and the aims of the study.“Data Collection” was split into equally weighted sections for qualitative and quantitative studies and assessed the quality and relevance of the data collection methods used. “Analysis” checked the type of data analysis chosen and the relevance thereof relative to the research question and tested if the conclusions drawn were supported by the data and whether or not the inferences made were supported by the type of sampling. “Ethics” assessed the extent to which studies reported on steps taken to ensure there was no breach of ethics with institutions or individuals. The “Results” section had separate, but equally weighted criteria for qualitative and quantitative approaches and assessed among other things, the extent to which the results were related to the research question. The “Conclusion” section determined whether or not the conclusion was related to the findings of the study and whether or not the study reported on recommendations and limitations. Before starting the critical appraisal step of the review process, all researchers collaborating on the Parent project met to discuss and workshop the critical appraisal tool. During the discussion some provisional changes were made and the tool was then tested on ten articles to determine its ability to accurately and adequately assess for methodological rigour. After the initial testing had been done the researchers discussed their findings and the final changes were made to the critical appraisal tool. Adaptations were

made in the sampling section in order to reduce the weighting of this section and make it more equally weighted with the other sections. Changes were also made within the data collection and results sections to ensure that the tool was not biased in the scoring toward either qualitative or quantitative studies. Finally, question three under qualitative studies in the results sections was changed because the original question was deemed to be too similar to a question asked under another section of the tool. Adaptations were only made to the critical appraisal tool (Appendix D) when they were agreed upon by all the researchers, as well as the principal supervisor.

Each article can obtain a final score that is expressed as a percentage. This indicates methodological rigour ranging from weak (0-40%) to moderate (41-60%) strong (61-80%), and excellent (81-100%). The threshold score for inclusion was set at 70%. Due to the fact that a relatively substantial amount of research on this topic was identified during steps 1 and 2, the researcher determined that setting a high threshold score would be appropriate as this would refine the study, without compromising the comprehensiveness thereof and increase the quality of any reported findings. As an exception, articles that lost points in the ethics section of the critical appraisal tool, but scored well in other sections and achieved an overall mark of 68% were also considered for inclusion. This exception was created in order to avoid losing high quality research unnecessarily. The scores for each article was captured in a rating form, as well as the final recommendation about inclusion or exclusion in the final summation (Appendix E)

3.6.4 Step 4 - summation: This step is included two operational steps namely data extraction and meta-synthesis.

***3.6.4.1 Data extraction*:** The principle researcher extracted data from the included articles and recorded it on a self-constructed data extraction sheet (October 2014). This sheet

was divided into three main sections with relevant subheadings under each section. For ease of use, each main section with its relevant subheadings has been made into a table and each table is on a separate page.

The first table is “General Description” and the subheadings for this section are: “Target group”, “Study level”, “Personal characteristic/ demographic variable addressed”, “Academic field”, and “Geographical location”.

The second table is “Methodological Appraisal” and its subheadings are: “Theoretical orientation”, “Design”, “Sample type”, “Sample size”, “Data collection”, and “Analysis”,

The third table is “Results and recommendations” and includes the subheadings: “Findings”, “Conclusions”, “Recommendations” and “Limitations”. (Appendix F).

3.6.4.2 Meta-synthesis: The present study used a meta-synthesis which produces a more substantive and integrative interpretation of findings than the source investigations (Finfgeld, 2003). Bringing together many different interpretations of/ on a given topic strengthens the evidence for an interpretation thereof by identifying common themes and differences which can lead to new interpretations of research (Schreiber et al., 1997) and is a complete study that involves using a qualitative method to rigorously examine and interpret the findings of research studies (Jensen & Allen, 1996).

Meta-synthesis was an appropriate method for summation since it provided a broad description of the ways in which personal and demographic variables reportedly impacted the completion of research requirements in postgraduate studies. It also allowed for reconceptualising the supervisory relationship that provided a further theoretical explication. These two complimentary activities are identified by Sandelowski, Docherty, and Emden (1997) as Descriptive and Theory explication meta-syntheses respectively. The parent project

requires descriptive meta-synthesis and this study additionally included theory explication to further enhance our understanding of the supervisory relationship and its role in research completion. To facilitate the process of synthesis, studies were ranked based on methodological rigour as measured by the critical appraisal tool that assessed for baseline confidence in the methodology employed and the synthesis focused on the interpretation of the findings. Thus this work process reflected the aim of the study (Walsh & Downe, 2005).

The operational steps in the meta-synthesis were adopted from Noblit and Hare (1988). The first step was the reciprocal stage during which recurring themes and ideas were identified (November 2014-February 2015). This step involved the reading and rereading of all the articles selected for inclusion in the study. While reading the articles, the researcher highlighted all personal and demographic factors discussed in the article and made a note of them. As new personal and demographic variables were identified they were added to this list and next to each variable the researcher indicated the number of articles in which each variable was discussed. Two categories were then created, namely demographic variables, and personal factors and each variable was placed into the appropriate category. Each list was then placed in order from the most prevalent variables to the least prevalent. Each variable was then unpacked separately, meaning that the researcher wrote down a variable (for eg. Gender) and then read each article pertaining to gender again and wrote down what each article discussing gender said about that variable. Once this had been completed for each of the variables, the researcher consulted the existing body of literature regarding each variable and wrote down what was found. The researcher then read the findings of the included articles alongside the findings of the existing body of literature and determined which findings were reciprocated by the existing literature and which findings were refuted by the existing literature. The findings which were reciprocated by the literature were then written down along with the supporting literature.

The second stage was the refutational stage in which themes and ideas that refute or defy the common ones in included articles as well as the existing body of literature, are identified (February-March 2015). During this stage all findings which were not reciprocated by the literature were written down and further research was then done, by means of checking literature available on the topic, in order to determine which of the findings of the included articles were refuted by the existing body of literature and which were not mentioned at all. In cases wherein they were not mentioned, this was noted next to the finding. In cases where a finding was refuted, the contrary information or finding was noted.

Noblit and Hare's operational steps culminate in the third stage which is known as the line of argument. During this stage, a statement was constructed which summarised and adequately expressed the findings of the researcher (March 2015). To formulate the line of argument, the researcher read the completed reciprocal and refutational sections in order to identify any common findings, themes or ideas. These were then gathered and formulated into a central argument that attempts to answer the review question referred to as the line of argument.

The review process is graphically represented by the figure below. This figure was originally developed by the PRISMA group (Moher et al., 2009) and was adapted for use in this study.

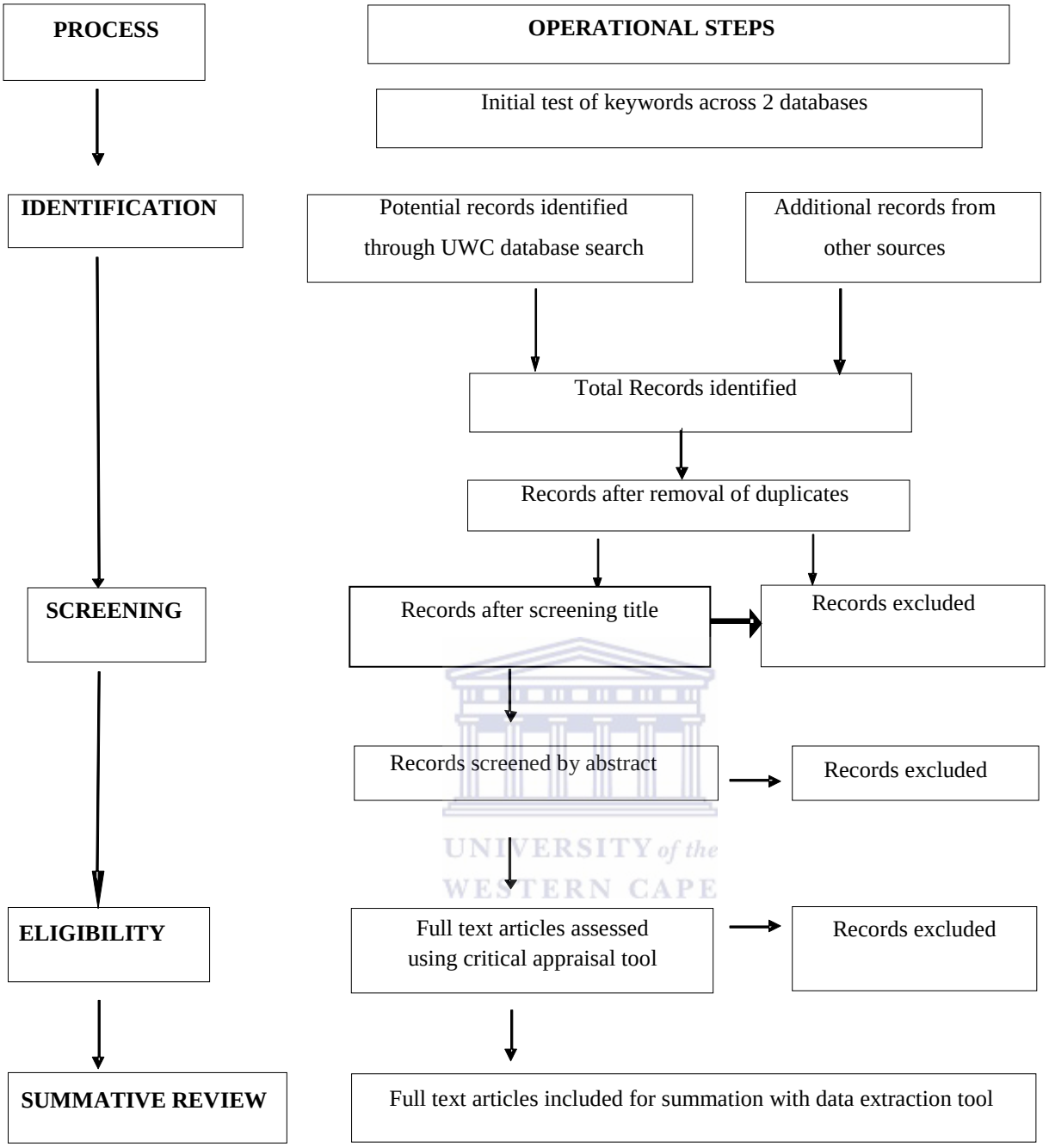

Figure 3.1: Review process

3.7 Method of the review

Two reviewers were used at every step in the review process. This is a convention in Systematic reviews which was adhered to by this study. The second reviewer for this study was a Masters research student at UWC. He was a member of our research group and has also conducted one of the four systematic reviews mentioned under the parent project. Both reviewers have previous experience conducting systematic reviews and were briefed again before the start of this project about the methodology and all steps involved in the process. Both reviewers were therefore very familiar with the process. Working in pairs enabled verification and the supervisor acted as a control to verify all decisions made at all stages of the review process. Verification by both a second reviewer and the supervisor greatly contributed to ensuring the highest possible level of methodological rigour for this study. Any disagreements that arose between the reviewers were resolved through discussion. The supervisor was designated as the third party control, helping reviewers to reach a consensus. Disagreements did arise between the two reviewers during the title search and the abstract screening phases. Disagreements during the title search were mainly due to differences in opinion with regard to titles which were somewhat vague or ambiguous. These disagreements were handled through discussion between the reviewers and it was not necessary to involve the supervisor. There were not many disagreements during the abstract screening due to the fact that both reviewers were familiar with the abstract screening process, as well as the specific inclusion and exclusion criteria for this study. The few disagreements that were encountered were minor and easily solved through discussion. During the critical appraisal, the reviewers only differed on questions which were slightly more interpretive in nature. For example, “Is the design moderately or highly relevant to the aim of the study?” or “Was the theoretical orientation described in detail?” In cases such as these, where the answers given by the reviewers differed, both reviewers went through the article together and came to a

consensus. At no point during the review process did it become necessary to involve the supervisor.

