Title: A systematic review of literature reporting on the strategies/interventions addressing research capacity building in new academics.

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Abstract

It is often assumed that postgraduate students and neophyte academics have the capacity to conduct research independently. Thus, upon qualification, it is expected of postgraduate students and academics to conduct research independently, publish their findings, meet publication targets and to supervise student research towards completion. However, the transition from postgraduate student or clinician to academia is considered very challenging as they are often not prepared for the multiple changes they will embark on upon entry into the Higher Education sector. As a result, various programmes and frameworks have been introduced to assist new academics in enhancing their research capacity. Such strategies included but were not limited to, writing retreats, peer monitoring, and dedicated time. However, these interventions reported on in literature are from primary sources and fail to comment on either the methodological rigour or the quality of the studies investigating these interventions. Thus there exists a gap in the literature for filtered information that has been systematically evaluated for methodological rigour and coherence. The present study aimed to establish an empirical base (filtered evidence) of literature reporting on strategies or interventions aimed at addressing research productivity in new academics. The study incorporated a systematic review methodology to identify appropriate literature for inclusion, evaluate literature for methodological quality and provide a meta-synthesis of the findings of included studies. The review considered studies, reporting on strategies or interventions with new academics during the period of 2000-2013. The review was conducted along three levels. Firstly, identification of potential titles, whereby keywords were combined and a comprehensive search of databases available at the University of the Western Cape library was initiated. Published research was also retrieved through mining the reference list of all included reports and articles. Secondly, a pair of reviewers worked together by screening the abstracts which were retrieved based on the titles identified, and thirdly, the abstracts that
were successfully screened moved forward to full text reading. These studies were evaluated for methodological quality using the critical appraisal tool. Eligibility for inclusion was determined by a threshold score of 61%. As a result, the title search yielded a search result of 755, from these only 63 titles were selected for possible inclusion. The abstract screening resulted in the exclusion of 35 articles and 28 were included. After the critical appraisal, 15 articles were excluded. The findings of the present study revealed that there is good quality research on research capacity building for neophyte academics, as assessed on methodological rigour and coherence. Seven articles attained the threshold score (61% and above) for inclusion in the final summation and meta-synthesis. Evidence suggested that there are various interventions which have been implemented successfully to enhance research capacity building. The meta-synthesis revealed four core approaches to developing research capacity, namely mentoring approaches, theoretical formulations, research/evidence-based investigation as well as a multidimensional and integrated approaches. These approaches were aimed at bridging that gap between research and teaching and developing competent researchers. The core feature that emerged from these approaches was that successful or effective strategies have to include numerous components such as individual characteristics (motivation), effective leaders and institutional characteristics (rewards, incentives and resources). It was found that these components were integrated and often reciprocally influencing. Ethics clearance was obtained from the relevant committees at UWC. Furthermore, plagiarism and collaboration was taken into account as this study forms part of a larger project.
CHAPTER ONE

Introduction

1.1. Background

As early as the 1990’s, institutions of higher education in Australia and the UK have witnessed dramatic changes, as academic staff found themselves in institutions with new expectations (Johnston & McCormack, 1997). The most significant and stressful change was a pressure to perform in research (Ramsden & Moses, 1992). These international developments also had an impact on Higher Education in South Africa in its transition from apartheid to an equal democratic society (Engelbrecht, 2012). The key policy initiatives, over the past decade, such as the Higher Education Act, 1997 (Act 101 of 1997) (DoE, 2000) and the National Plan for Higher Education (NPHE) (DoE, 2000) emphasised the key role of research in affirming the production, acquisition and application of knowledge towards national growth, competitiveness and innovation (Buijnath, Christiansen & Ogude, 2007).

An analysis commissioned by the African National Congress (ANC) in 1992 found that the sciences and technology system inherited from decades of apartheid was internationally isolated, fragmented, uncoordinated and not in the interest of South Africa (Oancea, Engelbrecht & Hoffman, 2009). As a result, the post-apartheid government revived a culture of research in universities as a basic minimum requirement for claiming to be sites of knowledge generation and for them to be comparable with more research-intensive institutions in other parts of the world (Zeleza, Zeleza & Olukoshi, 2004). However, faculties of education in South Africa faced additional challenges as a number of teacher training colleges were closed down in 2001, thereby reducing the number of teacher education facilities as well as the teacher education capacity of the country (Engelbrecht, 2012).
Research is regarded as an important indicator of a nation’s economic competitiveness for the present and the future (Abbott & Doucouliagos, 2004). Li, Millwater and Hudson (2008) stated that research capacity building, the building of the nation’s capacity to generate knowledge, is of importance to countries all over the world. This is evident as research capacity has been incorporated into higher education institutions as a primary focus (Geuna & Martin, 2003). Two decades ago, higher education sectors undertook reforms which had impacted on research of which the first was the inclusion of incentive funding schemes (Johnston & McCormack, 1997). This has placed mounting pressure on higher education institutions to enhance their research output as funding has been linked to research performance (Geuna & Martin, 2003) that in turn, significantly impacted on many aspects of the academic lives of faculty members (Bath & Smith, 2004).

Research capacity building has not only caused significant changes in higher education institutions, but it has placed pressure on academic staff, especially academics that were new to the academic role, to perform in research (Smith & Boyd, 2012). There is a clear body of literature emerging that underscores the notion that neophyte academics are erroneously assumed to possess the necessary skills to conduct research independently. Thus they are expected to publish and meet publication targets (Murray & Cunningham, 2011). Fagan-Wilen, Springer, Ambrosino and White (2006) have reported that the first few years of assuming the role of an academic is challenging and stressful because of the many responsibilities that must be attended to and the skills needed to fulfil these tasks are often lacking. Frantz, Rhoda, Struthers and Phillips (2010) stated that professionals are not necessarily trained in the competencies required in higher education such as research productivity and research supervision. Many academics in health professions disciplines lack research qualifications and experience, as the majority are clinicians moving into academia.
(Frantz, 2012). As a result, research capacity initiatives aimed at improving the research output of neophyte academics have become a focus of research (Baldwin & Chandler, 2002; Christie & Menter, 2009).

According to Frantz (2012, p.118) “research capacity development is a global issue that faces all health professionals as it aims to enhance a profession through providing evidence for intervention strategies and thus assists in improving the quality of the healthcare delivered.” However, when it comes to identifying strategies that promote the well-being of citizens, the published evidence to ground this advice is repeatedly low as academics fail to write for publication (McGrail, Rickard & Jones, 2006). Becher and Trowler (2001) argued that ‘research-capacity building’ initiatives have included a systematic effort to promote forms of professional learning which are intended to improve the technical competences of researchers, especially with respect to research methodologies and the techniques of data collection and analyses associated with them (Becher & Trowler, 2001).

What has been happening within educational research is paralleled by developments across the social sciences more widely (Rees, Baron, Boyask & Taylor, 2007). Engelbrecht (2012) pointed out that faculties of education in South Africa faced major challenges and difficulties in increasing research output as they were traditionally known as teaching disciplines. He further states that the pressure to merge teaching and research, in order to create a positive research culture, forms an integral part of the challenge to develop sustainable research cultures. Hence the building of research capacity has been identified as one of the principal aims of research institutes and institutions of higher learning worldwide (e.g. ESRC, 2005). However, the development of research cultures and capacity development should not only focus on the associated skills acquired (Dison, 2004). Balfour and Lenta (2009) emphasised
that the complex and wide-ranging nature of research capacity means that the development of capacity should be a long-term, multidimensional and multilayered process.

A clear body of literature has offered evidence of various interventions that has been implemented at various higher education institutions to enhance the research productivity of academics with varying measures of success (Baldwin & Chandler, 2002; Schulze, 2009; Geber, 2009). Strategies reported on in the literature have included writing retreats (e.g. Frantz & Smith, 2010); mentorships, (e.g. Johnston & McCormack, 1997); dedicated time and peer reviews (e.g. Tudiver, Ferguson, Wilson, & Kukulka, 2008) as successful strategies aimed at research capacity building in new academics.

1.2. Problem Statement

The findings reported in literature are from primary sources or studies reporting on specific strategies and fail to comment on methodological rigour or the quality of these studies. It becomes evident that there is a lack of filtered information assessed for the quality of methodologies evaluating studies across a common denominator in a systematic manner. Initial exploration of studies has revealed that there has been no other systematic review on this topic. Thus it is difficult to consolidate the evidence in the literature since there has been no assessment of published studies along specified criteria. Therefore the present study aimed to establish an empirical base (filtered evidence) of good quality studies or literature reporting on strategies aimed at addressing research capacity in new academics.

1.3. Rationale

In South Africa, there has been recognition of the need to develop research capacity at South African Universities and within the National Science System (Dison, 2007). ‘The National
Development Plan: Vision for 2030’ emphasise that universities are key to developing a nation and that Higher Education is the major driver of the information/knowledge system, linking it to economic development (National Planning Commision, 2011). The vision for 2030 in South Africa is that there needs to be a coherent national plan for higher education which promotes innovation and knowledge production (National Planning Commision, 2011). As a result, various strategies and approaches have been implemented in South Africa, such as, the National Research and Development Strategy and the 2007 Ten-Year Innovation Plan, which seek to “transform the South African economy into a knowledge-based economy, in which the production and dissemination of knowledge will lead to economic benefits and enrich all fields of human endeavour” (SAccess, 2009).

The present study attempted to assist by consolidating a body of literature that has been established through a process of filtration. This can provide insights into the strategies that are effective in augmenting the skills of new or novice academics that in turn could enhance knowledge production. Additionally, the study attempted to provide information that could assist in decision-making for staff development that would be cost-effective, supported theoretically and empirically. The management of universities and research institutions invest resources in inductions, staff development and personalized growth plans to facilitate the capacitation of new academics in terms of numerous prerequisite skills such as, research productivity and capacity building. Therefore, it is necessary for strategies aimed at enhancing research capacity of new academics in Health and Social Sciences to be grounded in a body of evidence from good quality published research.
1.4. Structure of Thesis

The thesis will be presented in five chapters. The first chapter presents the background, problem statement and the rationale for the present study. Chapter Two is a review of related literature, focusing on research capacity building, new academics and on existing strategies aimed at enhancing research capacity in new academics. Additionally, an examination of methodological approaches, which speaks to strategies aimed at improving research capacity, will be reported on in this chapter.

Chapter Three outlines the aims and objectives of the research, as well as the design and methodology used to attain them. This chapter also reports on the ethics considerations for the study. Chapter Four presents an integrated results and discussion section. Lastly, Chapter Five presents the conclusion including the limitations of the study and recommendations for future studies.
CHAPTER TWO

Literature Review

2.1. Introduction

Deuchar (2008) states that there is an increasing recognition that Higher Education has become dominated by a market-driven, consumerist service ethic and that this may have an impact on the style of research output that academics adopt for a new knowledge economy. Lucas (2007) noted that radical transformations transpired as academics have moved from a situation of having no involvement with research to one where they are expected to be significant contributors to research cultures within university departments. These transformations were largely attributable to the expectations imposed by various regulatory bodies such as the Economic and Social Research Council, and the Quality Assurance Agency in the United Kingdom. As a result, Murray and Cunningham (2011) have identified that academics who are new to higher education, find publishing particularly challenging. Therefore various articles have commented on a variety of strategies which have been implemented to enhance the research capacity of new academic staff (Emilson, 2007; Li, et al., 2008; Pearson & Brew, 2002). The following review sets out to provide a brief overview of the body of literature reporting on three core areas covered namely: 1) the concept of research capacity building, 2) academic staff specifically neophyte academics, and 3) the strategies aimed at enhancing research capacity in new academics.

2.2. Research Capacity Building

Research capacity building is a widely used term describing “a process of individual and institutional development which leads to higher levels of skills and greater ability to perform useful research” (Trostle, 1992, p. 1321). Albert and Micken (2002) defined research capacity building as an approach to the development of sustainable skills, organisational structures,
resources and commitment to health improvement in health and other sectors to multiply health gains many times over. On the other hand, Bates et al (2006) indicated that the goal of capacity building is to improve the ability to conduct research, to use results effectively and to promote the demand for research. Thus, it is safe to say that research capacity building is an initiative to enhance research skills that inform practice and leads to health gains as well as develop the necessary skills and structures that enable research to take place (Rees, et al., 2007).

Research capacity building is an important initiative as it enhances the growth of evidence-base practice (Wilson-Barnett, 2001). Cooke (2005) strongly supports the need to develop a sound scientific base to inform service planning and decision-making in health services. He identifies that the level of research activity and the ability to carry out research is limited in some areas of practice, resulting in a low evidence base in these areas. Literature has revealed that primary health care practitioners, specifically nursing and allied health professionals, have incorporated various research capacity initiatives in order to strengthen their research in health as they reportedly have a poor capacity for undertaking research and lack research experience and skills (Campbell, et al., 1999; Pickstone, et al., 2008; White, 2002). It has been noted that literature reporting on research capacity building is mainly associated with nursing and allied health professionals (Wilson-Barnett, 2001; Segrott, McIvor & Green, 2006; Corchon, Portillo, Watson & Saracibar, 2011). The ultimate rationale for developing nursing and allied health research is the contribution it can make to patient care, through the creation of an evidence base to inform and evaluate practice as the increasing responsibilities taken on by these professionals demand that practice be effective and cost efficient (Thomas & While, 2001).
Despite the increased interest in undertaking research in health professions, education has seen a growing demand in incorporating research capacity building, as public policies has increasingly placed pressure on education institutions to perform in research (Munn, 2008). Christie and Menter (2009) asserted that there is an urgent need to build research capacity in education in general and in teacher education in particular. The mounting interest in educational research stems from the role education is perceived to play in economic performance and social development; from a growing concern with the accountability of educational systems against a background of increasing pressure on public expenditure; and from a perception that in many countries the current capacity of educational research does not match up to the challenges it faces (Schuller, 2007). Schuller (2007) further indicated that universities are the primary locations for research, thus the capacity of higher education to conduct good quality research is a significant matter of public interest. As a result, a great deal of literature has identified initiatives which could enhance the research quality produced in higher educational institutions (Whitty, 2006; Schulze & Gouws, 2008; Barrett, Crossley & Dachi, 2011). Research findings have identified that capacity building is not the sole responsibility of the institution, but it is a shared responsibility with academic staff that promotes research (Nundulall & Reddy, 2011).

