Publish or Perish? An investigation into research publication milieus in a differentiated higher education sector: two case studies

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A minor dissertation submitted in *partial fulfillment* of the requirements for the award of the degree of Master's of Education in Adult Education

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September 2020

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

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Signature	**Signed by candidate**	**Date: 16 September 2020**

Dedication

I dedicate this study to my beloved parents, Fatima Khan and father Abubakr Sonday. Thank you for your love and for raising me in a system that places respect and kindness for others first. This taught me that care for humanity is the greatest virtue and for that I will always be grateful.

Acknowledgements

I thank my Creator for giving me the strength to complete this study despite facing many challenges along the way.

I am eternally indebted to my supervisors who tirelessly supported me to reach the goalpost. Their critique positively challenged me to grow on many levels.

Dr Jeanne Gamble, as main supervisor was my 'academic mother', mentor, nurturer and my rock. Her strict and engaging method of supervision made the 'rules of research explicit' which I could not have learnt from any textbook. She constantly pushed me to ruthlessly pursue excellence and to not accept mediocrity. Her deep authenticity to her 'trade' was the driving force that led me on this journey.

Dr Mignonne Breier, my co-supervisor supported me since the start of my postgraduate studies journey and was always a source of motivation. Her practical guidance and special way of identifying loopholes in the text provided critical insights to refine the study.

My sincere appreciation goes to Associate Professors Linda Cooper, Salma Ismail and the Adult Education team at UCT, who diligently support students to prepare for the post-graduate journey.

Immense gratitude goes to my amazing colleagues, especially Natalie Le Roux who supported me to take off dedicated time so that I could expedite the completion of my study. Thank you to Jacqueline Sylvester for holding the fort when I had to take time off during a very busy work period.

Loving thanks goes to my dearest mother, sisters, nieces and nephews for enveloping me with love and constant well wishes. I was so comforted that I could feel the presence of my late brother Abdusamad and dearest aunt Monie, especially when I wrote in the wee hours of the morning. This reminded me that in death there is eternal life.

To my dear friends especially Yumna Splinters and Adam De Vos, thank you for reminding me to keep believing in myself.

Finally, I thank my life partner, Paul Dantu, for ensuring that the layout and design of the final document was perfect. I appreciated all the good coffee to keep my mind alert as well as the endless supply of hugs, love and encouragement.

Abstract

'Institutional differentiation' is a prominent feature of the South African higher education system. It is used as a lever to ensure diversity within higher education and to ensure that the system caters for the needs of a diverse student body. However, increasing requirements for all universities to do research and to be rated in similar terms according to a single set of research-related criteria is slowly eroding the basis of differentiation.

This research study attempts to understand research and publication milieus and cultures in a differentiated university system that is currently categorised as traditional university, comprehensive university and university of technology. In the study I excluded the comprehensive university. I particularly wanted to explore a university and a university of technology as research and publication milieus, because of the strong distinction between universities and technikons that existed before the advent of democracy in 1994. I used a multiple case study design and I present two case studies to show the relation between an institution's research policy trajectory and the types of researchers who contribute to the research publication count of that university.

The research study shows that the traditional university has a well-established research culture moving from research-led to research intensive while the university of technology has an emerging research culture. The study found a different range of academics contributing to the publication count at each type of university. Even though those who publish at both universities are motivated differently they had all been enculturated into a strong research culture, which they acquired at a traditional university. A second finding is that those academics who publish have learnt the 'rules of the academic game', either by informal role modelling or by formal mentoring where senior research active academics make the implicit codes explicit. The third finding is that not having a PhD is a major barrier to career advancement even though publication is not determined by having a PhD. The last finding is that the establishment of a research culture takes place over a long period of time and is not grown overnight.

The findings raise questions about the extent to which it can be pre-supposed that all three university types can be measured using the same research performance criteria.

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Chapter 1: An introduction to the study

Introduction

Research and publication have become crucial indicators of success in university systems all over the world. Against the background of debate and contestation around institutional differentiation in the South African system, this dissertation investigates the research publication milieus of two very different types of universities. Two case studies are presented to show the relation between an institution's research policy trajectory and the types of researchers who contribute to the research publication count of that university.

In this chapter the research question is preceded by a brief discussion of the background and rationale for the study. The research design is outlined, and the chapter concludes with a discussion of the organisation of the study and the conventions used.

Background and rationale to the study

Policy context

The differentiation of the higher education (HE) system is a well-established feature of the South African tertiary landscape both pre-1994 and post-1994. Before 1994 the South African HE landscape was racially stratified with a clear distinction between science and technology with a rigid binary divide between universities and technikons. During this time period the HE landscape consisted of 36 public institutions separately designated for Africans, Whites, Indians or Coloureds (DHET, 2012:164). When the ANC came into power in 1994 the policy intentions shifted to address equity and to redress and transform the racially differentiated, HE system. Policies post-1994 supported the creation of a single co-ordinated HE system that was achieved via a series of incorporations and mergers between universities and technikons from 2003 to 2005. New differentiated university types were created that rationalised the HE landscape from 36 institutions to 23 universities. This included 11 traditional universities, 6 comprehensive universities (created out of mergers between traditional universities and technikons and 6 universities of technology (former technikons) (DHET, 2012:27). After the mergers, three traditional universities were established in 2014 and 2015 which increased the number of public universities in South Africa to 26 (USAf, 2018).

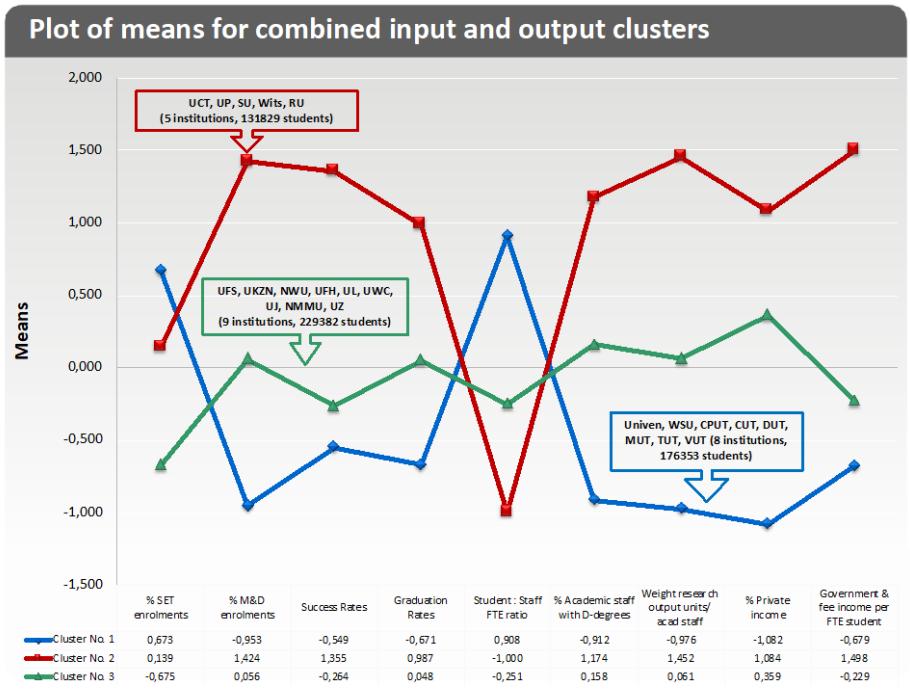
While the institutions offer different types of programmes and have different institutional histories, all are required to conduct research to some extent.

Rationale for the study and research question

In the course work component of my master's studies, 'institutional differentiation' in HE was one of the policy issues when we dealt with higher education policy. The graph represented below was put forward for comment, in the light of section 6.2 on 'Differentiation' in the then recently released Green Paper on Post- School Education and Training (DHET, 2012:39-41).

The graph clusters universities according to nine research-related performance indicators. I found it interesting that this rating system matched closely the current categorisation of universities. The top research performers, indicated in red, are traditional universities that did not undergo mergers and were historically advantaged. The mid-range performers, indicated in green, are mainly comprehensive universities that resulted out of mergers or historically disadvantaged traditional universities. The lowest research performers (the blue cluster) are mainly (with two exceptions) universities of technology.

Table 1: Institutional clusters in Higher Education in South Africa (CHET 2010)



Source: CHET (2010), 'Institutional clusters in Higher Education in South Africa'. Presentation at the Higher Education Summit of the Minister of Higher Education and Training, 22-23 April, 2010.

It surprised me that a single set of indicators that clearly favoured universities with established research records could be used to rank all universities when policy emphasised the importance of a differentiated higher education system. I noted that universities with high postgraduate enrolment and a high percentage of staff with PhDs produced more research publications and I wondered about the relation between those three indicators.

Research Question

To pursue the research question, I needed to understand how a university of technology differs from a traditional university in relation to research publication. This led me to develop my research question below:

Question: What types of academic publishes in a differentiated research policy context?

In order to pursue this question, I explore the following sub-questions concerning two types of universities: a university of technology and an academic university.

1. What kind of research publication milieu is found at the university?
2. What research publication mentoring and support is available to academics?
3. What motivates academics to publish?

Research Design

In the literature review and case studies I use policy trajectory analysis to discuss the binary divide pre-1994 between technikons and universities and how the HE landscape was reconfigured post-1994 to consist of three different types of universities. The analytical framework employed to record and analyse the data is drawn from thematic analysis. I use ideal types to analyse my interview data.

I pursued my research questions in two case studies – at a traditional university, which I call Uni A, and a university of technology, which I call Uni B. The reason for the anonymity is not to disguise the names of the universities. The intention is to remove focus on the actual institution and to present them as empirical examples of the differences between types of universities in a differentiated, HE system.

Organisation of the Study

The following chapters are organised as follows:

- Chapter 2 sketches out some of the debates and contextual conditions that provide a conceptual framework for the case studies presented in Chapters 4 and Chapter 5.
- Chapter 3 presents the research design and the analytical frameworks that I use to collect and analyse the data.
- Chapters 4 & 5 present empirical examples of a university of technology and a traditional university. Each chapter explores the institutional research policy trajectories and presents a typology of academics who publish and why they do so.
- Chapter 6 is the final analysis and conclusion of the research study.

Conventions used in this dissertation

I used the following conventions in this study:

- When referring to population groups I capitalise the first letter to show the unnaturalness of the racial classification system.
- The University of Technology is identified as Uni A.
- The traditional university is identified as Uni B.
- The technikons that merged to establish Uni A are called Tech1 and Tech2.
- Names of the interviewees at each institution are disguised.
- In instances where references are directly derived from the institutional websites and/or official institutional documents, I refer to the source as either Uni A or Uni B in order to maintain the anonymity of the institution. The correct reference that shows the name of the university is included in the reference list.

Chapter 2: Reviewing the literature to explore 'institutional differentiation' in conceptual and policy terms

Introduction

'Differentiation' is a contested term. Although differentiation is generally viewed as a dynamic process that creates diversity in a system, the term also signals an oppositional meaning. Some literature sources on higher education (HE) differentiation argue that HE systems are driving towards differentiation and increasing diversity, while other sources argue that HE systems are characterised by 'de-differentiation' and increasing homogeneity.

A second way in which the term signals contestation refers to the South African higher education landscape and the rigid segregation between historically White and historically Black higher education institutions, which shaped the system in terms of patterns of advantage and disadvantage.

This chapter explores institutional differentiation in higher education in relation to these two forms of contestation. The purpose is to sketch out some of the debates and contextual conditions that frame the case studies presented in succeeding chapters.

The discussion is divided into three main sections. The first section identifies theoretical perspectives that help us to understand 'differentiation' and 'diversity' as social phenomena. The section then examines three research studies which show how these concepts shift and change when they are employed in practice, concluding with a brief discussion of why differentiated HE systems remain a policy option favoured by many governments, despite possibilities of convergence rather than diversification.

The next section turns to the South African higher education landscape to sketch out a pre- and post-1994 policy trajectory. Pre-1994 the system was characterised by segregationist policies and a rigid divide between universities and technikons. After democracy, in 1994 and against a background of rationalisation, institutional mergers, the influence of international HE markets and the emergence of global HE ranking systems, a series of policy-focussed commissions, plans and frameworks eventually led to the acceptance of a proposal, in 2003, for a single-co-ordinated system consisting of three categories of universities: namely, academic universities, comprehensive universities and universities of technology

About 10 years later (in 2013) the three university types became part of an overarching and expanded post-school education and training system, deemed capable of responding to national development needs. It was stated formally that further categorisation would not take place (DHET,

2013:29), thus ending years of contestation about the shape and size of the higher education landscape in South Africa.

As it is particularly the academic university and the university of technology as institutional types that are pertinent to the study, the final section considers post-merger reflections on the ways in which technikons have been recast as universities of technology and where this has placed them in the continuum of institutions envisaged in policy. The chapter concludes with a brief discussion of comparative ranking statistics for the three types of South African universities.

Differentiation explored conceptually

Differentiation has been at the centre of extensive debates. Within higher education, differentiation is seen as the development of distinctive types of higher education institutions to provide skills and knowledge to a broad range of students from diverse educational backgrounds and interests (Ng'ethe, Subotzky & Afeti, 2008:xvii). The 2014 Policy Framework on *Differentiation in the South African Post-School System* recognises four types of differentiation in higher education: mission differentiation, programme differentiation, performance-based differentiation and self-differentiation (DHET, 2014:6). These distinctions, however, do not illuminate the duality inherent in the concept and it is helpful to turn to Van Vught's (2007) explanatory framework. Drawing on different organisational perspectives, Van Vught argues that institutional development is a dynamic process that can lead to uniformity as well as to variability. His first concept is *population ecology* which he takes from Darwinian evolution theory to direct attention to the competition that exists among diverse organisations for limited resources. Secondly, he uses the idea of *resource dependency* to argue that organisations are dependent on their environment but, are also in a position to influence the environment. The third perspective refers to *institutional isomorphism.* In order to survive, organisations adapt to the existence of other forms of organisation in a manner that resembles those other organisations. The impulse is to replicate organisations that face the same set of environmental conditions. Replication or 'imitation' of this kind leads not to diversity, but rather to uniformity and homogenisation (summarised from Van Vught, 2007:5-6).

These perspectives show that even though national education policies may seek to direct institutional systems building, the process is dynamic rather than uniform. Pressures and conditions internal to institutions, as well as external pressures between institutions are what determine the nature of differentiation. The following examples show the complexity of differentiation in practice.

Example 1: Homogeneity and diversity (Reichert, 2009)

Both the international literature and the South African HE experience (to be discussed later in this chapter) point out that the shift from a rigid binary division between academic universities and technical institutions is a complex process in that the process, consists of a mix of both support and opposition to institutional differentiation. Reichert (2009) recognizes that institutional diversity is the result of the interplay of conflicting forces that cannot be separated from each other. This tension is perpetuated by the reality that 'system-level actors, institutional policies and instruments combine with individuals' values and behaviours to form a complex set of potentially conflicting forces where individual effects may either reinforce or cancel each other out' (Reichert, 2009:20). Evaluation of institutional diversity must therefore consider the reality of how institutions respond to diversity and the arrangement of their institutional missions. Higher education systems that enforce a typology of missions and institutions are not automatically more efficient than those that permit institutions to expand their own missions (Reichert, 2009:6).

Reichert further argues that there are demands in the HE system for both diversity and homogeneity and that vertical and horizontal differentiation, as different types of differentiation, are related to such tendencies. The broad differences are depicted below.

Table 2: Differences between vertical and horizontal differentiation

Horizontal differentiation	Vertical differentiation
• Horizontal differentiation would seek to create parity of esteem between different institutional types or profiles. • Would call for a more equal investment in different functions • Requires a varying set of incentives to be effective, implying an increase in funding to support not only the traditional functions of an institution but also expanded functions.	• Vertical differentiation would prioritise some types more highly than others, or define them through differences of quality standards • Implies a hierarchy of values attributed to different higher education functions. Supports a redefined form of elite institutions in the context of massified higher education systems. • Chosen when policy makers have limited funding and focus the funding on functions that will add most value, e.g. improving research performance and international visibility.

(Summarised from Reichert, as cited in Kraak, 2012:12).

Example 2: Mission stretch (Codling and Meek, 2006)

Codling and Meek (2006) discuss the convergence of HE systems in Australia and New Zealand, which occurred despite government policy favouring diversity and differentiation. The paradox is that on the surface the institutions appear to show diversity but instead they are characterised by a convergence of institutional types. In Australia the most distinct institutional types are exemplified

by ‘sandstone’ traditional universities, and ‘redbrick’ university of technology that historically have ‘roots in trade and technician training’ (Codling & Meek, 2006:5).

This study points to ‘mission stretch through two distinct yet connected processes: *academic drift* and *vocational drift*. Traditional universities have displayed vocational drift by adopting more applied missions, developing active partnerships with industry and the new professions, offering more qualifications with overt vocational outcomes, generating more applied research funded by the industry and becoming more enabling with their admission policies to encourage non-traditional learners. The newer universities of technology, on the other hand, have shown academic drift by appointing more traditional university trained and experienced academic staff, adjusting their organisational cultures to be more academic, shifting enrolment patterns to include more school-leavers; broadening their research focus and increasing its emphasis, and adopting much of the symbolism and nomenclature of the more traditional university’ (2006:11).

The authors conclude that ‘in the majority *of* circumstances, the convergent tendencies of institutions will predominate unless very *specific e*nvironmental and economic conditions prevail, and/or *specific* directed policy is implemented’ (2006:31; original emphasis).

Example 3: Differentiation but no articulation (Ng’ethe, Subotzky & Afete, 2008)

A study by Ng’ethe, Subotzky & Afete (2008) researched the range and extent of differentiation and articulation in African tertiary systems across twelve countries in Sub-Saharan Africa. Table 3 below provides a summary of the classification employed.

Table 3: Nature of tertiary systems in Sub-Saharan Africa

Binary	Ghana, Kenya, Malawi and Tanzania
Differentiated	Cameroon, Nigeria, Senegal, South Africa
Trinary	Uganda
Unitary	Zambia
Semi-differentiated	Mozambique and Rwanda

(Summarised from Ng’ethe et al, 2008:22-23)

The study found that while different differentiation’ types’ are found, binary systems consisting of universities and polytechnics remain the dominant institutional pattern in Africa. A second and related finding is that, like the converging tendencies reported on in Australia and New Zealand, isomorphism is occurring steadily. Two main drivers are identified.