3.8. Ethics consideration

Appendix G is the project registration details and ethics clearance certificate for the parent study. Permission to conduct this systematic review was obtained from the Senate Research Committee at the University of the Western Cape (Appendix H). All information sources used in this study have been previously published and are therefore considered to be in the public domain. In terms of accessing the databases, it was necessary to be registered as a student at UWC for the current academic year, in order to legitimately gain access to the databases that are subscribed to by the university. No additional ethical considerations will be necessary in terms of accessing the articles, or anonymizing information.

The study was funded by the National Research Foundation under human capacitation. Thus the NRF contribution, through financial aid, has been acknowledged as per the ethical obligation regarding funding. It was also important to clarify that the study was not commissioned by the NRF. Furthermore, the findings and sentiments expressed in this thesis reflect that of the author and not the NRF. As mentioned before, the study formed part of a parent project and any subsequent publications will involve multiple authors. Thus it is ethically important to consider authorship carefully in the event of publication. Contributing authors will be listed in descending order in terms of contribution, as suggested by Wager and Wiffen (2011). Both “guest” (listed due to positions of power) and “ghost” (non-listing despite major contributions) authors, as defined by Wager (2009), will be avoided as these conventions contravene ethics guidelines for determining authorship.

CHAPTER 4

RESULTS & DISCUSSION

This chapter consists of three sections; Process results, descriptive meta-synthesis, and theory explication. The section on process results provides the findings of each step of the review process. Descriptive meta-synthesis examines the ranking of the articles and discusses possible reasons for any discrepancies or similarities found, as well as a summary of core findings across included articles. Theory explicative meta-synthesis consists of three subsections; Reciprocation, Refutation, and Line of argument. Reciprocation presents and discusses all findings which correlate with the literature. Refutation examines any findings which are not consistent with the literature and the line of argument will draw the findings together in a summative manner.

4.1 Process results

The title search across all databases yielded a search result of 2229 hits. Once all duplicates had been removed the number dropped to 1892. From these, 158 titles were selected to proceed to the abstract level screening based on the perceived applicability of the title. Inclusion of articles during the title search was based on the presence of keywords or index terms in the title which acted as an indicator of its relevance to the topic of the review. The formulation of a good title that accurately reflects the content and focus of the study is an important aspect of methodology. Thus it is recognised that there might be articles that are relevant, but their titles did not reflect their content accurately. Such articles are excluded since their titles at face value did not attract further inspection as a result of the poor formulation employed by the author(s).

During the abstract review, the 158 articles that proceeded from the previous step were evaluated on the basis of the specified inclusion and exclusion criteria. 106 articles were

excluded. The two most common reasons for exclusion were, articles not containing any primary research (i.e. reviews, commentaries, reflective essays, conceptual articles) and articles reporting solely on clinical or professional supervision as opposed to research supervision. Other reasons for exclusion included studies not addressing the research question, studies with an incorrect target group (for e.g. undergraduate students), and studies with poorly written or inadequate abstracts lacking vital information. A comprehensive list of all articles and the reasons for exclusion can be found in the abstract summary sheet (Appendix C). Fifty-two (52) were included for full text review.

After applying the critical appraisal tool, 34 articles were excluded and 18 included. Of the excluded articles, four were rated as "strong" (61-67%), the majority of excluded articles scored in the moderate range (n=23), with a few rated as weak (n=3). Three articles were not scored as it was discovered upon reading the full text that they did not meet all the inclusion criteria. Of the included articles eight scored 69%, eight scored between 70% and 79%, and two articles scored in the excellent range (> 80%).The highest rated article scored 82%.

The results of the review process are represented graphically in Figure 4.2 below that has been adapted from the recommended flow chart in Moher et al. (2009).

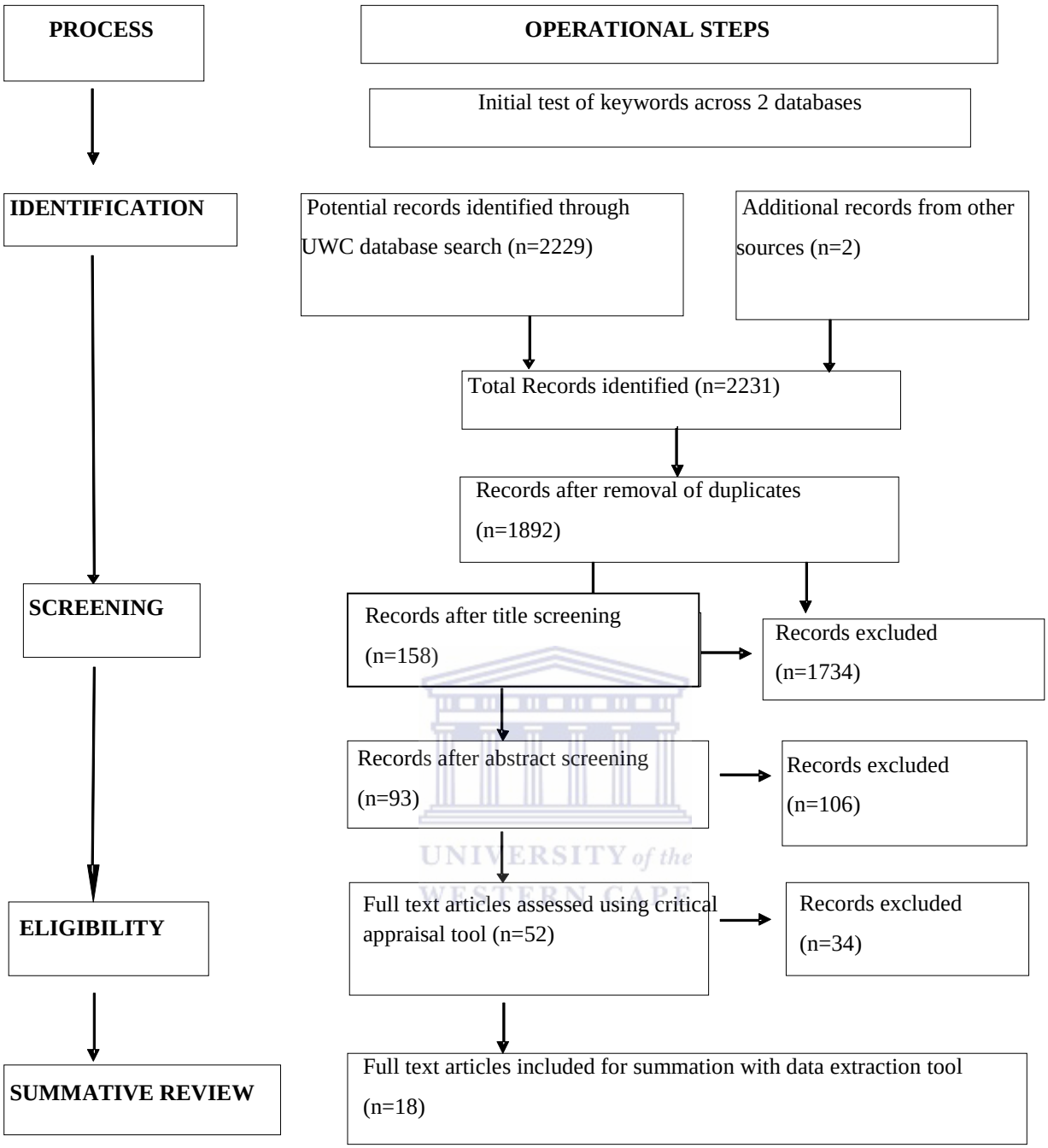

Figure 4.2 Review process results

4.2 Descriptive meta-synthesis

As mentioned before, the descriptive meta-synthesis is reported in two subsections: 4.2.1) Ranking and 4.2.2) Synthesis.

4.2.1 Ranks based on methodological rigour: Table 4.3 summarizes the ranking for included articles in terms of overall scores obtained during critical appraisal and scores obtained on subsections of the critical appraisal tool. The highest rank is “1”. The higher the rank number, the lower the score was for that subsection on the critical appraisal tool. In cases where articles scored zero for a subsection this is indicated by a dash (-).The ranking table is displayed below, followed by a discussion of the scores

Table 4.3

Ranking Based on Methodological Rigour

Overall ranking				Subsections							
Ranking	References	Score	Quality	Purpose	Design	Ethics	Data collection	Data analysis	Sample	Results	Conclusion
1	Subramanian et al (2012)	82%	Excellent >80%	1	4	4	2	1	1	1	1
2	Punyanunt-Carter &Wrench (2010)	80%		1	3	3	1	1	4	1	2
3	El-Ghoroury et al (2012)	78%	Strong 70-79%	1	3	6	3	1	1	1	1
	Mukminin& McMahon (2013)			1	2	3	2	1	5	2	1
4	van Biljon & de Kock (2011)	76%		1	3	-	2	1	1	1	2
5	Rose (2005)	73%		1	3	-	1	1	4	1	1
6	Abdullah & Evans (2011)	71%		1	3	4	3	2	5	1	1
	Noy& Ray (2012)			1	4	-	2	1	3	1	1
	Mehta et al. (2013)			1	1	4	5	1	5	2	1
	Gunnarsson et al., (2013)			1	5	3	2	1	5	2	1
7	Tummala-Narra& Claudius (2013)	69%	Strong 69%	1	4	3	3	1	4	2	1
	Rice et al., (2009)			1	3	-	2	2	4	1	1
	Lessing & Schulze (2003)			1	3	5	3	2	4	1	2
	Lechuga (2011)			1	3	-	3	1	3	2	1
	James & Simons (2009)			3	4	4	2	1	4	2	1
	Green et al., (2001)			1	4	-	2	1	3	2	1
	Gasman et al., (2008)			1	1	5	5	2	4	2	1
	Botha (2010)			1	4	6	4	1	2	1	2

Two of the included articles scored were rated as excellent (>80%). These higher scoring articles do have average scores in some subsections, specifically design. This is consistent with the rest of the articles of which the majority also scored in the middle to lower range for design. These higher scoring articles do, in general though, tend to score higher across subsections. The ethics scores for both of the higher scoring articles appear to be quite low, however a 3 is the highest score given to any of the articles in this subsection. The subsections with the largest number of high scores are “purpose”, “data analysis”, “results”, and “conclusion”. The subsections in which the majority of articles scored in the middle range are “design”, “data collection”, and “sample” and the subsection in which the majority of articles obtained low or no scores is “ethics”. The ranking of these subsections is discussed below.

“Purpose” was the subsection in which the majority of articles obtained full marks. This section is truncated as all articles, except one, ranked first. “Data analysis” and “conclusion” are also truncated as for both subsections the vast majority of articles (n=14) ranked 1 and no article ranked below 2. For “Results” the majority of articles ranked 1 (n=10) and the remaining articles ranked 2 (n=8). This suggests that the explicit reporting of the information in these sections is strictly required by journals. In fact, the standards for reporting on empirical social science, as put forth by the American Educational Research Association (AERA), places more emphasis on these sections than on design or data collection and it provides very clear guidelines both generally and respectively for qualitative and quantitative studies (AERA, 2006). Items pertaining to these sections are also present and quite detailed on the Consolidated Standards of Reporting Trials (CONSORT) checklist (Schulz, Altman & Moher, 2010) as well as the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) checklist (Des Jarlais, Lyles & Crepaz, 2004).

The subsections in which the majority of articles ranked in the middle range were “design”, with the majority of articles ranking 3 (8) or 4 (n=6), “data collection”, with the majority of articles ranking 2 (n=8) or 3 (n=5), and “sample” with most articles ranking 4 (n=7). All articles reported on all three of these

subsections, however, very few obtained full marks in these sections. This suggests that while it is convention to report these elements, it is not necessary or required for publication, to state the information pertaining to these areas of research explicitly in as much detail as is required for the areas of purpose, data analysis, results, and conclusions. This is confirmed by AERA (2006) who state that "empirical investigations often involve a large number of data elements, some of which are more important to the logic of inquiry and interpretation of the investigation than others" and an important part of reporting research is distinguishing the elements crucial to the understanding of the study and ensuring that those are reported in the article (pp. 36).

