Design and validation of a leadership model for South African higher education

"One day we'll write about 2015"

—UCT Yearbook 2015

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By

Cyrill Walters

Supervisor: Professor Walter Baets

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DECLARATION

I, Cyrill Walters, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

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- I dedicate this dissertation to my son, Levi Sebastian Smith, my perfect gift from God.

Abstract

South African higher education: a conceptual leadership model and empirical evidence

Although universities have not historically focused on their own organisational leadership as a subject of academic enquiry, there has been much academic substantiation of leadership knowledge as theory. This investigation was designed to explore the current typology of leadership in South African universities and to validate a conceptual model proposed in the dissertation. The model is based on complexity science and Ken Wilber's theory of holism, and employs such key concepts as values, personal development, and mechanistic and holistic performance. The rationale for this study was the researcher's desire to explore the qualities required of those in higher education leadership positions, in order for them to meet demands to widen access to education as well as to contribute to the social, cultural, and economic development of South Africa. The selected sample was composed of personnel occupying the senior management positions of Vice-Chancellor (VC) and/or Principal and/or Rector; Deputy Vice-Chancellor (DVC) and/or Vice-Principal; and Faculty Dean. The primary data collection methods were both quantitative and qualitative. The quantitative results of the Cassandra© survey and the qualitative findings utilizing semi-structured interviews were merged at the interpretation stage. The data were analysed, coded, and organized according to the research questions. Significant findings were that the current funding crisis was a major challenge within the sector; however, fee-free higher education for all in the current economic context is neither equitable nor likely to be affordable in the medium term. The research revealed weakness in the understanding and practice of diversity within the sector. The strengths of staff who work directly with leaders were found to be wanting, as they are not always adequately skilled to do their jobs. Innovation was not a priority for leadership and the sector did very little to provide the space for innovation. Complexity science provides a useful tool for the analysis of leadership in higher education. Finally, a cogent model of leadership for South African higher education institutions is described, synthesized and presented.

CONTENTS

List of Tables

List of Acronyms and Abbreviations

ANN	Artificial Neural Networks
CHE	Council on Higher Education
CPUT	Cape Peninsula University of Technology
DUT	Durban University of Technology
DVC	Deputy Vice-Chancellor
DHET	Department of Higher Education and Training
FMF	FeesMustFall
HBU	Historically Black University
HWU	Historically White University
HE	Higher Education
nGAP	The New Generation of Academics Programme
NMMU	Nelson Mandela Metropolitan University
NSFAS	National Student Financial Aid Scheme
RMF	RhodesMustFall
SU	Stellenbosch University
UCT	University of Cape Town
UFS	University of the Free State
UJ	University of Johannesburg
UKZN	University of KwaZulu-Natal
UNISA	University of South Africa
UP	University of Pretoria
UWC	University of the Western Cape
WITS	University of the Witwatersrand

List of Figures

CHAPTER 1: LAYING THE FOUNDATION

1.1 Introduction and background to the study

South African (SA) higher education institutions have experienced significant political protest over the last two years. While there is no doubt that deep underlying frustrations had been simmering for many years, the protests were sparked on 9 March 2015 when University of Cape Town (UCT) student Chumani Maxwele set off a wave of protest action by throwing human excrement on a statue of the 19th century British colonialist Cecil John Rhodes – a statue that paid tribute to a man who came to embody the dreams, aspirations and superiority syndrome of imperial Britain that led to the colonial dispossession and oppression of Africans. As Reilly correctly states, the true legacy of Rhodes 'remains the racist framework he used so ruthlessly to secure African labour' (2016:79) via the Glen Grey Act – a vital piece of legislation that supported ruthless means to secure African labour for the exploitation of mineral wealth[1].