> The first relates to market forces, which create a two-way drift: "academic" drift (the aspirations of non-universities to gain university status), and 'vocational' drift, (universities seizing market opportunities by offering vocational courses). Academic drift is evident, for example, in Kenya where polytechnics are in the process of being elevated to university status. Vocational drift is evident everywhere as universities attempt to make up financial shortfalls by offering high-demand, market-driven vocational programs.
>
> The second driver, especially in complex tertiary education systems such as those of South Africa and Nigeria, is a lack of policy clarity regarding the appropriate boundaries between polytechnics and universities in terms of their mission, purpose, curricula and programs (and the knowledge underpinnings of these). This has allowed the two-way drift to proceed unencumbered by regulation. (Ng'ethe et al, 2008:xviii – xix)

In addition, the study argues that differentiation in African countries has been shaped specifically by contexts of 'colonial experience, political economy and post-independence history'. Institutions have also located themselves relative to globalisation and in relation to the internationalisation of higher education (2008:22).

A third finding is that African tertiary systems are differentiated but not articulated. Lack of horizontal and vertical linkages between institutions, programs and levels, have resulted in students being unable to move between different types of institutions. There is little if any recognition of prior learning and academic credit accumulation and/or transfer and equivalence of degrees is limited (2008:xvii).

Why differentiation?

The studies cited above illustrate the complex nature of differentiation across higher education landscapes, in terms of sets of opposing and/or contradictory forces. Table 4 below summarises these debates and contestations.

Table 4: Opposing differentiating forces within higher education

DIFFERENTIATION Increased diversity	⟺	DEDIFFERENTIATION Decreased diversity leading to academic & vocational drift
INSTITUTIONAL DIVERGENCE Strong boundaries between academic & vocational	⟺	INSTITUTIONAL CONVERGENCE Blurring of boundaries between academic & vocational education
STRATIFICATION Institutions have distinct missions	⟺	HOMOGENISATION Institutions have similar missions due to institutional isomorphism

The question which arises is why, given the complex nature of differentiation as an institutional process, governments across the world continue to favour differentiated HE systems? Some of the reasons found in the literature are, that differentiated systems:

- promote positive institutional performance by encouraging innovation
- allow higher education institutions to perform better by permitting them to select their own missions and develop unique niche areas of specialisation
- make higher education available to virtually everyone by opening access and permitting multiple entry and exit points
- match education to the needs and abilities of students from different educational backgrounds by increasing the range of study choices available
- respond more effectively to the diverse needs of the labour market
- respond to the complex and diversified pressures of society through merging 'mass' and 'elite' higher education provision.

(Summarised from Van Vught, 2007:5-6; Meek, Goedgebuure & Huisman, 2000:1).

Against this background, the chapter now moves to an exploration of how differentiation debates have played out in South African higher education policy.

The South African Higher Education landscape: a policy trajectory

This section is organised in terms of pre- and post-1994 policy scenarios. It takes the distinction between universities and technikons as its main theme and traces how changes in policy logic either retained or shifted away from the initial pre-1994 distinction and the deeply entrenched logic of 'separate but equal' that governed *apartheid* policies.

The intention is not to provide a chronological account of successive policy documents and their contents, but rather to identify key points in the policy trajectory that led to the current categorisation and also to explore how and when the shift from 'technikon' to ' university of technology' occurred which finally dismantled the pre-1994 systemic logic.

Pre-1994: functional differentiation and racial segregation in a binary system

Setting out what he calls 'the *apartheid* thinking' which led to pre-democracy higher education differentiation in South Africa, Bunting distinguishes between two main institutional types: universities and technikons' (Bunting, 2002:35). He argues that the pre-1994 distinction between universities and technikons stemmed from a philosophical distinction drawn between 'science' and 'technology'. These categories were deemed 'mutually exclusive' in terms of their 'essences'. Referring to the National Party government of the time, Bunting explains that:

> It used the term 'science' to designate all scholarly activities in which knowledge for the sake of knowledge is studied, and the term 'technology' to designate activities concerned with the application of knowledge. It followed from its philosophy of 'essences' that the government at that time believed that universities *could not* become involved in technology (in the sense of the application of knowledge) and that technikons *could not* become involved in scholarly activities involving the generation of new knowledge. (Bunting, 2002:37; original emphasis)

Bunting also argues that the notion of 'essence', deemed to be a 'unique property, characteristic or feature which distinguished objects (or institutions, or race groups) from all others, provided the logic for racially-based institutional classification and for language and culture as further determinants of institutional separation (2002:37). The table below provides a synopsis of the pre-1994 landscape of 36 HE institutions arising from a 'binary' institutional logic intersecting with a political dictate for segregation by population group.

Table 5: Pre-1994 – the SA higher education landscape as a 'binary divide'

SOUTH AFRICAN HIGHER EDUCATION AS A BINARY SYSYTEM, PRE-1994	
UNIVERSITIES AND TECHNIKONS: INSTITUTIONAL DIVISION BASED ON PHILOSOPHICAL DISTINCTION BETWEEN SCIENCE & TECHNOLOGY AS 'SEPARATE BUT EQUAL'	
UNIVERSITIES (20) Science: Scholarly Knowledge Development	**TECHNIKONS (14)** Technology: Application of Knowledge
RACIAL SEGREGATION BASED ON POLITICAL IDEOLOGY OF 'SEPARATE BUT EQUAL'	
WHITE UNIVERSITIES (10) • *White Afrikaans-medium universities, gave high levels of support to government policies (6)* • *White 'liberal' English universities, had ambiguous relation with government (4)*	**BLACK UNIVERSITIES (10)** • *Universities 'for Africans' controlled by Dept of Education* & Training (DHET) (4) • *A university 'for Indians' and a university 'for Coloureds' controlled by tricameral parliament Houses (2)* • *Universities linked to 'independent homelands (TBVC) (4)*
WHITE TECHNIKONS (7) • *Conservative institutions aligned with the National Party government and its higher education policies*	**BLACK TECHNIKONS (7)** • *Same division as universities (see above)*

+ two dedicated distance education institutions (2)

(Summarised from Bunting, 2002:38–48).

Bunting points out that a rigid science-technology distinction was not meant to imply that technikons were inferior to universities. High-level studies could be undertaken at both institutional types, as shown in the table below.

Table 6: Qualification structures in a binary system

UNIVERSITY QUALIFICATION	EQUIVALENT TECHNIKON QUALIFICATION
doctorate	laureatus in technology
master's degree	national diploma in technology
honours degree	national higher diploma
postgraduate diploma	postdiploma diploma
professional first bachelors	first national diploma (4 years)
general first bachelors	first national diploma (3 years)

(Bunting, 2002:38).

Legal restrictions prevented higher education institutions from enrolling students from other racial groups, with special study permits granted only if the prospective student could provide evidence that the proposed programme of study was not available at any institution that was designated for the race group to which the student belonged (Bunting, 2002:37). **Appendix 1** depicts the skewed higher education landscape in South Africa and the TBVC between 1984-1994 while **Appendix 2** present the historically disadvantaged and advantaged institutions.

The mandate of technikons shifted significantly when the Technikon Act in 1993 (Act 125 of 1993) legislated that technikons could award degrees up to PhD level. This was deemed a radical move, but it mirrored a trend in binary systems worldwide, (as discussed by Codling and Meek in an earlier section). In addition to a national diploma, technikons, could now offer a four-year Bachelor of Technology degree so that students with a National Diploma (3-year study) could enrol for a fourth year of study which would qualify them with a B Tech degree. Thereafter, master's and Doctoral degrees in Technology could be obtained.

Despite degree-awarding status, the general policy for technikon instruction mandated that technikon programmes should primarily involve putting into practice existing knowledge, rather than the production of new knowledge associated with universities. The research components of the M Tech and D Tech degrees should focus on applied research, as a combination of theoretical and practical problem solving (DoE, 1997:10-14). Raju (2004:5) points out, that the legislation at the time, provided no guidelines as to possible articulation between university and technikon qualifications.

In contrast to the above assumptions about knowledge differences in the two types of universities, Cooper's (1995) study, undertaken in the early 1990s, shows that, even though technikons were

established as Colleges of Advanced Technical Education (CATEs) in the 1960s with the specific aim of training technologists, by 1991 the percentage of students enrolled for technology courses (engineering and applied science) at technikons had fallen to under 40%, compared to over 50% of students enrolled for courses in commerce and social science fields. In 1991 only around 100 'master's' (National Diploma in Technology at level M+5) were awarded nationally and 4 'doctorates' (National Laureatus in Technology) in applied industrial research. Cooper offers these figures in the context of what he calls 'the crisis in science and technology (S&T) education in South Africa, affecting not only technikons but also schools and universities' (Cooper, 1995:244).

The study also offers an insightful overview of research done in the early 1990s on staffing profiles in historical White (HWTs) and historically Black technikons (HBTs). Citing Fisher (1993), Cooper reports that in 1992 only 7% of all academic staff in HWTs were found to hold a technikon M+5 or M+6 level and only 19% held university qualifications at these levels. The qualifications at HBTs were reported to be much lower.

By comparison 32% of academic staff at South African universities were reported as having a master's degree as highest qualification and 39% a doctorate. Overall, the study considered it crucial to raise the qualification level of technikon academics to above an M+4 technikon higher diploma or a university honours degree level as average qualification (1995:249).

Post-1994: from functional to flexible differentiation

Post-1994, the higher education landscape underwent radical transformation. Whereas the system inherited by the democratically elected government in 1994 had been characterised by rigid racial divisions as well as a binary division between technikons and universities, the challenge now became to find a framework for introducing a non-racial, equitable system[1]. Referring to the language used in the initial National Commission on Higher Education (NCHE) report in 1996, Kraak (2012:8) describes this shift as the move from *functional* to *flexible differentiation,* underpinned by a key policy recommendation for a single nationally co-ordinated higher education and training system.

However, the transition was by no means smooth. From 1996 to 2003 the policy design process wavered between two conflicting positions: perpetuation of the 'university-technikon' distinction, or a shift to a restructured and unified system. What the basis of this unified system should be, was a major issue of contention. White Paper 3 of 1997 (DoE, 1997), emphasised the need for redress of past educational inequality and proposed 'an integrated and co-ordinated system of higher

[1] Documents written after 1994 usually refer to the pre-1994 landscape in terms of 'Historically Black' and 'Historically White' institutions, or, 'Historically Advantaged' and Historically Disadvantaged' institutions (e.g. DoE, 1997; Bunting, 2002; DHET, 2012).

education, but not a uniform system' (DoE, 1997:Ch. 2, pa. 2.37). The system would be *programme-based,* and it was argued that this would:

> … remove obstacles which unnecessarily limit learners' access to programmes, and enable proper academic recognition to be given for prior learning achieved, thus permitting greater horizontal and vertical mobility by learners in the higher education system … (DoE, 1997:Ch. 2, pa. 2.6).

In 2000 the Council on Higher Education (CHE) was tasked by the then minister of Education, Prof. Kader Asmal, to provide him with advice on reconfiguration of the HE system. Taking the transformation goals of White Paper 3 of 1997 as point of departure, the CHE task team proposed four types of public HE institutions, differentiated by level of post-graduate teaching; and, type and range of research (CHE, 2000:9). The four types were described as follows:

1. Institutions which constitute the bedrock of the higher education system. The orientation and focus of these institutions would be:
    - quality undergraduate programmes;
    - limited postgraduate programmes up to a taught master's level;
    - research related to curriculum, learning and teaching with a view to application.
2. Institutions whose orientation and focus are:
    - quality undergraduate programmes;
    - comprehensive postgraduate taught, and research programmes up to the doctoral level;
    - extensive research capabilities (basic, applied, strategic and
    - developmental) across a broad range of areas.
3. Institutions whose orientation and focus is:
    - quality undergraduate programmes;
    - extensive postgraduate taught, and research programmes up to the master's level;
    - selective postgraduate taught and research programmes up to the doctoral level;
    - select areas of research (basic, applied, strategic and development).
4. An institution whose orientation and focus are dedicated distance education. (CHE, 2000:9).

Kraak, (2001:115-116) notes enthusiastic support for the model from the Committee of Technikon Principals (CTP), which can be traced particularly to the recommendation that 'all multi-purpose public and private institutions that satisfy the characteristics of at least 'bedrock' institutions should be permitted to use the term 'university' … (CHE, 2000:59). However, there was strong opposition from other stakeholders, particularly from the South African Universities Vice-Chancellors Association (SAUVCA).

The National Plan for Higher Education, released in February 2001, as the Ministry of Education's response to the CHE report, did not accept the institutional types proposed by the CHE the Ministry proposed instead to retain the university-technikon distinction.

Thus, in planning for at least the next five years, the Ministry will continue to regard:

- 'Technikons as institutions whose primary function is to provide career- oriented programmes at undergraduate diploma levels.
- Universities as institutions which offer a mix of programmes, including career-oriented degree and professional programmes, general formative programmes and research master's and doctoral programmes'. (Ministry of Education, 2001:54 (***online page numbering)***

Within the context of rationalisation and mergers which had been hinted at since the 1997 White Paper (DoE, 1997:Ch. 2: pa. 2.45), the National Working Group (NWG), appointed under the National Plan, reported in December 2001.

The NWG proposed an entirely new institutional landscape with three main institutional types: universities, technikons and comprehensive institutions which would be established through the merger of a technikon and a university. The Report stated specifically that the NWG:

> … does not support the suggestion that technikons be renamed Universities of Technology but is of the view that an alternative such as "Institute of Technology" could be considered, where this status is appropriate. (NWG, 2001:5, as published in Appendix 3 of Government Gazette. Vol. 444, no 23549)

The Ministry of Education accepted most of the NWG's recommendations and in October 2003 Minister Asmal announced the names of the new merged institutions and the names of chairpersons of interim councils, to become effective in 2004 and 2005. At the same time the Minister announced that 'he had conceded to a request by the Committee of Technikon Principals to allow their merged institutions to be called Universities of Technology'. The Minister emphasised that the renaming should not lead to academic drift and that universities of technology should retain the focus of technikons. Planning and funding levers would be used to ensure differentiation and diversity in higher education (https://www.polity.org.za/article/asmal-announces-names-of-merging-institutions-2003-10-22; accessed 18/11/2019).

The new landscape consisted of 24 institutions across four types: 11 universities, 5 universities of technology, 6 comprehensive universities, and 2 national institutes of higher education. (The two national institutes were established as new universities in 2013: Sol Plaatje University (SPU) in Kimberley and Mpumalanga University (UMP) in Mbombela).

Kraak (2012:10) argues that this four-fold typology and decisions about which institutions should be merged and which should not, came about as a by-product of political negotiations, rather than as a result of comprehensive research and policy deliberations by the state about what the roles of these new institutions would be. It is therefore not surprising that, in the years that followed, discussion and contestation around the issue of higher education differentiation continued. The Higher Education Stakeholder Summit of 2010, the Higher Education South Africa (HESA) Strategic Plan in 2010, chapter 9 of the 2011 National Development Plan, with its particular emphasis on increasing the numbers of higher education staff with PhDs within a differentiated system (NPC, 2011:293) are examples of continuing policy deliberations.

The Higher Education Qualification Framework (HEQF) of 2007, revised in 2011 played a prominent regulatory role in the alignment of all university qualifications within three higher education qualifications progression routes. The 2012 Green Paper for Post-School Education and Training (PSET) set out a proposed list of principles aimed at creating 'rational and suitable differentiation among universities that is responsive to contextual realities, including history, policy, infrastructure and material conditions' (DHET, 2012:40).

Finally, contestation over the status of institutional differentiation came to an end with a policy statement in the 2013 White Paper for Post-School Education and Training (PSET) that 'the current three categories of universities will remain and further categorisation of institutions will not take place' (DHET, 2013:29). The White Paper also stated explicitly that all universities, would conduct research, the extent of which would be determined by their specific institutional mandate (DHET, 2013:30).

A point of clarification is that the three institutional types adopted in 2003 was initially referred to as 'universities', comprehensive universities and universities of technology. The term 'traditional' was used to specifically describe universities that offer a variety of 'formative and professional Bachelor degrees' that included some 'diplomas and certificates at undergraduate level and postgraduate level' (DHET: 2012:37). The 2013 White Paper for PSET explicitly phrased universities as 'traditional universities' (2013:27). This was subsequently cemented in the 2014 Policy Framework on *Differentiation in the South African Post-School* (DHET, 2014:6).

Reflections in the literature about the shift from 'technikon' to 'university of technology' (UoT)

The policy trajectory developed in the previous section shows how the pre-1994 distinction between universities and technikons remained a defining feature of the higher education landscape throughout the different phases of policy deliberation. Policy innovation, as proposed by the NWG in 2001, came in the form of 'comprehensive' universities as a third university type. This 'type' was not

intended to replace either universities or technikons and so its mission and function is not straightforward. It is also not clear what defines 'university of technology' as a type; or, what makes it different from a technikon.

The name change to university of technology had been a point of contention since the 1990s and Reddy argues that the Minister never furnished cogent reasons (2006:24). Many leading educationalists disagreed with the decision at the time. In an interview conducted in 2014, Prof Brian Figaji, Principal and Vice-Chancellor of Peninsula Technikon at the time of the National Commission on Higher education (NCHE) in 1996, explained his early disagreement as follows:

> 'Even in the technikon community, I did not support the view that technikons should change their names to universities. Instead, I suggested a compromise that would allow technikons to offer degrees; I supported that, because of the public recognition a degree would give a student. I argued within the Committee of Technikon Principals that we should focus on the degree-granting compromise as opposed to changing our institutional make-up and name. The initial move was only to have technikons offer bachelor's degrees and in exceptional cases master's degrees. Eventually permission was given, but it went to doctoral level. One of my arguments to limit the qualification level was that, as soon as we went to doctoral programmes, it would change the fundamentals of what we were doing. If our main mission was technological advancement, then we have to focus on technological transfer, as opposed to getting into the business of esoteric research. Yet, if you offered doctoral programmes, that's where it pushed us to; that was my crude and basic argument. I did not win that one'. (CHE, 2016:87)

Prof Jonathan Jansen was more acerbic in his comment:

> 'These (technikons) are nothing more than glorified high schools. Under the merger plan they are to be called institutes of technology or technology universities. This is a farce. Research out of the technikons is generally pathetic and standards are not great …'. (Jansen, cited in Reddy, 2006:25)

While Winberg also argued that 'technikon programmes, particularly in their earlier manifestations, resemble school curricula' (2005:192), she placed this observation in the context of the technikon's original mission of 'educating for the needs of industry' and the particularly stringent bureaucratic processes through which curricula were regulated in partnerships with industry. Even though technikons followed universities in becoming degree-awarding institutions, Winberg maintained that the mind sets, and practices associated with 'educating for the needs of industry' remained in place. Offering post-graduate education, she argued, was extremely difficult when a research culture

was not in place and when lecturers did not have higher degrees themselves nor significant academic publication records (2005:194). She concluded that technikons needed to learn what it meant to be universities of technology by 'theorising technology' and by creating spaces for debate and reflection on the pedagogic and research functions of a UoT, both within and across departments (2005:198).