The subsection "ethics" is the section in which the majority of articles obtained low or no scores. None of the articles obtained full marks for ethics, with the highest score being 4 out of 6 on the critical appraisal tool. This is possibly because not all items in this section are required by journals. AERA (2006) for example, states that while authors have a responsibility to report on ethics, not all ethical considerations need to be mentioned explicitly in the article. The approval of the study by the relevant review board should be explicitly stated as well as those ethical considerations relevant to understanding the study (AERA, 2006). However, one third of the included articles do not report on ethics at all. This is consistent with the literature which found that, in one study, 26% of articles did not report on ethics approval by the review board and 31% did not report consent (Taljaard et al., 2011). Another study found that 31% of articles did not report on ethics approval and 47% did not report consent (Schroter, Plowman, Hutchings & Gonzalez, 2006). These numbers suggest that the reporting of ethics is not a convention required by some journals. In fact, neither CONSORT nor TREND has any category for ethics on their checklists and these checklists are used by researchers to check the requirements prior to submission to journals for publication. Appelbaum, Cooper, Maxwell, Stone, and Sher (2008) suggest that this may be

due to space limitations. They state that, for this reason, journals of the APA, as well as a few others, make use of websites for authors to upload supplementary materials so that readers can access information regarding the study which does not appear in the published article (Appelbaum et al., 2008). Taking space limitations into account, articles should at the very least include a line stating that approval for the study was obtained from the relevant review board (AERA, 2006).

4.2.2. Data extraction: Data was extracted from the included articles and synthesized under three headings: General Description, Methodological Appraisal and Results and recommendations. For the completed tables please see Appendix E.

4.2.2.1 General description*:* General Description presents the extracted data that pertains to the general aspects of included articles. These are represented in table 4.4 below.

Table 4.4

General Description

Authors	General description				
	Target group	Study level	Personal/ demographic variables addressed	Academic field	Geographical location

From Table 4.4 above it becomes evident that majority of studies had students as their target group (n=14) and study level was fairly equally distributed between Masters and Doctoral students. The majority of studies were located in the United States of America (n=12), Three studies were located in South Africa, and the other three studies were set in Australia, New Zealand, and Europe (the UK and Sweden) respectively.

4.2.2.2 Methodological Appraisal*:* Methodological appraisal summarizes the methodological information from the included articles. This is represented in table 4.5 below.

Table 4.5

Methodological Appraisal

Authors	Methodological appraisal								
	theoretical orientation	Design	Sample type	Sample size	Data collection	Analysis			
						Quant	Effect size	Qual	saturation

With regard to design, nine of the included studies are qualitative, seven are quantitative, and two are mixed methods. The methodological information of the studies is discussed below in the context of the research design.

Quantitative studies: The most common type of sampling used was purposive sampling (n=6). Cross-sectional sampling was used by the other study. The method of data collection for all quantitative studies was surveys. In terms of data analysis, Six of the seven quantitative studies reported effect size; with the most common effect size being medium (n=4), two studies had small effect sizes and one study did not report on effect size. One quantitative study had a theoretical underpinning (intersectionality theory).

Qualitative studies: Qualitative studies made use of simple random sampling, convenience sampling, strategic sampling, purposive sampling and snowball sampling. The most frequently used method of data collection for qualitative studies was semi-structured interviews (n=6). One study utilized qualitative surveys and the other two studies made use of a combination of data collection methods, such as focus groups and individual interviews.

With regard to analysis, only three of the nine quantitative studies reported on saturation. Saturation is an important element to report on as it speaks to the robustness of the study. Three qualitative studies utilized a theoretical orientation (ambivalent sexism, socialization theory, and functionalist theory).

Mixed methods: Neither of the two mixed method studies reported explicitly on the sampling method used so this was inferred. The mixed method studies did not utilize a theoretical approach. One of the studies reported on effect size (large) but aside from that, neither study reported explicitly on the robustness of the study.

4.2.2.3 Results and recommendations*:* Table 4.6 below presents information regarding the results and recommendations from the included studies.

Table 4.6

Results and Recommendations

Authors	Results			
	Findings	Conclusion	Recommendation	Limitations

Table 4.6 above suggests that the majority of studies reported on all four of these subsections, making this the most comprehensively reported on section across all studies. Out of the 18 studies, two did not report on recommendations (Botha, 2010; van Biljon & de Kock, 2011) and two did not report on limitations (Lessing & Schultze, 2003; Punyanant-Carter & Wrench, 2010). The major conclusions were that demographic variables and personal factors do play a role in completion, but the roles that they play depend largely on the context in which the student and supervisor find themselves. For example, the supervisory

relationship, the field of study, location and diversity of the university as well as the role of the broader community. Commonly reported limitations were lack of generalizability of the study, lack of diversity among samples, not including the perspective of supervisors as well as students, and in some cases being unable to allow students to communicate in their first language during data collection. Recommendations were made concerning both research and practice. The most common recommendations for practice included the development and implementation of training programmes for students to better prepare them for the postgraduate research process, designing training programmes to educate supervisors on the perspective of students, and developing adequate and accessible support structures in terms of academic, social and psychological support. In terms of furthering research, recommendations were made for more comparison studies on the topic, more nuanced and in-depth investigations based on some of the results of their respective studies, as well as expansions or continuations of their studies in terms of focus or content, methodology and target group.

4.3. Theory Explicative meta-synthesis: This section consists of three subsections; Reciprocation, Refutation, and Line of argument. For ease of reading, the personal and demographic variables found to impact research completion will be presented separately under each section.

4.3.1 Reciprocation: The topic of this review allowed for the consideration of both student and supervisor variables affecting research completion. Of the included articles, however, only four focused on the personal or demographic variables of supervisors (Botha, 2010; Lechuga, 2011; Lessing & Schulze, 2003; van Biljon & de Kock, 2011). In all cases these were discussed in context of the supervisory relationship and the manner in which these variables interacted with those of the student. For this reason student and supervisor variables

are discussed alongside each other, with the majority of the narrative focusing on the perspective of the student.

4.3.2 Demographic variables: Six demographic variables were identified as impacting research completion namely gender, race, culture, language, academic discipline and religion / spirituality. Table 4.7 below reflects the distribution of demographic variables across source articles.

Table 4.7

Ranking of Demographic Variables

Demographic variables	Number of articles	Ranking	References
Gender	6	1	van Biljon& de Kock, 2011; Lechuga, 2011; Mehta, Keener &Shrier, 2013; Noy& Ray, 2012; Rice et al., 2009; Rose, 2005
Language			van Biljon& de Kock, 2011; Lessing & Schulze, 2003; Mukminin& McMahon, 2013; Rice et al., 2009; Rose, 2005; Tummala-Narra& Claudius, 2013
Race	5	2	El-Ghoroury et al., 2012; Gasman, Hirschfield &Vultaggio, 2008; Lechuga, 2011; Noy& Ray, 2012; Tummala-Narra& Claudius, 2013
Culture			Lechuga, 2011; Mukminin & McMahon, 2013; Rice et al., 2009; Rose, 2005; Tummala-Narra & Claudius, 2013
Academic discipline	4	3	Lechuga, 2011; Mehta, Keener &Shrier, 2013; Noy& Ray, 2012; Rose, 2005
Religion/spirituality	3	4	El-Ghoroury et al., 2012; Gasman, Hirschfield &Vultaggio, 2008; Tummala-Narra& Claudius, 2013

As reflected in Table 4.7, the effects of these six demographic variables on completion are ranked according to frequency of occurrence in source references. Those demographic variables appearing in more of the included articles are ranked higher, while the demographic variables appearing in fewer articles are ranked lower. Below is a discussion of each of these variables in their order of ranking. First there is a discussion of the results found

in the included articles and then these results are discussed in relation to their reciprocation or resonance with the existing body of literature.

4.3.2.1 Gender: Gender was one of the most prevalent variables, occurring in one third of the included articles. One third of the included studies (n=6) reported on the impact of gender on research completion (Lechuga, 2011; Mehta, Keener & Shrier, 2013; Noy & Ray, 2012; Rice et al., 2009; Rose, 2005; van Biljon & de Kock, 2011). These studies reported on the advantages and disadvantages of gender. The included studies revealed that gender posed as an advantage and disadvantage when reflecting on research completion. The literature uncovered substantially more disadvantages to being a female postgraduate student than advantages. Disadvantages were presented as ways in which gender impacted negatively on aspects of the postgraduate experience that in turn resulted in obstacles to completion. Conversely, advantages were presented as ways in which gender had a positive impact on completion.

a. Advantages: Two core ways emerged in which being a female postgraduate student impacted advantageously on completion. However, only one of these is reciprocated by the existing body of literature and presented in this section. The other finding is not supported by the literature and is therefore discussed under the refutational section.

van Biljon and de Kock (2011) reported a significantly higher completion rate for female than male postgraduate students. Although this is the result of one study at one university, they made use of random sampling and the results are therefore generalizable. These results are also supported by the existing literature (DeAngelo, Franke, Hurtando, Pryon, & Tran, 2011; Wensvoort, 2011). The Council of Graduate Schools (2008) found that women had higher completion rates than men in the fields of Humanities and Social Sciences but not in male dominated fields such as Physical Science and Engineering. The reasons for

this are not made clear by the literature, but the fact that women have lower completion rates in male dominated fields may have something to do with their subjective perception of gender disadvantage, this is discussed in more detail in the appropriate sections of this study.

With regard to disadvantages, the articles reported on stereotypical gender roles, the impact of gender on data collection, isolation and sexual harassment, and the effects of gender on preferred personal attributes. These are discussed below.

b. Stereotypical gender roles: Mehta, Keener and Shrier (2013) discovered that female students do not appreciate being viewed in terms of stereotypical gender roles. This is consistent with the existing literature which states that women often fear being perceived as weak (Lee, 2008). The existing literature also finds that it is common for male supervisors to deliver feedback to their students in different manners, depending on their gender (Phillips & Pugh, 2010). This is because the female students are viewed as more emotional and the supervisors therefore attempt to limit their criticism for fear of an emotional reaction (Phillips & Pugh, 2010). It is likely that these gender stereotypes could negatively affect female students because providing more comprehensive feedback to male students inevitably places female students at a disadvantage by means of withholding valuable information due to fear of how it might be received.

c. Impact of gender on data collection: Mehta, Keener and Shrier (2013) found that gender sometimes impeded the ability to freely conduct research. This problem is specific to factors affecting data collection such as personal safety and access to males in hierarchical communities, especially in developing countries. These authors go on to say that although data collection issues is not a problem faced solely by women, there are clear discrepancies in the research productivity between men and women with men consistently having more publications and research presentations. This finding is reciprocated by the literature which

states that the majority of publications are authored by men and articles with a male as the principal author are more likely to be cited (Quequa, 2013).

d. Isolation: Rose (2005) mentions that men receive more camaraderie from their supervisors than women and according to Mehta, Keener and Shrier (2013), women are at a greater risk for social and intellectual isolation as they do not have the same access to informal networking groups as men do. Women do not seem to value the camaraderie experienced by their male peers any less than they do and female students regard this aspect of supervision just as highly as men do (Rose, 2005). This finding is reciprocated by the literature, but only in certain fields. Newsome (2008) for example, found that females in the fields of Natural and Physical Science often reported the research process as isolating and lonely whereas male students generally did not.

e. Sexual Harassment: Another problem experienced by female postgraduate students is sexual harassment (Mehta, Keener & Shrier, 2013). Women who experienced sexual harassment from faculty members were more likely to perceive faculty as disrespectful and incompetent and these women were also more likely to drop out of their programmes (Mehta, Keener and Shrier, 2013).Based on the literature sexual harassment of postgraduate students is not a new problem (Bond, 1988; Fitzgerald et al., 1988; Paludi, 1996). More recent literature found that, out of a sample of postgraduate students from Life Sciences, Earth Sciences and Social Sciences, 64% had reportedly experienced sexual harassment in the form of unwanted sexual comments or remarks and 20% had reportedly experienced sexual assault in the form of unwanted sexual contact (Clancy, Nelson, Rutherford & Hinde, 2014). Hill and Silva (2005) found that sexual harassment experienced by male students is generally homophobic in nature and sexual harassment of male supervisors is generally in the form of unwanted sexual advances by female students. Klein et al. (2007) discovered that sexual

harassment of women is most prevalent in male dominated fields. All authors found that students are usually unfamiliar with the process of reporting sexual harassment and that sexual harassment, if left unchecked, can lead to significant distress and difficulty concentrating on their research (Clancy et al., 2014; Hill & Silva, 2005; Klein et al., 2007). Based on these findings, institutions should perhaps focus more attention on ensuring that students, as well as supervisors are aware of the correct procedures to follow in the event of sexual harassment and the support structures that are available at the university to help students or supervisors cope.

f. Effects of gender on preferred personal attributes: According to Rose (2005), females perceive supervisors' personal attributes and values, as well as psychosocial support as the most important aspects of supervision. Males on the other hand preferred supervisors who held positions of power and could provide essential information and networking opportunities. This finding is supported by the existing literature which also found that female students value personal attributes above status (Magano, 2011). These results seem to suggest that there may be a gendered pattern to students' appreciation and preference of their supervisors' personal attributes.