Momentum was generated by the Rhodes Must Fall (RMF) student protest movement at UCT which led to the explosive surfacing of identity politics with not only RMF, but also the emergence of other groups like the Black Academic Caucus, Pan-Africanist and black consciousness formations, FeesMustFall, Patriarchy Must Fall, the Transgender Collective, and disability and mental health groups. By October 2015 the lid blew off and student uprisings had exploded across the entire country. The protests spread to other formerly white universities such as University of the Witwatersrand, Rhodes University (RU), Stellenbosch University (SU), and the University of KwaZulu-Natal (UKZN). But reverberations were also felt at universities such as North West, Tshwane, the University of the Western Cape (UWC) and the University of the Free State (UFS). Anger and frustration at the lack of transformation; the need for safe spaces where people who felt marginalised by the dominant culture of the institution could find, and support each other; the increase in student fees; the practice of outsourcing support workers; the decolonisation of the landscape and the curriculum; and the demand for a shift in where and how decisions get made – these are some of the issues raised, about which strong feelings were shared by many across the country. It was clear that we were living in a time of heightened polarisation – in the country and on most campuses.

While the struggle at South African universities has been mostly local in character, the implications of the issues raised by their students and staff reach far beyond the country's borders. Protest action has not been unique to this country; universities around the world have recently been hit by protests, occupations, and strikes by staff and students. In the US, examples of racialised relations in the academy proliferate from Yale

[1] For a comprehensive analysis on the history of Cecil John Rhodes and its effect on the South African education system see 'Cecil Rhodes as context' In *Teaching the 'Native': Behind the architecture of an unequal education system* (2016:76-83).

to Missouri, Harvard, Princeton, and beyond (Joseph, 2015). At the University of Texas, students have been asking similar questions to those raised in South Africa – students led a movement that resulted in the removal in August 2015 of a statue of Jefferson Davis, president of the Confederate States of America, from their campus, stating that the 'statue personifies slavery and oppression and does not belong on campus' (Fetcher, 2015). In November 2015, thousands of students across the USA participated in 'demonstrations against a culture of racism infecting higher education' (Joseph, 2015).

The causes vary, but it seems clear that universities are grappling with several common issues that have emerged around the world: they are structurally underfunded; profoundly undemocratic; they lack transparency; and they lack diversity among the professoriate. A key issue is also the commercialisation of higher education, which many feel has led university leaders to prioritise financial goals over the needs of staff and students (Ratcliffe, 2015). Wieland Gevers (2016:26) focuses a discussion on the 'corporatisation of university management' in detail, pointing out the great tension leaders face 'between true aspiration and the trappings of the corporate model'. He holds that this is a key problem standing in the way of dynamism and creative change for the University.

In a changing world full of diverse political and economic systems, those in higher education leadership positions are more and more under pressure to provide access as well as contribute to the social, cultural and economic development of our country. It is evident that universities everywhere are increasingly struggling, as they realise that the old bureaucratic wheels which grind slowly are no longer suited for today's context of higher education institutions. These issues have huge implications for the institutions and their functioning within their respective environments.

Beyond these issues, higher education is also experiencing the influences of internationalisation as well as numerous leadership challenges due to broad societal changes that have taken place over the last decade. Fullan and Scott (2009) refer to these challenges as 'change forces'. The literature on higher education worldwide is replete with statements like the following:

> Higher education is operating in a new environment, perhaps for the first time since the immediate post-World War II era. The ground is shifting. Colleges and universities are confronting new types of students – younger and more technology-driven, as well as older and more career-driven. They are confronting unprecedented competition, aggressive accountability demands and a view of operating in a global context. And they are doing all this with less direct funding…the greatest challenges facing higher education today (are): student engagement, institutional accountability; revenue generation; [and] globalization… All of the education leaders we interviewed understand the importance of more market-orientated, student-centred and business-like management and accountability strategies, while preserving their academic mission, focus and values (Segall & Freedman, 2007:2).

Universities globally are restructuring themselves to increase efficiency in a highly competitive higher education environment. Some of the developments that have unfolded over recent decades are not specific

to universities but nevertheless have profound implications for them. Homer-Dixon (2007:11) referred to these trends as "tectonic stresses". These include population stress, energy stress, environmental stress (on land, water, forests, and fisheries), climate stress and economic stress (Homer-Dixon, 2007:11). Global warming and the emergence of environmental and social sustainability are examples of how significant tectonic stresses can be for higher education – the impact of global warming has emerged as a key political, national, and international research and learning theme for the new century.