Thathiah & Schauffer (2007:181) made a similar point when they argued that universities of technology could not be defined outside definitions of technology itself; that conceptually 'technology' was in a constant state of change and that critical and reflective practices were required to work with technology and its effects in a fast-changing world. Discussing the transition from technikons to universities of technology.

McKenna & Powell (2009) reminded readers that, prior to 1993, technikons could only offer two-year certificates and three-year diplomas and that this clearly affected their capacity to do research. It meant that they had no capacity to attract post-graduate students, nor staff who could conduct research and supervise postgraduate studies. The central purpose of technical education remained the preparation of work–ready graduates in programmes that included work experience (later called work–integrated learning). Reporting on staff interviews conducted at the time about whether UoT staff experienced their institutions as different to technikons, the authors reported that the majority of interviewees described the shift as little more than a 'name change' or a 're-branding' exercise. They did not see themselves as 'research universities' in any way. Even though acknowledging growing pressure to 'conduct applied research and develop post-graduate technology students', the UoT staff members interviewed did not see how they could manage everything they were expected to do, especially given their exceptionally heavy teaching loads (McKenna & Powell, 2009:46).

The explanation offered by Thathiah (2013) for these kinds of staff responses was that they were the result of an 'an unbridled sense of haste to align Technikons with international models' and that this was especially the case in a 'blueprint' text, entitled *Position, Role and Function of Universities of Technology in South Africa,* which was published by the Committee of Technikon Principals (CTP) in 2004.

> 'It was essentially a top-down process which was, and probably still is, bewildering for the staff and students at the former Technikons because, literally overnight, they became University of Technology lecturers and students without any idea of what this meant'. (Thathiah, 2013:44-45)

Global trends in higher education and their impact on the South African HE system

Pressure to conform to international standards did not only come from inside the technikon sector. The literature consistently reports on the global reach of developments in higher education. Various sources report that higher education institutions have become more dependent on how national political authorities think the relationships between institutions should be organised in terms of national systems. Trends such as universities needing to function under quasi-market conditions where they compete to gain competitive advantage in terms of teaching and research; massification and internationalisation; the growth of knowledge and the spread of international research-based knowledge are increasingly determining the conditions under which universities operate. Bleiklie argues that these trends indicate a shift towards 'a standardised hierarchic and heteronomous system where all institutions are measured and positioned according to one single set of criteria' (2003:343). Bowl (2018) similarly argues that:

> One manifestation of marketisation, apparent at both global and local levels, is the dominance of global and national rankings (all league tables) in driving institutional efforts to gain competitive advantage. (Bowl, 2018:2)

The move towards comparative ranking is also evident in South Africa. An example would be the analysis offered by the Centre for Higher Education Transformation (CHET) at a seminar in Cape Town in 2013. Drawing on statistics for the three years 2008–2010, the CHET analysis uses a single set of research and research-related criteria to 'cluster' the three types of South African universities in rank order. The criteria are:

- Undergraduate and postgraduate enrolment statistics as annual averages
- Number of academic staff by rank (from professors - in descending order)
- Number of permanent academic staff with PhDs (as a total and broken down in rank order)
- Number of research publications (including units per total permanent academics and units per permanent academics with PhDs)
- Number of PhD enrolments and graduates and each university's share of graduates. (Bunting, 2013; see **Appendix 3).**

Given the discussions in the literature on the shift from technikons to universities of technologies, it comes as no surprise that universities, especially the established research-orientated universities, achieved high rankings for every indicator and universities of technology were always at the bottom. For instance, universities of technology had very few post-graduate candidates (no PhD candidates at any university of technology during this three-year period) but the highest levels of undergraduate diplomas. The situation at universities was the opposite, with few undergraduate

diplomas and significant levels of post-graduate students (at some universities one-third or more of total enrolment). This inverse relation repeats itself in every category. A further example would be that permanent academics with PhDs at the top-ranked *university* produced 2.1 publication units as an annual average. Even the bottom-ranked university produced 1.8 publication units, which was higher than the 1.5 publication units produced as an annual average by permanent academics with PhDs at the top-ranked *UoT.* The bottom-ranked UoT achieved a publication count of 0.7 publication units as an annual average in this category.

The choice of comparative indicators clearly favours research-orientated universities, yet the analysis offers no explanation for the significant discrepancies between university 'clusters'. At face value, the assumption seems to be that all universities have access to the same categories of research funding and can therefore be compared and ranked in terms of research excellence.

Conclusion

This literature reviewed in this chapter explored the term 'institutional differentiation' in two ways: firstly, conceptually to explore the contestation around differentiation and diversity as higher education policy strategies; and, secondly, through a trajectory analysis of policy transitions from pre- to post-democracy. What stood out was the continuity of the university-technikon distinction, even though there was early evidence that the assumptions on which this distinction rested, needed to be revisited.

It is against this background that Chapter 4 and Chapter 5 report on two case studies which explore the relation between the research policy milieu and the types of researchers who publish at a university of technology and a traditional university, respectively. The intention is to gain a more nuanced understanding of the research contexts which lie behind statistics and rankings that measure and position all higher education institutions that fall under the umbrella of universities according to a single set of research-related criteria.

Chapter 3: Research design

> A research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study. Every empirical study has an implicit, if not explicit, research design. (Yin, 1994:18)

Introduction

A research design is essentially the glue that holds a research study together. It provides a rational series of steps that guides the research process from start to end, to ensure the quality and feasibility of the study.

This chapter has four parts. Collectively they provide the rationale for the subsequent chapters. They include (1) case studies as research approach; 2) sample selection and sources of information; and 3) data analysis strategies employed. I end the chapter with a discussion of the ethical considerations and some of the limitations of this study.

Case studies as research method in qualitative research

> 'the essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result'. (Schramm, as cited in Yin, 1994:12)

Drawing from Rule and John (2011) I chose a case study approach because it can be used to conduct research in the social sciences while serving a variety of purposes. Firstly, it enabled a rich description of research policy context at two types of universities, and the type of academics that do research and contribute to the institutions' publication counts. I was able to explore a general problem/question within a restricted setting, i.e. individual institutions. This approach created an understanding of the research question that assisted me to operationalise the study. Lastly, it illuminated similar cases, and offered a level of 'generalization' or 'transferability' (2011:7).

A case-study is defined as a 'systematic and in-depth investigation of *a particular instance in its context,* in order to generate knowledge' (2011: 4; original emphasis). Drawing from Yin's classification of case studies according to their purposes, a distinction is made between three types of case studies, namely *descriptive, explanatory, and exploratory.* A descriptive case study is as complete a description of a phenomenon as is possible, within its context. An explanatory case study clarifies what happens in a specific case and explains why it happens. Lastly, an exploratory case lays the foundation for future research through examining a phenomenon that has yet been examined before (Rule and John, 2011:8).

If a research question focuses mainly on '*what*' questions that are open-ended it is acceptable to conduct an exploratory case study as a formal research strategy (Yin, 1994:5). There is a common inclination for case studies to 'illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result' (Schramm in Yin, 1994:12). Drawing from these decisions, I developed two theoretical lenses to inform an exploratory case study approach.

Lens 1 was concerned with the institutional research publication milieu and explored the brief histories of the research policy trajectories at the institutions concerned. On the other hand, Lens 2 focused on individual researcher development dimension to determine what types of academic publishes at the individual institutions.

A case study design allowed me to outline the institutional historical context to explain why a vast distinction existed in research performance at different types of university. I chose two institutions that were examples of the two main type of universities. In addition, they were both located in my hometown that ensured ease of access.

In Table 7, I provide an outline of the case study approach to show the reader how it was situated to respond to the research question.

Table 7: Outline of case studies

Title of dissertation	**Setting of multiple cases**	**Focus within the study?**	**What is it a case of?**
Publish or Perish? An investigation into research publication milieus in a differentiated higher education sector: two case studies.	A university of technology A traditional university	To explore each institution's research policy milieu and the types and perceptions of academics who work there.	Research and publication milieus at two different types of universities.

(Drawn from Rule & John, 2011:16-17).

At a glance the above table provides a snapshot of the overall focus of my case study approach. I chose a multiple case-study design because it enabled me to illuminate trends across the case studies through showing different policy contexts. This approach also accommodated 'methodological replication (use of same methods, techniques and instruments of data collection and analysis)' (2011:21).

The next section discusses the steps that were undertaken as well as the sources of information that assisted the selection of the research sample.

Sample selection

For this study I selected a specific sample to illuminate the case because of the knowledge, experience, and interest they held in relation to the case study. This technique of selection is called 'purposive sampling' because participants were chosen based on being suitably qualified to advance the aims of the study. This sampling technique provided me with the freedom of choice to select a sample who was most aligned to the study (Rule & John, 2011:64). As part of my preparation I interrogated the following questions such as, whom will I interview?; what faculties are they from?; what do I want them to tell me?; what level must they be at in terms of their academic career?; and should the PhD be a criterion?

This questioning helped to develop five groups of participants per institution with specific criteria. The total of the sample consisted of 12 participants. As part of the selection process, I needed to know who received specialist support for research and publication and who did not. Unlike Uni B who provided targeted support, at the time of setting up the interviews, Uni A did not have a researcher development programme in place. It is for this reason that I approached the special Academic Staff Development Centre firstly because of their central function to develop teaching and learning across the institution. Secondly, senior and established academics at the centre provided targeted support to several staff affiliated to the centre to develop writing for publication skills.

Further informing my sample collection was the following, academic staff lists indicating the then current PhD registrations; 2009 to 2014 annual research reports that indicated the names of those who published per faculty in a given year (obtained from the institutional websites); and lists of NRF rated researchers at both institutions, (obtained from the NRF website).

I interviewed academics at different stages of their academic careers in terms of their publication and PhD research (most of them have completed and 2 were still busy completing the PhD). I did not use the PhD as a criterion. The criteria employed was based on the following variables: 1) I wanted to interview academics with established publication track records and some who were still starting out (possibly still working on a PhD); and 2) I wanted to interview academics who received institutional research and publication support and those who did not.

Group A was designated to the institutional researcher development managers. I used triangulation across these variables that resulted in four groups B, C, D and E. Triangulation is a process that uses a variety of sources and methods to support the findings produced by a research study. I used a wide range of sources to reinforce the validity of my research study, to remove any bias that a single source method would have created (2011:108-109). The five groups and the names of participants and where they were from are the following:

- Group A: 1 participant from the Research Directorate at Uni A [Saleem] and 1 participant from the Research Office at Uni B [Estelle].
- Group B: 2 participants at Uni A [Simphiwe and Elsa] from academic staff development centre and 2 participants at Uni B [Nadia and Kevin] from the faculties of humanities and commerce.
- Group C: 1 participant at Uni A [Thando] from the academic staff development centre and 1 participant at Uni B [John] from the Faculty of Health Sciences.
- Group D: 1 participant at Uni A [Sally] from the academic staff development centre and 1 participant at Uni B [Abel] from the senior executive.
- Group E: 1 participant at Uni A [Ermina] from the Faculty of Health and Wellness and 1 participant at Uni B [Jerome] from the Faculty of Engineering and the Built Environment.

Table 8 below provides an overview of the sample selection in terms of who was chosen, why were they chosen and how the criteria informed the interview questions posed to each institution.

Table 8: Overview of the selection of research participants at Uni A and Uni B

Faculty	**Group A** *(1 interview)*	**ACADEMIC INTERVIEW SAMPLE PER INSTITUTION**			
		Group B *(2 interviews)*	**Group C** *(1 interview)*	**Group D** *(1 interview)*	**Group E** *(1 interview)*
	Research Directorate (Uni A) Research Office (Uni B)	Any Faculty, including Education Development; Academic Development			
Who did I interview?	A person at a senior level who was involved in any researcher development programme which the institution may be offering or may have offered in the past.	An academic with a PhD who does research and publishes and may or may not teach. This person should have a publications track record and should be or should have been affiliated to an institutional researcher development programme.	An academic with a PhD who is in the process of establishing a publications track record. This person may or may not teach and is not and has not been affiliated to an institutional researcher development programme.	A mature academic who is a prolific publisher and is not and has not been affiliated to an institutional researcher development programme.	An academic that is registered to do a PhD and who is expected to do research and publish. This person is/ has been affiliated to an institutional researcher development programme.
Why did I interview this group?	I enquired about researcher development programmes which are managed by the Research Office/Directorate and their successes and weaknesses.	I enquired how the academic has benefitted from the programme in terms of publication success and development as a researcher as well as their key challenges.	I enquired about opportunities and challenges to publishing and researcher development faced by individual researchers.	I enquired about how the academic became and remained a consistent publisher based on what motivated them to publish.	I enquired about how the institution supported an academic who did not yet have a PhD but who was expected to teach, do research and publish.
How criteria informed interview questions of Case Study A (university of technology)	In addition to understanding the institutional support for research & publication, it also explored key challenges post-merger, and whether the Libraries supported research.	Explored perceptions of whether they thought the institution had a research culture**, if the institutional Libraries supported research by providing the latest literature,** what they did to extend their intellectual development, what motivated their research and publication & if they received formal/informal mentoring.			
How criteria informed interview questions of Case Study B (traditional university)	In addition to understanding if the support for research & publication was aligned to the research-intensive strategy, it also included key challenges faced by the university.	Explored the perception of researchers in terms of whether they thought the institution had a research culture, what they did to extend their intellectual development, what motivated their research and publication & if they received formal/informal mentoring.			

Sources of Information

Policy documents and policy commentaries

The study was underpinned by two theoretical lenses. The table below shows the alignment between each theoretical lens in relation to the focus of the study, and the data sources that I drew on to inform each lens.

Table 9: Theoretical lenses and focus of research study

Theoretical Lenses	Focus	Data sources
LENS 1 Institutional research publication milieu	▪ Research policies pre-1994 ▪ Research policies post-1994 ▪ Vision and Mission ▪ Institutional comments on how research is supported.	▪ Research policy documents ▪ Annual Research Reports specifically 2013 to 2018 ▪ Interview with a researcher development manager at each institution
LENS 2 Individual researcher development dimension	▪ Perceptions on how the institution supports research and publication. ▪ What motivated research and publication? ▪ How is intellectual development extended individually and institutionally? ▪ Did formal/informal mentoring take place?	• Interviews with five researchers at each institution

Lens 1 looked specifically at research policies pre and post 1994 particularly because I wanted to trace how the evolvement/restructuring of the macro differentiated policy context influenced individual institutions' research performance. I looked at the vision and mission and the claims on how the individual institution said they supported research and publication. This information was obtained from information that I downloaded from the institutional websites, institutional policy documents, annual progress reports and the data I collected from the interviews with the institutional researcher development managers.

The second theoretical lens focused on the perceptions of the researchers and how they viewed the institutional research policies. It further explored their motivations to do research, what contributed to their intellectual development and whether they encountered formal or informal mentoring. This lens essentially explored how researchers interpreted the institutional policies against the institutional claims on how they supported research.

Interviews with academics and research support managers

Interviews are a popular method in qualitative research and in case studies. They imply a guided conversation between the researcher and participant and require thorough preparation and effective communication skills (Rule and John, 2011:64). Interviews can be structured (with a rigid

questionnaire); unstructured (open-ended discussion); or semi-structured (a mix of pre-prepared questions and open-ended discussion). 'A semi-structured interview would involve a set of pre-set questions which initiate the discussion, followed by further questions which arise from the discussion. This style of interviewing allows for more flexibility during data collection and creates spaces for the interviewer to pursue lines of enquiry stimulated by the interview' (2011:65). I used semi-structured interviews as a data-collection tool and added a series of sub-questions that opened the discussion for further questions. It also helped to create a relaxed atmosphere between myself and the interviewees.

My invitation to interviewees to participate in my study was sent via email and included an overview of the study and attachments of the interview questions, ethics approval documents and 'consent form' (Appendix 4). The latter provided detail of the research study and requested permission for a face-to-face interview that would be recorded and transcribed. I initially set up the interviews for one hour. However, I found that the time varied between 30 to 60 minutes. I met most of the interviewees at their workplaces. Two were working from home on the day of the interview and at their request I met them there.

The semi-structured open-ended questions that are attached as **Appendix 5** for the research development managers and **Appendix 6** for the academic sample were set up against each of the two theoretical lenses in order to understand 1) what are the institutional claims on supporting research, and 2) how the researchers perceived the institutional research culture. The questions posed to research participants across universities were the same with the exception of the enquiry about how Uni A Libraries supported research and publication. I wanted to know if the Libraries provided the latest literature to enable research because of Uni A's former identity as a technikon that was to a large extent not engaged in research. I was made aware via communications with senior staff at Uni B that the institution's Libraries provided all the latest journal subscriptions, and did not include this question in the interview with Group A at Uni B.

The next section briefly explains what analytical tools I used to conceptualise the theoretical lenses and what I did to understand and analyse the data.

Analytical strategies

My case studies had two empirical focus areas that each required a separate analytic strategy. The representation below shows the theoretical focus and how it related to three analytical strategies, namely, policy trajectory analysis, thematic analysis and building a typology. Table 10 shows the relationship between the theoretical lenses and analytical strategies.

Table 10: Theoretical Lenses, focus and analytical strategies

Theoretical Lenses	Focus	Analytic strategies
LENS 1 Institutional research publication milieu	▪ Research policies pre-1994 & post 1994 ▪ Vision and Mission ▪ Institutional research culture	Policy trajectory analysis
LENS 2 Individual Researcher dimension	▪ Views on institutional support for research and publishing ▪ Researcher motivation and intellectual development ▪ Mentoring	Thematic Analysis
Drawn from both Lens 1 and Lens 2	▪ To put forward generalized findings	Building a typology

The above table shows the alignment between the theoretical lenses, the focus of the study and what analytical strategies were used to analyse the data. I discuss each analytical strategy separately in the next section to explain how it underpinned the overall study.

Policy trajectory analysis

This section provides a brief discussion on the different approaches to policy analysis that are linked to Lens 1 called the 'institutional research publication milieu'. Working within an organisational development context Sabbatier (1986) distinguishes between top-down and bottom-up approaches. The top-down approach helps us to understand policy implementation by studying how a government/management steers a system. It attempts to answer how does a policy achieve the policy maker's intended result? The bottom-up approach helps us to understand policy implementation by studying the strategic interaction between multiple actors in a policy network (1986:33).