If there is a gendered pattern to students' preferences, it is important to be aware of this. Some of the articles included in this study found that male supervisors who did not fulfil the psychosocial needs of their female students left them feeling dismissed, inadequately supported and invisible (Lechuga, 2011). Noy and Ray (2012) found that female students in the faculty of science often did not feel respected by their male supervisors and Mehta, Keener and Shrier (2013) add that female students in predominantly male fields often had to masculinise themselves in order to be respected by their male supervisors and peers. This is supported by the existing body of literature which states that female students often feel they

need to sacrifice their femininity in order to succeed and female students therefore tend to make a conscious effort to behave in a more masculine manner (Newsome, 2008).

4.3.2.2. Language: This demographic variable was found to affect research completion in three main ways. Namely; practical academic ability (Lessing & Schulze, 2003; Mukminin & McMahon, 2013), social isolation (Mukminin & McMahon, 2013; Rose, 2005; Tummala-Narra & Claudius, 2013), and issues of communication and language-based discrimination in supervision (Rice et al., 2009; Tummala-Narra & Claudius, 2013).

a. Practical academic ability: Poor use of language by students writing in their second language was found to be a major challenge for supervisors (Lessing & Schulze, 2003). According to Mukminin and McMahon (2013), writing was found to be the most challenging of the language skills and postgraduate students reported that writing a thesis or dissertation was more difficult and significantly more stressful than general course work. These authors also found while other language skills improved over time, writing skills did not improve in any significant way (Mukminin & McMahon, 2013).

These findings are consistent with the existing body of literature which confirms that in countries such as South Africa, many students are writing their theses or dissertations in their second or third languages and many supervisors are supervising in their second language (Van Aswagen, 2007). Alwasilah (1991) reported that Indonesian students studying in English-speaking countries struggle significantly with the writing of their research papers due to poor proficiency in English. Malan, Marnewick and Lourens (2010) add that language problems experienced by postgraduate students in South Africa are often exacerbated by the low literacy level of many students from previously disadvantaged backgrounds and these students are often not adequately prepared to handle the demands of postgraduate research. The fact that Mukminin and McMahon's (2013) study took place more than 20 years after

Alwasilah's (1991) study and produced very similar findings suggests that language has been an obstacle to postgraduate research completion for many years.

b. Social Isolation: Language was found to be the cause of social isolation for some students (Mukminin & McMahon, 2013; Rose, 2005; Tummala-Narra & Claudius, 2013). Mukminin & McMahon (2013) discovered that students who did not have English as a first language often experienced difficulties with speaking skills, with regard to lack of practice or confidence issues related to speaking English. These students also reported trouble with listening skills, often reporting that they had difficulties with their native English-speaking peers speaking too fast for them to understand. These language deficits resulted in problems making friends and often lead to social isolation (Mukminin & McMahon, 2013; Rose, 2005; Tummala-Narra & Claudius, 2013). This is reciprocated by the literature which found that postgraduate students with poor English language ability often had more difficulty making friends and these students were reportedly less satisfied with their postgraduate experience (Mostofa, 2006; Trice, 2004).

c. Issues of communication and discrimination in supervision: Some studies found that language sometimes had the ability to create barriers within the supervisory relationship. This appears to happen both unintentionally as a result of a difficulty with communication (Lessing & Schulze, 2003; Tummala-Narra & Claudius, 2013), and intentionally as a function of discrimination and negative attitudes towards second or third language students (Rice et al., 2009).

Tummala-Narra and Claudius (2013) stated that students and supervisors often experienced problems in communication due to limited English ability of one or both parties and this often lead to feelings of frustration for both student and supervisor. Lessing and Schulze (2003) found that communication problems due to limited English ability were

mostly a problem reported by inexperienced supervisors. The reasoning behind this is that more experienced supervisors made their students aware of the technical requirements of the research process, as well as all the ground rules right at the beginning of the thesis endeavour so as to avoid confusion later on (Lessing & Schulze, 2003). Rice et al. (2009) found that some students reported experiences of language-based discrimination in the form of negative attitudes from their supervisors for not being able to speak the right kind of English.

This resonates with earlier literature which postulates that adequate communication is vital to successful supervision and inadequate language proficiency can hinder the ability of students and supervisors to relate to each other (Albertyn, Kapp & Bitzer, 2008; Jacob & Greggo, 2001; Wan, Chapman & Biggs, 1992). It can also restrict the level of academic discussion, especially at Doctorate level, when complex thought processes and articulation are hindered during supervision meetings, due to studying in a language other than your first (Mostofa, 2006).

4.3.2.3. Culture*:* This demographic variable was mentioned by five studies as having the potential to affect the research experience of students and their ability to complete (Lechuga, 2011; Mukminin & McMahon, 2013; Rice et al., 2009; Rose, 2005; Tummala-Narra & Claudius, 2013). A major theme that emerged across all these studies is the importance of the supervisory relationship to international students with regard to issues such as acculturation, social support, and cross-cultural competence.

a. Acculturation: Rose (2005) mentions that a good supervisory relationship can help with acculturation and international students prefer supervisors who are interpersonally involved in their lives and provide relational support. This is consistent with earlier literature which also states that international students are interested in supervisors who will take a personal interest in them and help them acclimatize to the culture of the host country

(Guilfoyle, 2004; Wan, Chapman & Biggs, 1992). Rose (2005) does not mention which countries these students are from though so we do not know whether these students are perhaps from developing countries or collectivist societies or the extent to which the culture of the host country is different from the student's home country. Earlier literature states, though, that the cultural adjustment of international students depends, to a large extent, on the level of similarity between the culture of the student and the culture of the country in which they are studying (Mostofa, 2006).

b. Social support: Tummala-Narra and Claudius (2013) state that international students often do not have the same social support from family members or friends as their domestic peers and this can lead to feelings of isolation. This is reciprocated by the literature which found that, aside from being far from their social support systems back home, some international students seldom socialize with their domestic peers due to their perception of vast cultural differences (Alreshoud & Koeske, 1997). In addition, findings from the existing body of literature show a positive correlation between socializing with members of the host culture and successful socio-cultural adjustment (Li & Gasser, 2005).

c. Cross-cultural competence in supervision: Interpersonal relationship issues was found by Rice et al. (2009) to be one of the main reasons for international students wishing to change supervisors. This is supported by the existing body of literature which also highlights the importance of the interpersonal aspects of the supervisory relationship to international students (Krauss & Ismail, 2010). According to the findings in the included articles, these difficulties are not always intentional and are generally the result of unvoiced role expectations and cultural differences in social behaviour and interpersonal styles (Lechuga, 2011; Mukminin& McMahon, 2013; Rice et al., 2009). For example, Mukminin and McMahon (2013) found that some students struggle to adjust to the informal relationship

between supervisor and student and that it is often so difficult for students to approach their supervisors that they frequently avoid doing so and attempt to solve research problems by themselves. Alternatively, Lechuga (2011) discovered that overly strict interpersonal boundaries between supervisor and student sometimes contradicted cultural norms for Latin American students and resulted in communication problems within the supervisory relationship. Additionally, Tummala-Narra and Claudius (2013) reported feeling misunderstood by their peers and supervisors as a major problem. For the reasons highlighted above, Lechuga (2011) suggests that supervisory relationships might be more beneficial to both student and supervisor when both parties share similar cultures or cultural experiences. The findings of the other included studies indicate, however, that shared cultural experience is not a necessity as long as cross-cultural empathy is present within the supervisory relationship (Rice et al., 2009; Tummala-Narra & Claudius, 2013). Students in these studies reported a desire to feel that their cultural values and language difficulties were understood and respected by their supervisors. The existing body of literature found that culture plays an important role in the way people relate to each other and awareness of and sensitivity to cultural differences can help reduce misunderstandings (Guilfoyle, 2004; Mostofa, 2006). It seems then, that when it comes to supervision, it is not about matching but rather about acknowledgement of cultural differences and support based in accurate empathy and cross-cultural competence.

4.3.2.4. Race: Five of the included articles reported on race as a variable impacting on a postgraduate students' ability to complete (El-Ghoroury et al., 2012; Gasman, Hirschfield & Vultaggio, 2008; Lechuga, 2011; Noy & Ray, 2012; Tummala-Narra & Claudius, 2013). The findings of the studies centred on issues of discrimination and intellectual isolation.

a. Discrimination: According to El-Ghoroury et al. (2012) the greatest causes of stress for racial minority students are discrimination, alcohol or substance abuse, and physical health issues. None of the other studies reported on alcohol abuse or physical health issues, but several studies reported that racial minority students rated discrimination as a significant stressor during their postgraduate research (El-Ghoroury et al., 2012; Gasman, Hirschfield & Vultaggio, 2008; Lechuga, 2011; Noy & Ray, 2012; Tummala-Narra & Claudius, 2013). El-Ghoroury et al. (2012) found that students of colour experienced discrimination as a far greater stressor than White students. This is supported by the existing body of literature which found that the discrimination experienced by students of colour can lead to significant socio-cultural and psychological stress (Aryan & Guzman, 2010).According to an earlier study, this stress caused by racial discrimination on campuses can impact the academic performance of students and may hinder their ability to complete (Cabrera, Nora, Terenzini, Pascella & Hagehorn, 1999).

According to Tummala-Narra and Claudius (2013), International students of colour reportedly experience more instances of discrimination than European international students. This author then goes on to say that the discrimination reported by Muslim students was more often race related than religious discrimination and was as a result of visible differences such as their accents, the colour of their skin, and for women the wearing of a headscarf. A study from the body of literature supports this finding by showing that international Black African students studying in the United States of America reported significantly more experiences of discrimination than international White African students (Constantine, Anderson, Berkel, Carldwell & Utsey 2005).