Economic stresses like the growing joblessness among people with university degrees have become a disturbing trend in the post-apartheid South African labour market (Bhorat, 2004; Pauw et al., 2006). The mismatch between what the emerging labour market demands and what a university education provides seems to be a vital challenge. What is striking is that, at exactly the same time as there is high graduate unemployment (and/or under-employment), there are also employers with unfilled vacancies who cannot find people with the requisite personal attributes or skills (Development Policy Research Unit, 2012). In a recent Global Employability Survey (Trendence Institute, 2013), it was found that almost 45 per cent of employers worldwide struggle to find people with the right skills for entry-level positions, and 70 per cent blame this shortfall on a lack of adequate training. No wonder some graduates, and some business and political leaders, are beginning to question the value of higher education. The implication for universities is that they need to take the employability of their graduates much more seriously than they have in the past. In the current South African university context it is interesting to note that the focus of student protests do not talk as such to employability, but rather to autonomy, freedom, decolonisation and the overhauling of a "Eurocentric" curriculum. In a highly competitive global job market, these demands might actually run counter to enhancing the employability of university graduates.

Just as globalisation and technology have transformed other huge sectors of the economy in the past 20 years, in the next 20 years universities will face radical transformation. Competition among universities around the world has been intensifying for decades, and now they fight for talent, research funding, and global rankings. Prominent examples of the new world players, economically as well as educationally, are India and China (Fullan & Scott, 2009:5). A report by the Organisation for Economic Co-operation and Development (OECD, 2012) indicates that by 2020, China alone will account for 29 per cent of all the university graduates aged 25 to 34 in the world. In absolute numbers, that will mean there will be as many Chinese graduates in that age group as in the entire US labour force

Rapid developments in information technology (IT) have made possible modes and approaches to learning that were inconceivable 30 years ago. Scott (2004) argues that universities and their leaders have to become particularly skilled at not only identifying what innovations - including learning programmes, research initiatives, engagement projects, structures, approaches, priorities, quality improvements and strategic

developments - consistent with their mission should be emphasised to keep up with the continuous movement in their operating context, but also at making sure that these agreed changes are put into practice successfully and are sustained.

1.2 How did we get here?

There is a growing body of literature that recognises the importance of change within higher education. No doubt, recent developments have heightened the need for greater understanding of change. In the fifth edition of his seminal work, *The new meaning of educational change,* Michael Fullan (2015) explores the complexity and dynamics of change in an educational system. Fullan contends that 'grappling with educational change in self-defeating ways has been the modal experience over the last 30 years' (Fullan, 2015:83) and that we are now at a point where 'the immediate future of educational change is at a particularly strategic juncture' as 'the life-chances of large segments of society are increasingly dismal.' Fullan argues that the factors reinforcing the status quo are systemic and that the current system is held together in many different crosscutting ways.

So why then the disruption in 2015? Scholars may still need more temporal distance before they can answer this question; however, a few tentative explanations have been put forward. Reilly (2016) provides an historical explanation for the chaos of 2015 by acknowledging and analysing the inextricable linkages between South Africa's history situated in the context of the British Empire and South Africa post-1948 under National Party rule. By doing so, we gain the ability to understand the structures that have made inequality in South Africa so intransigent. Reilly (2016) argues that pre-1948 education policy in South Africa had a complex history and shaped South Africa's race-based education system: 'this conjunction set important precedents for the system of Bantu education that would be pursued after 1948, when the National Party began implementing its apartheid policies' (2016:3). Reilly conclusively demonstrates that after the Act of Union in 1910, the South African authorities simply prohibited black South Africans from studying at institutions in the United States and Britain, and instead built facilities like Fort Hare with the hope of monitoring and controlling the content and interpretation of their education (2016:271). South African higher education thus faces a legacy of more than a century of institutionalized inequalities that were incorporated into education policy, commissions, legislation, reports and so forth. All these institution-building activities were premised upon false but empowered assumptions of race. Reilly skillfully situates the current state of affairs within the context of this 19th and early 20th legal history and shows that the racist structures of past education policy continue to wreak havoc in South Africa today.