A different approach, rooted in post-structuralism, is followed by Ball (1993) when he distinguishes between 'policy as discourse' and 'policy as text' as conceptualisations of how policy can be understood. Policy as discourse makes one understand policy implementation by studying how the language (discourse) used in policy limits/constrains or shapes how we view the world; by studying how discourse disguises or masks the 'created' nature of social reality. Policy as text enables the understanding of policy implementation by studying how policy gets 'read' and how policy actors on the ground interpret and act on the policy (1993:44-45, 49).

Trowler's proposal for 'policy trajectory studies', which incorporates elements of both the above approaches, proved particularly useful to my study, given that I wanted to find out if there were links between the substantive research policy development in each institution and the types of academics who published or were working towards publishing their research.

> 'Policy can be thought of as having a 'career', which begins at the point of formulation and progresses through the various stages of reception and implementation by the actors involved at different locations on the implementation staircase. A consequence of this is that researchers seeking to understand policy initiatives in their entirety should track them through each phase of their careers. Such studies are called policy trajectory studies'. (Trowler, 2003:129)

The first component of each case study therefore explores the 'policy career' of a particular type of university: a university of technology and a traditional university.

In the next section I briefly explain how 'Thematic Analysis' (TA) helped me to methodically sieve through the data gained from the interviews.

Thematic analysis

'Thematic Analysis' (TA) assisted the identification and analysis of the patterns in the interview data that was linked to the study's second conceptual lens, the 'researcher development dimension'.

> 'TA is suited to a wide range of research interests and theoretical perspectives, and is useful as a basic method...because it works with a wide range of research questions, from those about people's experiences or understandings to those about the representation and construction in particular contexts...'. (Braun and Clark, 2013:120)

Drawing from Braun and Clarke (2006) I used their recommended TA checklist to make sense of the transcribed data in a systematic way. I wrote the 15-point checklist (depicted in **Appendix 7**) on an A3 poster and pinned it to the wall of my study area. I then coded the data and grouped together those that was similar. Using Post-It stickers I gathered and pasted the recurring themes on my study wall. This step consisted of rearranging the Post-It stickers countless times until common themes emerged. The coding process made obvious the following themes: 1) motivations to do research; 2) what incentivised research and publication; 3) how a research culture and NRF rating impacted publication behaviour; 4) importance of institutional and funding support to enhance intellectual development; and 5) how formal or informal mentoring benefitted researchers.

This process was exciting yet time-consuming and helped me to understand the various themes that emerged in the data that had to be narrowed down, and ultimately influenced how I presented the data in my case studies. The next section explains what steps I undertook to build a typology of research types.

Building a typology

Thematic analysis of the interview data was the first step towards constructing 'ideal types' that would lift the data to a more generalised level as far as possible. Weber explains the ideal type in the following terms:

> 'An ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified analytical construct…In its conceptual purity, this mental construct...cannot be found empirically anywhere in reality'. (Weber, cited in Ritzer, 1992:119)

Ritzer asserts that ideal types are 'logically constructed concepts that are largely but not entirely inductively derived from actual phenomena in the world'. It is best described as a conceptual tool that is constructed by social scientists to capture the most distinguishing characteristics of a social phenomenon (1992:119). Ideal types are heuristic devices and according to Lachman (cited in Ritzer, 1992:119) an ideal type is 'essentially a measuring rod' that is used to make sense of data.

Mouton (1996) describes the process of getting to ideal types in similar terms.

> 'In a description of the typical characteristics of a phenomenon, the common or outstanding characteristic is emphasised, and the trivial or incidental ones are eliminated. Obviously, the identification of what is typical involves a process of abstraction. Starting with the concrete level of experience we move to a higher level of abstraction in which the common characteristics are emphasised at the expense of whatever is specific. The consequence of abstraction is that no type is ever an exact reproduction of all the characteristics of a phenomenon'. (Mouton, 1996:196)

The final analysis of my data led to a typology of ideal types at each institution. The ideal types I arrived at were grounded in the theoretical lenses that underpinned the research study, namely the institutional historical and research policy trajectory realities and the viewpoints from the academic sample about research and publication. The typology allowed me to draw generalised conclusions from a limited sample of interviewees. In this way I could achieve the exploratory aim of the study and set up a framework for further extended research studies.

Ethical Considerations

As part of the proposal process, I had to obtain ethical approval from both universities that took considerable time. After obtaining ethical clearance from the host institution that I was registered at

(also a site for one of my case studies), I contacted the second institution (case study) to ask permission to conduct research as an external researcher. Only once this request was approved by the university executive could I apply to the Research Ethics Committee for ethical clearance of the study, that was subsequently approved.

Prior to the actual interviews, I wrote an email to each participant to confirm the date, place and time of the interview. I also provided a 'consent form' that explained the nature of the study and that all data from the interview would be treated as confidential and that it would be audio recorded. This form was signed by the participant and me before we commenced the interview and furthermore served as a confirmation of their voluntary participation in the study. I used pseudonyms to disguise names of the interviewees to further ensure the anonymity of the two case studies. I am aware that the two institutions are easily identifiable but nonetheless decided not to name them because I wanted to present them as empirical examples of two different types of universities in a differentiated, HE sector, rather than as specific institutions.

Limitations to the Study

When I started this study, I was in permanent employ within researcher development at University B and had indirect links with University A. I was concerned that I would be less objective when writing up the case studies because of the linkages to both institutions that provided me with 'insider information'. This concern was dispelled during the research because I had to engage with policies with which I was not familiar with. In addition, the research sample consisted of persons that I had never worked with before even though I had met some of them informally during my time working in researcher development.

In the early focus of my research I set out to determine what type of institutional support was in place for research and publication at two different types of universities. A second limitation is that I could not get a range of interview respondents from different faculties. I would have liked to broaden my sample to be more representative and, ideally, I would have preferred respondents from the same faculties across institutions. I tried to do so but I was not successful.

Chapter 4: Case study 1: from a technikon to a University of Technology – an 'emerging' research and publication milieu

Introduction

Chapter 2 reported on scepticism from leading educationalists about whether the 2003 policy announcement that technikons would become universities of technology was justified. From several viewpoints the move to become a university of technology was deemed nothing more than a 'name change' or a 're-branding exercise'.

This chapter seeks to understand how a university of technology, given its former historical context, supports research and publication. The case study presented investigates the research policy milieu at Uni A to establish what types of academics publishes at the institution. (The institution selected for the research is given the pseudonym, Uni A.)

The first part of the chapter builds a picture of the institutional milieu as it relates to research and publication. The second part discusses the views on research support from interviews conducted with a research development (RD) manager and a sample of five academics. The last section provides a typology of the academics that publishes at Uni A and ends with a discussion on the overall chapter.

PART 1: RESEARCH AND PUBLICATION MILIEU AT UNI A

A brief historical overview of Uni A as a merged institution

A university of technology is described as differing from an academic university in the sense that 'it is not the use of technology that makes it a technological university, but rather the interweaving of technology with the typical pursuits of a university' (Du Pré, 2010:6). Whereas a technikon had a technological function, a university of technology must merge technology with new knowledge production. Given the inherited 'lack of absence of a scholarly identity' (Winberg, in Kraak, 2006:147), this is a complex process. Many staff members do not have master's or doctoral degrees and have never participated in a research publication culture.

The Uni A annual research report in 2018 indicates that of the 842-academic staff at the institution about 28% do not have a PhD (Uni A, 2018a:3). The low number of academic staff with PhDs inherited from both technikons created a conundrum because postgraduate throughput can only be increased if there is enough academic staff with PhD's to supervise students. Breier and Herman (2017), point out:

> In order to have more staff with PhDs, [universities] need to produce more PhD

> graduates. But in order to produce more PhD graduates, they need more staff with PhDs to supervise… An institution's supervisory capacity is found to be closely related to institutional history. Four main factors are identified: (a) whether or not the institution was originally established as a traditional university or as a technikon; (b) whether or not it was advantaged or disadvantaged under apartheid, which was closely related to the racial group for which it was established; (c) whether or not it was merged post 2004; and if so, (d) with what type of institution it was merged. (Breier and Herman, 2017:352)

Kruss's pre-merger categorization of 36 higher education institutions helps us to understand Uni A as a merged institution. Kruss developed four broad categories of Science and Technology (S&T) research capacity in South Africa.

- 1st category: leading institutions with substantial science and technology research capacity;
- 2nd category: middle-range institutions that have less capacity than the forerunners;
- 3rd category: emergent institutions who have only recently begun building science and technology research capacity; and
- 4th category: institutions with no visible science and technology research capacity (Kruss in Kraak, 2012:15).

Uni A consist of a merger between categories 3 and 4. The merged institution was established in 2005 as a university of technology. In Bunting's terms, the merger was an amalgamation of a technikon 'for the exclusive use of Whites' (Tech 1) and a technikon 'for the exclusive use of Coloureds' (Tech 2) (Bunting, 2002:36). Tech 1 was historically advantaged and rooted in the technical college sector since the 1920s. It was recognised as 'one of the oldest, most established and productive technikons' (Gordon, 2008:105). From the late 1990s this technikon aspired to build an academic mission identity and become an 'academically strong contributor to the higher education sector as a career- and technology-orientated institution' (2008:105). The permanent academic staff displayed growing research capacity in niche research areas, and they produced research output albeit relatively low in comparison to universities (2008:105).

In contrast, Tech 2 was historically disadvantaged and was established in the 1960s specifically to provide training to Coloured apprentices in a variety of trades. It later expanded to provide high-level career and vocational education predominantly to Coloured learners. With other technikons Tech 1, had a low number of academic staff with master's and doctoral qualifications. However, the emphasis on 'staff development to promote teaching and learning had been a priority to enhance the academic standing of the institution' (2008:108). In the late 1990s, the institution underwent a major restructuring and established the faculties of science, engineering, and business.

As a merged institution there is a strain on the capacity to supervise research due to the low volume of academic staff with PhDs. The merger also joined two different technikons with separate organisational cultures, historical contexts, and research aspirations.

The next section briefly discusses the policies the institution developed to enable research.

Research and publication challenges

The technikon sector did not prioritise research and historically disadvantaged institutions had hardly any research capacity. Statistics dating back to 2003 reports the following:

- all technikons combined in South Africa had a total of 46 NRF rated researchers and 227 peer-reviewed research outputs – only slightly more than the smallest university alone, Rhodes University (Breier and Mabizela, 2008:294).
- universities had 10 times more master's students, 30 times more doctoral students and 16 times more staff with PhDs to technikons. The student-lecturer ratio at technikons were 62:1 as opposed to 43:1 at universities (Breier and Mabizela, 2008:294-296).

Despite these factors, the 2013 White Paper on Post-School Education and Training issued the mandate that 'all universities will engage in some level and type of research' (DHET, 2013:30).

In 2010 the university adopted a formal overarching 10-year plan called Vision 2020 with the aim to strengthen research and innovation (Uni A, 2012a:5). In 2012, a ten-year research, technology, and innovation blueprint (RTI) blueprint was adopted that underpinned Vision 2020. This aims to encourage and motivate for the shift from a 'good' towards a 'great' university of technology. The blueprint intends to operationalise and stimulate research by making innovation and best practices more prominent across the institution.

In support of this vision, the university adopted several of the following principles and objectives: 1) excellence that would enable the development of state of the art facilities to support research and innovation and to produce outputs that are well-recognised; 2) to promote multi-disciplinary research that would draw in a variety of expertise to problem solve societal problem; 3) to unlock the potential of staff and students to position them to be able to address societal issues; 4) to build well-meaning partnerships with various stakeholders in HE, communities and industry, and to foster a culture of research, technology and innovation to ensure there is active research uptake (Uni A, 2012a:10-11).

A few years later the institution resolved to promote PhD throughput through the provision of research development interventions for both postgraduate students and supervisors on 'proposal

writing, research design and research methodology, statistical data analysis, article writing, and the use of plagiarism detection software (Turnitin)' (Uni A, 2018a:14).

Vision and mission

The Uni A vision and mission is aligned to the larger HE policies that mandates all universities to do research and is interlinked to the objectives of the research technology and innovation blueprint. The institutional mission states that it aspires to be at the heart of technology education and innovation in Africa. In order to do so it lists its immediate mission to increase and improve the quality of its research and knowledge production (Uni A, 2018b). This public statement indicates the university's commitment to grow a research publication culture.

Uni A has several strategic research focus areas that are bolstered through the appointment of research chairs that are funded either by the institution or by external donors such as the NRF and the Department of Science and Technology (DST). An important aim of the research chairs initiative is 'to strengthen and improve research and innovation capacity of public universities for producing high quality postgraduate students and research and innovation outputs' (NRF, 2018a).

Research achievements from 2013 to 2018

Since 2006 Uni A has had to measure and report on research performance indicators that include peer-reviewed journal publications and conference papers, postgraduate throughput, research income, patents and NRF ratings. (Uni A, 2006a:2).

The next section reports on the research achievements of Uni A from 2013 to 2018 that is depicted in Table 4a and Table 4b. The following indicators are presented: peer-reviewed accredited output, NRF rated researchers, South African Research Chairs, master's/ doctoral enrolments and master's and doctoral throughput.

The research output is based on the submission of Uni A's peer-reviewed research publications to DHET from 2013 to 2018 for the allocation of government subsidy. This process ascribes to the DHET Research Outputs Policy of 2015 that encourages research productivity by rewarding HE institutions with funding based on their submission of DHET approved research articles in accredited journals, research books and chapters, and peer-reviewed published conference proceedings.

Table 11: Uni A - Research Output, NRF rated researchers & Research Chairs from 2013 to 2018:

Year	Research output						
	Total units	**Journal Articles Units**	**Books Units**	**Chapters in Books Units**	**Conference Proceedings Units**	**NRF rated researchers[2] ***	**Research Chairs**
2013	142.19	105.68	3.66		32.85	25	
2014	181.24	124.76	2.90		53.58	29	9
2015	213.02	173.14	6.44		33.44	33	9
2016	238.39	181.41	6.33	11.91	38.61	39	7
2017	264.97	206.77	19.00	12.34	26.86	38	9
2018	247.70	163.36	9.00	23.91	51.43	43	12

(Source: Uni A Research Reports, 2013a; 2014a; 2015a; 2016a; 2017a; 2018a; 2019b).

The publications reflected in Table 11 are divided into units and fractions of units that depends on the weighting according to the type of publication as well as the number of authors (DHET, 2015:8). The units reflect the actual reported figures that has been approved by the DHET.

The research output at Uni A grew by 74% from 2013 to 2018. In 2018 there was a 40% growth in journal articles and a 57% increase in published conference proceedings. In 2018 the institution had a headcount of 37 NRF rated researchers. This included two internationally acclaimed researchers who are internationally recognised (B-rated), 3 promising young researchers (Y-rated) and 31 established researchers (C-rated). Uni A did not have any leading international researchers that were A-rated.

The figures show that the number of research chairs is disproportionate to the research output. The fact that Uni A has quite a few chairs is an indication of the government's investment in the institution with a view to stimulating research and developing research capacity. The research chair initiative is explained below:

> 'The instrument is designed to bring new research leadership capacity into public universities, while at the same time retaining those that are already at the universities. To this effect a 60/40 target for external *vs* internal candidates was set to encourage

[2] NRF ratings are awarded in the following categories: A (Leading international researchers); B (Internationally acclaimed researchers); C (Established researchers); P (Prestigious Awards for young researchers); and Y (Promising young researchers) (NRF, 2018a).

recruitment from outside South African universities, i.e., from industry and abroad, including African scholars and South Africans in the diaspora'. (NRF, 2018b)

Table 12: Uni A - Master's/Doctoral enrolments and throughput from 2013 to 2018

Year	Master's enrolments	Master's graduations	Uni A Master's graduation rate	Doctoral enrolments	Doctoral graduations	Uni A PhD Graduation rate
2013	1096	137	13%	*	21	*
2014	1136	112	10%	201	22	11%
2015	1199	159	13%	215	22	10%
2016	1410	156	11%	234	23	10%
2017	1563	135	9%	286	26	9%
2018	1539	144	9 %	290	23	8%

(Source: Uni A, 2013a:9; 2014a:9; 2015a:14; 2016a:14; 2017a:16; 2018a:14).

The figures in Table 12 show that graduation rates (measured as the proportion of graduations to enrolments in any year) were among the lowest in the country. In terms of the National Plan of 2001, the benchmark for master's graduation rates is 33 % and for doctoral graduation rates 20% (Ministry of Education, 2001:20). The average master's graduation rate at Uni A over the 6-year period 2013 to 2018 was just under 11% while the average doctoral graduation rate over the 5-year period 2014 to 2018 was approximately 10%. These figures are significantly below the national plan benchmarks.

The 2018 annual research report indicates the institutional intention to grow the postgraduate student numbers 'despite the challenges related to throughput rates and supervision capacity institution' (Uni A, 2018a:1).

The next section briefly discusses how Uni A incentivises research in its attempt to cultivate a research culture.

How is research incentivized?

Uni A does not have a formal criteria document that spells out the promotion process. There is an adhominem promotions process that academic staff may follow to apply for promotion on the basis that they have a sustained record of research output. Applicants are required to submit detailed motivations and portfolios as evidence that they are deserving candidates.

The criteria provide a range of internal funding opportunities such as academic staff exchanges to enable academic staff, postgraduate students and postdoctoral fellows to visit other universities nationally and abroad for research purposes and training, funding to further higher qualifications and research projects, and conference travel both locally and abroad to encourage networking and collaborative research. According to a senior official at Uni A the institution provides financial incentives for publishing in that a portion of the subsidy earned is awarded to the author.

The university is well funded to build its research capacity. In 2018 the total research funding obtained from mostly national funding agencies was in the region of R114 234 556.00 (Uni A, 2018a:26). This includes R23 241 000.00 obtained from the DHET University Capacity Development Grant to assist 'the proportion of students at institutions from historically disadvantaged population groups, specifically African and coloured students; and the proportion of permanent instructional and research staff at the institution that must still achieve a doctorate' (DHET, 2018:20).

To foster research productivity, Uni A celebrates and rewards research excellence for research activities conducted in the previous year. Since 2010 the institution has provided a*wards* in three categories based on the number of research p*ublication*, postgraduate supervision and industry funding attained in the previous year (Uni A, 2010a:14). According to a senior official at Uni A, the institution provides direct financial rewards to encourage research publication. Those researchers who publish accredited peer-reviewed output and who submit their publication to earn subsidy earns 25% of the subsidy obtained from the DHET subsidy allocation. These funds are transferred into the staff member's research account, with accessibility to these funds bound by a set of rules.