2.3. Academic Staff

Research output or writing for publication has become a vital activity for academics as it is an indicator of individual and institutional performance and is an important criterion in achieving external funding from government and other professional bodies (McGrail et al., 2006). The expectation to publish is particularly challenging for academics that are new to publishing, those who have limited experience of it and those who are new to higher education, or in professions where the expectation to publish is relatively recent, but no less
Neophyte academics may be defined as those within the first five years of academia under a sessional, part-time or full-time contract (Hemmings & Kay, 2010). Below is a brief exposition of the research on neophyte academics.

2.3.1. Neophyte ‘New’ Academics

Crist (1999) stated that the academic environment is unique and invigorating but very few practitioners receive explicit preparation for the faculty role. The growing literature has indicated that new academics, also defined as those within the first five years of academia (McArthur-Rouse, 2008), constitute the most vulnerable group in the science system and are therefore the first to suffer from stress (Laudel & Gläser, 2008). As mentioned before, literature has indicated that neophyte academics lack the necessary skills needed to become productive researchers or to engage independently in research in a sustained manner (Laudel & Gläser, 2008; Geber, 2009; Hemmings & Kay, 2010). The transition from clinical practice to an academic role involves various challenges as clinicians moving into higher education not only have to become familiar with a new environment, culture and expectations (McArthur-Rouse, 2008), but also have to develop their practice and identity (Smith & Boyd, 2012).

McArthur-Rouse (2008) provided empirical support for the notion that the majority of new academic staff recruited to departments is experienced practitioners within their field but may have limited experience in education and conducting research. Smith and Boyd (2012) identified that the traditional route to academic roles are via doctoral studies, however, the majority of lecturers in the health professions take up academic roles having developed considerable clinical professional expertise, but only a few will have direct experience of...
research activity beyond obtaining their qualifications or practicing degrees. Thus it becomes
evident that there are considerable differences between the clinical and higher education
sectors and even clinical experts may find the university sector very different from what they
are used to (Clearly, Horsfall & Jackson, 2011).

Competence neither negates the need for support and assistance during the transitional period
into a new position, nor does it necessarily prepare the new academic for the multiple
changes on which he/she will embark upon entry to the university sector (Clearly et al.,
2011). In light of all the tasks and responsibilities academics adhere to, neophyte academics
may be overwhelmed by the amount of challenges they need to overcome when entering
university communities. Pienaar and Bester (2006) conducted a study at a South African
university and identified a number of career dilemmas being experienced by academics in the
early career phase. These dilemmas included unclear guidelines and the lack of transparency
with regard to promotion; role overload as academics felt pressure to perform in the fields of
research, teaching and community service; financial remuneration; the lack of support with
regard to research and teaching; discrimination as well as gender issues (Pienaar & Bester,
2006). However, the largest challenge for most early career academics is to build and refine
their research skills and at the same time produce research output (Hemmings, 2012).

McGrail et al. (2006) identified academic publication outputs to be repeatedly low and argued
that the greatest force preventing academics from writing for publication is momentum and
that some academics need a formal support structure to keep the writing momentum going.
Hemmings (2012) indicated that academics give nearly all of their time and energy to
teaching responsibilities, consequently foregoing research activities. According to
Hemmings, Rushbrook and Smith (2007), some academics do not publish because they argue
the writing process is too troublesome, as they set high expectations for themselves, face writing blocks, are poorly prepared and lack confidence. Bland, Centre, Finstad, Risbey and Staples (2005) show that an individual’s research productivity is influenced by a combination of individual characteristics and institutional characteristics, as well as research-orientated leaders as they provide support particularly for young academics starting their career. Therefore, the overarching challenge that emerges from literature is that there is a need to develop a conceptual understanding of the elements that would contribute to the improvement of technical competencies in neophyte academics especially with respect to research methodologies and the techniques of data collection and analysis associated these techniques (Zeelen, 2003; Christiansen & Slammert, 2005).

2.4. Research capacity building in new academics

Higher education institutions are becoming more dependent than ever on their academic staff for future survival and success (Nundulall & Reddy, 2011). Schulze (2008) identifies that within South Africa every academic is expected to publish at least 1.25 articles (or research units) annually in journals the Department has accredited as subsidy-bearing. He further states that institutions receive financial rewards for meeting this target, and are penalised for failing to meet it. Therefore, higher education institutions in South Africa should provide resources and incentives for their staff in order for them to meet their own professional goals and the goals of the institution (Nundulall & Reddy, 2011).

Some departments adopt a facilitative approach to research capacity building, by providing a framework for support whereas others take a more directive approach by using research itself as a means to develop research capacity, through organising projects and programmes by which academics can gain skills (Nchinda, 2002). Various strategies have been developed to
assist with the research capacitation of new academics. Below is a brief exposition of the
literature reporting on such attempts.

2.4.1. Strategies aimed at research capacity development

Lee and Boud (2003) suggested that writing is considered as an integral part to research and
writing development is a strategic mode of developing research capacity. Tudiver, et al.
(2008) indicated that dedicated time for academic writing is extremely useful and necessary
for consistent publication output. These authors recommended that it would be beneficial to
consider how the principle of dedicated time can be adopted at various levels of the
university in formal and informal ways. Writing retreats, with the key features of collegiality,
peer discussion and dedicated writing time and space, aim to relieve academics of duties for a
short period of time in order to increase or improve the quantity and quality of publications
(Murray & Cunningham, Managing researcher development: 'drastic transition'? , 2011).
Frantz and Smith (2010) reported resoundingly positive feedback from participants attending
a writing retreat in that it was successful in fostering greater confidence in academic writing,
building capacity in academic writing and publication.

Lee and Boud (2003) reported that writing groups provided a forum where academics
engaged in a peer learning environment and were equipped with resources to make realistic
decisions about their career, as well as increased academic development. These authors
further argued that writing groups with a fairly homogenous composition can specifically
address the needs of the participants. In their 2003 study they included two groups for new
researcher and already published authors respectively with good effect.
Steinert (2000) revealed various other ways in which academics can improve their research output. She identified that the most common formats for faculty development includes seminars and workshops, short courses, sabbaticals and fellowships. Others include, peer consultations, mentorship programs and skills training programs, to mention a few (Johnston & McCormack, Developing research potential through structures mentoring program: issues arising, 1997; Murray & Cunningham, Managing researcher development: 'drastic transition'?., 2011). Geber (2009) introduced a ‘Research Success and Structured support programme’ which ran over eight months at the University of the Witwatersrand. The programme was designed to include hard and soft skills which aimed at supporting early career academics in their attainment of higher degrees and in consolidating publication of their research. The hard skills training included courses such as research writing skills, voice and presentation skills, time and stress management and IT tools (MindManager, Virtual training and Visual thesaurus) to mention a few, and the soft skill support consisted of coaching in which participants were paired with coaches of their choice. This programme has shown favourable results as it had a dramatic effect in getting young researchers into a position where they were able to perform well and viewed themselves as successful and independent researchers (Geber, 2009).

An examination of the methodological approaches used in published literature, reporting on strategies aimed at improving research capacity in academic staff, revealed that literature studies were used to formulate or conceptualise intervention strategies for improving writing and supervision skills in academics (Hemmings, 2012). A particular outcome of such studies was the development of frameworks and programs for implementation in various higher education institutions worldwide. These frameworks were distilled from study results and provide conceptual solutions to understanding the supervisory relationship and propose
means for measuring effectiveness. They also constitute interventions in and of themselves.

Consider the following examples:

Pearson and Brew (2002) presented a framework for an approach to supervisor development. This framework is based on the assumption that in order to discuss supervisor development it is important to understand what supervisors do and why. Therefore, academics’ conceptions of research were investigated qualitatively and the results initiated programmes which were organised in a series of modules which could be accessed by supervisors at different stages of their careers (Pearson & Brew, 2002). Cooke (2005) introduced a framework evaluating research capacity building within health care. He noted that a framework for measuring capacity building should be inclusive of both the process and outcome measures to capture changes in both health gains and the skills developed to produce research (Cooke, 2005).

The typical methodologies employed in the literature included case studies (e.g. Green, et al., 2007; Balfour & Lenta, 2009), non-experimental and quasi-experimental studies (e.g. Lee & Boud, 2003), qualitative methodologies which reported on the effects of writing retreats (e.g. Frantz & Smith, 2010), quantitative studies, using a survey design reported on the effects of a mentoring programme (e.g. Schulze, 2010) and another reporting on incentives as a way of encouraging academics to publish (e.g. Tien, 2000). These methodological approaches were employed to investigate and evaluate programmes and frameworks, and the results have been published as primary sources reporting on the efficacy of these interventions. However, there has not been a systematic attempt to evaluate these methodologies for quality, coherence and rigour. The body of literature consisting of such primary texts lacks filtration to increase the quality of evidence and to provide a more critical evaluation of the methodological rigour of these studies and interventions. Therefore the present study aimed to address the need for
filtered information about studies reporting on strategies aimed at enhancing research productivity in new academics.

2.5. The Parent Study

The present study formed part of a larger parent study which aimed to produce a concept map of the elements contained in the development of building of research capacity. The parent study aimed to address the call for research capacity building to be prioritised as a developmental goal, especially in tertiary education (Bates, et al, 2006). Therefore the study focused on postgraduate students and neophyte academics at identified institutions of higher learning in the Western Cape. The broader study was conceptualised as four stages that aimed 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 of the existing body of literature. A concept map will be distilled from data generated in the four stages. Each stage was conceptualized as an independent stage with its own methodological elements.

The present study forms part of stage 1 along with three other systematic reviews aimed at establishing an empirical basis from the existing body of literature including strategies aimed at improving supervision; strategies aimed at improving student completion; the capacitation of new academics in research, as well as identifying student and supervisory variables impacting retention and throughput of postgraduate studies particularly through the thesis requirement. Stage 2 entailed 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. The final concept map will be distilled from data generated in all four stages. Ethics clearance has been obtained from the Senate research committee at UWC (Appendix A) and has been registered as an endorsed project (Registration number: 13/10/57)
CHAPTER THREE

Methodology

3.1. Aim

The present study aimed to consolidate the literature reporting on strategies addressing research capacity building in new academics.

3.2. Objectives

3.2.1. To identify appropriate literature for inclusion

3.2.2. To screen potential records for eligibility

3.2.3. To evaluate the eligible records for methodological quality

3.2.4. To provide a meta-synthesis of the findings of included studies, these would address:

3.2.4.1. The theoretical orientation or underpinning of the strategy/intervention.

3.2.4.2. The scope of the strategy/interventions.

3.2.4.3. The content of the strategy/intervention and nature of activities used.

3.2.4.4. The facilitation styles used.

3.3. Research Design

This study utilized a systematic review to identify evidence about strategies addressing research capacity development in new academics. A systematic review is deemed appropriate since it is a means of identifying, evaluating and interpreting all available research relevant to a particular research question and is considered the highest level of evidence (Higgins & Green, 2006; Staples & Niazi, 2007). Higgins and Green (2011) further state that a systematic review attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question. It uses explicit, systematic methods that are
selected with a view to minimizing bias, thus providing more reliable findings from which conclusions can be drawn from and recommendations made (Oxman & Guyatt, 1993). This was an appropriate methodology for the present study as it provided a systematic summation of studies reporting on the coherence and methodological rigour. In doing so, the present study addressed one of the gaps identified in the narrative literature review. The systematic review enabled the researcher to compile and synthesise data from all relevant sources meeting the inclusion criteria, whilst minimising bias as an effort to answer the presented review questions.

3.4. Review questions

The systematic review aimed to provide filtered evidence of literature reporting on strategies aimed at addressing research capacity building in new academics. The review will answer the following:

- What is the theoretical orientation or underpinning of effective interventions?
- What is the scope of effective interventions?
- What is the content of effective interventions and nature of activities used therein?
- What facilitation styles were used in effective interventions?

In other words, which literature would constitute a consolidated evidence base of filtered information on strategies aimed at enhancing research productivity in new academics that has been assessed for methodological quality?
3.5. Inclusion Criteria

3.5.1. Types of studies
The review considered studies which have used design elements consistent with intervention and experimental designs. Studies were eligible for inclusion if they reported on the outcome of research capacity building strategies to improve research output in new academic staff. Additionally, full text articles have been considered for inclusion to enable the identification of readily accessible current best evidence regarding strategies enhancing research productivity in new academics.

3.5.2. Types of participants
The review considered studies that included new academic staff within higher education institutions as the unit of analysis. New academic staff was defined as staff within the first five years of academia under a sessional, part-time or full-time contract (Hemmings & Kay, 2010).

3.5.3. Time Period
The parent project adopted the timeframe between 2003 and 2013, for review purposes, have been based on the assumption that the most recent literature (10 years) would be accessed to provide evidence of current best practice. However, the present study extended this timeframe to 13 years (2000-2013) as an initial exploration of the body of literature revealed a substantial amount of publications in this expanded time period.

3.6. Exclusion Criteria
Studies have been excluded if they were not published within the designated time period, if they were not housed in one of the databases available at the UWC library, if they were not
peer-reviewed and were not available as full texts. Additionally, studies published in foreign language only have been excluded as well as articles which required payment for viewing. Studies were also excluded if they did not address research capacity building nor include the target population intended to be assessed. In addition, the parent project included three other systematic reviews; therefore duplication across these reviews has been prevented by means of discussions between the researchers involved and the supervisor to determine the outcome on a case-by-case basis. These discussions have been recorded and were reported on where appropriate.

3.7. Levels of review

The systematic review was conducted on three levels, namely:

1. Identification of potential titles
2. Screening of abstracts
3. Evaluation of full texts for eligibility

The description below includes the strategies and instruments employed at each level

3.7.1. Identification

Literature was retrieved from three core sources: 1) database search; 2) reference mining and 3) other sources. Below is a brief explanation of each source.