Max Price (2016) refers to three factors that contributed to the 2015 disruptions. He suggests that on previously white campuses, members of various identity groups, particularly black South Africans, have achieved a critical mass which has strengthened their conviction that their individual experiences of

alienation are in fact a collective experience, and are not about them as individuals but about the institution. This critical mass has given them their voice - loud and persistent.

Price's second reason is related to the demography of the current student population – the 'born-free' generation who form the majority of student bodies at South African higher education institutions. The precise boundaries of the generation are still debatable, but it seems to be more or less defined as individuals born during the 15 years spanning 1985 to about 2000. Demographers will typically watch the behaviour of a generation; when the behaviour changes substantially, a new generation is then declared. This generation, according to Price, grew up without the experience of what life was like under apartheid and how much it really has changed – they therefore expect much more change, and more rapid change.

This generational issue has been compounded by political leaders having raised expectations (such as for free education, housing and services for all) and the slow pace of change actually experienced by the poor in their daily lives. Campus politics no doubt also reflects disillusionment with the current political leadership and the alignment of political party and union politics with student movements. Price (2016) also refers to more radical quasi-anarchist groups that believe "everything must fall" – a total shutdown of the universities and even schools to bring down the government and foment a violent revolution, the historical absence of which, they believe, is the reason that whites still control the economy and, indirectly, the country's politics.

Thirdly, particularly at historically black/disadvantaged universities, affordability reached a tipping point following years of annual fee increases well above inflation, to compensate for declining government subsidies to universities. The concrete effect of the latter was to reduce financial support to universities by approximately 15% over four consecutive years and to leave many students without adequate financial aid.

Whatever the precipitating factors of this identity activism, the underlying problems are a failure of inclusiveness, frustration and the lack of leadership to remedy the issues within South African higher education.

1.3 Origin of the Idea

The South African HE sector has been through a tumultuous time while this research project has been ongoing. Transformation debates have been raging throughout the sector since the historic decision by the University of Cape Town to remove the Cecil John Rhodes statue in 2015, following pressure by the "Rhodes Must Fall" movement. A few weeks later, Stellenbosch University, the crucible of Afrikaner Nationalist thought during the apartheid era, under pressure from its own student movement "Open Stellenbosch", removed a plaque dedicated to HF Verwoerd, who is widely known as the architect and implementer of the oppressive apartheid regime. The story of why this generation of university students is now at odds with their

society and their institutions of higher learning has deep implications for how a freed people, through generations, continues to relate to its history – implications that are relevant everywhere in the world where the children of the oppressed are coming of age in what are supposed to be better circumstances.

The researcher has been immersed in the higher education system for the last 18 years as both student and staff member at the University of Cape Town. She has been privileged to engage with many colleagues at other universities locally and internationally, and finds working in the sector rewarding, but at the same time challenging. In her view, it is a sector that has significant leadership challenges that strongly suggest the need for a specialised approach to the development and training of leaders.

Some of these leadership challenges, *inter alia*, are the fight for talent and research funding; the management of multiple and conflicting stakeholders; social objectives; appropriate models of teaching and learning; and how to ensure that universities combine efforts with cities and other entities to fuel innovation and economic growth. There appears to be a lack of innovation in challenging established models in general, for example: the teaching model (instead of learning by doing), the classroom model (instead of learning anywhere), and even the organisation of the University, as with faculty autonomy, etc.

The majority of educational leaders have attained their positions based on their research competence and output, rather than on their competencies for dealing with these highly complex issues. Thus, many of these leaders often lack the motivation and capacity to innovate and therefore enjoy comfort in the status quo.

This dissertation, and the years of research preceding it, is the researcher's contribution to addressing some of these challenges in university organisational leadership and to the body of scientific knowledge. University organisational leadership is a broad field, and significant studies exist that contribute to the understanding of particular challenges that university leaders face. Such challenges include the differences between higher education organisational leadership and that of private- and public-sector enterprises; university management skills; the primary roles of university leadership; and an executive leader's relationship to the institution's staff, students and stakeholders. However, in spite of the number of works on leadership that have been released in the last 30 years, the field is still significantly under-researched and under-reported compared to what is available in general business leadership studies.