Noy and Ray (2013) found that students of colour reported interpersonal difficulties with peers and faculty more frequently than White students. Gasman, Hirschfield &

Vultaggio (2008) added that it is very difficult for Black students to find same race peers at predominantly White institutions and this often leads to feelings of social isolation. This is reciprocated by the literature which shows that Black students attending predominantly White universities are more likely to report discrimination and social isolation than those attending predominantly Black universities (Hanna, 2014). Another study from the general body of literature suggests that the social isolation experienced by students of colour is often due to covert discrimination rather than overt racism (Shah, 2008). Whatever the reasons for racial discrimination and the resultant social isolation, it is an important issue which needs to be addressed by institutions as a hostile university environment can greatly affect the success and retention of postgraduate students of colour (Cabrera et al., 1999).

b. Intellectual isolation: Studies found academic or intellectual isolation to be significant stressors for students as well as supervisors of colour (Gasman, Hirschfield & Vultaggio, 2008; Lechuga, 2011; Noy & Ray, 2012). Lechuga (2011) stated that the percentage of faculty of colour is significantly lower than the percentage of students of colour at some institutions. This finding is supported by the existing body of literature (Brooms, 2015; Fenelon, 2003; Shah, 2008). Fenelon (2003), for example, states that tertiary institutions vary in their willingness to include faculty of colour, especially as senior staff members. According to the included study of Gasman, Hirschfield and Vultaggio (2008), this is a problem because students frequently reported difficulties in trying to align their perspectives with the perspectives of their supervisors. Because of the underrepresentation of faculty of colour at some institutions, students often sought additional support from faculty in other departments, at other universities, or from professionals in their field (Gasman, Hirschfield & Vultaggio, 2008; Noy & Ray, 2012). This is important because appropriate support from supervisors and peers is a vital factor in the success of postgraduate students (Bair & Haworth, 1999; Shah, 2008).

From the perspective of supervisors, this is also a problem for supervisors of colour who reportedly do not feel that their intellectual contributions are being affirmed by the rest of the faculty and they therefore often feel excluded from the academic discourse within their institutions (Noy & Ray, 2012). This finding is supported by the results of an earlier study which showed that intellectual isolation is a common problem among Latino faculty as well as other faculty of colour (Valverde & Castenell, 1998). This is also reciprocated by a very recent study which found that, in addition to their regular academic duties, supervisors of colour often also had to deal with issues such as student attitudes and being judged by their students based on race rather than academic ability, intellectual isolation among their colleagues, and experiences of racism (Brooms, 2015). According to Valverde and Castenell (1998), this is perpetuated by the fact that being marginalized makes it difficult for minority groups to form the networking groups necessary to alter the perceptions of White faculty members. A possible reason for the lack of alignment between the viewpoints of students of colour and their supervisors and the lack of intellectual respect among faculty is the Eurocentric knowledge being taught at universities and the absence of alternative racial perspectives in the university curriculum (Gasman, Hirschfield & Vultaggio, 2008). Hughes' 2000 study from the general body of literature supports this by highlighting the negative effects of using Eurocentric textbooks and not including materials which incorporate more of a balanced perspective.

From these results it becomes apparent that race is a demographic variable which affects both students and supervisors in terms of social and intellectual discrimination and isolation and racial discrimination is an issue which impacts the academic environment across all levels and needs to be addressed, not only on a superficial level among students, but at the core institutional level.

4.3.2.5. Academic discipline: A few studies identified differences in the research experiences of postgraduate students in different academic disciplines (Lechuga, 2011; Mehta, Keener & Shrier, 2013; Noy & Ray, 2012).

Academic discipline is discussed throughout the literature as it relates to and interacts with other demographic variables. An example of this is the underrepresentation of women and racial minorities in certain disciplines and the potential problems caused by this (Lechuga, 2011; Mehta, Keener & Shrier, 2013). For example Lechuga (2011) found that the underrepresentation of women and racial minorities in the fields of science, technology, engineering and mathematics is resulting in problems with providing adequate supervision for these students due to the fact that faculty representation is also very low. This often leads to students feeling isolated by their peers and unsupported by their supervisors (Lechuga, 2011). Noy and Ray (2012) report that if a type of systematic disadvantage is present in supervisory relationships, it is at the level of discipline as students in the physical and biological sciences find their supervisors to be significantly less supportive than students in the social sciences and humanities. This is reciprocated by the literature which found that, although students in the Natural Sciences often worked as part of research teams and students in the Social Sciences often worked as lone scholars with one or two supervisors, students in the Natural Sciences often reported that they did not feel adequately supported or sufficiently guided by their supervisors (Deem & Brehony, 2000; Pole, 1997). Of the included, high quality studies, Rose (2005) found no statistically significant differences between students in different academic fields when rating the characteristics of their ideal supervisor. This finding makes it possible to infer that students across fields desire the same basic qualities in a supervisory relationship, yet supervisors in the fields of science, technology, engineering and mathematics do not seem to be providing the relational or practical support that their students require (Lechuga, 2011; Noy & Ray, 2012).

From these results two things become apparent. Firstly, it appears that academic discipline affects postgraduate research in so far as it interacts with and accentuates the negative or positive effects of other demographic variables. Secondly, there are different supervisory styles which are used in different disciplines and while there appear to be both benefits and drawbacks to the supervision styles used in Science disciplines as well as those used in non-science disciplines (such as being able to work as part of a research team versus more individualized and focused support), there does appear to be systematic disadvantage present in supervision for students in the Natural Sciences in terms of not receiving the support that they require as much as their Social Science peers do.

***4.3.2.6. Religion/ Spirituality*:** Religion/spirituality as a demographic variable was discussed in three of the included articles. The articles discuss the ways in which religion or spirituality can impact completion, as well as the role it can play as a coping mechanism.

a. Religion/ spirituality impacting completion: Religion or spirituality was found by one of the included studies to be a risk factor for social isolation (Tummala-Narra & Claudius, 2013). This study indicated that many Muslim students in the United States feel that their religion is misunderstood by their peers and supervisors and they often experience negative attitudes and discrimination from peers and maltreatment from their supervisors. These authors also mention the difficulty that Muslim students sometimes experience with regard to balancing the time demands of their religious practices with the demands of their research.

b. Religion/spirituality as a coping mechanism: A few studies also discussed the significance of spirituality as a coping mechanism (El-Ghoroury et al., 2012; Gasman, Hirschfield & Vultaggio, 2008; Tummala-Narra & Claudius, 2013). El-Ghoroury et al. (2012) state that spirituality is an important coping mechanism, especially for racial minority

students and students reported that their faith is what helped them to keep going despite negative factors such as discrimination. This is reciprocated by the literature which also highlights the significant role that religion or spirituality plays as a coping mechanism during the research process (Mah, 2011). Similarly, from the included articles, Gasman, Hirschfield and Vultaggio (2008) established that there is a definite connection between Christian values and the stamina required to persevere and avoid dropping out in difficult circumstances. Many Muslim students also rated their religion as an important resource which helped them to persevere when they encountered interpersonal or academic challenges throughout the research process (El-Ghoroury et al., 2012). According to the existing body of literature, Christian students also reported religion as an important coping mechanism which helped them to persevere during the difficult parts of their postgraduate research (Ortiz-Frontera, 2013).

From the results it seems as though religion can be a dividing factor, especially when the religion of the minority is not understood or misunderstood by the majority. Religion, though, also provides a conceptual framework for students which helps them to make sense of their subjective experiences of the postgraduate research process, as well as acting as a resource for students from which they are able to draw strength and encouragement. Religion also connects students by making them part of a community of faith which makes the perception of isolation less likely. All these factors appear to help students persevere in challenging circumstances.

4.3.3 Personal Factors: Personal factors were found to have an impact on research completion. Four personal factors were found to have an effect on research completion in the articles included in the final review. Table 4.8 below presents a distribution of articles within which the factors have been reported.

Table 4.8

Ranking of Personal Factors

Personal Factor	Number of Articles	Ranking	Authors
Isolation	8	1	El-Ghoroury et al., 2012;Gasman, Hirschfield &Vultaggio, 2008; Lessing & Schulze, 2003; Mehta, Keener &Shrier, 2013; Mukminin& McMahon, 2013; Noy& Ray, 2012; Rose, 2005; Tummala-Narra& Claudius, 2013
Self-efficacy	7	2	Abdullah & Evans, 2013; Botha, 2010; Gasman, Hirschfield and Vultaggio, 2008; Gunnarsson, Jonasson and Billhult, 2013; Lechuga, 2011; Lessing & Schulze, 2003; Subramanian et al. 2012
Financial issues	5	3	Botha, 2010; El-Ghoroury et al., 2012; Gasman, Hirschfield &Vultaggio, 2008; Lessing & Schulze, 2003; Rice et al., 2009
Research Anxiety	3	4	El-Ghoroury et al., 2012; Green et al., 2001; James & Simons, 2009

From Table 4.8 above it becomes evident that the most commonly occurring personal factor was isolation, appearing in just under half the included articles. This is consistent with the prevalence encountered in the literature. The high prevalence seems to be due to the fact that many demographic variables have the potential to result in isolation and it is therefore a factor which is mentioned consistently throughout the literature as having a negative effect on postgraduate research completion. The second highest ranking factor was self-efficacy, appearing in seven of the 18 articles. Financial issues appear in five of the articles and research anxiety in three articles. Below is a brief discussion of each factor.

***4.3.3.1. Isolation*:** Isolation was identified as one of the most prevalent personal factors affecting research completion. Throughout the literature two main types of isolation emerged as having the potential to affect postgraduate research students; Social isolation and Intellectual isolation. Intellectual support and social support are important aspects of

supervision which, when present, can be a source of strength for both student and supervisor (Lessing & Schulze, 2003). These factors are discussed below.

a. Social isolation: Students with less social support report greater levels of stress while students with adequate social support from supervisors and peers perceive significantly fewer challenges throughout the research process (El-Ghoroury et al., 2012; Tummala-Narra & Claudius, 2013). Subramanian et al. (2012) adds that an unsupported research endeavour can be damaging and many students struggle substantially to survive under such circumstances.

Social isolation is mentioned consistently throughout the studies included in this review in terms of how it relates to the various demographic variables such as race (Gasman, Hirschfield & Vultaggio, 2008; Noy & Ray, 2012), culture (Rice et al., 2009; Tummala-Narra & Claudius, 2013), religion (Tummala-Narra & Claudius, 2013), language (Rose, 2005; Tummala-Narra & Claudius, 2013), academic discipline (Lechuga, 2011) and gender (Mehta, Keener & Shrier, 2013; Noy & Ray, 2012). What becomes evident when looking at social isolation in relation to demographic variables, as has been done throughout, is that all the demographic variables discussed in this review have the potential to lead to social isolation depending on the way in which those demographic variables interact with the environment in which they find themselves. It is important to examine the potential causes of social isolation, because research shows that it is correlated with the psychological well-being of the student and students who do not have the necessary social connections and support from their peers experience greater psychological stress than those students who perceive that they are well integrated socially (Tummala-Narra & Claudius, 2013). Rose (2005) indicated that students who experienced social isolation often noted that they preferred supervisors who would take

an interpersonal interest in them and aid them with aspects not directly related to their research, such as social integration and communication skills.

b. Intellectual Isolation: Rice et al. (2009) describes the disappointment reported by students when they feel inadequately supported or abandoned by their supervisors and are left to figure the research process out by themselves. While some supervisors can be neglectful, Lessing and Schulze (2003) noted that the frustration students experience is sometimes as a result of unrealistic expectations with regard to the role of the supervisor, as well as the expected time to completion. This is reciprocated by a more recent body of literature which also states that when the expectations of the student are not consistent with those of the supervisor, problems such as frustration and misunderstanding are likely to occur (Kiley, 2011; Wisker, Robinson & Shacham, 2007). Lessing and Schulze (2003), in one of the articles included in this review, asserted therefore that it is vital for supervisors to manage expectations at the start of the research process and ensure that students are aware of the initiative and responsibility they will be required to take for their own research as well as the role that the supervisor will play in assisting them.

As with social isolation, intellectual isolation has also been shown to occur as a result of the manner in which the demographic variables of student or supervisor interact with the environment in which they find themselves. Mukminin and McMahon (2013) speak about the intellectual isolation occurring due to cultural differences. Asian students, for example, are not used to active participation in discussions and sometimes experience difficulties with engaging actively in academic discussions with their supervisors and peers (Mukminin & McMahon, 2013). Intellectual isolation also occurs sometimes in cross-racial supervisory relationships due to differing perspectives or a lack of respect from one or both parties (Gasman, Hirschfield & Vultaggio, 2008; Noy & Ray, 2012). Intellectual isolation is a

significant problem for both students and faculty of colour and the effects of this and potential reasons for this are discussed under the demographic variable, “Race”.