3.7.1.1. Database Search

Database searches started with the identification of appropriate keywords and search terms. The following keywords were identified from literature: ‘research’, ‘capacity building’, ‘productivity’, ‘output’ and ‘new academics’. These preliminary keywords were entered into two electronic databases: Ebscohost and JSTOR, in order to identify text words and search
terms contained in titles and abstracts and the index terms used to describe the articles. However, these keywords only produced a limited amount of data. As a result the following new keywords were identified namely, ‘research training’, ‘research development’, ‘academic staff’, ‘lecturers’, and ‘faculty’. Keywords were further explored and combined by using Boolean operators such as ‘AND’, ‘OR’, and ‘NOT’ in order to increase the power and the efficiency of the search (Kaniki, Doing an information search, 2006). The final keywords were combined into six strings namely:

1) ‘research capacity’ OR ‘research productivity’ AND ‘academic staff’;
2) ‘research training’ OR ‘research productivity’ AND ‘academic staff’;
3) ‘research capacity building’ OR ‘research training’ AND ‘new academics’
4) ‘staff development’ AND ‘research training’ OR ‘research capacity building’
5) ‘neophyte academics’ OR ‘new faculty’ AND ‘research training’
6) ‘research capacity building’ AND ‘new academics’ OR ‘faculty’

The strings mentioned above were used in a comprehensive search of library databases and published research reports available at the University of the Western Cape library. The databases at the UWC library are organized according to subject or discipline and the comprehensive search was done across three broad areas: Health; Education; Social Science and Natural science. The researcher listed the disciplines and the corresponding databases in an attempt to identify a set of core databases and secondary databases across the disciplines. Table 1 reflects the disciplines across which databases were identified.
As mentioned before, each discipline had a list of primary and secondary databases. Databases which appeared across 50% of these three broad areas were included in the core list for the present study. The resultant list of primary and secondary databases is reflected below in Table 2.
3.7.1.2. Reference Mining

Additional records were identified from the reference lists of all articles which were included, a process known as reference mining (Bronson & Davis, 2011). Reference mining is recommended to increase the amount of articles retrieved as additional relevant articles can be identified that may not be stored in the identified databases. In this way reference mining assists in reducing the publication bias introduced by the search strategy and inclusion criteria (Bronson & Davis, 2011).

3.7.1.3. Other Sources

As mentioned before, the present study formed part of a parent project which included three other systematic reviews. The researchers on the project exchanged literature which was relevant to respective studies. All potential records identified and retrieved from the three sources were evaluated based solely on the perceived relevance of the title. The information of all titles that were identified was imported into the Title Summary sheet along with outcomes of the identification process (Appendix B). Papers selected for inclusion moved onto the next level of the review i.e. screening.

3.7.2. Screening

Abstracts were retrieved based on the titles successfully identified as relevant in the previous level. A pair of reviewers worked together by screening abstracts for further inclusion, using the inclusion and exclusion criteria of the study. Particular attention was paid to participants, unit of analysis, time period, outcome measures and availability of full texts. Articles deemed appropriate for inclusion moved onto the next level of the review, whereas studies meeting the exclusion criteria did not proceed to the next level. The information of all abstracts that were assessed was recorded in the Abstract Summary sheet (Appendix C).
3.7.3. Eligibility

The abstracts of studies that were successfully screened in the previous level moved forward to full text reading. These studies were evaluated for methodological quality using a critical appraisal tool. Eligibility for inclusion in the summation was determined by a threshold score set by the primary researcher in consultation with the supervisor and the research team of the parent study. Below is a description of the critical appraisal tool used and the threshold score set for inclusion.

3.7.3.1. Critical Appraisal Tool

The inclusion criteria made allowance for studies using qualitative and/or quantitative methodologies. As a result, the critical appraisal tool for this study was selected taking into account the published guidelines for reviewing qualitative studies (Letts et al., 2007) and quantitative studies (Law et al., 1998). The critical appraisal tool, developed by Smith, Franciscus and Swartbooi (under review) was used for the full text review. The original tool was developed to assess various aspects of the methodologies employed in intervention studies and awards scores for methodological elements which are present or reported. The tool has three versions for use with 1) intervention studies, 2) general quantitative studies and 3) psychometric studies. The original tool consisted of eight sections namely, purpose, study design, ethics, data collection, data analysis, sample, results and the conclusion.

For the purpose of this study, version two of the tool was adapted (with permission from the authors) to evaluate qualitative and quantitative methodologies using one form. This would facilitate ease of administration and provide a comparable basis for evaluating methodological quality. The subsections of the original scale were retained, but the items pared down to allow each subsection to contribute evenly to the overall score (Appendix D).
The adapted tool was piloted by the research team working on the parent project to ensure that the tool satisfied both the needs of the parent study, the subsidiary studies and present study. Furthermore, the critical appraisal tool was amended with the entire research team to facilitate collaboration in understanding and scoring items. This helps to increase standardisation and reduce variance (Katrak, Bialocerkowski, Massy-Westropp, Kumar & Grimmer, 2004).

3.7.3.2. Threshold score

Each article had the potential to obtain a total score based on the overall quality of the article that was categorised as either weak (0-40%), moderate (41-60%), strong (61-80%), or excellent (81-100%). In order to be included in the review, full text articles had to obtain a threshold score of 61% (i.e. “strong”). The critical appraisal tool was designed to be quite comprehensive. Therefore, the cut-off score of 61% could be set so as to not exclude articles due to a too stringent requirement. All full text articles that satisfied the threshold score proceeded to the data extraction process.

3.7.3.3. Data extraction sheet

All the articles satisfying the threshold score, was subjected to the data extraction process. Data extraction was done by using a self-constructed data extraction tool that was based on the objectives of the study and the different levels of the analysis.

Figure 1 below is a flow chart that reflects the levels of review and the operational steps included at each level. The flow chart was adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reference for preferred ways of reporting
systematic review processes (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

Figure 1: Levels of Review

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**OPERATIONAL STEPS**

Initial test of keywords across 2 databases

Potential records identified through UWC database search (n=)

Reference Mining (n=)

Additional records from other sources (n=)

Total records identified (n=)

Records after removal of duplicates (n=)

Records excluded (n=)

Records included (n=)

Records excluded (n=)

Records screened by abstract (n=)

Records excluded (n=)

Full text articles assessed using critical appraisal tool (n=)

Records excluded (n=)

Full text articles included for summation with data extracted tool (n=)

---

**PROCESS**

**IDENTIFICATION**

**SCREENING**

**ELIGIBILITY**

**SUMMATIVE REVIEW**
3.8. Method of review

A pair of reviewers worked together at every level of evaluation and documented their findings independently. At the end of each level, the reviewers compared their findings and recorded it accordingly. Disagreements arose with regard to five abstract readings as reviewers were unable to reach consensus as to whether these articles should be included. These articles were forwarded to the supervisor for arbitration and making the final executive decision concerning the inclusion or exclusion of the articles. Disagreements also arose during the full-text reading process. Reviewers evaluated articles based on methodological rigour and scored articles accordingly. Once the scores were compared, it was identified that reviewers scored articles differently. This was resolved by means of discussions to reach an agreement and a record has been made of the discussion and the outcome. This method of pairing reviewers at each level contributed to increased rigour in the execution of the study and adhered to the recommendations of PRISMA (Moher et al., 2009).

3.9. Analysis

The study utilised a meta-synthesis of the findings of included studies. Meta-synthesis, as defined by Screiber, et al. (1997, p.314), is “bringing together and breaking down of findings, examining them, discovering essential features and, in some way, combining phenomena into a transformed whole”. A meta-synthesis can lead to new interpretations of research, as well as develop new theories through the extension of knowledge (Thorne, Jensen, Kearney, Noblit & Sandelowski, 2004). There are various approaches to conducting a meta-synthesis (Walsh & Downe, 2005). The final choice reflects the choice of the researcher and the aim of the study.
3.9.1. Types of Meta-Synthesis

Sandelowski, Docherty, and Emden (1997) identified three types of meta-synthesis namely: Descriptive meta-synthesis; Theory explication and Theory building.

3.9.1.1. Descriptive Meta-synthesis

This form of meta-synthesis involves the synthesis of qualitative findings and results in a comprehensive analysis of phenomena (Schreiber, Crooks & Stern, 1997). In contrast to theory explication, which only focuses on the analysis of a concept, descriptive meta-synthesis looks more broadly at a research phenomenon (Finfgeld, 2003).

3.9.1.2. Theory Explication

This form of meta-synthesis is a way of reconceptualising the original phenomenon. Zimmer (2006, p. 313) defines theory explication as “a lateral and deductive, analytic process where an abstract concept in one study is filled out through synthesis of findings from other studies.”

3.9.1.3. Theory Building

This form of meta-synthesis brings together findings on a theoretical level to build a tentative theory. Schreiber, Cooke and Stern (1997) explained that the findings of a number of studies are used to ‘push the level of theory’ beyond what is possible in a single investigation. Theory building assisted in identifying the findings of the seven included articles in order to answer one of the review questions, that is, identifying the theoretical orientation/underpinning of the strategy or intervention. This type of meta-synthesis facilitated in building a theory which was integrated from the findings.
These forms of meta-synthesis are not discrete, but are complimentary. The present study has incorporated Descriptive and Theory Explicative meta-syntheses while the parent project only required Descriptive meta-synthesis.

3.9.2. **Descriptive Meta-synthesis**

The descriptive meta-synthesis entailed the ranking of studies and tabularisation of extracted data.

3.9.2.1. **Ranking**

The convention is to rank on methodological rigour scores i.e. strengths and weaknesses as measured by the critical appraisal tool (Downe, Simpson & Trafford, 2007). When evaluating the effect of interventions or strategies, the inverse relationship between internal and external validity is less of an issue as the critical appraisal tool assessed for baseline internal validity and focused on an overall methodological rigour that would attest to stronger conceptualisations. Essentially, ranking articles based on scores does not imply stronger internal validity, but overall improved methodological rigour and coherence. By means of ranking, the researcher can assess whether the design utilised is appropriate for the aims and purpose of a particular study as well as if the findings and conclusions follow from the data.

The critical appraisal tool, used in this study, assessed for methodological coherence and baseline confidence in internal validity whereas the meta-synthesis focused on the details of the strategy/intervention for the purposes of generalization, description and theory-explication. The present study ranked studies based on the comprehensiveness of the methodology including information on various aspects as reflected in the objectives (e.g. the strategy/intervention e.g. theoretical underpinning).
3.9.2.2. Extracted Data

Four tables were designed with the purpose of extracting data. The first table provided a general descriptive summary of the studies included as per the target group, the geographical location, the aim and the problem statement of the study. The second table reflected the methodological appraisal such as the design, participants, sample type, sample size and the data collection/instruments used. The third table provided a summary of the core elements reflecting in the aims and objectives e.g. the theoretical orientation or underpinning, the scope of the intervention, the nature of the activities and the facilitation styles used; and the fourth table provided a summary of the analysis and the results of the included studies.

3.9.3. Theory Explicative Meta-synthesis

The theory explicative meta-synthesis was facilitated through the 3 stages outlined by Noblit and Hare (1988) namely 1) The reciprocal stage; 2) The refutational stage and 3) The line of argument.

3.9.3.1. The Reciprocal Stage

The reciprocal stage recognised recurring themes and ideas which were present throughout studies included in the review. Noblit and Hare (1988) referred to this stage as the translation of concepts from individual studies into one another, thereby evolving overarching concepts or metaphors. Common ideas and themes were identified which agreed with existing literature regarding strategies addressing research capacity building in new academics.
3.9.3.2. The Refutational stage

The refutational stage recognised themes and ideas that go against the common themes and ideas reported on in existing literature. These contradictions were identified and further explored. Noblit and Hare (1988) stated that the aim of this stage was to explain and explore the differences due to the context rather than the multiple realities.

3.9.3.3. Line of Argument

Line of argument constructs a statement that summarises and expresses what the researcher has found. The line of argument synthesis involves building up a picture of the whole from studies of its parts (Noblit & Hare, 1988). At this stage, the researcher may either agree with what has been found or disagree by taking into consideration all the findings identified from the studies included in the review.

3.10. Ethics

The systematic review utilised published articles which are considered to be in the public domain and thus no further permission for access was required. Permission to conduct the study was obtained from the Higher degrees and Senate Research Committees at UWC (Appendix E). Furthermore, as the present review forms part of a larger study and collaboration with other researchers was necessitated, care was taken to maintain the distinction between collaboration and plagiarism as recommended by Sandler and Russell (2005). With this in mind, the measure of collaboration is limited to the structure and the process of the study. For example, decisions were made within the broader research team regarding search strategy and the method of analysis. These are similar across all four systematic reviews to provide a uniform structure that would enable translation of findings across reviews into the parent study, however, the results differ as it is important that the present review study is distinguished from and work in collaboration with the parent project.
Additionally, the present systematic review was funded by the National Research Foundation (NRF) and it is an ethical requirement that the source of funding be acknowledged.
CHAPTER FOUR

Results and Discussion

This chapter provides an integrated results and discussion section. The chapter has been organised into three sections namely, 1) process results, 2) descriptive meta-synthesis and, 3) theory explicative meta-synthesis.

4.1. Process Results

Figure 2 below summarised the results of each step or level of the review process. As mentioned before, an adaptation of the PRISMA flow chart was used to graphically represent the overall flow of the review process in chapter 3 (figure 1). The figure is repeated here in its second iteration including the results at each step so that the design or process of the review study is reinforced.

4.1.1. Step 1: Identification

The title search across all identified databases yielded a search result of 771 hits. Eighteen (18) titles were obtained from reference mining and additional sources respectively, adding 36 titles to the identification process. Once all duplicates were removed the number dropped to 755. From these, 63 titles were selected for possible inclusion.

4.1.2. Step 2: Screening

During the abstract review, 35 articles were excluded and 28 were included. The reasons for exclusion included, studies not addressing the research question (n= 17), studies with incorrect target groups (n=6) and studies were poorly written or inadequate abstracts lacking
vital information (n=3). For nine studies, no full texts were available through open access and needed to be purchased.