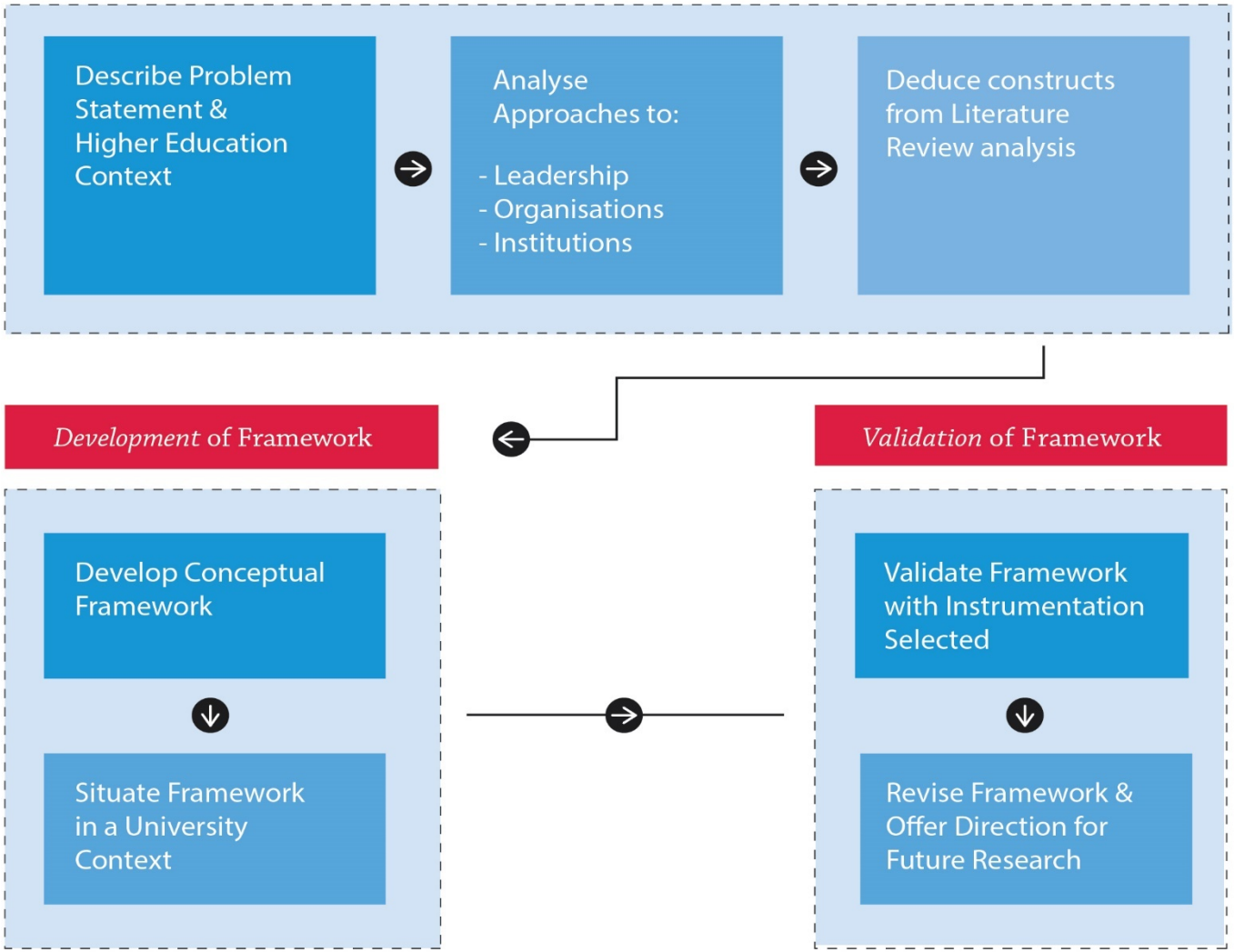
Higher education's power to accelerate national and economic development, innovation and cultural enhancement is widely acknowledged around the world. Universities are arguably the most influential institutions in any society. Governments, businesses, newspapers, television and radio networks are, for the most part, run by university graduates. Universities produce the theories, ideas, technologies and products upon which the modern world is built. Thus, those who have control of these institutions have a profound influence over the direction of any country.