Isolation as a personal factor does not appear to exist in and of itself as an independent variable nor does it manifest on its own. Rather, it seems to be the outcome of demographic variables interacting with each other and the circumstances in which these interactions happen.

4.3.3.2. Self-efficacy: Abdullah and Evans (2013) found that the psychological attributes of research students contributed greatly to their overall research experience. Self-efficacy specifically was discovered to have a strong correlation with positive research experiences (Abdullah & Evans, 2013; Lechuga, 2011) and is mentioned in seven of the included articles. The importance of self-efficacy as it relates to research completion, as well as the different supervisory styles required for students’ different levels of self-efficacy are discussed below.

According to Abdullah and Evans (2013) students who tested higher for self-efficacy were also more motivated with regard to their research and more proactively engaged in the research process, taking more initiative than students with less self-efficacy. Similarly, Lechuga (2011) indicates that it is important for supervisors to be aware of the level of self-efficacy of their students and use this knowledge to guide the supervision process. Lechuga (2011) states for example that many Latin-American students lack self-efficacy but when supervisors are aware of this and dedicate more focused and directed supervision time to them, these students are able to successfully complete their research. This is reciprocated by the literature which states that students have different requirements of supervision with some students requiring high levels of support while others desire more autonomy in order to succeed (McClure, 2005).

Gasman, Hirschfield and Vultaggio (2008) stated that while most students relied on their supervisors for guidance and support, they also emphasized the importance of learning how to solve their own problems, take control of their own process and help themselves succeed. Subramanian et al. (2012) added that many students found taking control of their research to be initially very daunting and challenging but that overtime, especially in the later stages of their research, they found that being given more freedom helped them to take ownership of their own research experiences and ultimately facilitated their growth as independent researchers. Gunnarsson, Jonasson and Billhult (2013) agree that students need more support in the earlier phases of research, but overtime they acquire the skills and confidence to start making major decisions. This finding is supported by the existing literature which emphasizes the importance of empowering students to become independent researchers by providing the appropriate balance of support and freedom throughout the process (Schulze, 2012). According to some of the articles included in this review, supervisors have also noted the joy they feel when students are able to begin taking ownership and inspiring their own research and they emphasize the importance of allowing students to make mistakes in a supportive environment in order to develop their self-sufficiency and help them develop into confident and capable professional researchers (Lechuga, 2011; Lessing & Schulze, 2003).While rigid and directed supervision has been proven to produce good throughput rates, these students struggle to conduct independent research after graduation as they do not develop sufficiently as critical thinkers during their thesis endeavour (Botha, 2010).

4.3.3.3. Financial Issues: Financial issues were found to be a problem which is frequently encountered and reported on. Financial problems were found to cause significant distress and anxiety in students (Gasman, Hirschfield & Vultaggio, 2008; Rice et al., 2009). The effects of financial issues on the research process are discussed below.

According to El-Ghoroury et al. (2012) 63.9% of the students in their study reported financial issues to be both a stressor and a barrier to accessing certain coping strategies. Gasman, Hirschfield and Vultaggio (2008) found that students with financial issues often had to neglect their research responsibilities in order to take care of their more immediate needs. These authors found that many students had to work more than one job in order to afford the university fees and struggled to gather enough funds to attend conferences or seminars. According to Rice et al. (2009) financial stress was greater for international students because the restrictions on their visas often limit the type of work they are allowed to do and failure to earn enough money or obtain a bursary to pay academic fees could result in them being sent home before the completion of their degrees.

These findings are supported by the literature which states that it is often very difficult for postgraduate students to survive on the wages they earn in the jobs that are available to them, given their time constraints, and work limitations in the case of foreign students and bursary holders (Anaz, 2011). This constant struggle for financial security is a significant cause of stress among postgraduate research students (Hughes, 2000). Looking at the findings of the included articles, as well as the existing body of literature, it is clear that financial issues is a personal factor which has practical ramifications(e.g. time constraints, an inability to pay fees) and psychological effects (e.g. stress) on the progress of the student.

According to the studies included in this review, supervisors are aware of the substantial cost of postgraduate studies and the burden that this can place on students and as such they often try to obtain bursaries for their students or help them to finish in as little time as possible in order to avoid re-registration (Lessing & Schulze, 2003). Botha (2010) also pointed out that students are more likely to obtain funding if they are recruited into a research

team with other students working under a larger parent project that is of special interest to the supervisor.

4.3.3.4. Research Anxiety: Research anxiety was discussed in three of the included articles as a potential barrier to research completion. Research anxiety and a lack of interest in research has been identified by researchers as a problem which has the potential to cause significant levels of stress in students attempting to conduct independent research (El-Ghoroury et al., 2012; Green et al., 2001; James & Simons, 2009). Research from an earlier study shows that research anxiety, specifically with regard to anxiety surrounding thesis or dissertation writing, is not a new problem (Bloom, 1971).

According to the included studies, this is a problem which is faced mainly by students in clinical or professional postgraduate programmes who need to complete independent research as part of their degree requirements (El-Ghoroury et al., 2012; Green et al., 2001; James & Simons, 2009). These studies found the demands placed on these students to balance the clinical and research requirements of their programmes to be a source of stress which if not adequately addressed could result in failure to complete the research component of the course. The existing body of literature found that clinical postgraduate students attending a research methods course rated relatively highly for overall research anxiety before the module and although this lessened after the module, the change was not statistically significant (Bell & Clancy, 2012). This is important because if modules on research methodology are not having a significant enough effect on the research anxiety surrounding the completion of theses, then perhaps it is worthwhile to find out the reasons for this so that adjustments can be made.

Green et al (2001) found that clinical social work Masters students experienced greater research anxiety than psychology or business students and these students also express

less interest in the research component of their studies than do psychology students. Similarly, James and Simons (2009) discovered that Masters students in addiction studies showed a greater lack of interest in research when compared with Masters students in community counselling. Although some psychology and counselling programmes also involve clinical or professional components, the lack of interest in research experienced by social work and addiction studies students does not seem to be shared by the psychology and counselling students in these studies and this has been attributed to the perception of social work and addiction studies students that research does not play a major role in the development of their fields (Green et al., 2001; James & Simons, 2009). This perception is reinforced by the fact that the majority of faculty members and supervisors within these fields are not personally involved in conducting research (James & Simons, 2009). This is reciprocated by a study in the existing literature which found that the attitude of nursing students towards research changed from anxious to enthusiastic when these students realized the importance of nursing theory and started to understand the value of research and its practical applicability in their field (McMillan & Schumacher, 2010).

4.3.4. Other Factors: Although feedback is neither a personal factor nor demographic variable, it became evident throughout the literature that feedback has a significant effect on personal factors such as self-esteem and emotional and psychological well-being. It also has an effect on mental health issues, such as depression. For this reason, the research findings on feedback are presented below.

4.3.4.1 Feedback: Research shows consistently that constructive feedback is vital to the research process and negative feedback must always be given in a tactful manner alongside positive feedback or encouraging remarks (Abdullah & Evans, 2011; Gunnarsson, Jonasson & Billhult, 2013; Lechuga, 2011; Lessing & Schulze, 2003; Rice et al., 2009;

Subramanian et al., 2012). According to Abdullah and Evans (2011), 90% of the students who reported having a positive attitude toward their research also reported the presence of appropriate feedback and mutual respect within the supervisory relationship. Subramanian et al. (2012) define constructive feedback as feedback which positively affects the emotional well-being of the student. Both verbal and non-verbal behaviour affect the way in which students receive feedback and this in turn affects students' motivation toward their research (Lechuga, 2011; Subramanian et al., 2012). Gunnarsson, Jonasson and Billhult (2013) add that it is important in feedback sessions to challenge the student just enough to broaden their perspective and help them to engage more with the topic without being overly critical and causing a collapse in self-esteem. Feedback which is purely negative, overcritical, or delivered in a threatening or intimidating manner was found to cause significant stress, low self-esteem and in severe cases, thoughts of withdrawing from the programme (Gasman, Hirschfield & Vultaggio, 2008; Rice et al., 2009). According to Lessing and Schulze (2003), more experienced supervisors seem to be more aware of the necessity of delivering feedback in a tactful and sensitive manner and the importance of ensuring that at least some positive remarks are always included. This is reciprocated by the literature which also highlights the importance of providing feedback which is constructive without being disempowering (Klauss & Ismail, 2010; McClure, 2005; Schulze, 2012).

4.4.2. Refutation: The study identified three factors which were either contradictory to the findings in the literature or not mentioned in the literature namely gender, the importance of supervisory support and the association between language and throughput.

4.4.2.1. Gender: Mehta, Keener and Shrier (2013) found that female students often reported their gender as an asset during their postgraduate studies, but did not discuss the

reasons for this. This subjective experience is important since the perception of advantage can outweigh actual advantage.

4.4.2.2. Importance of supervisory support: El-Ghoroury et al. (2012), found that "support from faculty or supervisors was not as frequently reported as helpful" (p. 130). This finding is contradictory to the literature which since the late 80's has consistently reported on the importance of support from supervisors (Brown & Atkins, 1988; Dietz, Jansen & Wadee, 2006; Garcia, Malott & Brethower, 1988; Hockey, 1991; Malott, 1986). All other articles included in this study affirmed that supervisory support is often integral to the success of the student in their research endeavour (Abdullah & Evans, 2011; Botha, 2010; Gasman, Hirschfield & Vultaggio, 2008; Green et al., 2001; Gunnarsson, Jonasson & Billhult, 2013; James & Simons, 2009; Lechuga, 2011; Lessing & Schulze, 2003; Mehta, Keener & Shrier, 2013; Mukminin & McMahon, 2013; Noy & Ray, 2012; Punyanunt-Carter & Wrench, 2010; Rice et al., 2009; Rose, 2005; Subramanian et al., 2012;Tummala-Narra & Claudius, 2013; van Biljon & de Kock, 2011). El-Ghoroury et al. (2012) found that support from family, friends and peers was significantly valued by students and had a great influence on their success whereas support from their supervisors did not. Thus, this article appears to be refuting the absolute importance of supervisory support and suggesting, alternatively, that the importance of supervisory support is relative to the context of the student (i.e. students with less support from other sources may look to supervisory support more).

4.4.2.3. Language: Another finding which does not correlate with the majority of literature is that there is no significant relationship between home language and research completion (van Biljon & de Kock, 2011). These authors conducted a quantitative study using surveys on 114 Masters students in South Africa and found no statistically significant association between language and throughput success. This finding is inconsistent with the

body of literature (Alwasilah, 1991; Malan, Marnewick & Lourens, 2010; Van Aswagen, 2007), as well as the other articles included in this study (Lessing & Schulze, 2003; Mukminin & McMahon, 2013).The study of Lessing and Schulze (2003) was also set in South Africa, but their study was conducted with supervisors. The supervisors interviewed in this study reported encountering significant problems with the low level English proficiency of many of their second or third language students. It is possible that language is perceived by supervisors as a greater barrier to research completion than it is to students. The Indonesian students in the study of Mukminin and McMahon (2013) however self-reported all four areas of language (writing, reading, listening and speaking) to be a challenge both academically and socially. Van Biljon and de Kock (2011) stated that in South Africa, English is the main academic and commercial language and suggested that for this reason, the "level of English literacy of the students involved in the study may have been high enough to mask the effect of home language" (p. 999). This is possibly not the case in Indonesia and the students may not have had enough exposure to English in their home country to enable them to mask the effects of their home language when conducting research in English speaking countries. What is being refuted here is the absolute finding that second language speakers will struggle. When there is a well established non-standard English that is spoken colloquially, those students are able to function adequately whereas, in countries or contexts where bilingualism is not a given, second language speakers would struggle more with academic tasks that are not completed in their mother tongue.