As part of academic entrepreneurship, Uni A established its first spin-off company in 2018 (Uni A, 2018a:17). University spin-offs are essential to develop local economic development and to commercialise university technologies that assist with their research missions (Rorwana, 2015:25).

The next section provides a range of perceptions on how the institution supports research and publication. This is based on interviews I held with an institutional research development manager and a sample of five academic staff members.

PART 2: STAFF VIEWS ON INSTITUTIONAL RESEARCH AND PUBLICATION SUPPORT AT UNI A

Research and publication are supported by a central Research Directorate to promote and develop research across the institution. This office is mandated to provide the necessary research management administration support that includes research finance, grants management, research finance administration, publications management and research capacity development support (Uni A, 2019a).

This section discusses the perceptions of Uni A's support for research and publication that was drawn from interviews with the institutional research development (RD) manager who was from the Research Directorate and a sample of five academics.

In the next section I present the views from the RD manager who was given the pseudonym 'Saleem'.

Views of the Research Development Manager

In order to understand the research policy context, I asked Saleem to explain how the institution was building and supporting research and publication given it came from a low research base. Drawing from the literature review that describes the difficult transition from technikon to UoT I wanted to know the key challenges that the institution had to face post-merger. With the merger of two technikons with different historical contexts and academic aspirations I foresaw a split between those who wanted to stick to the old paradigm and those who embraced the mandate of a university. The research technology and innovation blueprint as a research policy statement committed to support the establishment of research and the excellence of research output. I wanted to know how this policy translated on the ground and whether the institutional Libraries made available the latest literature to enable researchers to keep abreast with national and international trends as a form of supporting the intellectual development of researchers.

Saleem explained that the university is making a concerted effort to develop research and capacity by providing many resources, but there are challenges. He said that in order to increase research output Uni A had to develop research capacity taking into account the research, technology and innovation blueprint targeted the active development of research during the period 2010 until 2020 as a formative phase of laying the foundation and intention to do research.

> '…We are assisting people to write articles. We have hands-on workshops, one on one mentoring in place for writing for publication. …we are trying to adapt the policy to handle blockages in systems… we provide flexible funding for the research projects… we also give funding for people to attend conferences…publications must be in a peer-reviewed journal to obtain DHET subsidised articles…we also support staff that are coming through the ranks as they get their PhDs to become supervisors. We have capacity development programmes for supervisors that are senior people to mentor junior people. Part of our endeavour is to have the capacity to supervise, and mentorship for supervision…we have set long term strategies; we have a ten-year plan and our current R&I strategy is a ten year one. We are working on it in a very calculated way' [Saleem].

The above views paint an optimistic picture on how the institution supports research and publication. Drawing from the literature I wanted to know about post-merger challenges. Saleem said that 'the key challenge is to change the culture of practice'. Even though the university had funding and capacity development programmes in place it was 'changing mind sets' that was the foremost challenge applicable to persons who were in the system for a long time.

> 'At line managers and at head of department level it is difficult to get people to understand the need to change parameters – not everyone understands that'.

Saleem responded positively on how he perceived the Libraries supported research that was subject to his role as an academic. He supported this by saying the following:

> 'I do academic research myself. I have access to all journals online… The Libraries is an evolving model and a very strong partner in what we are doing with research and innovation' [e*xtract from a longer interview with Saleem on 28 September 2015].*

Views of five academics at Uni A

This section compares the views of the RD manager with those of 5 academics who are either publishing or working towards publishing.The academic sample was assigned the following fictitious names: 'Sally', 'Thando', 'Simphiwe', 'Elsa', who were from the Academic Staff Development Centre and 'Ermina' who was based at the Faculty of Health and Wellness. Based on the positive views from the RD manager, I wanted to find out if the academic sample agreed that Uni A has a research culture that supported research and publication. I also wanted to know their views on whether the institutional Libraries supported research by providing access to the latest literature, that Saleem experienced in his role as an academic.

Three of the five academics were generally negative about the institutional support for research.

> 'No, absolutely not they do not have a clue how to support research. We do have a very understaffed research office. There is an absolute lack of capacity. There is one wonderful finance person but because she is so efficient everyone gives her everything' *[Sally].*

> 'Look I want to say overall yes but then I qualify this by saying this is a fairly new and growing institution, unlike traditional universities where you will have some of these structures in place. We still battling with some policies that are being developed to support research practices' *[Thando].*

> 'No, it does not support research and publication…I don't know if I will ever get my PhD done because my students need so much help. If I got someone to help me with

> all my marking, I can write for you twenty papers, but I cannot because you need to read and write... [and] I don't get teaching assistance *[Ermina].*

The responses of the two academics based at the centre were somewhat more positive.

> 'Yes, it has because in each faculty there is a research committee and ethics committee and each committee report to the institutional research support committee …Coming to the Academic Staff Development Centre there is a culture of research' *[Simphiwe].*

> 'In my opinion, it is developing, and I think it will get there in time... There is not a general culture but at the Centre, there is a strong research focus. If you talk to people from departments, you hear a different story' *[Elsa].*

When asked about library support for research, only two of the five respondents provided an opinion. Both were generally negative.

> 'The Uni A libraries are pathetic. I am dependent on inter-library loans and eBooks. About subscriptions…latest issues are on the embargo. Anything from a year or 18 months old, my son is my secret weapon as he is an academic and gets books for me from his institution's libraries. I then share it with colleagues. When I was collaborating with a colleague from another university, I said to her I can do the literature review only up until 2014 but she must do the latest literature review. I cannot access the latest works that colleagues are writing. I use a lot of my own money to buy books… *[Sally].*

> 'When I go to another university library, I get all the latest journals. But at Uni A the subscription is only up until 2014. The institution doesn't pay the latest journals subscriptions, only the year before. I find the librarians helpful, but they cannot get the latest articles. There are also intermittent problems with internet usage. This also inhibits research' *[Ermina].*

The different viewpoints show the gap between what the institutional policy says about research support and what happens on the ground.

Even though there are policy imperatives to do research and publish, some capacity building initiatives and financial incentives to publish, the perceptions confirm that there is a restricted research culture. According to Simphiwe and Elsa, an embryo research culture does exist within the Academic Staff Development Centre, but this still must spread across the university.

PART 3: A TYPOLOGY OF ACADEMICS WHO PUBLISH AT UNI A

From my analysis of the research and publication milieu at Uni A and based on interviews with five academics as well as their CVs, I identified four ideal types of academics who publish at Uni A. This typology should not be seen to be representative of the whole institution as it is based on a limited number of interviews and most of the interviewees were in a single academic development centre.

The four ideal types of academics who publish or who aspire to publish can be linked back to how their academic profiles intersect with the institutional research policy context and the larger HE policy imperatives.

Type 1: The academic development specialist

The key features of this ideal type:

- Is an established researcher with a sustained publication track record
- Has been exposed to institutions with strong research cultures, and
- Holds specialist research and publication capacity enhancing skills.

I regard Sally, the director of the academic development centre, as an example of this ideal type. She obtained a PhD in 1987 at a leading South African academic university with a strong research culture. In 1997 she was appointed to Tech 2 where she was unusually highly qualified for a Technikon at the time. In the mid-2000s she was promoted to head of the academic staff development centre at Univ A, and about 5 years later she became director.

Sally describes herself as having a strong developmental approach. In alignment with Uni A's mission to increase the number of research outputs, she supports emerging researchers who are also staff members in the centre. Mentoring involves hands-on support from reviewing the first draft to the final journal submission.

Sally is motivated to publish by the intellectual stimulation and enjoyment that academic work brings to her. She also does what is required of her to 'play the [publication] game'. This includes attending conferences and reading the latest journals. Sally is a habitual writer who writes almost every day. 'It is my happy place,' she said. She enjoys shaping an article and thinking it through logically.

Sally cited workshops in a Technikon development programme supported by the NRF as her main source of support.

> They gave a lot of workshops and because I had a PhD, I was singled out to attend these workshops' *[extract from a longer interview with Sally on 21 February 2016].*

Academic profile:

- A sustained publication rate and varied research outputs: between 2010 and 2014 she published 54 research outputs, including 29 papers in peer-reviewed journals, and 15 non-peer reviewed papers, 5 chapters in books and 3 papers published in conference proceedings. She also authored or co-authored 17 textbooks used as teaching and learning resources,
- An established NRF-rated scholar
- Holder of an NRF South African Research Chair
- Has supervised 3 doctoral students from 2005 to 2015 and 16 master's students from 2003 to 2015.

Type 2: The manager-academic

The key features of this ideal type:

- Exposure to institutions with strong research cultures,
- Broad focus on institutional policy development and publishing as one of a range of career advancement skills sets.

I regard Thando as an example of the 'manager-academic' - academic' as ideal type. He has two PhDs, obtained at two different institutions. In terms of the S & T research capacity categories (Kruss, 2005, as cited by Kraak, 2012) he attained his first PhD in 2010 at a 'middle-range' university and his second, in 2015, at a 'leading' university. In 2012 Thando was appointed to a senior management position within the academic staff development centre. At the time of the interview, he was on a five-year contract until the end of 2016. He indicated that he was keen to explore other opportunities at Uni A once his contract ended. Thando started his career as an educator at a high school. He later became a part-time lecturer at a Western Cape based research-intensive university in the early 2000s until early 2008. He then took on a senior management position at a government department that dealt with research policy and development. Thando said he was instrumental in securing vast external grants in support of both research and teaching and learning to the value of over R30 million. He is a member of several Uni A committees amongst others the Senate Committee that is instrumental in developing institutional policies and the Ethics Committee that assesses research proposals for ethical approval. He was also part of a DHET project and chaired the write up towards one of the contributions in the 2012 Green Paper for Post-School Education and Training. Thando is inspired by his research interests.

> 'I tend to do what inspires me … I tend to get the drive from wanting to change or contributing to change in my niche area'

Thando extends his intellectual development through study and research visits abroad.

> 'I have travelled abroad on study and research visits and use this to do networking and maintain my academic profile. I have also formed collaborations with overseas universities within my niche area'.

He started publishing after his first degree when his mentor 'threw [him] into the deep end' in a new subject area. He was 'very young' at the time but grew in the experience and it led to him doing a second PhD [e*xtract from a longer interview with Thando on 8 February 2016].*

Academic profile:

- Supervision of 4 PhDs was in progress at the time of the interview. He supervised two master's students who graduated in 2009 and 2010.
- Publications include 7 peer-reviewed published research outputs. He had 2 peer-reviewed articles in print, 5 peer-reviewed papers accepted for publication and three papers submitted for publication. His non-accredited research output includes six co-authored research reports for a government department involved in research and development.

Type 3: The aspiring academic

The key features of this ideal type:

- No exposure to strong research cultures in prior work environments,
- Receives funding to attend conferences that is not dependent on producing and publishing a paper
- Receives institutional mentoring support to convert conference presentations to publishable peer-review format.

I regard Simphiwe and Elsa as examples of this type.

Simphiwe

Simphiwe obtained a PhD in 2010 at a middle-range university. She was appointed at Tech 2 as a Lecturer in 1994 (pre-merger) and promoted to Head of Department at Uni A in August 2008 (post-merger). As a lecturer at Tech2 conducting research was not a requirement until after the merger. Despite having a PhD, she has not supervised any postgraduate students and has not published much. Simphiwe said all her studying was intrinsically motivated. She experienced some institutional pressure to publish but 'not that much because at Uni A many people do not have many publications. She feels supported by her peers when:

> 'I would present the topic of my conference paper to my peers and they would say how about doing it like this. It really helps a lot.'

In her experience, it was not her PhD that helped her to publish but the mentoring for publication that she received.

> 'The Academic Staff Development Centre where I work at has empowered black females. If we write something, we give it to the senior researchers in the Centre to look at' *[extract from a longer interview with Simphiwe on 8 December 2015].*

Academic profile:

- Achieved a total of 2 peer-reviewed publications between 2008 and 2015.
- Presented several papers at conferences that have not been published.

Elsa

Elsa obtained a PhD in 2004 at a middle-range university. She was employed at the Western Cape Education Department as a textbook writer. Here she was not required to publish academically and could only attend conferences in her own time and if she paid for them herself. She was appointed at Uni A as a senior lecturer in the Academic Staff Development Centre in 2012 and since then she has been encouraged to publish. She wrote an institutional student guideline in 2014 and presented nine conference papers from 2013 to 2015 that are unpublished. In her responses, she emphasised the importance of research culture and peer support. Elsa attends conferences to 'learn' and 'network' and believes she grows her intellectual development in this way, but they do not necessarily lead to publications.

Elsa said her director and colleagues and the 'conducive environment' of the centre motivate her to publish. However:

> 'I have lots and lots of papers that I presented at conferences, but [they are] not published. Because of the pressure of work, it is taking longer than expected.'

She has gained knowledge about publishing from internal workshops where senior staff in the centre taught how to write for publication and lunchtime seminars where novices as well as experienced writers presented their work.

> 'It was not one on one mentoring, but if we had a challenge, we could approach them [the senior staff] ...Getting this feedback really helps you and …gives you ideas and opens your thinking about how you structure your paper. You were not thrown into the deep end and it is ongoing' *[extract from a longer interview with Elsa on 20 October 2015].*

Academic Profile:

- Has published at least one accredited peer-reviewed research output.
- Attends conferences to present research.
- Participates in research capacity development workshops and seminars.

Type 4: The lecturer in a professional field

Key features of this ideal type:

- Located in a professional field with a weak research culture.
- A heavy teaching and supervision load that restricts efforts to do research and publish and complete a PhD?

I regard Ermina as an example of this type. She was employed as a matron at a state hospital before moving to Uni A. Ermina attained a master's degree in nursing at a leading university. She was appointed at Uni A in 2008 as a clinical educator. In 2011 she was appointed to a junior lecturer position tied to a mentoring programme for emerging researchers. Since 2013 she has been registered to do a PhD at another leading university. Ermina said she had heavy teaching loads, was supervising BTech and MTech students and did not have time to write and publish. She said postgraduate students in the nursing field struggle to write and she spends a lot of time nurturing her students to develop an academic writing style. She felt that Uni A was not supporting her to do research and publish.

Her professional field (nursing) has a relatively weak research culture and conference proceedings and journals are not always accredited. In this field, the acceptance of a research paper in a prominent non-accredited journal is a major milestone. Ermina felt the lack of institutional funding for non-accredited publications was a major barrier and demotivator to do research. Ermina is motivated to do research and publish but says she cannot do so because of her teaching load and the lack of support in her department. She said she didn't know if she would even be able to finish her PhD because her students' need so much help. She liked writing and reading and 'want[s] people to find out why we are not gaining in the health sector' but she was not given teaching assistance and felt 'bullied' by senior staff.

Although she was appointed to an institutional support programme it did not offer effective mentoring.

> I was appointed a mentor; she came to the university with a cloud over her head and only looked after herself – she left a bunch of master's students which we had to look after *[extract from a longer interview with Ermina on 1 April 2016].*

Academic profile:

- From 2010 to 2014 she published in two conference proceedings of which one was non-accredited.

Conclusion

This chapter presented the findings of an exploratory case study of a university of technology. The case study explored the university's research and publication milieu, obtained views on research support from a selection of academics and used the findings of the first two sections as a basis for putting forward a tentative typology of academics who publish at a university of technology. I found that the research and publication milieu at Uni A was positively portrayed in the range of policy documents available on the institutional website. Likewise, the interview with RD manager painted an optimistic picture that the institution made every effort to develop research capacity effort. This was contrary to the views from the academic sample who felt the institution had a weak research culture. Overall, one could characterise the research culture at Uni A as emerging and patchy.

The case study example confirms that the transition from a technikon to a UoT has not been an easy road. The discrepancy in views on how the institution support research and publication points out the tensions that exist between the top-down and bottom-up policy role players. For the top-down policies to be effective there must be cohesion between the various players to ensure successful implementation of the new dispensation. This is not yet in place because of the difficult terrain UoT's must navigate as they are grappling with adopting a research 'mind set' given this was not part of the function of the technikon sector.

The case study provides a critical lens that explains why the development of a research publication culture is taking time to develop at a university of technology. The identification of the ideal types shows that there is a direct relationship between being exposed to institutions with a strong research culture that trains academic publication. For instance, the two types of academics (academic development specialist and the manager-academic) who published learned their 'trade' in other more established research cultures. On the other hand, the 'aspiring academics' and 'lecturer in a professional field' were not exposed to work environments or fields that had a research culture. Even though a lot of funding has been invested in this institution to bolster research activity and the appointment of research chairs to develop research capacity, the research and publication milieu has not reached maturity, and is still emerging.

The next chapter introduces a second case study that is an empirical example of an academic university that has a strong research culture. The headings in this chapter (as far as possible) are the same as Chapter 4. The methods of data collection and analysis are replicated in chapter 5 to enable a detailed account of two types of universities that will be discussed in the final chapter.

Chapter 5: Case study 2: a traditional university – from research led to research-intensive'

Introduction

The HE policy trajectory traced in Chapter 2 informed us that the pre-1994 binary divide designated universities exclusively to 'scholarly activities' and the creation of new knowledge. Post-1994 this position was retained for those institutions designated 'traditional' universities. This case study casts an analytical lens on the functioning of research publication at one of the most established traditional universities in South Africa. The university is given the pseudonym Uni B.

Part 1 in the chapter investigates the university's research publication milieu. Focus is placed on how research has been operationalised through policy over time, as the context for reporting on current research achievements and explaining how research is incentivised. The second part reports views on institutional support for research, as provided by the research development manager and a sample of 5 academics. The final section presents a typology of academics who contribute to the publication count at Uni B. The chapter ends with a summary discussion of the research culture at Uni B, as an institution representing 'universities' in the institutional differentiation categorisation confirmed by the PSET White Paper of 2013.

PART 1: RESEARCH AND PUBLICATION MILIEU AT UNI B

A brief historical overview of Uni B as traditional university

Since its early beginnings Uni B has been an 'advantaged' higher education institution. The institution attained substantial funding and real estate from government and influential private donors from the onset and subsequently benefited from its status as a 'historically white university'. During the process of reconfiguration and rationalization post-democracy, Uni B remained a separate and independent institution and did not undergo a merger **(DoE, 2001:53).**

According to the Kruss typology, Uni B falls within the category of leading institutions with significant Science and Technology (S & T) research capacity (Kruss in Kraak, 2012:15). It has been in existence for the past 100 years since its formal establishment as a university in 1918. However, its history dates to the 1830s when it was first established as a college to provide high school education to boys.