The purpose of this research is to develop a conceptual model of leadership and to analyse whether the relevant competencies exist among contemporary university leaders and managers in South Africa. Figure one below provides a visual representation of the purpose and intent of the study. The researcher describes and analyses leadership, organisational, and institutional theory as applied to higher education through an extensive literature analysis. Next, the researcher develops a conceptual framework of interrelated constructs designed to enhance scholars' and practitioners' understanding of leadership in higher education institutions from an organizational perspective. Finally, the researcher validates the framework using a two-part approach to the field research, firstly through a quantitative survey of current leaders in South African Universities and, secondly, through a qualitative phase of in-depth, semi-structured interviews with selected leaders in the sector.

The following objectives aim to provide a platform for developing this research:

1. To develop and validate a conceptual model which includes the primary competencies required by leaders in higher education today.
2. To explore the predominant models of leadership applied by leaders in higher education today.
3. To enhance knowledge on organisational leadership and leadership development theory and practice in higher education.
4. To synthesise a description of leadership as a cogent model for South African higher education institutions.

Figure 1.1: Schematic Diagram of the Research Process



1.4 The South African context

The American sociologist Michael Burawoy recently described the South African higher education system as the 'jewel of Africa' (Soudien, 2012:36). A frequent visitor to the country, he expressed a sense of amazement at the vitality of the system, remarking that the sector's preoccupation with questions of equality and the future of humanity made it distinctive in global terms.

It is important to note what Burawoy was saying here. There is intensity in the South African discussion that is not as evident in many systems elsewhere. The South African discussion engages questions that also arise in other universities, but is intensified due to the country's deeply conflicted history. How can the South African university fulfil its promise and at the same time be a place which is inclusive? Can it be outstanding in terms of the new knowledge it produces and also be inclusive? (Soudien, 2012:36). Addressing these social and educational inequality issues is paramount to South African leaders within the higher education sector.

Among the political and social changes brought by the new democracy that was achieved after 1994 were full-scale institutional mergers amongst higher education institutions occurred during the period 2001-2007. Under colonialism and apartheid, the social, political, and economic discrimination and inequalities of race profoundly shaped SA higher education, establishing patterns of systemic inclusion, exclusion, and marginalisation of particular institutions, social classes and groups (Badat, 2012: 2). As documented by Hay and Monnapula-Mapesela (2009:13), in an attempt to move towards a more unified higher education system, 36 institutions were merged and/or incorporated into 23, doing away with the technikon sector and moving towards introducing universities of technology. An important reason behind this move was to do away with the legacy of apartheid, which divided the system into historically black and disadvantaged institutions and historically white and advantaged ones.

In a global context in which many academic staff believe that students today differ from those in the past (Segall & Freedman, 2007; Wessels & Steenkamp, 2009), no student cohort has witnessed a more thorough break with the past than recent South Africans ones, which are part of the first and only generation of South Africans that lived through one of the most dramatic social transitions of the 20th century. The present researcher is thus uniquely placed to tell this story with the direct experience of having lived both sides of the 1990s, the decade in which everything changed (Jansen, 2009).

The time has come for university leaders to step back, look around, think about the ways in which the world has so profoundly changed, and then visualise the future. Deep, radical, and urgent transformation is required in higher education. If the leaders do not continue to turn things around, and much more quickly than they have done until now, they may well look back in a few years and regret not moving away sooner

from their past practices and towards embracing what really matters. Further, in the post-apartheid higher education context, the challenge of adequately equipping those in leadership roles is crucial - especially in enabling them to make connections with students and to address the key national imperatives of South African society.