**Figure 2: Completed Levels of Review**

<table>
<thead>
<tr>
<th>OPERATIONAL STEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial test of keywords across 2 databases</td>
</tr>
<tr>
<td>Reference Mining (n=18)</td>
</tr>
<tr>
<td>Additional records from other sources (n=18)</td>
</tr>
<tr>
<td>Total records identified (n=807)</td>
</tr>
<tr>
<td>Records after removal of duplicates (n=755)</td>
</tr>
<tr>
<td>Records included (n=63)</td>
</tr>
<tr>
<td>Records excluded (n=692)</td>
</tr>
<tr>
<td>Records screened by abstract (n=28)</td>
</tr>
<tr>
<td>Records excluded (n=35)</td>
</tr>
<tr>
<td>Full text articles assessed using critical appraisal tool (n=22)</td>
</tr>
<tr>
<td>Records excluded (n=6)</td>
</tr>
<tr>
<td>Full text articles included for summation with data extracted tool (n=7)</td>
</tr>
</tbody>
</table>

**PROCESS**

- **IDENTIFICATION**
  - Potential records identified through UWC database search (n=771)

**SCREENING**

<table>
<thead>
<tr>
<th>POTENTIAL RECORDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through UWC database search (n=771)</td>
</tr>
<tr>
<td>Reference Mining (n=18)</td>
</tr>
<tr>
<td>Additional records from other sources (n=18)</td>
</tr>
<tr>
<td>Total records identified (n=807)</td>
</tr>
<tr>
<td>Records after removal of duplicates (n=755)</td>
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<tr>
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</tr>
<tr>
<td>Records screened by abstract (n=28)</td>
</tr>
<tr>
<td>Records excluded (n=35)</td>
</tr>
<tr>
<td>Full text articles assessed using critical appraisal tool (n=22)</td>
</tr>
<tr>
<td>Records excluded (n=6)</td>
</tr>
<tr>
<td>Full text articles included for summation with data extracted tool (n=7)</td>
</tr>
</tbody>
</table>

**SUMMATIVE REVIEW**
4.1.3. Step 3: Eligibility

After the critical appraisal, 15 articles were excluded as they failed to meet the threshold requirement. The most common reason for exclusion was that eight of the excluded articles primarily focused on the strategy or intervention implemented and failed to report on the methodology used. Thus these studies were unsuccessful as scoring become complex and the inferences had to be made resulting in weak ratings as evidenced by the scores between 0-20% obtained (e.g. Morrison-Beedy, Dyne & Mkandawire, 2001; Madue, 2008; Balfour & Lenta, 2009). Seven articles scored between 61% and 80% and were rated as good and were included in the final review.

4.2. Descriptive Meta-synthesis

As mentioned before in 3.9.2 the descriptive meta-synthesis entailed the ranking of studies and tabularisation of extracted data.

4.2.1. Data extraction

The seven articles which satisfied the threshold score were subjected to the data extraction process. The data extraction tool consisted of four parts, each constructed as a separate table, namely general description, methodological appraisal, content of the strategy, and analysis and results. Below is a summation of each section or table.

4.2.1.1. General Description

The first section was the general description which consisted of the target group, geographical location, aim and the problem statement. Table 3 below reflects the results of this section of the data extraction process.
Bland et al. (2005)  Full time Faculty/Academics  Minnesota  The study aimed to
- Investigate how the multiple characteristics thought to facilitate faculty research productivity simultaneously affect faculty productivity and
- Assessed the validity of a theoretical model that has been utilized in, and developed by, numerous studies.
Growing external pressures have forced universities and colleges to ask faculty to continually increase their levels of productivity with the same or fewer resources. These pressures include decreased revenues and funding along with calls from government for greater outcome-based accountability, increasing pressure from industry for market-driven innovations, burgeoning competition for domestic and international students, growing diversity in online and distance education, and mounting societal demands for higher education to cultivate both significant research advances and a liberally-educated citizenry.

Engelbrecht, (2012)  Faculty  South Africa  Article focused on the description and evaluation of the development of a multidimensional approach to research development within a transformative view of social justice in a faculty of education.
Education faculties have had severe difficulties in increasing research output, and university managements have tended to refer rather disapprovingly to these faculties as traditional teaching faculties. Pressure to merge these groups in order to create a positive research culture with an emphasis on excellence now forms an integral part of the challenge to develop sustainable research cultures.

Green et al. (2007)  Academic Nursing staff (Wales & England)  United Kingdom  The study aimed to:
- Investigate the effectiveness of different approaches to developing research capacity in academic nursing schools, and
- To add new understanding of how such approaches achieve particular results in specific settings.
There is an absence of evaluative frameworks to judge different approaches to capacity development, which stems from a lack of local empirical research studies.
The need to study the complex process by which strategies achieve particular effects and the way in which these strategies are enmeshed in the development of schools’ research cultures were key drivers for the study.
Whilst numerous studies have described the perspectives of those who design and implement capacity building strategies there has been less research into the in-depth experiences of nurse educators during the implementation of research capacity-building.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Study Type</th>
<th>Country</th>
<th>Aim</th>
<th>Findings / Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones et al. (2011)</td>
<td>Teacher educators/academics</td>
<td>United Kingdom</td>
<td>Aim is to investigate the learning journey of the Teacher Education Research Network (TERN) participants to identify what learning accrued and articulate the critical factors involved in the navigation of the complex ecologies in the interconnected networks across and within universities.</td>
<td>In the UK, much of the research in and on teacher education is generated by those who are also the teachers and managers in the teacher education communities and increased research selectivity has generated an inequitable environment confronting teacher educators with severe challenges.</td>
</tr>
<tr>
<td>Schulze (2009)</td>
<td>Novice researchers/ Academics</td>
<td>South Africa</td>
<td>The aim was to reflect on the implementation of the research mentoring model (initiation and cultivation phases) in order to identify influences on its functioning.</td>
<td>Academics are expected to publish at least the following number of research articles over a period of five years: professors, seven; associate professors, six; senior lecturers, five, and so on. However, an analysis of the research outputs of three related departments at the institution indicates that the majority of academics do not meet expectations. Only a limited number of employees publish articles. Press statements confirm that the research output at Unisa is relatively low that the majority of researchers who publish are older than 50, and that the general quality of journals published in South Africa is poor.</td>
</tr>
<tr>
<td>Schulze et al. (2008)</td>
<td>Academics</td>
<td>South Africa</td>
<td>It was therefore imperative to investigate the factors that influence the research output of academics. The ultimate aim is to make recommendations on how the research output of academics may be improved.</td>
<td>Academics are expected to publish a certain number of research articles over a period of five years. Grants for attending conferences locally and overseas are influenced by research output. Requirements are waived for researchers with a (NRF) rating or a research output that exceeds expectations. In addition, promotion and merit awards are ultimately determined by research output. Academics can also gain financially from subsidies that are paid to the institution for publication in accredited journals. In spite of the requirements and incentives, many academics at UNISA do not meet the expectations.</td>
</tr>
<tr>
<td>Tien (2000)</td>
<td>Faculty</td>
<td>Not explicitly stated</td>
<td>In the present study, an effort is made to eliminate the effects of “other variables”</td>
<td>Authors assumed that promotion has the same motivating impact on publishing for all faculty members regardless</td>
</tr>
</tbody>
</table>
under the rationale of the expectancy theory

**Hypothesis 1:** Among instructors and associate professors, those who show higher motivation for promotion display better research performance than those who show lower motivation for promotion.

**Hypothesis 2:** Motivation to conduct research in order to obtain the promotion reward still serves as a significant predictor of better research performance even after the motivating effects of other intrinsic and extrinsic rewards, age, gender, highest degree earned, country of training, institutional affiliation, and discipline have been controlled.

of their demographic, educational, and institutional backgrounds. But promotion is not the only reward operating in a natural setting.

External rewards such as peer recognition and income increase, or internal rewards such as the satisfaction of curiosity and the joy of involvement in research, may also influence faculty research behaviour.

In order to verify whether the desire for promotion influences faculty research productivity, the effects of other variables need to be controlled.
As reflected in Table 3 above, the seven studies met the inclusion criteria with regards to the target group as academics or faculty were sampled to participate in the studies. Studies varied in geographical location, ranging from the USA (n=1), the UK (n=2) and South Africa (n=3). It was noted that the problem statement remained uniform across all studies as it was reported that the research output of academics were low. Thus the overall aim of the studies were similar in that the majority of studies aimed to investigate a strategy, intervention or an approach implemented in a university to develop research capacity and the effects thereof.

4.2.1.2. Methodological Appraisal

The second section was the methodological appraisal, which included the design, sample and data collection strategy. Table 4 presents the results of this section of the data extraction process.

Table 4 below reflects that the included studies adopted either a qualitative (n=4) or quantitative approach (n=2). Only one study adopted a mixed method approach, incorporating both qualitative and quantitative methods. The most common sampling method employed was purposive sampling (n=3), followed by simple random sampling (n=2). Only two of the seven studies failed to mention the sampling method. The smallest sample size was eight (8) (Jones et al, 2011) and the biggest sample selected was 1980 participants (Tien, 2000). Questionnaires (n=3) and interviews (n=3) were the most common data collection methods used, only one study referred to observation as a data collection method.
**Table 4: Methodological Appraisal**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Design</th>
<th>Participants</th>
<th>Sample type</th>
<th>Sample size</th>
<th>Data collection/ Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bland et al.</td>
<td><strong>Survey</strong></td>
<td>Full-time Faculty at the University of Minnesota Medical School – Twin Cities.</td>
<td>Not explicitly stated</td>
<td>615 full time faculty formed the sampling frame. Response rate of 465</td>
<td>Questionnaire, survey type, was utilised. Items in the questionnaire were designed to assess the individual, institutional and leadership characteristics and the college and department levels. The questionnaire also included items on the faculty’s background (e.g., degree, rank) and workload and productivity (e.g., time committed to various tasks, articles published). Items were also drawn from other questionnaires. The questionnaire was then pilot tested to assure clarity and ease of completion. The final questionnaire had 56 primary questions, many with sub-questions, resulting in about 150 items. With a few exceptions, the items were rated on a five-point scale with 1 = “Strongly disagree” and 5 = “Strongly agree”. For some items, respondents had the option to indicate “Don’t know” or “Not applicable”</td>
</tr>
<tr>
<td>(2005)</td>
<td>Mode of administration was on-line or electronics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Green et al.     | **Comparative case-study approach** | Academic Nursing Staff from two academic schools in the UK (one in Wales, and one in England). | Not explicitly stated | Not explicitly stated | Thirty-four in-depth interview and two focus groups were conducted with nurse educators and senior managers. Approximately 300 documents were analysed to identify capacity building strategies, their outcomes, and the challenges faced. Two main kinds of documents were included in the analysis:  
  - ‘Stand alone’ documents, including departmental plans, research strategies, RAE submissions, and briefing papers.  
  - The second group comprised sets of meeting minutes, from senior management teams, research committees and groups, and academic centres |
<p>| (2007)           |                             |                                                                              |                        |                      |                                                                                               |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Participants</th>
<th>Sampling Method</th>
<th>Study Duration</th>
<th>Data Collection</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engelbrecht (2012)</td>
<td>Mixed-methods</td>
<td>Academic staff in education faculty - Who had not yet obtained a doctoral degree - Who had no access to research sources - Semi-established researchers - Already established researchers</td>
<td>Program was open and transparent to all Simple random sampling</td>
<td></td>
<td>Welsh School – 95 nursing academic staff participated English school – 48 nursing academic staff participated</td>
<td>Research output with specific reference to journal articles, the number of academics with doctoral degrees, and research projects that received outside funding was measured in compliance with University regulations, over an initial period of three years. Semi-structured individual interviews were also held with a wide range of researchers, both experienced and less experienced, over a period of six months in 2009/2010. The interview schedule focused on their own personal views of the process, as well as possible reasons for the increase or decrease in their research output. In addition, a group of experienced and less experienced researchers were asked to reflect on their own research experiences by answering the following open-ended question in writing: To what extent do you think you have been able to develop as scholar who is well known in your field over the past three years? Where further clarification was needed, these descriptions were followed up with individual interviews.</td>
</tr>
<tr>
<td>Jones et al. (2011)</td>
<td>Formative evaluation design</td>
<td>Teacher educators</td>
<td>Purposive Sample</td>
<td></td>
<td>Each University selected 8 teacher educators (research fellows).</td>
<td>This paper draws on a range of internal evaluation data - an initial baseline mapping questionnaire distributed online to all research fellows, collecting bibliographies, motivations and existing expertise - semi-structured evaluation questionnaires completed by the research fellows at the end of each of the face-to-face events (five workshops and two colloquia) - an end-of-project online questionnaire prompting the research fellows to reflect upon their learning and professional development accrued through participation in TERN - in-depth, semi-structured interviews and reflective pieces of writing</td>
</tr>
<tr>
<td>Schulze (2009)</td>
<td>The exploratory research was an</td>
<td>Novice researchers/Academics</td>
<td>Inferring simple random sampling</td>
<td>11 academics participated in study. Three participants were</td>
<td></td>
<td>Observation was the main data collection method Data was also captured by means of updated field notes, in particular after each meeting and after having evaluated written</td>
</tr>
<tr>
<td>Schulze et al. (2008)</td>
<td>Qualitative; interpretive framework; case study</td>
<td>Proven researchers/academics</td>
<td>Purposeful sampling</td>
<td>13 participants were selected; 6 male and 7 female</td>
<td>Informal interviews were conducted and noted throughout, and some institutional documents formed part of the raw data. Data was gathered by means of interviews. An interview schedule had open-ended questions focusing on various aspects of research. Questions covered the way academics proved themselves as researchers, incentives for doing research, support systems they used, stumbling blocks they experienced and recommendations for novice researchers. Probing questions were asked.</td>
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<tr>
<td>Tien (2000)</td>
<td>Quantitative</td>
<td>Full time Taiwanese faculty at or above the instructor level.</td>
<td>The subjects selected vary depending on the research hypotheses tested. Instructors, associate professors, and full professors were selected to examine the construct validity of motivation for promotion, but only instructors and associate professors were selected to evaluate Hypotheses 1 and 2. *inferring purposive sampling</td>
<td>1,980 full-time Taiwanese faculty at or above the instructor level, working in fourteen disciplines, and employed in nine institutions were selected. The number of valid responses is 1,017</td>
<td>Two data sets collected by the author: mail survey data and faculty lifetime publication data 1. The mail survey data contained respondents' demographic status, educational background, institutional affiliations and motivation measures developed on the framework of the expectancy theory 2. The faculty lifetime publication data of the 1,017 respondents were constructed from different sources: (1) the faculty publication lists kept by their institutions, (2) the Researcher File of the National Science Council, (3) the publication lists provided by the respondents, (4) and the publication counts in tables on the mail questionnaire.</td>
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</table>
4.2.1.3. Strategy/intervention Content

The third section was the content of the strategy or intervention which focused on the theoretical orientation, the scope of the strategy, nature of activities and the facilitation styles used. Table 5 below presents the results of this section of the data extraction process and summarises the content of the strategy or intervention reflecting the core elements of the aims and objectives stated in Chapter 3.