The mining revolution in the 1880s created a national demand for high-level engineering skills and was an impetus to advance the existing tertiary education arm within the college. From the period 1880 to 1890 the college operated like a fully-fledged university. During this time, the first science

laboratories were built, establishing the departments of mineralogy and geology. From 1902 to 1918 (that includes the period it became a formal university) the expansion included the establishment of a medical school, a department of education and additional departments in engineering. There was strong support from the university's leadership to develop teaching and research, particularly in medicine, science and engineering. The Vice-Chancellors from 1918 until 2018 were mainly scientists and medical doctors who significantly contributed to building a research culture across the university but specifically in these three areas This also contributed to the foundational influence of natural sciences and health sciences research models, still evident today.

From its early beginnings Uni B had a liberal ethos. An open admissions policy admitted women from as early as 1887 to attend the college on a permanent basis. Black students were admitted from the 1920s onwards (although relatively low) despite the segregation laws of the national government (Uni B, 2017c; Uni B, 2019c).

The research policy context

A non-formal policy context before 1996

It is a natural assumption that the intention to develop a research culture within a university is based on a formal policy that dictate the standards and objectives of research. However, until 1996 Uni B did not have a formal research policy that spelled out the values and objectives of research. In line with international scientific research practice, researchers were guided by guidelines that recognized 'peer reviewed articles in high impact journals, and books, to the exclusion of any other form of research or intellectual output' (Martin, 2007:88). These guidelines formed part of the criteria for the type of research recognised in the university's annual research report.

There was also an early alignment with the criteria of the National Research Foundation (NRF) rating and evaluation system, a system that was initially set up to motivate research excellence in the natural sciences by providing incentive funding that varied according to the rating category (Martin, 1997:88). Since then the NRF rating and evaluation system has been extended to the social sciences. By 2005 about 31.6% of the Uni B academic staff were rated researchers, the highest proportion in the country (Marais, 2007:66). The rating system's evaluation criteria were built into Uni B's policy guidelines and showed the huge impact and advantage of the rating system. The NRF rating was also considered to be an indicator of research value and tremendously benefitted researchers who applied for ad hominem promotion and or internal grant applications (2007:76). Furthermore, the rating system was and still is a major contributor to research achievement at Uni B

The non-formal research policy and the alignment to the rating system set up the natural sciences and medical research model as the dominant culture. It also produced researchers who had sustained publication records and whose research was internationally visible. A recognised

shortcoming of the informal policy context was the non-recognition of socially responsive research of the kind produced in the social sciences and humanities. This was also not recognised by the NRF rating system as valid research output.

A formal explicit policy post-1996

The White Paper on the Transformation of Higher Education called on higher education institutions to:

> '…promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programmes' (DoE, 1997:14).

In 1996, Uni B adopted a formal research policy for the first time. The Policy explicitly stated that explicitly stated a commitment to social responsiveness research in alignment with the aspirations of the 1997 White Paper. This meant that research would in addition to being judged based on quality and impact of the research output, also be judged based on the contribution it made to social and economic problems facing South Africans (Martin, 1997:87). However, the rating system's evaluation criteria remained focused on the quality and impact of the research outputs.

A research-intensive research strategy from 2015 to 2025

In 2014, Uni B adopted a ten-year Research Strategy (effective from 2015 to 2025), in which the university declared its intention to transform from research-led to research-intensive. The Research Strategy defines research-intensive as follows:

> 'universities that do world-leading research across a wide range of disciplines; attract a postgraduate student population that is in the region of forty per cent of the on-campus student population – a large proportion of whom are doing research Master's and PhDs; receive the greater part of their research income from outside sources; are strongly internationally oriented – as evidenced by their staff composition and their student population; engage in pure and applied research; and teach in ways informed by current research' (Uni B, 2014a:3).

With a strong emphasis on postgraduate students (in line with international trends, see Overton and Sienaert, 2016), Uni B committed to developing several initiatives to promote and support postgraduate students so that they could gain an enriched experience while expanding their international exposure to research (Uni B, 2014a:8).

One of the key features of the *Research Strategy* was to enhance the internationalisation of research (Uni B, 2014a:8). 'This resulted in a large-scale internal restructuring to create a more streamlined and co-ordinated research support system (Uni B, 2015b:4).

Uni B's history took a dramatic turn in 2015 when student protests highlighted the slow pace of transformation that was taking place at the university.

2016 Strategic Framework

In December 2016 Uni B's Council approved a Strategic Framework, effective from 2016 until 2020. Influenced by the student protests of 2015/16 the Framework emphasises the need for transformation and is organised around five goals which can be summarised very briefly as follows:

- to make the university a more inclusive, demographically representative, institution
- to promote international connections,
- to advance as a research-intensive university
- to improve teaching and learning
- to enhance the scope, quality and impact of engaged scholarship. Uni B, 2016c).

One of the research objectives to attain this goal is to increase the recruitment and retention of scholars who are world leaders in their field and who would favourably contribute and be aligned to the institutional research strategy. At the same time, the framework aims to 'accelerate the pipeline of future academics, particularly emerging black and female academics'. There was also a re-commitment to redress the staff profile and introduce an audit mechanism to evaluate if milestones were being achieved (Uni B, 2016c:28).

Vision and mission

The current vision and mission of Uni B asserts that it is 'an inclusive and engaged research-intensive African university'. The thread of engaged research runs through the policy trajectory since the adoption of the 1996 formal policy. However, it has always been conceptualised within the context of knowledge generation, rather than simply external outreach. The 2016 Framework defines engaged scholarship as 'the utilisation of an academic's scholarly and/or professional expertise, with an intentional public purpose or benefit *(*which) demonstrates engagement with *external (non-academic) constituencies.* It can help to generate new knowledge, promote knowledge integration, the application of knowledge, or the dissemination of knowledge' (Uni B, 2016c).

Research achievements from 2013 to 2018

This section reports on the research achievements of Uni B as depicted in Tables 13 and 14 that provide a profile of research output at Uni B between 2013 and 2018. The following indicators are

presented: peer-reviewed accredited output, NRF rated researchers, research chairs and in Table 14, master's enrolments and graduations and doctoral enrolments and graduations.

Table 13: Uni B - Research Output, NRF rated researchers & Research Chairs from 2013 to 2018

Year	Research output					
	Total units	**Journal articles**	**Books & chapters in books**	**Conference proceedings**	**Uni B NRF rated researchers[3] ***	**Uni B Research Chairs**
2013	1549.12	1315.03	111.61	122.48	457	33
2014	1623.61	1372.57	133.75	117.29	480	33
2015	1653.45	1389.36	161.47	102.62	514	39
2016	1843.87	1516.37	223.56	103.94	542	39
2017	1731.62	1441.18	185.98	104.46	542	39
2018	1826.56	1555.76	169.63	101.16	515	43

(Source: Uni B, 2013a; 2014b ;2015a; 2016a; 2017b; 2018a; 2019a).

As discussed in Chapter 4 the research output units are presented as units and fractions as it considers the weighting of the publication and the number of the authors (DHET, 2015:8). The units reflect the actual reported figures that has been approved by the DHET.

The figures in Tables 13 show sustained research publication, with a slight decline in 2016. Research output grew by 11.75% between 2013 and 2016 then dropped by 6% in 2017 and increased by 5.5% in 2018. Journal articles, books and book chapters all peaked in 2016 then dropped in 2017. Only journal articles increased in 2018, while books and chapter in books decreased. Conference proceedings have been on a steady decline since 2013 with a slight incline in 2017 and 2018. Without further research, which is beyond the scope of this study, I cannot provide conclusive explanations. Research output might have been affected by the student protests in 2015/16. Conference proceedings were most likely affected by a decline in funding available for conference travel.

Despite a decline in the number of NRF rated researchers in 2018 (27 fewer than the year before) that can be attributed to the reduction in the incentive funding model for rated researchers in 2018). In 2018 Uni B had 36 A-rated researchers, 155 B-rated researchers, 236 C-rated researchers, 6 P-

NRF ratings are awarded in the following categories: A (Leading international researchers); B (Internationally acclaimed researchers); C (Established researchers); P (Prestigious Awards for young researchers); and Y (Promising young researchers) (NRF, 2019).

rated and 82 Y-rated. Uni B has about 30% of the country's A-rated researchers. The number of research chairs at Uni B also increased over this period. By 2018 Uni B had 17% of the research chairs in the country.

Table 14: Uni B – Master's/Doctoral enrolments and graduations from 2013 to 2018

Year	Master's enrolments	Master's graduations	Uni B Master's Graduation rate	Doctoral enrolments	Doctoral graduations	Uni B Master's Graduation rate
2013	4255	1209	28%	1428	205	14%
2014	4494	1214	27%	1604	204	13%
2015	4741	1202	25%	1746	223	13%
2016	5190	1332	26%	1973	233	12%
2017	5338	1139	21%	2082	277	13%
2018	5721	1381	24%	2134	195	9%

Source: (Uni B, 2017a:185-186).

Table 14 shows that there was a 34.5% increase in the number of master's enrolments from 2013 to 2018. In contrast, master's graduations increased by only 14 % from 2013 to 2018. Doctoral enrolments increased by 49.43% from 2013 to 2018 and decreased by 5 % in 2018.

Master's graduation rates in the six-year period averaged 25%, but still below the DHET benchmark of 33%. Doctoral graduation rates averaged 12% which is also well below the DHET benchmark of 20%. These figures are surprising for a research-intensive university, but the university has acknowledged:

> 'The teaching and learning effort are often seen as secondary to the research effort. Related to this is the fact that academics are recruited not for their teaching excellence but their research specialisation. Thus, many have no formal training in how to teach. Despite this, very few academics are interested in professional development in teaching. (Uni B, 2017a:7).

How is research incentivised?

The institutional *'policy framework on performance assessment for academic staff'* adopted in November 2010, spells out the criteria to apply for promotion. In most faculties, the higher the level of appointment, the greater the research performance required (UCT, 2010). One cannot be a professor at Uni B without a very extensive research record.

Unlike other South African universities, Uni B does not directly reward researchers for publication output. Instead, Breier & Sienaert (2012:17) argue, the university rewards research indirectly. The general operating budget ensures the quality of the research support environment, access to excellent facilities and funding to hire contract staff to help alleviate teaching loads. NRF rating, which depends on an individual's research and publication record, is highly valued at Uni B and plays a role in appointments, ad hominem promotions, the approval of sabbatical leave and the general status of academics within departments' (2012:18). The university also provides internal grants for local and international conference travel, equipment, hosting a conference, publication page costs of print journals and open access journals that are accredited by DHET as subsidy earning (Uni B, 2019e).

In 2018 the overall research income was R1.6 billion mainly because of international research funding that increased significantly in the health sciences and law. The university obtained R312 million for postgraduate students from all sources and R78 million for postdoctoral fellows (Uni B, 2019a:4-5; Uni B, 2019b).

Numerous products based on UCT IP have been successfully commercialised and spin-off companies have been created to commercialise intellectual property (IP). This is in line with international trends (Lerner in Pattnaik and Pandey, 2014)). In 2018 there were 25 spin-off companies at Uni B.

The next section provides a range of perceptions on how the institution supports research and publication based on interviews I held with an institutional research development manager and a sample of five academics.

PART 2: INSTITUTIONAL RESEARCH AND PUBLICATION SUPPORT AT UNI B – VIEWS OF SIX STAFF MEMBERS

Research and publication are well supported by a central Research Office that provides an array of services that forms part of a research support hub. This includes support for research finance and operations, global strategy and visibility, data analytics and reporting, office of research integrity, research support services, postgraduate studies and a targeted programme for researcher development, international grants hub, eResearch that promotes the use of advanced information technologies to support innovation and research systems and research systems support unit. The hub in general provides broad support to the Uni B research community with operations that are in alignment with the research-intensive strategy (Uni B, 2019d).

In this section I present the perceptions of Uni B's support for research and publication that was drawn from interviews with the institutional research development (RM) manager who was from the central Research Office and five academic staff members. As mentioned before fictional names

are assigned to give anonymity to the sample.

Views of Research Development Manager

I wanted to understand how a university with a long-standing research culture supports research and publication. At the time of the interviews in 2015 a researcher development programme had been in existence for 12 years and according to the RM manager, Estelle the programme is a model to which other universities aspire, because of its methodological approach to build research capacity amongst emerging researchers. My interview with the RM manager excluded the question I posed to the Uni A RM manager about whether the Libraries provided the latest literature to enable researchers to keep abreast of the latest research trends. I was curious to know if the research development programme was aligned with the institutional mission and vision and research-intensive strategy. I essentially wanted to find out if academic staff were shown how to prepare and move from a research-led to a research-intensive milieu. Interestingly, the interviewee responded by referring to the role of the programme in the university's transformation agenda. In the process, she alluded to the question of race, which has not been overtly addressed in my study. This will be discussed in the final chapter as a limitation of my project and a pointer to further research.

Estelle explained that a targeted researcher development programme has been in operation since 2003. The programme employs full-time coordinators who connect with academic staff in individual consultations, seminars and workshops. These include supervision training workshops and writing workshops where researchers work on papers for publication or sections of their master's or PhD dissertations.

> 'The workshops have…resulted in a significant publication in accredited journals thus changing the way many departments have initially approached writing for publication'.

The final mechanism of support is financial. The programme provides Researcher Development grants with funding calls twice a year. Researchers in the programme that are permanently employed can apply three times for funding over consecutive years. The awards range from supporting the completion of a PhD, support for teaching relief, funding for conference travel and general awards.

Estelle said a key challenge is that many academics wish there were direct financial incentives [for publications]. Instead researchers can apply for funding to attend conferences, page costs fees, short research visit grants, equipment grants. Yet even though Uni B does not give direct incentives, it is 'the top publishing university'. According to Estelle the programme is part of the national strategy to grow the next generation of academics. It has been considered to be part of the Uni B transformation

agenda in the broader sense of the word and is not racially exclusive. The programme is open to all young academics who need development – and does not take a more targeted transformation stand.

> 'I feel this has been a strength of the programme and attracted a cross-section of people that interacted with each other' *[extract from a longer interview with Estelle on 15 June 2015].*

The above views show a well organised institutional structure that has grown and improved its support research and publication.

Views of five academics at Uni B

This section compares the views of the RD manager with those of the academic sample. The sample was assigned the following fictitious names and came from the following faculties: 'Nadia' from the humanities, 'Kevin' from commerce, 'Jerome' from the health sciences, 'John' from engineering, and 'Abel' from senior management who alongside his administration full-time role was also a research-active academic. I wanted to find out if the sample felt their institution has a culture that supported research and publication. I was quite surprised at some of the responses as it showed up the lack of interface between the top-down policies and the academics who must implement the research policies.

Three of the academics were positive about the institutional support for research. On the other hand, two academics felt that that the university did not provide adequate support for research and publication. They said that the lack of direct financial incentive demotivated them to publish.

John said he did research 'despite the university' and would publish a lot more if he were given some of the subsidy. He said Uni B says it supports research 'by being the best brand...a famous university in Africa like Cambridge and Harvard is in the world'.

> Don't say you are supporting research by being the best brand. It's the research that supports the brand. It's the academics doing good research that support the brand *[John].*

Kevin said that due to the funding constraints he was driven to do consulting work to fund his research. He had 10 draft papers but no intention of converting them into publication.

Nadia felt that the university should consider alternative incentives such as giving academics time off each year to do research. Jerome felt the university could do more to improve their communication strategy about how they supported emerging academics as he had not heard of the researcher development programme before.

PART 3: A TYPOLOGY OF ACADEMICS WHO PUBLISH AT UNI B

From my analysis of the research and publication milieu at Uni B and based on interviews with five academics as well as their CVs, I identified four ideal types of academics who publish at Uni B.

Type 1: The classic scholar

The key features of this ideal type:

- Considerable international recognition as a researcher with a prolific publication track record.
- Exposure to institutions with strong research cultures
- Has benefitted from the NRF rating system to further career trajectory
- Has scholarly prestige and cultural capital.

I regard Abel as an example of the classic scholar. He was appointed at Uni B in the late 1980s as a lecturer with a master's and postgraduate diploma in teaching. He attained his master's training at a South African leading university with research capacity and his PhD at an overseas, prestigious research-intensive university with a strong research culture. At the time of his appointment, Uni B did not yet have a formal research policy but was driven by explicit guidelines that rewarded internationally visible research output in peer-reviewed journals. Abel used these guidelines and the NRF rating system to advance his career. He was promoted to full professor within 13-years of appointment at Uni B. At the time of the interview, he occupied a senior executive position which did not require him to teach. Despite his executive position, he remains an active researcher and a 'habitual' writer. It does not matter where he works, he will always write, he says. According to Abel, he started to publish from the time he had his master's qualification.

He is motivated to publish as he sees his primary identity as that of an academic scholar.

> 'So, the most important thing besides a commitment to my family is to my scholarship. If you ask me who I am I would say a scholar. My scholarship comes fundamentally from a commitment to thinking about the nature of the world in which we live…I write every single day of my life. It is part of my identity thing'.

Even though he did not receive formal mentoring support, he was influenced by intellectual role models in his personal life, who were affiliated to Uni B.

> 'I knew enormously talented intellectuals who had incredible discipline which I acknowledge as the most important thing in shaping who I am. Surrounded by books in my own house I met people at the university who had huge personal libraries and

who were so much older than me. It was such an amazing stimulus' *[extract from a longer interview with Abel on 1 July 2015].*

Academic profile:

- A prolific publication track record from 1990 to 2014 consisted of 108 publications.
- An internationally recognised NRF rated scholar.
- Has supervised 5 master's degrees and 14 PhDs.

Type 2: The pioneering researcher

The key features of this ideal type:

- broad focus on advancing new knowledge to expand his research area despite not having a PhD
- exposure to institutions with strong research cultures.

I regard John as an example of a pioneering researcher. John was appointed at Uni B in the late 1990s as a lecturer with a master's and undergraduate qualification that was obtained at Uni B. He was appointed when the university had in place a formal research policy context post-1996. He was promoted to a senior lecturer in 2006. John said that not having a PhD is a barrier preventing him from being promoted to Associate Professor. It also hampers his ability to apply for most funding opportunities as they require the principal investigator to have a PhD. Despite not having a PhD, John is innovative and has been instrumental in the development of a unique testing facility in South Africa that has benefitted industry and other academic institutions through collaborative and contract research.

At the start of his appointment at Uni B, John was faced with several challenges that pushed him to learn and teach new knowledge fields and in turn stimulated his intellectual development.