1.5 Problem statement

The University is a dichotomous environment - on the one hand universities are the incubators of new ideas and the nurseries of future experts; on the other, they are amongst the most conservative and patriarchal of organisations, changing little over centuries, replicating epistemologies and cultures through embedded codes of practice (Morley & Walsh, 2006). The pressure of competition on universities is now greater than ever, not just because of the global competition among them, but also because a range of new players—from Massive Open Online Courses (MOOCs) providers, such as Coursera, to online skills-educators such as General Assembly, and consultancies that develop people and produce cutting-edge research—are now stepping up to compete with various specific functions of a traditional university (Institute for Public Policy Research, 2013).

The challenges for South African higher education are framed by the imperatives of the National Development Plan (NDP) (South Africa. National Planning Commission, 2012). Over the next two years, R3.8 billion has been earmarked for universities' overall infrastructure development, prioritising historically-disadvantaged institutions. Additionally, two new universities in Mpumalanga and the Northern Cape have been built.

The NDP, which was released on 15 August 2012, proposes the following, among other goals:

- Increasing the number of university graduates and the number of people doing their doctorates
- Building two new universities in Mpumalanga and the Northern Cape
- Building a new medical school in Limpopo and a number of new academic hospitals
- Extending the length of first degrees to four years on a voluntary basis
- Providing full funding assistance covering tuition, books, accommodation and living allowance (in the form of loans and bursaries) to deserving students
- Granting seven-year work permits to all foreigners who graduate from a registered South African university.

To illustrate the kind of new thinking that is required, the leaders of the new institutions in Mpumalanga and the Norther Cape must now attend to building relationships with cities; putting in place the virtuous circle of a good university that has close links to local business and public authorities; developing collaborative

research and development, spin-offs and start-ups; attracting talented students and faculty; and making their provinces desirable places to live. All of these undertakings present significant challenges.

1.6 Significance of the study

This research contributes to the field of leadership studies by providing leaders in universities with a comprehensive model of leadership components, which should be considered at individual and organisational levels.

The principle objectives of this study are to:

- assist those in higher education leadership positions by providing a conceptual framework that will give rise to the tools required to manage for sustainable performance in an interconnected world;
- confirm if a typology of distinctive leadership characteristics currently exists among senior leaders in higher education;
- confirm a typology of contemporary leaders in higher education via a quantitative survey.

Leadership plays a determining role in the success of institutions and the concept will be defined from a holistic perspective. This research will further provide a richer understanding of management generally, and will present a meaningful interpretation of management and the role of the manager and of the leader.

The result of these objectives will be: firstly, to conceptualise a leadership capability framework for higher education leaders, which will provide the theoretical and consulting tools for university leadership; secondly, to propose a suite of resources and strategies that institutions can use to develop leadership; and thirdly, to provide a resource to develop staff in leadership positions and thereby ensure that management in higher education institutions are equipped to deal with the challenges ahead.

1.7 Summary of this chapter

The chapter provides the context for this research by outlining developments that are currently influencing higher education; stating the research questions; and outlining the delimitation, assumptions, definitions and significance of the study.

The impact and the potential of these developments will indeed challenge those who find themselves in leadership positions within universities. At every corner of the educational landscape, leadership will need to respond to the reconfiguration of social, political and economic structures to compete regionally and globally. Leaders are increasingly not only expected to respond to these changes but to drive innovation and development in this new environment.

1.8 A brief overview of the structure and style to follow

This dissertation will be organised around three major sections. Chapter one has provided the foundations of this research, the problem statement, and an overview of the contemporary scene. Chapter two will consider literature relevant to this research; the contemporary literature will be reviewed and current research sources will be analysed for the theories and gaps in knowledge related to leadership and organisational theory. Further, a preliminary, consolidated typology of the various leadership theories relevant to the study will be synthesised. This preliminary typology will launch the field research of contemporary university leaders in the third chapter by providing an introductory list of characteristics that will be proposed to leaders during the researcher's field work.

Chapter three will describe the ontological and epistemological approach that this research process adopts and will clarify the research process.

Section II will start with chapter four, which will introduce the new conceptual model that will be used to facilitate the data collection process. Chapter five will introduce the research design and the methodology used to answer the research questions. This chapter will propose the rationale for the quantitative and qualitative methods chosen for this study.