Table 5 reflects that five theoretical orientations were identified, most of which places emphasis on the social context within which academics practice. The scope of the intervention included academics from various disciplines namely, clinical, education, basic science and nursing. Academics ranged in status as instructors, associate professors and full professors were sampled. However, mainly novice research academics were targeted; those who lack research skills or are new to the research environment. The nature of activities included workshops as well as discussions and peer mentoring. Most studies were research/evidence based approaches therefore the nature of activities included interviews. Often, leaders or senior staff members were appointed to facilitate workshops or appointed as mentors.
### Table 5: Strategy/Intervention Content

<table>
<thead>
<tr>
<th>Authors</th>
<th>Theoretical orientation</th>
<th>Scope of interventions</th>
<th>Nature of activities (what)</th>
<th>Facilitation (how) styles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bland, et al., (2005)</td>
<td>The Bland et al model was used as a basis for the study. Bland and colleagues synthesized the literature on faculty research productivity into a model that asserts high research productivity is strongly associated with eight individual characteristics, fifteen institutional characteristics, and four leadership characteristics. In the model, faculty research productivity is highest when a faculty member has specific individual qualities, works in an institution that is highly conducive to research, and is led by someone who possesses essential leadership qualities and uses an assertive–participatory management approach.</td>
<td>465 full-time faculty responded to participate in study. Majority of participants were male, 45% had high level of productivity, 82% held either an MD or PhD. 79% of respondents were from clinical departments and 21% from basic science departments. 99% were assistant professors or higher and 84% were tenured or on the tenure track.</td>
<td>Study/intervention was conducted to identify and confirm the broad range of characteristics associated with faculty research productivity. Various models addressing facilitating characteristics that have an impact on research productivity were assessed. Questionnaires were provided to faculty members</td>
<td>Questionnaires were emailed to participants</td>
</tr>
<tr>
<td>Engelbrecht (2012)</td>
<td>The article is placed within a transformative view of social justice against the backdrop of the unique South African cultural and historical background. This view of social justice avoids the contradictions that may be created by multiple views of social justice, including the economic and political (distributive) or individualistic views of social justice. Individualistic views tend not to acknowledge the social context within which individuals function in society, and can therefore further disadvantage certain communities.</td>
<td>Intervention was implemented in a faculty of education. Those who had access to the programme were:  - A group of academics who had not yet obtained a doctoral degree and who traditionally had no access to research resources  - Those who recently</td>
<td>Research training workshops was conducted in the faculty. Discussions about challenges faced with research development were held.</td>
<td>A newly appointed Dean and as researcher took a leading role in the development of a research-capacity program in the faculty Leaders were appointed in education faculty to analyses the focus of research in faculty</td>
</tr>
<tr>
<td>Year</td>
<td>Study</td>
<td>Participants</td>
<td>Research Design</td>
<td>Findings</td>
</tr>
<tr>
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</tr>
<tr>
<td>2007</td>
<td>Green, et al.</td>
<td>Not explicitly stated</td>
<td>Investigation at two nursing schools (Welsh school and English school). Nursing academic staff who participated either had • no academic experience, • had 1st degree only, • masters degree • PhD • Studying for PhD/taught doctorate</td>
<td>Interviews were held to identify capacity building strategies, the outcomes and the challenges.</td>
</tr>
<tr>
<td>2011</td>
<td>Jones, et al</td>
<td>Lave and Wenger’s concept of ‘situated learning’ informed the development of this model in that it constituted ‘an integral part of generative social practice in the live-in world’ with a clear focus on the newcomer, who needed to gain access to a community of practice in order to learn.</td>
<td>The TERN mentoring model network was established amongst seven regional universities involved in pre-service teacher education in the North West of England. This model targeted teacher educators who typically entered universities as novices. In essence teacher educators in the early to mid stages of development as researchers.</td>
<td>Workshops mentoring support • One-to-many mentoring model was employed.</td>
</tr>
</tbody>
</table>

Research fellows worked within a research team and with a senior colleague as a mentor.
| Schulze, (2009) | Situated Learning Theory was implemented. Theory is based on two principles: learning that occurs as a function of the context, culture and activity in which it takes place, and social activity as a critical component of situated learning. | Novice researchers within the field of education | The intervention consisted of four phases:  
1. Initiation phase  
   Emails were sent to participants and interviews were held to form small groups based on their needs.  
2. Cultivation Phase  
   Each group embarked on a research project.  
3. Separation Phase  
   Mentoring continued until needs were achieved  
4. Redefinition Phase  
   The relationship between the mentor and the novices had to change as they became independent and their identities as competent researchers developed. | The mentor met with groups on regular bases and was available for consultations. The mentor often received written work and provided feedback. |
This social theory is characterised by the following components: meaning (learning as experience); practice (learning as doing); community (learning as belonging) and identity (learning as becoming). | Academic staff were selected on the grounds of being proven researchers – an academic in possession of a doctorate and who has produced at least three research articles in the previous five years. | Proven researchers were interviewed. | Not explicitly stated |
| Tien, (2000) | **Expectancy theory** is a decision-making model in which the decision is made on the need stage of an individual for the reward. The theory implies that the motivating effect of promotion is dependent on an individual's need for promotion. If a person does not value a promotion, she or he will not work (publish) hard for it. | Investigation has been employed across 14 disciplines in 9 institutions. Instructors, associate professors and full professors participated in study. | Investigation used surveys to collect data to identify whether promotion motivates academics to produce research output. | Not explicitly stated |
4.2.1.4. Analysis and Results

The fourth section summarised the analysis and results. Table 6 presents the information about how data was analysed in the respective studies, the empirical evidence or results of the studies and the authors’ conclusions. Table 6 below reflects the results of the data extraction process.

From Table 6 below, it becomes evident that data was analysed using a number of methods. Two studies used constant comparison as a method to analyse data. Jones et al. (2011) used Kirkpatrick’s model as an analysis method which evaluated the training process of academics. Schulze (2009) utilized Tresh’s method of analysis. This method consisted of reading through field notes, listing topics and clustering similar topics, and determining the relationship between categories. Other methods included thematic analysis (Green et al, 2007) and statistical analysis (Tein, 2000; Bland et al, 2005).

The empirical evidence presented in Table 6 states that having an external network is essential as it becomes the frame of reference for a highly productive researcher (Bland et al, 2005; Jones et al, 2011). Additionally, various factors have been identified which play a role in the increase in research output, these include: workshops that address writing skills, encouragement from senior researchers, research support, financial support, recruiting academic leaders and the university context (Green et al, 2007; Schulze & Gouws, 2008; Engelbrecht, 2012). Results have indicated that an individual’s research productivity is influenced by a combination of individual and institutional characteristics. The studies have also confirmed the importance of research orientated leaders and that staff should be provided with time and financial support to undertake research training. Additionally, Tien (2000) identified that promotion motivates academics to engage in research activities.
Table 6: Analysis and Results

<table>
<thead>
<tr>
<th>Authors</th>
<th>Analysis &amp; Results</th>
<th>Authors Conclusions</th>
</tr>
</thead>
</table>
| Bland et al.       | Three demographic variables in this survey were not significant predictors of faculty research productivity:  
Age  
Gender  
Department type  

Results indicated two demographic variables were significant predictors of research productivity:  
Appointment type  
Rank  

Results suggest that having a network within the department is not necessary for research productivity, whereas having an external network is essential. This external network of highly productive researchers likely becomes the frame of reference for a highly productive researcher. Thus, it is possible that researchers then view their own department in comparison and see that it does not possess as large a number of significant grant-getters as does their external network. Having fewer hours in teaching reflects the reality of highly productive researchers committing more time to research compared with others. |
| (2005)             | SPSS was used to perform t tests, logistic regressions, and multiple regressions. |
|                    | This study was done in a highly research-oriented institution with quite established faculty. However, it seems that even in this type of institution, when individual faculty’s research productivity is the goal, nothing substitutes for recruiting faculty with a passion for research, providing them with formal mentoring programs, facilitating their networks, and providing time for them to do research.  
Study also confirms that an individual’s research productivity is influenced by a combination of individual characteristics and institutional characteristics.  
Study also confirms the importance of research-oriented leaders.  
Institutions that want most of their faculty, instead of a few stars, to be highly research productive should emphasize institutional and leadership characteristics such as clear coordinating goals, research emphasis, communication, and assertive–participative governance. |
| Engelbrecht        | An analysis of the qualitative data indicated that the following factors played a role in the increase in quality publications:  
Workshops that specifically addressed writing a scientific article and the fear of failure  
The encouragement of more senior researchers to involve more inexperienced colleagues in co-authoring articles.  
The establishment of a stronger overall culture of research support |
| (2012)             | Qualitative data were analysed using a constant comparison. Membership checks were used as a strategy to ensure the validity of the qualitative data, and the reliability of the quantitative data was checked by |
|                    | It is important for senior research leadership in the education Faculty to understand that remnants of previous interests and power issues may still play a major role in shaping the tangible and intangible aspects of the research capacity programme.  
A strong research community should be self- |
| Green et al. (2007) | Interviews and focus groups were interrogated using a thematic approach, whilst documents were analysed using a specially designed data entry form. Both schools had formal written strategies. The Welsh School’s approach to research capacity development was inclusive – all lecturing staff was encouraged to engage in research. The English approach was more focused on those who showed potential or sought to undertake further studies. Some Welsh school staff felt that despite the positive nature of egalitarianism, being research active was not necessarily good or feasible for everyone, whilst at the English school some thought the focused approach was divisive. The Welsh School complemented its staff development strategy by recruiting academic leaders (e.g. professors), including nurses and social scientists. This had an effect on the nature of the research undertaken. The challenge faced by both schools was the interface between teaching and research. Providing staff with time and financial support to undertake research training stand out as key ingredients in both schools’ success. The main difference lies in the way they have sought to organise and manage opportunities. The findings suggest clearly that tensions between research and teaching can be reduced when the benefits to teaching of increased research capacity are emphasised. Secondly, academic schools need to find effective ways of linking together researchers with different levels of experience, particularly neophytes and academic leaders. The findings of this study suggest that meeting these challenges is difficult yet achievable, where there is a long term sustaining and self-regenerating. It is also clear that the best environment for such development is a faculty that is strong, agile and committed to the participatory development of scholarship within a transformative milieu that embraces social cohesion and access. Developing research capacity in faculties of education requires a deliberate, intensive and sustained effort and efforts that foster a transformative approach can contribute much towards the development of supportive research communities. |

- comparing it with institutional data on research outputs also played a role.
  - The number of academics with a doctoral degree also increased, factors which played a role include:
    - The clearly defined policy of leave of absence to complete the research and sufficient financial support to do so;
    - The structured development of effective supervision skills in the Faculty;
    - The increased role of mentoring played by senior researchers;
    - Opportunities to develop a personalised approach to postdoctoral work also motivated academics to complete their initial research in order to take up some of these opportunities, which included research opportunities abroad.
  - Barriers identified by emerging researchers:
    - Low self-confidence
    - The development of an overall research focus
    - Building and developing research networks

| | | |
The inclusive approach adopted by the Welsh school was unrealistic. If all staff were to avail themselves of these opportunities, this would be problematic because of research funding. Whereas, the English school’s focused approach was more realistic as limited resources were used to ‘fast track’ a small group of individuals and gained research skills quickly.

The collaborative aspect of learning through working with more experienced researchers within their respective groups and across institutions was perceived by many to be of importance, particularly by those who felt isolated and were keen to engage with other colleagues.

The outcome was overwhelmingly positive with over 95% of participants stating that their participation in TERN had had an impact on their learning and that they had acquired new knowledge and skills in relation to methodology, methods, research design, theoretical frameworks, bid writing, costings and funding opportunities.

Jones et al. (2011) | Kirkpatrick’s model for the evaluation of training, served as the basis for analysis and integration of the various data sources. The framework consisted of four categories:
- Initial learner motivation and expectations;
- Perceived learning benefits;
- Critical factors that acted as constraints and facilitators in the learning process;
- Application of knowledge and skills and impact on regional research cultures.

The collaborative aspect of learning through working with more experienced researchers within their respective groups and across institutions was perceived by many to be of importance, particularly by those who felt isolated and were keen to engage with other colleagues.

The outcome was overwhelmingly positive with over 95% of participants stating that their participation in TERN had had an impact on their learning and that they had acquired new knowledge and skills in relation to methodology, methods, research design, theoretical frameworks, bid writing, costings and funding opportunities.

Constraints and facilitators in the learning process:
- Group structure and development
- Institutional research cultures and beneficial relationships

Engagement with the TERN programme was largely contingent on the structures, relationships and tacitly agreed norms of academic behaviour that determined the research fellows’ day-to-day work and the extent to which it allowed their learner identities to emerge.

It was concluded that the model piloted through TERN has the potential to provide teacher educators with the structures and pedagogic input to facilitate professional learning and development for ‘aspirant’ researchers.

Initiatives such as TERN are instrumental in creating professional learning environments within which symbiotic relationships between teaching, scholarship and research can develop and flourish and thereby strengthen a profession’s ownership of its own knowledge base.

Schulze (2009) | Data were analysed by means of Tesch’s method:
- The researcher obtains a sense of the whole by reading through the field notes and analysing these for underlying meaning in order to identify topics.

The main influences on the implementation of the mentoring model relate to the following:
- the university context, including financial incentives and support, infrastructure to support research, time, research collaboration and research training
- the dynamics in the communities of practice, for example, the role of protégés’ experience

The model that was implemented illustrated the possibility that one researcher could mentor more than one group of protégés within the specific university context with its support systems and constraints.