4.4.3 Line of Argument: Demographic variables and personal factors definitely affect the ability of postgraduate students to successfully complete their research and obtain their degrees. What the literature has made abundantly clear though, is that postgraduate research does not occur in a vacuum and is first and foremost a process which occurs within

the relationship of student and supervisor. Supervision is a relationship between student and supervisor that is impacted reciprocally by the personal and demographic factors of the student and supervisor. This underscores the supervisory relationship as a nuanced psychological interaction. It is important, therefore, to be cognisant that neither demographic nor personal factors on their own, can predict the success or failure of the students.

Supervision occurs in the context of the academic department, faculty, the university and the broader community. What the findings tell us is that there are certain demographic variables which make it difficult for supervisors to perform their duties. These difficulties were encountered on the level of faculty, with supervisors finding it difficult to function optimally due to issues such as discrimination and intellectual isolation among their colleagues. Difficulties were also encountered at the level of the students, when certain demographic variables and personal factors of the students, such as language, research anxiety, self-efficacy and financial issues, made supervising them more challenging than it may otherwise have been and made it more difficult for the students to function optimally in the contexts in which they found themselves.

Demographic and personal factors act indirectly as third variables that moderate, mediate or act as proxies with other variables or relationships. These factors act indirectly on the supervisory relationship, working alliance, and completion, with other variables. Thus, they must be understood contextually and relative to the relationships within which they are functioning.

CHAPTER 5

CONCLUSION

5.1. Executive summary of findings

The factors found to have the greatest impact on completion were language and isolation. The influence of language on completion was found to be direct and indirect. Language impacted completion directly in terms of practical academic ability which was hindered due to deficits in language areas such as reading and writing. Language impacted completion indirectly when deficits in speaking and listening impaired students' ability to make friends and/or communicate adequately with their supervisors, which often lead to feelings of isolation. Isolation appeared as a result of several demographic variables and the impact of isolation (whether social or intellectual) on a students' ability to complete postgraduate research was irrevocably significant.

Gender was one of the most prevalent demographic issues discussed in the articles, but it appears to affect the quality of the postgraduate experience rather than actual completion. In other words, it affects the extent to which students are happy or satisfied during their time of study, but it does not seem to result in dropouts except in extreme cases such as, benign neglect or sexual harassment. Financial issues also affected completion in a very practical way as students who could not afford to continue studying and were unable to obtain sufficient external funding were forced to drop out. Financial issues also affected completion in a more indirect way as insufficient finances often lead to stress, social isolation, and time demands due to having to work more than one job and keep up with the demands of research.

There were also factors which were found to be beneficial to completion. These were self-efficacy and religion/spirituality. Self-efficacy was recognized as an important personal factor which, when present, was significantly beneficial to the research experience of the student. Religion/spirituality, while sometimes the cause of discrimination, was also found to be a source of strength and a protective factor for many students. Both of these factors assisted students in persevering despite the negative experiences they faced, including helping them to keep going despite poor supervisory relationships. Religion/spirituality also helped in a very practical manner as local or hometown churches sometimes helped raise funds for students which eased their financial burdens.

The supervisory relationship sometimes had the ability to moderate the effects of these variables by providing practical support, such as securing external funding, helping with the improvement of language ability, and bolstering students' interest in research by engaging in research themselves. Supervisors also helped by providing emotional support. This kind of support was especially effective with international students who lacked emotional and social support from friends and family.

5.2 Conclusion

Personal and demographic variables do impact the ability of postgraduate students to complete the research component of their degree programmes. The effects of these variables can be either negative or positive. Demographic and personal variables do not, however, seem to affect completion in and of themselves. Rather, it is the way in which these variables interact with each other and the environment that can significantly impact success or failure. All demographic and personal factors examined in this study were found to affect research completion in some way, but the one factor which appeared consistently throughout the literature and alongside almost all other demographic and personal variables, was isolation. In

many cases demographic or personal variables lead to isolation and it was the isolation which most affected a student's ability to complete their research requirements. For this reason, support from friends, family, peers and supervisors appears to be vital to the success of postgraduate students. The type of support required is dependent on the individual circumstances of the student. Some students need more emotional support where others require more academic or practical support. Supervisors should become aware of this and use that knowledge to provide support where it is most needed.

5.3 Limitations of the study

This study was limited in that it did not include enough articles with supervisors as the target group and as such it was not possible to make any meaningful comparisons between the perspectives of postgraduate students and the perspectives of their supervisors.

In terms of methodology, because this study utilized a meta-synthesis, all findings and conclusions of the study were drawn from the findings of the original studies and the interpretations that those original researchers drew from their raw data. Having access only to researchers' interpreted data and not raw data may potentially be a limitation of this study. However, many steps were taken by the researcher to ensure methodological rigour and only studies which were found to be of high methodological quality were included in the systematic review.

Additionally, publication bias may be a limitation in terms of the validity of the findings. This study could only draw from the findings of published studies and readily available published research is not necessarily an accurate representation of the larger body of research that has been conducted. For this reason, conclusions drawn may not be an accurate reflection of research. However, these biases exist in published literature whether or not meta-syntheses are conducted and it is important that researchers are aware of this.

In terms of comprehensiveness, this study was limited in that it excluded paid journals and the study also included only those articles which could be found in the databases of the University of the Western Cape which may have limited the comprehensiveness of the study.

5.4 Recommendation for future research

The findings emphasize the importance of the way in which the demographic and personal variables of the student interact with the environment in which they find themselves. For this reason, future research should consider examining the contexts in which these factors become problematic and the environments which accentuate negative effects. It is also recommended that demographic and personal variables be used more extensively in formulating future research, instead of simply using it to summarize aspects of the sample.

Isolation was discovered to be a major contributor to the success or failure of the thesis endeavour. Future research may therefore consider a more in-depth observation of the effects of isolation on postgraduate research completion by examining the effects that social isolation and intellectual isolation, respectively, have on postgraduate students. Future research should also examine the protective factors employed by isolated students and a comparative study on isolated students who dropped out and isolated students who completed their research and obtained their degrees would likely be beneficial to advancing understanding in this area.

Although this study did allow the inclusion of both students and supervisors as the target group, the majority of studies reported findings from students' perspectives with only very few reporting on the perspectives of supervisors. In addition, only two of the studies reported on the perspectives of both students and supervisors. Future research may consider observing this same topic from the perspective of both student and supervisor alongside each other in a comparative manner in order to gain a more holistic and comprehensive

understanding of any problems as well as the level of awareness and understanding that each party has of the other.

5.5 Significance of the study

This study provides evidence that demographic and personal variables have an effect on the ability of postgraduate students to complete. This provides rationale for further studies to be conducted in this area and advances the knowledge base available on this topic. In fact, four reactive or primary research studies are currently being conducted based on the findings of the present study. This study also resulted in the compilation of a scientific body of literature which can be used by individuals, institutions of higher education, and government or non-government organisations to inform individual practice, specialised training programmes and general psychoeducation. For example, they can be used to increase the awareness of supervisors on the importance of demographic and personal factors in the supervisory relationship. These findings can also be used to improve the awareness of students. Students can use this knowledge to become more aware of themselves and those around them in the context of their research process and also to become more aware of their supervisors. The findings of this study can be utilized in undergraduate research training courses to help them realize that research also has a psychological dimension that particularly plays out in the supervisory relationship.

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APPENDICES

APPENDIX A – List of databases by discipline

Women and Gender Studies

Core databases	Additional databases
Women's Studies International	Academic Search Complete
Emerald Management Plus	Current & Completed Research (SABINET)
ScienceDirect	Directory of Open Access Jnls
JSTOR	Emerald Books (Emerald)
SA ePublications (Sabinet)	Google Scholar
	ISAP (Sabinet)
	NDLTD (Theses and Dissertations)(Sabinet)
	NEXUS (National Research Foundation)
	Project Muse
	SACat (Sabinet)
	SAGE Journals Online
	Sage Research Methods Online (SRMO)
	SCOPUS

Sports, Recreation and Exercise Science

Core databases	Additional databases
Academic Search Complete (EbscoHost)	Cambridge Journals Online
Africa-Wide NiPAD (EbscoHost)	ERIC (EbscoHost)
BioMed Central	EbscoHost Web
CINAHL (EbscoHost)	JSTOR
Cochrane Library	Oxford Journals Online
Credo Reference	PsycARTICLES (EbscoHost)
Health Source: Nursing/Academic Edition	SAGE Journals Online
(EbscoHost)	Sage Research Methods Online (SRMO)
ScienceDirect	SCOPUS
	SocINDEX with Fulltext (EbscoHost)
	SpringerLink
	Wiley Online Library

Social Work

Core databases	Additional databases
Academic Search Complete	BioMed Central
The African Journals Archive	Cambridge Journals Online
Ebscohost	Cochrane Library
JSTOR	Emerald Management Plus
Project Muse	Medicines Complete
SA ePublications (Sabinet)	NEXUS (National Research Foundation) Abstracts
Sabinet Reference	OCLC First Search (with World Cat)
SAGE Journals Online	Poverty Monitoring Database
ScienceDirect	SA Media (Sabinet)
SpringerLink	Sage Research Methods Online (SRMO)
Wiley Online Library (previously called Wiley	SCOPUS
InterScience)	South African Portals
Women's Studies International	Wiley Online Library (previously called Wiley
	InterScience)

School of Public Health

Core databases	Additional databases
Academic Search Complete (EbscoHost)	Cambridge Journals Online
Africa-Wide NiPAD (EbscoHost)	ERIC (EbscoHost)
BioMed Central	EbscoHost Web
CINAHL (EbscoHost)	JSTOR
Cochrane Library	Oxford Journals Online
Credo Reference	Poverty Monitoring Database
Health Source: Nursing/Academic Edition	PsycARTICLES (EbscoHost)
(EbscoHost)	SAGE Journals Online
ScienceDirect	Sage Research Methods Online (SRMO)
	SCOPUS
	SocINDEX
	SpringerLink
	Wiley Online Library

School of Pharmacy

Core databases	Additional databases
Health Source: Consumer Edition (EbscoHost)	AccessPharmacy
Health Source: Nursing/Academic Edition (EbscoHost)	Academic Search Complete
Medicines Complete	American Chemical Society (ACS) Journals
MEDLINE (EbscoHost)	Annual Reviews
MEDLINE (Pubmed)	Biological Abstracts
NEXUS (National Research Foundation)	BioMed Central
OCLC FirstSearch Service (with WorldCat)	BMJ
PubMed	Business Source COMPLETE (EbscoHost)
ProQuest Dissertations & Theses (PQDT) database	Cambridge Journals Online
Sabinet Reference	ChemSpider (Open Access search engine and repository for Chemistry)
SAGE Journals Online	CINAHL (Cumulative Index to Nursing and Allied Health)(EbscoHost)
SciFinder Scholar	Credo Reference
ScienceDirect	Cochrane Library
SCOPUS	EbscoHost Web
SpringerLink	
SwetsWise	
Wiley Online Library (previously called Wiley InterScience)	

Medical BioSciences

Core databases	Additional databases
AccessPharmacy	Nature
Academic Search Complete	ProQuest Dissertations & Theses (PQDT) database
American Chemical Society (ACS) Journals	Sabinet Reference
BioMed Central	SAGE Journals Online
Cambridge Journals Online	ScienceDirect
CINAHL (Cumulative Index to Nursing and Allied Health)(EbscoHost)	SCOPUS
Cochrane Library	SciFinder Scholar
Credo Reference	SpringerLink
MEDLINE (EbscoHost)	SwetsWise
MEDLINE (Pubmed)	UCTD (Sabinet)
	Wiley Online Library