> 'when I first got here, basically the two lecturers that taught design resigned simultaneously. So, four to five years was gone out of my life. Learning to teach design took so much time. Design is a difficult thing to teach…And I learnt a lot through the process…'

John is motivated to write when he thinks he has something to say or more specifically to do research because he is trying to extend new knowledge production. John asserts that:

> 'It is an academic thing to write and part of playing the academic game…My decision about whether to publish or not is based on stuff I cannot find. If I don't have data, I create it myself. That is my motivation to publish. The way I publish is affected by the University. The university rewards lots of papers especially if written by you alone. I

have changed my strategy to do a piece of work and split it into papers...' *[extract from a longer interview with John on 16 July 2015].*

John did not receive any formal institutional mentoring support. He feels that mentoring is a function of his PhD supervisor, and not necessarily a function of the university.

Academic profile:

- A sustained publication record from 2003 to 2014 consisting of twenty-six publications that include twelve peer-reviewed conference proceedings and fourteen peer-reviewed journal papers.
- Has supervised 22 Master's and published with postgraduate students.

Type 3: The socially engaged academic

The key features of this ideal type:

- Not pressurised to publish in peer-reviewed journals due to links with social responsiveness issues
- Has created a space to write within the academic community to enable promotion.
- Exposure to institutions with strong research cultures, despite coming from a knowledge field with a weak research culture.

I regard Nadia as an example of a socially engaged academic. Nadia obtained her postgraduate education at a leading South African university with research capacity. She was appointed at Uni B in the mid-1990s as a lecturer and obtained a PhD in 2006, being appointed when the university had informal explicit guidelines that were aligned to the research output and the NRF rating system's criteria. These guidelines excluded socially responsive research. Nadia became an associate professor nineteen years after her appointment at Uni B. The slow career growth can be attributed to Nadia's research field that is woven into social activism discourse making it not purely academic, but more practice based. She said that since obtaining her PhD she has become more confident to do research and write academically. It enabled her to supervise PhD students, made her eligible to be considered by editors to review journal articles and to be an external examiner for theses.

Nadia extends her intellectual development through engaging in conferences, research visits to institutions where there is an academic with a similar interest or inviting international academics to come over to Uni B to teach some classes. She said she is motivated to publish because it informs her teaching (she uses her publications in teaching and public activities), provides intellectual stimulation and 'to see my publication in print gives me enormous personal and job satisfaction'. She also publishes 'because there are institutional and penalties if you do not meet the ad hominem promotion criteria'.

Nadia said that Uni B provided some mentoring and feels that this could also be self-driven by academics. She feels that what is lacking at the institution is a support function where someone reads your publication before it is sent for publication. She also feels that those writing in their second language should have access to an institutional editor or even a layout person.

> '…it is also important that new academics receive this orientation from their respective departments as each one may have a specific need which a general programme may not cover…I think academics should also take initiative and responsibility as this also results in building confidence and personal attitudes towards research. You also learn when you explore and make mistakes. There are some intrinsic intellectual and personal rewards if you do manage something by yourself' [extract *from a longer interview with Nadia on 16 June 2015].*

Academic Profile:

- Published 20 publications from 1997 to 2014.
  Published a single-authored book in 2015 that knitted together a range of theories and methodologies in a practice-based academic field.
- Has supervised 5 Master's and 2 PhDs.

Type 4: The entrepreneurial career academic

The key features of this ideal type:

- PhD supervisor as strong role model that instilled a systematic approach to furthering career trajectory.
- Overcomes constraints on research funding by tapping into additional income streams to fund research that means a reduced number of research output
- Exposure to institutions with strong research cultures.

I regard Kevin and Jerome as examples of the entrepreneurial career academic.

Kevin

Before joining academia, Kevin was a business analyst in the corporate sector. He was appointed at Uni B as a lecturer in 2011 with two master's degrees and a PhD obtained at leading international universities with research capacity. He was appointed when the university had in place a formal research policy. In 2012 he was promoted to senior lecturer and in 2015 to associate professor. Kevin says that when he started his employ at Uni B, he used the institutional promotion criteria to fast track his career path. He earned numerous merit awards over the years that recognised his outstanding research output in a faculty that is not research-intensive. Kevin is passionate about developing the next generation of researchers in his field. Since he became convenor of a fourth-year

undergraduate and Honours class in 2012, he co-published with students a total of 15 peer-reviewed journal articles. This was a major feat because in previous years there was no culture of co-publication with Honours students. According to Kevin, he started publishing when he had his master's. He feels that not having a PhD should not be a deterrent to publish. Kevin said that networking is not his strength because he is shy and do not find it easy to talk to people at conferences. Despite this, he has managed to forge collaborations.

> 'I have been lucky to have formed a collaboration with someone I met four years ago at a conference. I make full use of my funding, and always try to be efficient. The shortfall of the conference funding usually comes from my pocket. I would like to attend a grant proposal writing workshop to help me with writing funding applications'.

Kevin said he is internally driven and that his low self-esteem pushes him to publish more so that he can move further up his career ladder.

> 'It is not institutional pressure as the Commerce Faculty is not research-intensive. If you only did one publication for a year, there would be no pressure. I am doing 3-4 a year and am also driven to get promoted'.

Kevin did not receive institutional mentoring at Uni B. He has instead drawn from the mentoring experience with his PhD supervisor who inspired him and shaped how he approaches his research. He believes in 'Pay it Forward' and is giving back to his students what he received from his supervisor.

> 'I feel the mentoring at Uni B is not of high quality. I did my PhD in the States and I see a different mentoring process at Uni B. I see it in pockets of places, and I don't see mentoring as being good. PhD students don't dream big, like publishing in an A-rated publication. I feel academics should aim high' *[Extract from a longer interview with Kevin on 8 June 2015].*

Academic profile:

- He published 17 peer-reviewed outputs from 2010 to 2014 of which six was published in A-rated journals.
- Is an NRF Y-rated researcher who is recognised to have the potential to become a future leader in his field.
- Has supervised a total of 13 students (3 Honours, 9 Master's and 1 Doctorate).
- He does consultancy work with collaborators to fund his research due to funding constraints.

Jerome

Jerome was appointed at the institution in 2015 as a senior lecturer. He obtained his PhD in 2012, Master's in 2007 and a medical qualification (MBChB). He has extensive experience in the medical field before joining UCT, and at the time of the interview held several roles: sports physician for a popular Cape Town soccer club, practice as a sports physician, involvement in high-performance sport and a senior lecturer at Uni B. He juggles multiple roles and says that he uses a systematic and disciplined approach to perform all his tasks and bolster his career trajectory. He extends his intellectual development by attending conferences.

> 'I attend at least one international and at least two local conferences per year. There is a lot of different resources in terms of the latest developments so I will read it on social media normally when I eat breakfast'.

His motivation to publish has been internally driven and says he has no financial incentive to publish.

> '…I feel I have done considerably well considering I have been part-time. I have only been a full-time academic since April 2015. During this time, I have been mostly been setting up new research projects and new initiatives. My motivation has been mostly internally motivated…The key challenge at the moment is funding. It is difficult to get funding especially in performance sport which is a new interest of mine. So, finding funding for other projects that fall outside of health initiative is difficult. Sports medicine is not a discipline where there is a clear career track, it means people studying sports medicine have to balance many roles to make sure they are remunerated to make ends meet'.

He initially co-published with his PhD supervisor.

> 'I received mentoring from my PhD researcher…he is really a model supervisor and really added a lot…A lot of the research I did was with my supervisor. We are both very goals orientated and setting clear timelines and ensuring we followed through on the goals. That was key' *[extract from a longer interview with Jerome on 31 July 2015].*

<u>Academic profile</u>:

- Appointed when Uni B had a research-intensive mandate.
- An upward trajectory publication record that consists of 17 publications (1 peer-reviewed chapter in book and 16 papers in peer-reviewed journals).
- Has supervised 8 students (1 Honour, 4 Master's and 3 Doctoral).

- Published before his PhD.
- Obtained research training at a leading capacity development institution with a strong research culture.
- Holds multiple roles in addition to an academic role due to funding constraints in his field.

Conclusion

This chapter presented the findings of an exploratory case study of a traditional university. The case study explored the university's research and publication milieu, obtained views on research support from a selection of academics and used the findings of the first two sections as a basis for putting forward a tentative typology of academics who publish.

I found that the research and publication milieu at Uni B was closely aligned with institutional research policy (both informal before 1996 and formal post 1996). There was some disjuncture between the views of the research development manager and the interviewees on research support. The institution has a formal capacity development programme that provides targeted support for research with a medium to a longer-term mission to prepare researchers to apply for NRF rating. The research development manager said that the programme has had a positive effect on the increase of research output across the university. Hands-on interventions have encouraged and assisted specific units/departments with weaker research cultures to bolster their research output. However, in my study, interviewees said mentoring, for the most part, came from informal role-models and PhD supervisors.

Overall, I would characterise the research culture at Uni B as relatively strong and widely spread across the institution. This is despite some academics' complaints about the lack of financial incentives.

The case study confirms the well-established research and publication culture that can be expected in an academic university with a long research history. The ideal types identified are very different in terms of institutional location and where they fit into the research policy continuum, yet they all publish. The well-entrenched research and publication milieu that has been fostered by the senior leadership since Uni B was established a century ago, has created researchers who despite not getting financial incentives still choose to publish. The types show that irrespective of not being a full-time academic, it does not deter the 'classic scholar' to publish prolifically. Even though the socially engaged academic does not come from a traditionally academic field, she publishes within the academic space because it is part of the 'modus operandi' of researchers at this type of university. The 'pioneering researcher' publishes despite not having a PhD publishes because it 'is an academic thing to do' and because he needs the data for his ongoing research. Lastly the 'entrepreneurial career academic' types are both ambitious and not scared to cross over the

boundary of academia into non-academic roles that provided additional income streams due to the restricted funding landscape.

The case study shows that research and publication are almost second nature at an academic institution where the research policy trajectory has matured over a long period of time within a context of institutional continuity to give rise to a competitive and 'high-stakes' research culture.

Chapter 6: Discussion and Conclusions

Introduction

This chapter presents an overview discussion of the research findings. I revisit my research question and highlight main trends of the literature review before presenting the overall findings that emerged from the case studies. The chapter concludes with an acknowledgement of key limitations of the study and suggestions for future research.

Returning to the research question

The research study originated through an interest in higher education (HE) policy. Research and publication have become crucial indicators of success in university systems all over the world and even though the South African HE system now consists of three university types, two of which do not have nearly as much experience in research as traditional universities, with research tracks since inception, which did not have to merge with institutions with limited research experience, all universities are required to conduct research to some extent. In addition, the increasing importance of international rankings has influenced comparative national rankings that use a single set of criteria to measure research performance. The rankings appear to assume that all university types are the same even though statistics show a significant difference in research output.

A review of the South African policy literature pre- and post-1994 showed an early binary divide between the research function (development of new knowledge) assigned to universities and the function of application of knowledge and technology assigned to technikons. The literature also showed that the name change from 'technikon' to 'university of technology' sanctioned in 2003 had more to do with 'status' than with a shift in research and publication culture. This confirmed for me that I needed to investigate the research and publication cultures of different types of universities and the old university-technikon distinction, now renamed as traditional universities and universities of technology.

I pursued my research in two case studies – at a traditional university, which, in this study, I call Uni A and a university of technology, which I call Uni B. I was guided by the following questions:

What type of academic publishes in a differentiated research policy context?

Sub-questions:

- *What kind of research publication milieu is found at the university?*
- *What research publication mentoring, and support is available to academics?*
- *What motivates academics to publish?*

The next section presents the findings of each case study in response to the research question and three sub-questions. I present the findings as relevant to a type of university, but I make no attempt to generalize from one case study to all universities in that category.

Findings at a traditional university

The traditional university in this study was established in 1918 and has a long history of research performance that is closely aligned to international research practice and to the criteria of the NRF rating and evaluation system. The university has a well-established research and publication milieu with a strong research culture which it plans to intensify as it moves from 'research-led' towards 'research-intensive'. The publication culture is driven by a 'science' model of research that is closely related to a history of university leadership coming from the health sciences. Even though the research policy trajectory can be characterised by three distinctive policy moments, this model continues to set the norm for research and publication.

The first policy period relates to the pre-1996 period that put in place informal research guidelines aimed at boosting research activity. The guidelines followed international scientific research practice and was aimed at recognition in international peer-reviewed journals and books. The guidelines excluded social responsiveness research but were strongly aligned with the criteria of the NRF rating and evaluation system that promoted research excellence.

Several academic types can be identified as fitting with this policy era, even though they may not all have been appointed in the years before 1996. The first is the *classic scholar* who was appointed in the 1980s. The *classic scholar* regards being a researcher as part of his primary identity and, while intrinsically motivated to publish, also plays according to the 'rules of the game' and relies on the status of a high NRF publication rating to advance his academic career.

The *pioneering researcher,* who was appointed in the late 1990s, also fits into this research culture. For the *pioneering researcher* scientific research is about innovation and the advancement of knowledge in a field. This is what motivates him to do research and to publish. He was the only person interviewed at this university who did not yet have a PhD and even though he was working towards a PhD to be able to get promotion, obtain funding and be the principle investigator in projects, he did not think he would do better research because he had a PhD.

The second research policy moment coincided with the post-1996 restructuring of the higher education landscape, which created a ripple effect in all institutions. In response, the university adopted a formal research policy that specified a public commitment to social responsiveness research and was closely tied to the aspirations of the 1997 White Paper. The *socially engaged academic*, who was appointed in the mid-1990s, is strongly aligned to this policy period when the

milieu created a space in academia to publish within research fields that are broadly non-academic. The *social engaged academic* received continuous institutional publication support while she was an emerging researcher and she has continued to publish because it informs her teaching and helps her to meet the institutional *ad hominem* promotion criteria.

The third policy moment and the current one is the adoption of the research strategy from 2015 to 2025 with the aim of transforming the university from 'research-led' to 'research-intensive'. The *entrepreneurial career academic,* who was appointed in 2011, started his career path by closely following the *ad hominem* promotion criteria. Even though the faculty with which he is associated has a weak research culture, he works hard to exceed the number of publications that he is required to publish in one year. Having experienced an international corporate culture prior to joining the university he describes himself as flexible in terms of crossing over to non-academic consulting to procure funding for research. The second academic who fits the *entrepreneurial career academic* type was appointed post-2015. He also performs multiple roles to generate income because of severe constraints on research funding. Both *entrepreneurial academics* are motivated to do research because this enables promotion but, at the same time, both are actively pursuing alternative income streams to compensate for lack of steady funding flows.

All four these types of academics have been inducted into an institutional culture that values research. Even though the university provides no direct financial incentive to publish and some academics see this as having a potentially negative impact on the publication count in the long term, the academics interviewed publish because of having adopted the values of a strong science-driven research milieu.

Although the research environment is competitive, there is a strong mentoring culture at the university. Mentoring support is both informal and formal. Prominent scholars at the university are reported as having had a formative influence on some of the interviewees, while others reported positive experiences with their PhD supervisors which have served as models for their own supervision practices. To obtain conference funding an academic must produce an abstract and paper in advance and a publication afterwards. Formal mentoring is therefore made available to help emerging researchers to navigate the research and publication environment. A menu of seminars on a topical research issues is available, in addition to a research capacity development programme led by retired, research-active academics who share their wisdom and experience to induct emerging researchers into the implicit 'rules' of the research and publication environment. Enculturation into the world of research and publication, whether informal or formal, is regarded as essential to the success of the shift to a research-intensive university.

Findings at a university of technology

The university of technology investigated in this study was established in 2005 based on a merger between two technikons that had different academic aspirations and levels of emerging research capacity in science and technology. The formal research policy trajectory can be characterised by two policy moments that are strongly interlinked, and which took place almost consecutively in a short period of time to stimulate research and innovation. The first announced the public policy intention to do research. Vision 2020 was adopted in 2010 to signal the transition from technikon to university of technology. Vision 2020 is an overarching ten-year academic plan to reinforce research and innovation across the university. The second transition took place in 2012 when the university adopted a research technology innovation ten-year blueprint to underpin Vision 2020. This is a practical plan aimed at positioning the university at the centre of technology education and innovation in Africa

The academic types identified at the university of technology intersect the two policy periods, even though most of them were appointed before the adoption of the first formal research policy in 2010. The type identified as *academic development specialist* was appointed in 1997 and employed at one of the technikons that formed part of the merger. Her PhD qualification enabled her strategic appointment in the mid-2000s to head the academic staff development centre. As an established scholar, her appointment was aligned to the strategic development of research capacity and increasing the institutional peer-reviewed research output.

The appointment in 2012 of the *manager-academic* into a senior management position within the academic staff development centre aligns with the current policy period related to the adoption of the research technology innovation blueprint. The *manager-academic* brought with him vast experience in policy development, including grant proposal writing and academic writing that are aligned to the research and innovation endeavor of the university. The attainment of two PhDs five-years apart at institutions with strong research cultures confirms his research and publication motivation and his aim of contributing to change in his niche academic field.

The *aspirant academic* appointed in 1994 came from the technikon era with low academic aspirations. In line with the transition from technikon to university in 2005 she was appointed a head of department at the academic staff development centre in 2008 because by then she held a master's qualification and was registered to do a PhD, which she completed in 2010. The second academic who fits the *aspirant academic* type was appointed in 2012. Her previous employ at the Western Cape Education Department as a textbook writer gave her writing experience which could potentially lead to expertise in academic writing.

The *aspirant academics* both have PhDs and both are keen to do research but they have not published. Mentoring support from senior colleagues at the academic staff development centre is aimed at helping them to make the 'jump' from developing PowerPoint presentations for conference presentation to writing a paper before a conference and submitting it for publication after it has been presented and revised.

The fourth academic type identified as *lecturer in a professional field* is not a researcher. Appointed as a clinical educator in 2008 and a junior lecturer in 2011, ineffective mentoring support and lack of institutional assistance in lessening her teaching and supervision load have acted as demotivating factors in terms of completing the PhD for which she is registered.

Out of the four types of academics only the *academic development specialist* and *manager-academic* are aligned with the new direction the university of technology is taking in terms of strengthening research and publication and both of them were socialised into a strong research culture elsewhere. Despite direct financial incentives granted for research publication and evidence of 'pockets' of research excellence that have led to a consistent increase in research output, the research culture of the institution is not yet firmly established. The number of research chairs granted to the university of technology shows evidence of the government's investment in the development of research capacity at this type of HE institution but only a longer research track record will enable the 'technikon' legacy of limited research capacity to be shed.