The findings reveal the necessity of further investigation into the influence of the following factors on novices’ learning: the development of participants’ identities as
<table>
<thead>
<tr>
<th>Schulze et al. (2008)</th>
<th>Analysis was done by means of the constant comparative method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analysis began with identifying units of information that aimed at some required understanding and these were the smallest pieces of information that could stand by themselves. After all the units were identified they were placed into categories.</td>
</tr>
<tr>
<td></td>
<td>The next step was to compare units applicable to each category. Constant comparison of the units generated the categories’ theoretical properties.</td>
</tr>
<tr>
<td></td>
<td>Units of all the interview transcripts were compared with the properties describing each category. Categories were also compared with one another and integrated.</td>
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</table>

The findings gave rise to two main categories, namely influences on the research process and perceptions of participants about various aspects of research:

1. Influences on research process
   - Influences on personal development as a researcher
   - Incentives for doing research
   - Organisational support systems
   - Stumbling blocks
   - Gender/race influences
   - The influence of teaching
   - The development of a research identity

2. Participants’ perceptions about various aspects of research
   - The “highs” and the “lows” of research
   - What participants view as good research
   - Recommendations for novice researchers
   - Research concerns

Research practitioners

Ultimately mentoring can contribute to increased research output of the University. Moreover, research can enhance the effectiveness of operational activities at the institution and increase job satisfaction.

Results successfully indicated how the research output of academics was primarily influenced by the interrelationship of individual factors with various others in the relevant research community and the institution.

Leadership in research communities is needed for the effective functioning of such communities to build research capacity and stimulate research output. More research is needed on how to accomplish this.
<table>
<thead>
<tr>
<th>Tien (2000)</th>
<th>Statistical analysis was used: One-way ANOVA utilized to observe motivation differences among different rank levels. The simple model of logistic regression, which investigates the bi-variate relationship between one independent variable and one dependent variable, is used to examine whether motivation for promotion predicts faculty research performance (Hypothesis 1). The multivariate models of logistic regression are then employed to investigate the effects of demographic, educational, institutional, and motivation variables on faculty research performance (Hypothesis 2).</th>
</tr>
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<tr>
<td></td>
<td>As expected, instructors and associate professors do show significantly higher motivation for promotion than full professors. These results indicate that the motivation for promotion measure possesses construct validity; that is, the measure has the ability to distinguish between individuals who are known to differ. HYPOTHESIS 1 Faculty who exhibit higher motivation for promotion are more likely to get an NSC Research Outcome Grant than those with lower motivation for promotion. Promotion valence is a significant predictor for article publishing ($p &lt; .02$). The higher the respondent's score on promotion valence, the more likely he or she is to publish articles. Findings suggest that: (1) instructors and associate professors who value promotion more will publish articles for the promotion reward and (2) promotion valence alone is a better predictor of faculty research performance than the combined motivation measure or the separate instrumentality measure alone. HYPOTHESIS 2 Faculty who publish articles are generally younger, male, and employed in public institutions. They tend to work in the discipline of natural sciences and engineering, hold a doctoral degree, have received foreign training, regard promotion as crucial, and place greater emphasis on the importance of satisfying their curiosity as a motivation for their work. Results support Hypothesis 2, which states that promotion valence predicts article publication, even after controlling for the effects of other variables. Different rewards have different effects on different measures of faculty research performance. After control-ling for the impact of demographic, educational, and institutional variables, the multivariate analyses show that faculty publish articles both to gain promotion and to satisfy their intellectual curiosity. The findings have several implications for faculty studies. First, the current study refutes an overemphasis on extrinsic rewards or that intrinsic rewards alone explain faculty research performance. Second, the findings suggest that a reward valence varies systematically with the nature of the performance measure employed, ceteris paribus. That is, when individuals consider a particular reward is important, and when the faculty re-search performance measure may provide them with opportunities to obtain that particular reward, they will probably perform that kind of research activity. Third, the effect of promotion valence on faculty research performance varies with the performance measures. Among the three measures, promotion valence best predicts article publishing.</td>
</tr>
</tbody>
</table>
4.3. Ranking of articles

Twenty-four articles were subjected to the critical appraisal process; however, only seven articles met the threshold score for inclusion. The overarching goal of the critical appraisal tool was to assess methodologies used in studies and to award scores to those methodologies reported or presented in the study. Table 7 below presents the ranking of the seven articles based on overall score obtained during the full text review. As mentioned before, the critical appraisal tool consisted of eight sections and each section assessed specific aspects of the methodological qualities of the included articles. Therefore, Table 7 was expanded to include the ranking per section as well.

As seen in Table 7, Schulze (2008) ranked first (1st) as this article scored the highest with a rating of 80%. This article scored relatively high across the eight sections, ranking first (1st) in purpose, study design, data analysis, sample and conclusion. In other words, this article had the most comprehensive overall methodological coherence. Jones, et al, (2011) scored a rating of 62%, and was ranked lowest despite ranking second (2nd) across five of the eight sections. Being ranked sixth (6th) in ‘data collection’ may have detracted from the overall methodological coherence since it negatively impacted the ability to replicate the study. Lower ranked articles (i.e. 5-7) tended to score low in data collection, ethics and sampling. Higher ranked articles (i.e. 1-3) tended to score high on at least seven of the eight subsections.
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Refs</th>
<th>Quality</th>
<th>Subsections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Purpose</td>
</tr>
<tr>
<td>1</td>
<td>Schulze, et al., (2008)</td>
<td>&gt;70% Strong</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Schulze (2009)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Green, et al., (2007)</td>
<td>&gt;60% Strong</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Engelbrecht, (2012)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Tien, (2000)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Bland, et al., (2005)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Jones, et al., (2011)</td>
<td></td>
<td>1</td>
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</table>
Below is a brief discussion of the ranking order of articles with regards to the subsections reflected in Table 7 below.

4.3.1. Purpose

Table 7 above reflects that all articles are ranked first (1st) in the purpose section. This section consisted of five questions which paid specific attention to whether literature has been consulted in providing a background, the problem statement, rationale, aims and whether the aims were related to the problem statement. All seven articles scored full marks in this section. This is a function of both the authors’ need to orient the reader and journal requirements. In essence assessing this section did not assist in discriminating between well written articles reporting on good quality research, but omitting it from the assessment can truncate marks that might lead to the inclusion of articles that are less well written.

The purpose section may not generally form part of methodology; however the results indicate that this section is of importance. Various journals have certain requirements when publishing an article, for instance, the uniform requirements for many journals, regarding the introduction, are that it should provide a context of the background, summarise the rationale, state the aims, objectives or hypothesis (International Committee of Medical Journal Editors, 1999). It has been noted that despite the fact that the seven articles were published in different journals, for example the ‘South African Journal of Higher Education’ and ‘Research in Higher Education’, the requirements remain uniform.

One can assume that the context of an article is an important aspect as it places the study into a particular field, in addition to identifying the gap within literature which helps to formulate
the aims, rationale and problem statement (Kaniki, 2006). One can also identify that these requirement remain the same not only throughout South Africa, but throughout the world.

4.3.2. Study Design

The study design assessed the theoretical framework and its description, the design of the study, the elements of the design as well as the relationship between the design and the aim of the study. Studies scored relatively well within this section. Schulze (2008), as well as Engelbrecht (2012) were ranked first (1st) as both articles scored full marks. Tien (2000) and Green, et al., (2007) were ranked third (3rd) as these articles scored five marks each. When it came to assessing each article based on its study designs, the majority of the articles lost scores as it failed to either 1) motivate the design choices, or 2) failed to describe the theoretical framework in detail. With regard to those which failed to motivate their design choice, scoring these articles became problematic as the tool required an assessment of whether the design was relevant to the aims of the study.

The omission of motivations for design choices could be attributed to a number of factors. First, journals have requirements or instructions for authors when submitting manuscripts such as word limits and preferred content for reporting that is sometimes reflected in the recommended structure. In this instance, authors still have to make decisions about what they include or omit in preparing their manuscript. Second, articles are summative documents unlike theses or dissertations that are process documents thus authors might have a particular understanding that motivations for methodological choices are not prioritised. In both instances, there begins to emerge a publication bias. In short, regardless of the factors influencing the choice to include or omit certain information during dissemination remains a
methodological decision that impacts the ability of consumers to replicate studies successfully.

4.3.3. Ethics

When it comes down to implementing a study, ethics is usually considered as the most important factor which needs to be considered before collecting data. In spite of this, the seven articles did not readily have the information on ethics and it was not presented in a clear manner. Schulze (2009), in Table 7, was ranked first as this article scored a total of 5 points out of 6. This article reported on confidentiality, anonymity, withdrawal, informed consent and as well as gaining access to participants of the study. On the other hand, Bland, et al., (2005) scored the lowest and was ranked 6th within this section because it made no mention of any ethics requirements.

The International Committee of Medical Journal Editors (1999) state that when reporting on human subjects, authors need to indicate whether the procedure followed were in accordance with the ethics standards of the responsible committee and identities should be properly anonymized within any forms of dissemination. Subsequently, authors may choose to only report on ethical approval and neglect other important ethical constraints as this may be considered the most important requirement when publishing a journal article. The Elsevier Journal states that any submission that has data collected from human subjects requires ethics approval. If the manuscript does not include ethics approval, the paper will not be sent out for review (Guide for authors, 2014). It may be inferred that as long as studies make mention of ethics approval, they may be considered for publication. The manner in which authors report on ethics does not necessarily reflect their engagement with ethics as a complex process. Thus it is being carefully stated that what emerges is that published authors appear to be
making decisions in a consistent manner to limit their reporting on ethics to mentioning that the study has been cleared ethically. In other words the assumption is that readers must defer to the clearance authority without a further clarification about whether the authorising body has been properly constituted, is compliant with the accreditation requirements for ethics committees and whether the members of the committee are well trained and suitably experienced to make such decisions.

4.3.4. Data Collection

Data collection was assessed by four questions. Studies were assessed based on whether the data collection method was clearly identified and motivated, whether the method of collection was appropriate for the outcome identified and the last question was divided into two subsections. The first subsection assessed whether quantitative studies reported on psychometric properties, the type of data produced by instruments, and if the instruments produced data that supported the data analysis. The second subsection assessed whether qualitative studies reported on trustworthiness, credibility, reflexivity and respondent validation.

Once again Schulze (2009) ranked first (1st) within this section. This is a qualitative article which scored full points as it met all the requirements of the critical appraisal tool in this specific section. In contrast, Jones et al. (2011), also qualitative, was ranked 6th as it only managed to score 2 points. On the other hand, the quantitative articles, Bland et al. (2005) and Tien (2000) were ranked around the centre of the distribution, third (3rd) and fourth (4th) respectively. These articles scored relatively well compared to the qualitative articles. Majority of these articles failed to motivate the choice of data collection and failed to report on the conventions required when reporting quantitative or qualitative methodologies.
Publication bias is evident again as motivation for methodological choices are omitted as articles are not process documents in comparison to theses reports that are process documents.

4.3.5. **Data Analysis**

With regard to the data analysis, as reflected in Table 7, three articles were jointly ranked first (1\textsuperscript{st}) these are Schulze (2008), Green, et al., (2007) and Tien (2000). These articles scored a total of 5 points each, as they met all the requirements of this section, that is, the method of analysis was identified and motivated, the analysis was appropriate relative to the research question, the conclusions drawn were appropriate and supported by the data and the inferences drawn supported the type of sampling.

The most common reason for loss of points were that articles failed to motivate the method of analysis, and in most cases the sampling method was not mentioned, therefore the last question could not be scored. The lowest ranking articles were Schulze (2009) and Engelbrecht (2012) as they ranked 3\textsuperscript{rd} within this section. These articles only managed to score 3 points each.

4.3.6. **Sample**

The sample section within the critical appraisal tool was one of the lowest scoring sections, along with ethics. This section consisted of six questions, which were: 1) was the population clearly identified, 2) were inclusion/exclusion criteria specified, 3) was the sampling choice motivated, 4) was the sampling method appropriate, 5) how was the sample size determined and 6) were techniques used to ensure optimal sample size. The highest ranking article for this section is Schulze (2008) with a total of 4 points. This article only managed to answer
questions 1 to 4. The lowest ranking article in this section is Bland, et al., (2005); ranked fourth (4th) with 1 point. This article only identified the population and failed to provide more information about the sampling method.

One can infer that the sampling section, usually considered an important methodological section when conceptualising research, is not deemed as important when preparing manuscripts for publishing. This has serious implications for the extent to which published research can be replicated if manuscripts only report on their population and provides no other information regarding the sampling method, size of population, how this was determined and how the size was ensured? Additionally, readers cannot assess adequately whether authors are generalising their findings appropriately without this information.

It is important to acknowledge that every decision made, whether it relates to this sampling, data collection, ethics or study design, constitutes a methodological decision that must contribute to the overall methodological coherence especially with the aims of the study. Therefore, as a researcher, it would be important to present sufficient information when disseminating information in manuscript or journal article format so that others can replicate the study within a different context and also can assess the methodological rigour and coherence of any given study. The focus on summative reporting of findings and process reporting are not necessarily mutually exclusive.

4.3.7. Results and Conclusion

The results section was divided into two subsections. The first subsection dealt with quantitative studies which posed questions about alpha levels, accurate interpretation of results, and whether results were clearly linked to the research question. Of the seven articles
reflected in Table 7, the quantitative studies, Tien (2000) and Bland, et al., (2005) were ranked first (1\textsuperscript{st}) and were thorough in reporting in a manner that was consistent with the conventions of quantitative methodologies.

The second subsection focused on the conventions associated with qualitative analyses such as saturation, whether multiple reviewers were used and if results were clearly linked to the research question. The majority of the qualitative studies failed to report on either saturation or the number of reviewers. Schulze (2009), Green et al. (2007) and Jones et al. (2011) were ranked joint second (2\textsuperscript{nd}) while Schulze (2008) and Engelbrecht (2012) were jointly ranked third (3\textsuperscript{rd}). Despite these rankings all five articles scored very low (1 or 2 points) in this section relative to the quantitative articles. Thus might be a function of the subjective nature of qualitative approaches to methodology.

With regards to the conclusion, articles scored well. Schulze (2008), Green, et al., (2007) and Tien (2000) scored full marks and were jointly ranked first (1\textsuperscript{st}). Their conclusions were presented clearly and were supported by the findings. These articles also reported on recommendations for further research, as well as, limitations of the study. The remaining four articles failed to report on either limitations or recommendations and only provided a concluding statement.

The aim of the critical appraisal tool was to measure methodological rigour by assessing articles and awarding points for information that has been reported or presented in the service of establishing methodological coherence. Overall, results have indicated that articles fail to present sufficient methodological information in order for research to be replicated. Researchers have a particular obligation and opportunity to take a leading role in seeing that
the research that is done is truly good research (Schulze, 2008). This may be considered as a recommendation for future research to identify the extent to which published reports include sufficient information about the methodology in order to constitute good quality research and what other factors hinder and assist in ensuring good quality research and good reporting practices. Additionally, an investigation of assessment tools, and the perceptions of whether manuscripts and thesis constitute summative and process documents respectively could be a consideration for future research.