Nursing

Core databases	Additional databases
Academic Search Complete (EbscoHost)	Cambridge Journals Online
Africa-Wide NiPAD (EbscoHost)	ERIC (EbscoHost)
BioMed Central	EbscoHost Web
CINAHL (EbscoHost)	JSTOR
Cochrane Library	Oxford Journals Online
Credo Reference	Poverty Monitoring Database
Health Source: Nursing/Academic Edition	PsycARTICLES (EbscoHost)
(EbscoHost)	SAGE Journals Online
ScienceDirect	Sage Research Methods Online (SRMO)
	SCOPUS
	SocINDEX with Fulltext (EbscoHost)
	SpringerLink
	Wiley Online Library

Occupational Therapy

Core databases	Additional databases
Academic Search Complete (EbscoHost)	Cambridge Journals Online
Africa-Wide NiPAD (EbscoHost)	ERIC (EbscoHost)
BioMed Central	EbscoHost Web
CINAHL (EbscoHost)	JSTOR
Cochrane Library	Oxford Journals Online
Credo Reference	Poverty Monitoring Database
Health Source: Nursing/Academic Edition	PsycARTICLES (EbscoHost)
(EbscoHost)	SAGE Journals Online
ScienceDirect	Sage Research Methods Online (SRMO)
	SCOPUS
	SocINDEX with Fulltext (EbscoHost)
	SpringerLink
	Wiley Online Library

Physiotherapy

Core databases	Additional databases
Academic Search Complete (EbscoHost) Africa-Wide NiPAD (EbscoHost) BioMed Central CINAHL with Full Text (EbscoHost) Cochrane Library Credo Reference Health Source: Nursing/Academic Edition (EbscoHost) ScienceDirect	Cambridge Journals Online ERIC (EbscoHost) EbscoHost Web JSTOR MEDLINE (EbscoHost) Oxford Journals Online PsycARTICLES (EbscoHost) PubMed Sabinet Reference SAGE Journals Online Sage Research Methods Online (SRMO) SCOPUS SocINDEX with Fulltext (EbscoHost) SpringerLink Wiley Online Library

School of Natural Medicine

Core databases	Additional databases
Academic Search Complete (EBSCO) EbscoHost Web JSTOR MEDLINE (via EBSCO) SAGE Journals Online ScienceDirect SCOPUS SpringerLink	Agricola ArticleFirst (OCLC) BMJ Cambridge Journals Online Cochrane Library Credo Reference Current & Completed Research (SABINET) Directory of Open Access Jnls ETDs - Electronic Theses and Dissertations (Sabinet) Google Book Search Google Image Search Google Scholar MEDLINE (Pubmed) NEXUS (National Research Foundation) OCLC FirstSearch Service (with WorldCat) Oxford Journals Online PubMed (BioMed Central) Sabinet Reference SACat (Sabinet) Sage Research Methods Online (SRMO) SA ePublications (Sabinet)

Dentistry

Core databases	Additional databases
Dentistry & Oral Science Source(DOSS) Full Text ScienceDirect Scopus	Academic Search Complete Medline Cochrane Library

Dietetics

Core databases	Additional databases
Academic search complete BMJ EbscoHost Web JSTOR MEDLINE (via EBSCO) ScienceDirect Sabinet Reference SA ePublications (Sabinet) SpringerLink	Agricola ArticleFirst (OCLC) Cambridge Journals Online CINAHL (Cumulative Index to Nursing and Allied Health) Credo Reference Cochrane Library Current & Completed Research (SABINET) Directory of Open Access Jnls ETDs - Electronic Theses and Dissertations (Sabinet) Health Source:Nursing/Academic (Ebsco) MEDLINE (Pubmed) MLA Directory of Periodicals (EbscoHost) PubMed (BioMed Central) SACat (Sabinet) SAGE Journals Online Sage Research Methods Online (SRMO)

Human Ecology

Core databases	Additional databases
EbscoHost Web JSTOR MEDLINE (via EBSCO) ScienceDirect SA ePublications (Sabinet) SpringerLink	Academic Search Complete (EBSCO) Agricola ArticleFirst (OCLC) Biological Abstracts (Ovid) BioOne BMJ

	Cambridge Journals Online CINAHL with Full Text (EBSCO) Credo Reference Cochrane Library Current & Completed Research (SABINET) ETDs - Electronic Theses and Dissertations (Sabinet) Health Source: Consumer Edition (Ebsco) Health Source: Nursing/Academic (Ebsco) MasterFILE Premier (EBSCO) MLA Directory of Periodicals Medicines Complete Full-Text MEDLINE (Pubmed) NDLTD (Theses and Dissertations)(Sabinet) PubMed (BioMed Central) SACat (Sabinet) SAGE Journals Online Sage Research Methods Online (SRMO) SCOPUS

Industrial Psychology

Core databases	Additional databases
Business Source Complete	Sabinet Reference
Academic Search Complete	SAePublications
PsycARTICLES	Wiley Online Library
Emerald Management Plus	Annual Reviews
ScienceDirect	JSTOR
Africa-Wide NiPAD	Butterworths LexisNexis (My LexisNexis)
	Google Scholar
	ProQuest Dissertations and Theses (PQDT) Database
	ETDs - Electronic Theses and Dissertations
	Nexus (NRF)
	Sage Research Methods Online (SRMO)

Psychology

Core databases	Additional databases
Academic search complete	BioMed Central
Ebscohost Web	BMJ
JSTOR	Cambridge Journals Online
Oxford Journals Online	Cochrane Library
PsycARTICLES (EbscoHost)	Cochrane Library - Health Technology Assessment
Sabinet Reference	Database (Wiley)
SAGE Journals Online	Credo Reference
SA ePublications (Sabinet)	Current & Completed Research (SABINET)
ScienceDirect	Directory of Open Access Jnls
SocINDEX (EbscoHost)	Emerald Management Plus
SpringerLink	ETDs - Electronic Theses and Dissertations (Sabinet)
The African Journals Archive	Google Scholar
Wiley Online Library	Health Source: Nursing/Academic (Ebsco)
	MEDLINE (Pubmed)
	MEDLINE (via EBSCO)
	NEXUS (National Research Foundation) Abstracts
	PubMed (BioMed Central)
	SA Media (Sabinet)
	SACat (Sabinet)
	Sage Research Methods Online (SRMO)
	SCOPUS
	South African Portals

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APPENDIX B- Title Sheet

AUTHOR	DATE	TITLE AND SOURCE	DATABASE	LOCATION WH STORED

APPENDIX C – Abstract summary sheet

TYPE OF DESIGN	STUDY POPULATION	INSTRUMENT USED	OUTCOMES

Appendix D – Critical appraisal tool

CRITICAL APPRAISAL CHECKLIST FOR A SYSTEMATIC REVIEW

Bibliographic Details	Author	Title	Source

Title		Year

Purpose	**Yes(1)**	**No(0)**
1. Is there evidence that literature has been consulted in providing context or background?		
2. Is there a clear problem statement?		
3. Is there a clear rationale for the study?		
4. Are the aims of the study clearly stated?		
5. Are the aims explicitly related to the problem statement?		
Total points for this section 5		

Study design	**Yes(1)**	**No(0)**

1. Is the theoretical orientation of the study reported?
2. Was the theoretical orientation described in detail
3. Is the design of the study reported?
4. Did the authors motivate their design choices?
5. Were the elements of the design reported on?
6. What is the relationship of the design to the aim of the study?
    a) Minimal to no relevance (0)
    b) Moderate relevance (1)
    c) Highly relevant (2)

Total points for this section 7

Ethics	**Yes(1)**	**No(0)**
1. Was ethics approval obtained from an identifiable committee?		
2. Was informed consent obtained from the participants of the study?		
3. Have ethical issues been reported on?		
a) Confidentiality?		
b) Anonymity?		
c) Withdrawal?		
d) Informed consent?		

Total points for this section 6

Data collection	**Yes(1)**	**No(0)**
1. Were data collection methods clearly identified?		
2. Was choice of data collection methods motivated?		
3. Were methods of collection appropriate for the outcomes identified?		
4. For quantitative studies:		
a) Did they report on psychometric properties?		
b) Did they report on psychometric properties of the scale for this sample?		
c) Did the authors report on the type of data produced by the instruments?		
d) Did the instruments produce data that supported the data analysis		
For qualitative studies: Did they report on		
a) Trustworthiness		
b) Credibility		
c) Reflexivity		
d) Respondent validation		
Total points for this section 7		

Data Analysis	**Yes(1)**	**No(0)**
1. Was the method of analysis made explicit?		101
2. Was the method of analysis motivated?		
3. Was the method of analysis appropriate relative to the research question?		
4. Were the conclusions drawn appropriate and supported by the data?		
5. Were the inferences drawn supported by the type of sampling?		
Total for section: 5		

Sample	**Yes(1)**	**No(0)**

1. Was the source population clearly identified?
2. Were the inclusion/exclusion criteria specified?
3. Was the sampling choice motivated?
4. Was the sampling method appropriate?
5. How was the size of the study sample determined?
    a) Not reported (0)
    b) Using threshold numbers (1)
    c) Formulas (2)
    d) Statistical requirements (3)
    e) Saturation (3)
6. Were techniques used to ensure optimal sample size?

Total points for this section 8

Results	**Yes(1)**	**No(0)**

For Quantitative studies:

1. Were alpha levels reported?
2. Were results correctly interpreted?
3. Were the results clearly linked to the research questions?

For Qualitative studies:

1. Was saturation reached?
2. Were multiple reviewers used?
3. Were the results clearly linked to the research questions?

Total points for this section 3

Conclusion	**Yes(1)**	**No(0)**
1. Was a clear conclusion drawn?		
2. Was the conclusion supported by the findings?		
3. Were relevant recommendations made based on the findings?		
4. Were limitations identified		
Total points for this section 4		

Total Score/Score (%) Score Score %

_____ _____

Weak (<40%)___ Moderate (41-60%)___ Strong(61-80%)___ Excellent (>80%)___

Overall Appraisal: Include_____ Exclude_____ Seek further info_____

APPENDIX E – Rater’s form

			Subsections								
Article number	Refs	Quality	Purpose (5)	Design (7)	Ethics (6)	Data collection (7)	Data analysis (5)	Sample (8)	Results (3)	Conclusion (4)	Final score (%)

APPENDIX F – Data Extraction Sheet

Authors	General description				
	Target group	Study level	Personal/ demographic variables addressed	Academic field	Geographical location

Authors	Methodological appraisal								
	theoretical orientation	Design	Sample type	Sample size	Data collection	Analysis			
						Quant	Effect size	Qual	saturation

Authors	Results			
	Findings	Conclusion	Recommendation	Limitations

APPENDIX G – Ethics Approval for Parent Project

OFFICE OF THE DEAN

DEPARTMENT OF RESEARCH DEVELOPMENT

18 March 2014

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:

Dr M Smith (Psychology)

Research Project: Research capacity building: A concept map of factors contributing to developing research productivity in postgraduate students and new academic staff.

Registration no: 13/10/57

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias

Research Ethics Committee Officer

University of the Western Cape

Private Bag X17, Bellville 7535, South Africa T: +27 21 959 2988/2948. F: +27 21 959 3170
E: pjosias@uwc.ac.za www.uwc.ac.za

APPENDIX H – Ethics approval for present study

OFFICE OF THE DEAN

DEPARTMENT OF RESEARCH DEVELOPMENT

UNIVERSITY of the WESTERN CAPE

17 June 2014

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:

Ms N Rae (Psychology)

Research Project:

A systematic review: Student and supervisor variables affecting completion of postgraduate research requirements

Registration no: 14/5/19

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias

Research Ethics Committee Officer

University of the Western Cape

Private Bag X17, Bellville 7535, South Africa T: +27 21 959 2988/2948. F: +27 21 959 3170
E: pjosias@uwc.ac.za www.uwc.ac.za