Overall findings and conclusions

The two university types investigated in this study, namely the university of technology and the traditional university, are at different places along a research development trajectory, with academic types at both universities relating and connecting to different moments in the policy milieu of their respective institutions. A key overall finding of this research study is that even though academics were found to have different motivations to do research and irrespective of whether or not they are publishing, the academics who do publish have all been enculturated into a strong research culture. At the traditional university the sample either obtained research training at the institution where they are employed, or they came with prior exposure gained at other universities that have strong research cultures. At the university of technology those who publish were inducted into research at traditional universities with strong research and publication cultures.

A second common finding is that, even though finding their niches at different policy moments, the types of academics who publish, have learned the rules of the academic publishing game: informally through mentors and role models or more formally through programmes presented by senior, research active academics and seminars on relevant topics. Whether they agree with their

institution's research policies or not, they all know how to navigate the research and publication terrain, locally and internationally.

A third common finding is that not having a PhD is a major barrier to career advancement in an institution that is measured against research directed criteria. Even though the evidence shows that publication track records are not necessarily built on PhD qualifications, the overall research milieu at both institutions has shifted to the PhD as minimum entry level. The statistics used to rate a university's research performance (regardless of type of university) set benchmarks for master's and doctoral graduation rates and focus on the number of NRF-rated researchers and the number of South African research chairs granted to the institution. In such a 'high stakes' research environment the PhD is regarded as crucial to academic career progression.

Finally, the study points out that the establishment of a research culture is premised on long-term policy investment. The policy trajectory analysis undertaken signals that a research publication culture is not grown overnight. There is no metamorphosis from doing PowerPoint presentations to publishing peer-reviewed research output. Likewise, direct financial incentives to publish do not produce an instant research culture. That culture is only developed over a longer time period.

In conclusion, if one returns to the national HE policy trajectory on institutional differentiation that was presented in an earlier chapter, it is clear that, even though racial segregation has been abolished, the binary divide between 'university' and 'technikon' which characterised the pre-1994 national policy arena is still clearly discernible in research and publication terms. The findings illuminate the question posed in the literature about the extent to which research is the function of universities of technology. How appropriate is it to pre-suppose that all three university types can be measured using the same research performance criteria and to what extent and within what time frame is 'catch-up' possible? Policy leaders may need to reconsider the role and function of each type of university if ''institutional differentiation' is to prove successful as a long-term policy future.

Limitations of the research

It is not possibly to generalise from two case studies based on different type of universities and this has limited the impact of research. While the study has shed light on the research and publication culture and milieu in two different types of universities, the sample of universities in each type would have to be increased to a more presentative number before general conclusions can be drawn. This study limits its findings to two institutions, which each represent a type of university.

I was not able to include the 'comprehensive university' type and this further limit the generalisability of the study's findings.

Race and gender and the impact on the individual researcher dimension were not overtly addressed in my study even though there is currently a strong focus on transforming the profile of the academic workforce at all HE institutions.

Suggestions for further research

Further research should include all three university types. I suggest research that should look at the factors driving and constraining the development of research capacity. The impact of race and gender on individual researcher development would be an important consideration, along with institutional culture. There is also need for research that investigates the impact of new polices on race and gender transformation on universities' research performance and researcher development agendas.

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Appendices

Appendix 1: Depiction of skewed higher education landscape in South Africa & TBVC (1984-1994)

Authorising body	Race	BINARY SYSTEM		Total
		Technikons	Universities	
Department of Education and Training	Blacks	2	4	6
Republic of Transkei	Blacks	1	1	2
Republic of Bophuthatswana	Blacks	1	1	2
Republic of Venda	Blacks	0	1	1
Republic of Ciskei	Blacks	1	1	2
House of Representatives	Coloured	1	1	2
House of Delegates	Indians	1	1	2
House of Assembly	Whites	8	11	19
Total		16	21	36

Source: Bunting, (2002: 39).

Appendix 2: Historically Disadvantaged and Advantaged Institutions

Category of Institution	Name of Institution	Disadvantaged/Advantaged
Historically Black universities in RSA	University of Durban-Westville Medunsa University University of the North Vista University University of the Western Cape University of Zululand	Historically Disadvantaged Institutions
Historically Black universities (TBVC)	University of Fort Hare North West University University of Transkei Venda University	
Historically Black technikons (RSA)	ML Sultan Technikon Mangosuthu Technikon Technikon in Northern Transvaal Peninsula Technikon	
Historically Black technikons (TBVC)	Border Technikon Eastern Cape Technikon North West Technikon	
Historically White universities (Afrikaans-medium) RSA	University of the Orange Free State University of Port Elizabeth University of Pretoria Potchefstroom University Rand Afrikaans University University of Stellenbosch	Historically Advantaged Institutions
Historically White universities (English-medium) RSA	University of Cape Town University of Natal Rhodes University University of the Witwatersrand	
Historically White technikons	Cape Technikon Free State Technikon Natal Technikon Port Elizabeth Technikon Pretoria Technikon Vaal Triangle Technikon Technikon Witwatersrand	
Distance education universities and technikons	University of South Africa (UNISA) Technikon South Africa	

Source: Bunting, (2002: 49-51).

Appendix 3: Statistics showing differentiation of the South African higher education landscape

Shape of student enrolment (2008–2010)

Arranged by Total post/grad, descending order

CHET

	ANNUAL AVERAGES FOR 2008-2010						
	U/grad diplomas	U/grad degrees	Total u/grad	Postgrad below masters	Masters	Doctors	Total postgrad
UNIVERSITIES							
Stellenbosch	0%	63%	63%	14%	19%	4%	37%
Pretoria	14%	53%	67%	20%	10%	3%	33%
Witwatersrand	5%	63%	69%	9%	19%	4%	31%
Cape Town	3%	68%	71%	10%	14%	5%	29%
Free State	11%	63%	73%	16%	8%	2%	27%
Rhodes	4%	71%	75%	10%	11%	4%	25%
North West	36%	40%	76%	18%	5%	2%	24%
KwaZulu-Natal	12%	67%	79%	8%	10%	3%	21%
Western Cape	6%	74%	79%	9%	9%	3%	21%
Limpopo	5%	77%	83%	7%	10%	1%	17%
Fort Hare	5%	79%	84%	7%	6%	2%	16%
COMPREHENSIVE UNIVERSITIES							
Johannesburg	39%	47%	87%	9%	4%	1%	13%
Nelson Mandela Metropolitan	45%	42%	87%	6%	6%	2%	13%
Unisa	28%	61%	89%	9%	2%	0%	11%
Zululand	18%	71%	89%	7%	3%	1%	11%
Venda	4%	87%	91%	4%	4%	1%	9%
Walter Sisulu	58%	39%	96%	2%	1%	0%	4%
UNIVERSITIES OF TECHNOLOGY							
Cape Peninsula	69%	25%	94%	3%	2%	0%	6%
Central	71%	24%	95%	2%	2%	0%	5%
Tshwane	78%	18%	97%	1%	2%	0%	3%
Durban	79%	19%	98%	0%	1%	0%	2%
Vaal	87%	12%	99%	0%	1%	0%	1%
Mangosuthu	87%	12%	99%	0%	1%	0%	1%

Permanent academic staff (2008–2010)

Arranged by Lecturers & below, ascending order

	ANNUAL AVERAGES FOR 2008-2010				
	Professors	Asssoc. Professors	Senior lecturers	Lecturers & below	3-YEAR AVERAGE
UNIVERSITIES					
Cape Town	22%	19%	28%	32%	961
Rhodes	21%	14%	24%	41%	317
Stellenbosch	21%	14%	24%	41%	886
Western Cape	33%		26%	41%	517
North West	14%	16%	29%	42%	1003
Witwatersrand	15%	17%	27%	42%	985
Pretoria	16%	13%	27%	44%	1655
Fort Hare	13%	11%	28%	48%	223
Free State	14%	10%	26%	49%	777
Limpopo	10%	7%	31%	52%	756
KwaZulu-Natal	11%	12%	19%	57%	1444
COMPREHENSIVE UNIVERSITIES					
Unisa	17%	15%	32%	37%	1369
Johannesburg	15%	6%	34%	44%	864
Nelson Mandela Metropolitan	13%	12%	26%	49%	558
Venda	8%	9%	24%	60%	302
Zululand	9%	6%	20%	65%	246
Walter Sisulu	4%	2%	15%	80%	574
UNIVERSITIES OF TECHNOLOGY					
Tshwane	5%	11%	26%	58%	803
Durban	3%	8%	27%	62%	562
Vaal	4%	6%	28%	63%	304
Central	2%	7%	22%	69%	243
Cape Peninsula	1%	10%	19%	70%	720
Mangosuthu	0%	6%	8%	86%	135

Permanent academic staff with doctorates (2008–2010)

Arranged by Total staff with doctorates, descending order

	ANNUAL AVERAGES FOR 2008-2010				
	Total staff with doctorates	Professors with doctorates	Assoc. professors with doctorates	Senior lecturers with doctorates	Lecturers & below with doctorates
UNIVERSITIES					
Cape Town	59%	83%	73%	61%	31%
Stellenbosch	55%	89%	83%	62%	25%
Rhodes	53%	94%	72%	50%	27%
Witwatersrand	52%	88%	78%	59%	23%
Western Cape	48%	90%		47%	14%
North West	47%	95%	90%	58%	9%
Pretoria	37%	86%	74%	39%	8%
Free State	45%	94%	84%	53%	17%
Fort Hare	38%	74%	55%	47%	14%
KwaZulu-Natal	36%	80%	70%	51%	14%
Limpopo	20%	61%	72%	24%	3%
COMPREHENSIVE UNIVERSITIES					
Nelson Mandela Metropolitan	36%	91%	58%	45%	12%
Unisa	34%	72%	68%	29%	6%
Venda	34%	99%	87%	58%	8%
Zululand	34%	97%	93%	53%	14%
Johannesburg	24%	71%	53%	21%	6%
Walter Sisulu	10%	68%	86%	25%	3%
UNIVERSITIES OF TECHNOLOGY					
Central	26%	100%	94%	59%	7%
Vaal	15%	81%	59%	25%	2%
Tshwane	17%	94%	46%	23%	3%
Cape Peninsula	12%	92%	39%	19%	5%
Durban	10%	35%	42%	16%	2%
Mangosuthu	5%	0%	8%	12%	4%

High-level knowledge outputs of permanents academics

Not ranked; arranged alphabetically by university within categories

	Annual averages for 2008-2010				
	Permanent academics		Research publication units		
	Total	Total with doctorates	Publication units produced	Units per total permanent academics	Units per permanent academics with doctorates
UNIVERSITIES					
Cape Town	961	563	1166	1.2	2.1
Fort Hare	223	85	121	0.5	1.4
Free State	777	346	475	0.6	1.4
KwaZulu-Natal	1444	515	1057	0.7	2.1
Limpopo	756	150	84	0.1	0.6
North West	1003	474	514	0.5	1.1
Pretoria	1655	620	1186	0.7	1.9
Rhodes	317	168	323	1.0	1.9
Stellenbosch	886	491	1014	1.1	2.1
Western Cape	517	336	262	0.5	0.8
Witwatersrand	985	508	911	0.9	1.8
COMPREHENSIVE UNIVERSITIES					
Johannesburg	864	204	459	0.5	2.3
Nelson Mandela Metropolitan	558	204	219	0.4	1.1
Unisa	1369	468	644	0.5	1.4
Venda	302	101	56	0.2	0.6
Walter Sisulu	574	58	31	0.1	0.5
Zululand	246	83	69	0.3	0.8
UNIVERSITIES OF TECHNOLOGY					
Cape Peninsula	720	88	121	0.2	1.4
Central	243	64	33	0.1	0.5
Durban	562	56	43	0.1	0.8
Tshwane	803	139	151	0.2	1.1
Vaal	304	45	33	0.1	0.7
Mangosuthu	135	6	5	0.0	0.7

Productivity ranking of 2004 & 2005 cohorts of new doctoral entrants in science and technology programmes

Ranked in descending order by total of graduates produced

	Cohort of new entrants in 2004+2005	Total graduated after 6 years	% of new entrants graduated	University's share of graduates
Cape Town	272	**177**	**65%**	19%
Pretoria	287	**146**	**51%**	16%
Witwatersrand	198	**121**	**61%**	13%
KwaZulu-Natal	226	**106**	**47%**	11%
North West	97	**58**	**60%**	6%
Free State	119	**51**	**43%**	6%
Rhodes	64	**47**	**73%**	5%
Stellenbosch	65	**47**	**72%**	5%
Johannesburg	93	**44**	**47%**	5%
Western Cape	74	**33**	**45%**	4%
Nelson Mandela Metropolitan	36	**18**	**50%**	2%
Tshwane	31	**16**	**52%**	2%
Fort Hare	27	**12**	**44%**	1%
Unisa	60	**10**	**17%**	1%
Limpopo	37	**9**	**24%**	1%
Cape Peninsula	23	**8**	**35%**	1%
Venda	13	**6**	**46%**	1%
Durban	19	**5**	**26%**	1%
Central	19	**4**	**21%**	0%
Zululand	16	**3**	**19%**	0%
Vaal	22	**3**	**14%**	0%
Walter Sisulu	0	**0**	**0%**	0%
Mangosuthu	0	**0**	**0%**	0%
TOTALS	**1798**	**924**	**51%**	**100%**

Source: Bunting, I. (2013) 'Differentiation in the South African Public University System'. Cape Town: Centre for Higher Education Transformation (CHET).

Appendix 4: Consent Form

Dear Researcher 12 June 2015

RE: Informed Consent Letter for permission to conduct an interview for a master's mini dissertation entitled Publish or Perish? An investigation into the support provided for emerging researchers to publish research outputs in a differentiated tertiary sector: two Western Cape case studies.

You have been selected as a research participant in this study conducted by Ms Roshan Sonday who works in the Research Office at the University of Cape Town but undertaking this research in her private capacity as a master's student at the University.

1. PURPOSE OF THE STUDY
The aim of the study is to compare institutional support for research and publication at a traditional university and a University of Technology.

2. PROCEDURES
If you volunteer to participate in this study, I will ask you to answer the questions given in the attached questionnaire.

3. POTENTIAL RISKS AND DISCOMFORTS
No potential risks are envisaged. However, if anything unforeseen happen, it will be dealt with in a sensible and sensitive manner.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY
This study will provide a broader understanding of institutional support for research and publication and how closely connected it is to the institutional policies. It can immensely benefit the understanding and improvement of researcher development and support at both institutions.

5. PAYMENT FOR PARTICIPATION
Participation is this study is entirely voluntary thus no payments to the participants will be made.

6. CONFIDENTIALITY
Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of referring to the participants as Interviewee 1, 2, 3, etc, and by means of themes and categories that will be identified and used in the analysis and discussions of the findings and the outcomes. In the event that the results are significant this data would be used to form the basis of a larger study.

7. PARTICIPATION AND WITHDRAWAL
You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not wish to answer but still remain in the study.

8. IDENTIFICATION OF INVESTIGATORS
If you have any questions or concerns about the research, please contact the researcher by emailing to roshan.sonday@uct.ac.za or phone work 021 650 2426 or cell 072 126 4622.

9. PROTOCOL
Please indicate if you have any objection if you receive a copy of the transcription of the interview? You will be invited to comment.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
The information above was described to me, the participant by Roshan Sonday. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

_____ **Signature** _____ **Date**
Name of Participant

_____ **Signature** _____ **Date**
Name of Investigator

I declare that I explained the information given in this document to

[Name of the participant] _____ He/she was encouraged and given sufficient time to ask me any questions.

Appendix 5: Interview template for the researcher development manager

Your insights on research and publication as a researcher development manager

Title, Name and Surname	
Position	
Permanent or contract	
Highest qualification	

1. Why did the university establish the programme/intervention that you manage?
2. What are its main features and components?
3. What has worked best thus far and where are there still challenges? If you reflect what would you have done differently?
4. In your view, do individual academic's habits, motivations and attitude affect a programme/intervention like this?
5. Do you feel the outcome of participation in your programme is aligned with the institutional Mission and Vision and Research Strategy?
6. What is your institution's policy on sabbatical leave and how does the policy ensure that academics use this purely for research? Is there a monitoring tool in place?
7. Do you have dedicated research development staff that assist academics to obtain their PhDs and writing for publication? What qualifications do they have and are they active researchers?
8. Is there anything else you wish to mention about your institutional research and publication milieu?

Appendix 6: Interview template with academic

You, as researcher and academic writer

Title, Name and Surname	
Position	
Permanent or contract	
Highest qualification	
Department and Faculty	

Please record your number of publications from 2010-2014 in the space provided below. Indicate if accredited or non-accredited.

Publication history								
Year published	**Journals**		**Chapter in book**		**Books**		**Conference proceedings**	
	ACCREDITED	**NON-ACCREDITED**	**ACCREDITED**	**NON-ACCREDITED**	**ACCREDITED**	**NON-ACCREDITED**	**ACCREDITED**	**NON-ACCREDITED**
2010								
2011								
2012								
2013								
2014								

1. What motivates you to publish/write? To what extend does institutional pressure motivate you to publish (what incentives and penalties are there)? Is there any formal programme at your institution that helps you to write?
2. Tell me more about your habits. Do you write regularly and what helps you to write?
3. I would like to ask you about the relationship between teaching and publication. In which of these categories (as below) do you teach? How does your teaching profile indicate below, impact on your research and publication?

Undergraduate diplomas	**Undergraduate degrees**	**BTech**	**Postgraduate below Masters**	**Masters**	**PhD**
		✓	✓		

1. Does your employment and qualification status affect the way you research and publish? Do you think it makes a difference being permanently employed or on contract?
2. How does having a PhD or not having a PhD affect your research and publication capacity?
3. Do you feel your institution has a research culture that supports research and publication?
4. What kind of mentoring support have you received at your institution? Do you think it supports capacity building and historical redress? To what extent do your university support academics applying for NRF rating?
5. Is there anything else you want to mention about your own research and publication?

Appendix 7: Thematic Analysis 15-point checklist

No	Process	Criteria
1	Transcription	Data to be transcribed and transcripts to be checked for accuracy against the audio recording
2	Coding	Each data item to receive equal consideration in the coding process
3		Themes to be derived from a thorough process
4		Extracts for themes to be collected.
5		Themes to be checked back to the original data set.
6		Themes to be coherent and consistent.
7	Analysis	Data to be made sense of and analysed.
8		Analysis and data to match each other.
9		Analysis is logical and convincing.
10		A good balance between analytical narrative and interview extracts.
11	Overall	I give enough time to complete all the steps of the analysis.
12	Written analysis	I understand the TA approach.
13		There is congruence in what I claim to do and what I show I have done.
14		Language and concepts used are consistent with the epistemological position of the analysis
15		I was actively engaged in the research process.

(Source: Braun and Clarke, 2006:96).