4.4. Theory Explicative Meta-Synthesis

The results for the theory explicative meta-synthesis is presented below in a sequence that follows the three core stages in which the meta-synthesis was conducted namely, 1) The Reciprocal Findings, 2) The Refutational Findings and 3) The Line of Argument.

4.4.1. The Reciprocal Findings

During the reciprocal stage findings from the articles which agree with literature were identified (Thorne, Jensen, Kearney, Noblit & Sandelowski, 2004). From the seven articles included in the summation, various themes emerged which were in line with existing literature. These themes included the theoretical frameworks which have been identified, the strategies or interventions employed; the characteristics which aid to build capacity, and the challenges experienced by academics.

4.4.1.1. Theoretical Frameworks

Of the seven articles included in the study, a number of theories were used reportedly and the point around which they converge is the acknowledgment of the social context in which the new academic functions. These theories reciprocated the notion that the context or
community within which new academics practice plays a significant role in the development of a skilled, competent and productive researcher. Four theoretical frameworks were identified as reciprocal and are reflected in Table 8.

Table 8: Theoretical Frameworks

<table>
<thead>
<tr>
<th>Theoretical Framework</th>
<th>Articles</th>
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<tbody>
<tr>
<td>1. Lave and Wenger’s Situational Learning theory</td>
<td>Schulze (2009); Jones et al. (2011)</td>
</tr>
<tr>
<td>2. Wenger’s learning in communities of practice</td>
<td>Schulze et al. (2008)</td>
</tr>
<tr>
<td>3. Bland et al Model of faculty research productivity</td>
<td>Bland et al. (2005)</td>
</tr>
</tbody>
</table>

Lave and Wenger’s ‘Situated Theory’ is based on two principles: learning that occurs as a function of the context, culture and activity in which it takes place, and social theory as a critical component of situated learning (Wenger, 2000). This theory clearly focuses on the newcomer, and is useful in understanding how they gain access into a community of practice in order to learn (Jones et al, 2011). Situated Theory has been used as the theoretical framework in two of the included articles in the summation (Schulze, 2009; Jones et al., 2011). The underlying tenets of situated theory are reciprocated in the existing body of literature. For example, Dison (2007) identified that new academics have to adjust to the higher education environment or context in which they are expected to engage productively in research and publications. Thus developing research capacity is imperative within this context. The importance of developing academics’ practices and identities in relation to their community of practice, in this case Higher Education Institutions, has been underscored by various authors (Dison, 2004; Schulze, 2008; Geber, 2009).
The ‘learning in communities of practice’ theory has also been identified as a theoretical frame in Schulze et al. (2008). The theory is characterised by four components: meaning, (learning as experience); practice (learning as doing); community (learning as belonging) and, identity (learning as becoming) (Wenger, 2000). In so doing it forms part of Situated Theory (Wenger, 1999). The learning in communities of practice theory reciprocates the situated theory by acknowledging the placement or subject position of the target population. It also resonates with the existing body of literature. For example, Nundulall and Reddy (2011) suggested research capacity building can be promoted through a shared responsibility between the individual, institutions and academic staff which is consistent with the learning in communities of practice theory, and by extension the Situated Theory (Trowler & Knight, 2000).

Bland et al. (2005) synthesised literature on faculty research productivity into a model. The model asserts that high research productivity is associated with individual, institutional, and faculty qualities. The model illustrates that faculty research productivity is highest when a faculty member has specific individual qualities, works in an institution that is highly conducive to research and is led by someone who possess essential leadership qualities (Bland et al., 2005). The Bland et al. (2005) model is reciprocal with Situated Theory as it acknowledges the identity formation as well as the community context within which academics practice. Additionally, this model recognises the importance of faculty qualities, more specifically leadership skills. This theory resonate with existing literature, for example, Blackmore and Blackwell (2006) identified that leadership becomes imperative in academic development as it guides, support and assists in developing a foci for research.
Engelbrecht (2012) introduces the ‘Transformative View of Social Justice’. This theoretical framework avoids the contradictions created by multiple views of social justice, including the economic and political or individualistic views of social justice (Christensen, 1996). The transformative view of social justice confronts individual as well as historical and structural forces. It contributes to the development of society in which working, living and learning together can lead to a more reasonable, unbiased and acceptable nation (Engelbrecht, 2012). This theory is reciprocal to the Situated Theory as it acknowledges the social context within which individual’s function.

4.4.1.2. Strategies/Interventions Employed

Four central strategies/interventions emerged from the included articles. These included: mentoring, theoretical formulations, research/evidence-based and a multidimensional and integrated approach. Table 9 below reflects these strategies and the corresponding programmes which were implemented in various higher education institutions in South Africa, USA and the UK.

<table>
<thead>
<tr>
<th>Strategy/ Intervention</th>
<th>Mentoring Model</th>
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<tbody>
<tr>
<td>TERN Project</td>
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<tr>
<td>Theoretical Formulations</td>
<td>Bland et al Faculty Research Productivity</td>
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<tr>
<td>Research/evidence-based</td>
<td>Influences on academic research output</td>
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<td></td>
<td>Inclusion and exclusion approaches</td>
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<td>Multidimensional &amp; Integrated approach</td>
<td>Promotion</td>
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<td></td>
<td>Support Program</td>
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Table 9: Strategies/Interventions
4.4.1.2.1. **Mentoring**

The mentoring strategies identified were the four-phase mentoring model (Schulze, 2009) and the Teacher Education Research Network (TERN) Project (Jones et al., 2011). Jones, et al. (2011) and Schulze (2009) reported that both mentoring programmes contributed to increased research output in academics. These models had an impact on academics’ learning and they acquired new knowledge and skills in relation to methodology, methods, research design, theoretical framework, writing costings and funding opportunities.

The four-phase mentoring model was implemented in South Africa and involved one mentor and more than one group of protégés. The model enabled one proven researcher to mentor a number of protégés divided into small communities of research practitioners according to interest, thus providing new academics with the benefit of numerous social learning opportunities (Schulze, 2009).

The TERN Project was implemented in the UK. It incorporated a research team who worked with a senior colleague as a mentor to develop research bids. This process enabled the team members to access the expertise of a senior researcher. This project employed the one-to-many mentoring model which also made provision for peer mentoring among research fellows themselves (Jones et al., 2011). The model recognises the team as a vibrant cohort or subgroup that forms communal relationship and ties to promote capacitation.

It becomes evident that both models reflect the underlying principles of the situated learning theory. Both models promote mentoring and resonate with findings in the literature that mentoring is the most effective strategy to improve and develop research skills in new academics, as evidenced by consistent report of successful outcomes in studies on mentoring.
(Johnston & McCormack, 1997; Morrison-Beedy, Dyne & Mkandawire, 2001; Schulze, 2010).

4.4.1.2.2. *Theoretical Formulations*

The core point of reciprocation is that a theoretical understanding of research productivity in academics provides the basis for formulating capacitation of the lack thereof. In this way, the theoretical formulation provides a basis for developing strategies or points of intervention. For example, Bland et al. (2005) formulated a strategy based on their theoretical orientation of faculty research productivity. The theoretical position is formulated along three core assumptions essential for optimal development of research productivity namely 1) individual characteristics, 2) institutional culture and 3) faculty leadership qualities.

4.4.1.2.2.1. *Individual Characteristics*

Faculty members are expected to possess specific individual or intrinsic qualities. The most prevalent and effective individual characteristic identified in the final summation was motivation. Most interventions identified motivation to be the reason why participants participated in strategies as they were very driven to conduct research and to gain the necessary skills to do so (Bland et al, 2005; Schulze & Gouws, 2008; Schulze, 2009). The motivation identified may either be intrinsic or extrinsic.

Schulze and Gouws (2008) illustrate that participants often become motivated when they were employed as academics. They were motivated by various reasons, that is, adapting to the institutions climate of “publish or perish”, promotion and the need to prove oneself as an academic, participants felt that they had a sense of responsibility to students as supervisors.
the pleasure derived from writing and the financial gain of publishing. In other words intrinsic motivation played an important role.

Bland et al., (2005) stated that motivation cannot result in research productivity without the many supportive characteristics found in the institution. Schulze (2009) asserted that the mentor plays a significant role in stimulating the mentees creativity, thus motivating the protégé to engage in research activities. It is clear that intrinsic motivation is needed in order to respond to opportunity, however, it also emerges that extrinsic motivators play a significant role in assisting new academics to engage in research.

4.4.1.2.2.2. Institutional Culture

The institution where the faculty member is employed must have an institutional culture and characteristics that are highly conducive to research. The institutional characteristics which motivate academics to engage in research include reward systems, promotion, resources and incentives (Tien, 2000; Schulze & Gouws, 2008; Schulze, 2009). It was identified that academics often received financial incentives to enter the research arena which provides them with an opportunity to learn from others. Another article emphasised a reward such as promotion as a motivation for faculty to perform in research and to publish (Tien, 2000), Resources such as the availability of computers, internet access and library facilities influenced research endeavours (Schulze & Gouws, 2008). Geber (2009) illustrates that extensive resources assist young academics in achieving significant research outputs early in their careers. Additionally, Geber (2009) attested that new academics are motivated by rewards. With the help of coaches, participants aimed at achieving goals such as promotion and funding grants. These motivators encouraged the engagement in research and
participating in a strategy or intervention to gain the necessary skills needed to participate in research.

4.4.1.2.2.3. Faculty leadership qualities

The faculty member must be led by someone who possesses essential leadership qualities, such as someone who is highly regarded, able scholar, research orientated, uses assertive-participatory style and fulfils critical roles (Bland et al., 2005). Leadership was predominantly referred to in six of the seven studies. It has been recognised that leadership is needed for effective functioning of strategies employed and it stimulates research output (Schulze & Gouws, 2008). Green et al (2007) commented on the importance of leadership as they provide support, effective communication and mentorship to neophyte academics. Bland, et al., (2005) found that department satisfaction was primarily associated with leadership as they provide a clear set of coordinating goals, place emphasis on research, provide communication and portray an assertive-participatory governance. Two studies commented on the importance of leadership because both lacked the leadership aspect in their strategy or intervention. Schulze (2009) identified that protégés initiated the fact that every participant should assume responsibility to do their bit. However, it was noted that these participants lacked motivation and not all participants aspire to or acquired full participation in the program.

This formulation suggests that individual, institutional, as well as mentorship qualities (e.g. leadership) and approaches contribute to research productivity in new academics. A number of strategies and interventions have been implemented in higher education institutions with the aim of improving or developing the research output of new academics. The strategies/interventions revealed that these three groups of characteristics are significant predictors of
research capacity building namely, individual traits (e.g. intrinsic and extrinsic motivation), mentorship qualities (e.g. leadership) and institutional characteristics (resources and incentives). It has been suggested that individual, institutional and leadership characteristics forms as the core element when constructing an intervention. Factors such as motivation, support, leadership, incentives and resources contribute to the development of research output. These characteristics are not distinct, but complementary in that they work hand-in-hand in order to produce an effective outcome. It is clear that the institutional interacts with individual characteristics and that these work together in promoting research output in new academics. For example, Bland et al (2005) developed an intervention strategy with good effect that reflected the tripart components identified in the theoretical formulation.

The existing body of literature concurs with the three components included in the formulation of capacity building. For example, research underscored that successful engagement in a research capacitation process is contingent on the academics possessing or demonstrating facilitative personal factors such as motivation (McGraile, et al., 2006; Hemmings, 2012).

Similarly, literature supports the notion that institutions should provide academics with the necessary resources and facilitate an institutional culture that promotes research capacitation and researchers per se. For example Geber (2009) stated that resources along with support and encouragement from institutions assist young academics in achieving significant research output early in their careers. The existing body of literature also recommend that it is imperative for departments to appoint leaders or mentors who can guide new academics in research projects (Blackmore & Blackwell, 2006; Fagan-Wilen et al., 2006).

A second core reciprocal statement here is that despite the positive interplay between the three factors identified, there are also challenges to research productivity at an individual,
in institutional and faculty/departmental level that get in the way of research productivity. Studies have revealed that the lack of time is the challenge most commonly experienced by academics. This is reciprocal to existing literature as studies have stated that often academics do not have the time to engage in research due to their overwhelmingly teaching roles (Schulze, 2009; Hemming, 2012). Engelbrecht (2012) stated that the majority of academics pointed out that finding a balance between teaching and research proved a challenge and that lack of time is a universal challenge in education faculties. Schulze and Gouws (2008) supports this notion by revealing that lack of time is the main stumbling block experienced by academics as it is caused by all-consuming teaching commitments and excessive administrative duties.

It is apparent that time influences the amount of research produced. Bland et al., (2005) states that there is no written or unwritten policy as to the amount of time faculty is expected to devote to research. Instead, each faculty member should negotiate research time with the person to whom they report. Thus leadership may play a role in providing sufficient time to academics, by means of sabbaticals, in order for them to focus their time on research endeavours. Smith and Boyd (2012) illustrated that despite the fact that new academics are overwhelmed by teaching overload and are short of time when it comes to research, they continue to remain motivated to engage in research activities.

4.4.1.2.3. Research/Evidence Based Approaches

The core point of reciprocation here is that active research or investigation can yield empirical findings from which recommendations can be made as to how the research output of academics can be improved. For example, Schulze and Gouws (2008) investigated a group of proven productive researchers at a higher education institution on various aspects of
research to determine which factors were facilitative of the development of research capacity and productivity. These authors concluded that motivation (personal trait), leadership (mentoring and line management traits) and incentives in conducting research (institutional value and culture) were important in their sample becoming productive researchers (Schulze & Gouws, 2008). Additionally institutional support for learning systems can foster optimal participation in research communities (Schulze & Gouws, 2008). This strategy resonates both with existing literature (Rees et al., 2007; Geber, 2009) and the theoretical formulation (Bland et al. 2005), as well as the theoretical frameworks (e.g. Situated learning theory) discussed earlier.

4.4.1.2.4.  Multidimensional and Integrated approaches

The core point here of reciprocation was that strategies are more effective when informed by a multidimensional and integrated approach to research capacity development. The overall objective of this approach was to establish a productive, focused and self-producing community of academics that would produce research of a quality comparative with peers. For example, (Engelbrecht, 2012) reported on a successful intervention that incorporated a support program and mentors who assigned to less experienced researchers. The program not only focused on acquiring the necessary skills in research but also on the development of the personal and professional research skills of researchers within a supporting transformative culture (Engelbrecht, 2012). Thus the components of this strategy included a transformative and participatory leadership style. The combination of these elements was a direct outflow of the multidimensional and integrative approach that was adopted. The findings of Engelbrecht (2012) resonates with the results from studies concluding that combining support and leadership was important to effectively guide and develop new academics to their full potential (Nchinda, 2002; Geber, 2009).
4.4.2. The Refutational Stage

The refutational stage considered ideas that contested the findings in the existing literature (Thorne et al, 2004). Three ideas were identified: The first being the expectancy theory which underpins the investigation strategy of promotion. The second is the investigation strategy which explores the inclusion and exclusion approach to research capacity building and The third considers the influence of teaching.

4.4.2.1. Expectancy Theory

The expectancy theory implies that the motivation effect of promotion is dependent on an individual’s need for promotion. If a person does not value promotion, he or she will not work hard for it, in this case not publish or engage in research (Tien, 2000). Compared to the theories mentioned earlier, this theory does not consider social factors or the context within which academics practice. This theory states that expectancy is ones momentary belief that with a particular amount of effort, one will be able to perform at the desired level (Tien, 2000). However, this theory only considers promotion and rewards as a variable, results may differ if other factors such as social aspects, context as well as individuals characteristics are considered.

4.4.2.2. Inclusive and Exclusive approaches

Green et al. (2007) investigated the choice between inclusive and exclusive approaches to capacity building. Inclusive approaches provide opportunities for all academics to develop research skills and conduct research, whereas the exclusive approach places limits on the number of people who can be supported in terms of research and whose primary role is teaching (Green, et al., 2007). This intervention contests literature as results indicate that despite the positive nature of engaging all academics in capacity development, this was not
necessarily good or feasible for everyone as some may have felt coerced to engage in research and this may result in lack of research funding to support every academic (Green, et al., 2007). With regard to the exclusive approach, academics thought this approach was divisive and there was a perception of not being in the same league as others (Green, et al., 2007).

Results indicate that both approaches can leave academics feeling either under pressure to engage in research or as if they are not acknowledged. Additionally, this investigation supports the view that excellence is more likely when people concentrate mainly on teaching or research (Green et al, 2007). However, the fact still remains that there is no simple, absolute choice between inclusive or exclusive approaches, suggesting that no matter the intervention, leadership or institutional characteristics, the success relies on the individual’s motivation to participate. This research validates that the subjective experiences of academics are not always deemed important in strategies and interventions for research capacity.

4.4.2.3. Influence of Teaching

The final idea which contests literature is the influence of teaching. The majority of literature recognise the high teaching roles and lack of time as challenges experienced by academics (Green et al, 2007; Schulze, 2009; Engelbrecht, 2012), however, Schulze and Gouws (2008) identified that academics generally saw teaching and research as mutually influencing each other. They further suggest that if academics’ research interest is in line with their teaching module or content this could result in a more pleasant experience as their research enabled academics to keep abreast with their developments in courses they taught (Schulze & Gouws, 2008). In essence, teaching and research are not mutually exclusive, but instead can be
complementary or at least dovetail. Thus it is possible for academics to engage in research and teaching with good effect.

4.4.3. Line of Argument

It became apparent that new academics can be capacitated by using strategies or interventions. Following the examination of strategies and interventions to improve research capacity building in new academics, capacitation is best when strategies or interventions have a clear theoretical underpinning. The review has identified that the social context within which academics practice has an effect on the effectiveness of strategies employed. Theories mentioned above, situated learning theory and learning in communities of practice theory, emphasise the importance of the social context when developing research capacity in new academics. These theories argue that one needs to understand how the newcomer adjusts to the context or environment within which he or she practices. Furthermore, these argue that one learns by doing, from others’ experience, learns as they begin to belong and learn as they become one with the community (Wenger, 2000).

It has been noted that successful strategies include certain characteristics such as individual, institutional and faculty qualities. Results have revealed that it research capacitation is contingent on whether new academics to possess individual traits such as motivation that promote research productivity Bland et al (2005, p 236) states that “nothing substantiates for recruiting faculty with a passion for research.” Furthermore, the culture and resource provision in higher education institutions may influence the success of academics. It is important that institutions provide their academics with the necessary support in terms of providing resources such as laptops or computers, internet access and library facilities, and incentivization. Results have indicated that leadership is an important factor for research
capacity. Strategies or interventions work best when a leader is appointed. This enhances the learning process as a leader can provide guidance, support and assistance with the development of foci for research projects.

Evidence from the review has shown that mentoring programmes do incorporate these characteristics, resulting in the success of these programmes. The mentoring programmes identified in the seven articles has shown favourable results as leaders were appointed by facilitators to act as mentors, resources were provided for academics and the academics sampled possessed a sense of motivation to obtain research skills. This programme seemed to work best when a mentor was assigned to a group of novice researchers i.e. academics who are in the beginning to mid-stage of developing research skills. Furthermore, the mentor is often a senior professor or someone who possesses the necessary leadership traits to guide and support academics, in addition to being an established researcher.

In essence, practitioners who take on the academic role may underestimate the expectation to publish in their profession and as they become academics, they are faced with many challenges especially those related to research production (Pienaar & Bester, 2006). The review has confirmed that many universities have made provision for new academics in terms of providing them with support, encouragement and opportunities to gain research skills. There are strategies and interventions which can capacitate new academics and these strategies work best when taking into account the social context in which the academic works and incorporates the individual, institutional and leadership factors.
CHAPTER FIVE

Conclusion

5.1. Executive Summary

Research capacity building has been a pressing concern in many Higher Education Institutions as new academics do not necessarily possess the required skills to engage in and publish research (Laudel & Gläser, 2008). The notion of research capacity insinuates an approach aimed at developing sustainable research skills in order for sustainable research to take place (Albert & Mickan, 2002). Literature has revealed that primary care practitioners who have transferred to the academic role, lack the skills needed to become productive researchers or to engage in research independently (Geber, 2009). As a result, research capacity initiatives have been formulated in order to enhance the growth of evidence-base practice (Wilson-Barnett, 2001). However, the findings reported in literature are from primary sources and fail to comment of methodological rigour and quality. It became evident that there was a lack of filtered information assessed for the quality of methodologies evaluating studies across a common denominator in a systematic manner.

This study evaluated the literature reporting on the strategies addressing research capacity building in new academics. To this end a systematic review was conducted on studies published during 2000 and 2013. The review aimed to consolidate the literature on strategies addressing research capacity in new academics in four operational steps namely, 1) identify appropriate literature for inclusion, 2) screen potential records for eligibility, 3) evaluate the eligible records for methodological quality/rigour and 4) provide a meta-synthesis of the findings of included studies.
The findings of the present study revealed that there is good quality research on research capacity building for neophyte academics, as assessed on methodological rigour and coherence. Seven articles attained the threshold score (61% and above) for inclusion in the final summation and meta-synthesis.

Evidence suggests that there are various interventions which have been implemented successfully to enhance research capacity building. The meta-synthesis revealed four core approaches to developing research capacity, namely mentoring approaches, theoretical formulations, research/evidence-based investigation as well as a multidimensional and integrated approach. These approaches were aimed at bridging that gap between research and teaching and developing competent researchers. The core feature that emerged from these approaches was that successful or effective strategies have to include numerous components such as individual characteristics (motivation), effective leaders and institutional characteristics (rewards, incentives and resources). It was found that these components were integrated and often reciprocally influencing.

Mentoring emerged as the most successful strategy implemented in higher education as it resulted in high success rates (Schulze & Gouws, 2008; Geber, 2009; Schulze, 2009). Despite its success, the literature underscores that the effect of mentoring can be increased when taking into account various characteristics that are consistent with social-interactional conceptualisation of the capacitation process. The meta-synthesis identified individual characteristics, institutional characteristics and faculty qualities. Individual characteristics referred to personality traits of the mentee such as motivation. Leadership characteristics included aspects of those who may be in line management positions or mentoring, and posit that these characteristics enable effective leadership. Organisational characteristics identified
strategies such as incentivization and rewards that are offered to promote research productivity.

Based on the objectives of the study, the following were concluded:

1. *The theoretical orientation or underpinning of the strategy/intervention.*

   Successful interventions were underpinned by theories that acknowledged the social context and emphasised the importance of the social context on the development of necessary skills.

2. *The scope of the strategy/interventions.*

   Strategies attempted to augment or develop research skills in academic staff who had in common the expressed need for further development. The target groups were differentially defined and operationalized to include those who had no academic experience, those who had not obtained a doctoral degree, those who recently obtained a doctoral degree, semi-established researchers who were not able to establish themselves as published authors in a niche area. All studies included new staff despite the level at which they were appointed. In other words, they were new in terms of their transition to academia per se or in terms of their entry into a particular institution. This definition of new was useful since it was consistent with the situated learning theory that posited that entry into any new community of practice was a multi-faceted contextual event.

3. *The content of the strategy/intervention and nature of activities used.*

   Mentoring was a core focus of strategies and incorporated both mentoring by a senior colleague and peer-mentoring. The strategies or interventions were presented to individuals or groups. Socratic groups were incorporated that enabled both inductive and deductive
processes. Groups were formed according to the needs, level of experience and research interests of participants. Research training workshops and discussions were implemented as a way to develop research capacity. Content of strategies was often determined through interviewing.

4. *The facilitation styles used.*

A core challenge that emerged from the review was that facilitation styles were not always stated explicitly. An important distinction was made between individual or group mentorship based on the apprentice model in which the mentor is a research expert and a senior colleague from whom the mentees would learn. The specifics of how mentoring was facilitated in either individual or group mentoring relationships, were not reported explicitly.

5.2. **Limitations of study**

Publication bias as well as language bias was present. It became evident that articles are summative documents compared to theses or dissertations that are process documents. Thus authors are limited when publishing because of factors such as word count or specific requirement of journals. As a result, authors tend to omit specific methodological information. In this instance, there begins to emerge a publication bias and this may have limited the sampling frame of articles from which to identify potential titles.

Additionally, the disciplines stated in the search strategy were only used to identify databases. As a result, these disciplines may seem somewhat vague and broad as each discipline was not clearly defined and interventions were not grouped according to discipline. Consequently, discipline bias may have emerged within the study. Furthermore, the critical appraisal tool is currently in review, thus making the process of examining the tool difficult.
5.3. Recommendation for future research

In view of the findings, it is recommended that future research identify the extent to which methodologies constitute good research and what other factors hinder or assist in making research good based on methodological quality and rigour.

Furthermore, this study only targeted academics within three main disciplines, education, health, social sciences and natural sciences. Future research may use a sample group outside these limits, with new academics as the target population, and compare the research capacity strategies used amongst academics in different disciplines.

The findings introduced the notion that motivation plays a significant role in research capacity. Future studies could explore this notion further and distinguish between intrinsic and extrinsic motivation factors and which is more effective or plays a bigger role in developing research in academia.

Additionally, studies could do a comparative evaluation of individual versus group mentorship programmes and identify whether individual mentoring is more effective or vice versa.

Another recommendation for future studies is to investigate whether complimentary foci to teaching and research endeavours create more time and opportunity, and reduces the strain on the academic.
5.4. Significance of the study

This study provided insight into various strategies or interventions that are effective in developing and enhancing research skills of new academics in order to promote knowledge production and evidence based practice. The study identified the necessary characteristics needed to enhance research capacitation. This could assist in developing strategies or interventions, incorporating these characteristics, to develop the necessary skills need for staff development, especially those who have just entered the higher education institution.

The management of universities and research institutions invest resources in inductions, staff development and personalized growth plans to facilitate the capacitation of new academics in terms of research productivity and capacity building. The present study has provided evidence from good quality research that may assist in a cost-effective and efficient manner in developing the research identity of neophyte academics.
*Education Economics, 12*(3), 251-265.


Moher, David; Liberati, Alessandro; Tetzlaff, Jennifer; Altman, Douglas G; The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analysis: The PRISMA Statement. *PLos Medicine, 6*(7), 1-6.


APPENDIX A

Parent Project registration and Ethics clearance

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 Josua
Research Ethics Committee Officer
University of the Western Cape
APPENDIX B – Title Summary Sheet

<table>
<thead>
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<th>AUTHOR</th>
<th>DATE</th>
<th>TITLE AND SOURCE</th>
<th>DATABASE</th>
<th>LOCATION WHERE STORED</th>
<th>OUTCOME ; Exclude/include</th>
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<td>TYPE OF DESIGN</td>
<td>STUDY POPULATION</td>
<td>INSTRUMENT USED</td>
<td>OUTCOMES</td>
<td>QUALITY/RESULT OF STUDY ANALYSES</td>
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APPENDIX D - CRITICAL APPRAISAL TOOL

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

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<tr>
<th>Study design</th>
<th>Yes(1)</th>
<th>No(0)</th>
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<tr>
<td>1. Is the theoretical orientation of the study reported?</td>
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<tr>
<td>2. Was the theoretical orientation described in detail</td>
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<td>3. Is the design of the study reported?</td>
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<td>4. Did the authors motivate their design choices?</td>
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<td>5. Were the elements of the design reported on?</td>
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<td>6. What is the relationship of the design to the aim of the study?</td>
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<tr>
<td>a) Minimal to no relevance (0)</td>
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<td>b) Moderate relevance (1)</td>
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<tr>
<td>c) Highly relevant (2)</td>
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Total points for this section: 7
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

---

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
### Sample

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

<table>
<thead>
<tr>
<th>Data Analysis</th>
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<td>Total points</td>
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</table>
**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

---

**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

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<table>
<thead>
<tr>
<th>Total Score/Score (%)</th>
<th>Score</th>
<th>Score %</th>
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<tbody>
<tr>
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<td>Strong(61-80%)</td>
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<td>Excellent (&gt;80%)</td>
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Overall Appraisal: Include______  Exclude_____    Seek further info_____
APPENDIX E

Ethics Clearance

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 A Simons (Psychology)

Research Project: A systematic review of literature reporting on the interventions addressing research capacity building in new academics.

Registration no: 14/5/17

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