Section III will contain the field research data and analysis of contemporary higher education leader characteristics. It will begin in chapter six with a detailed methodology, data, and analysis for the first phase of the field research, i.e., the quantitative survey. It will detail how university leaders around the country were surveyed through a combination of questions. This initial phase of field research will quantify the knowledge, expressions, and extent of leadership characteristics among contemporary university leaders and will pre-qualify participants for the second, qualitative, phase of the research.

The second phase of field research is documented and will be analysed in chapter seven. This qualitative phase of field research will involve in-depth, semi-structured interviews with a smaller pool of subjects in higher education leadership. It is intended to illuminate, enrich, and add texture to the survey findings and to provide a deeper understanding of the characteristics of higher education leadership. Individuals in leadership positions at institutions abroad will also be included during this phase.

Chapter eight outlines the findings of the study and the extent to which the research questions and aims have been achieved. The dissertation will conclude in chapter nine, which re-examines key findings and limitations and makes suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

To assist in the development of the conceptual model presented here, this chapter provides a summary of the most actively-researched leadership theories and evaluates contemporary 20th- and 21st-century theories, research, and literature sources related to the management and leadership of organisations in a complex world. The aim of this chapter is to draw together the wide-ranging concepts relating to university leadership and to situate these elements in a broader critical perspective. At the end of the chapter, the salient points of the literature review will be recapitulated to identify the primary and secondary research questions that will guide the remainder of this research.

2.1 Leadership

Paradoxically, though universities have not historically focused on their own organisational leadership as a subject of academic enquiry, there has been much academic substantiation of leadership knowledge as theory. This knowledge comes from the perspectives of a wide range of academic disciplines, including psychology, sociology, management, organisational psychology, anthropology, and political science (Dinh et al, 2014). The 21st century has witnessed paradigm shifts in the definitions, studies, and applications of leadership. This considerable amount of research is taking place in universities where there has been considerable work in studying leadership practices and theory, and its occurrence in non-university organisations in particular (for example, Bass, 1990:1-10; Alvesson & Sveningsson, 2003:1437; Kotter, 1990; & Yukl, 2006). This is confirmed by Gardner et al (2010) who demonstrated in their 20-year review of *The Leadership Quarterly* journal that research on leadership has grown exponentially, and at the same time, revolutionising the way leadership phenomena is understood. This work has been contributing to the current state of leadership knowledge and the understanding of the interrelationship of theoretical knowledge and leadership practices.

Consequently, the emergence of leadership as an issue in universities and the coincident interest in the topic in other organisational sectors share common concerns about factors that influence organisational effectiveness and outcomes, and the assumption that leadership has a substantial role in the related organisational processes. Although there is a wide range of potential topics for this study, this literature review will encompass only the handful of key concepts that impact the dissertation directly.

Recent decades have witnessed an enormous expansion of interest in leadership. Most leadership academics and practitioners claim that leadership is a good thing: “Leadership is vital for healthy organisations” (Western, 2013:5). Leadership has traditionally been described in terms of the traits of leaders or as a particular behavioural style. Although the growing diversity of leadership theory has helped create an academic agenda for leadership research in the new millennium, a study by Dinh et al (2014) convincingly argues that there are several challenges that accompany the rapid proliferation of new perspectives, *inter*

alia, the need to develop integrative perspectives that consider how disparate leadership theories relate or operate simultaneously to influence the emergence of leadership phenomena. The authors argue that 'attention to these dynamic processes as they unfold over time and across different levels of analysis is critical because it helps capture the complexity that defines real, individual, group, and organizational systems' (2014:55).

Another critique of the development of leadership theory is the lack of research attending to process studies; that is, research that focuses 'empirically on evolving phenomena and [that] draws on theorising that explicitly incorporates temporal progressions of activities as elements of explanation and understanding' (Langley et al, 2013:1). Put more simply, process studies focus on how and why things emerge, develop, grow, or terminate over time. Understanding leadership processes can help illustrate the limitations of current theory, and it can assist in the development of a more comprehensive agenda for leadership research with direct relevance to organizational research (Langley et al, 2013). Given the critical importance of time and timing in organizations, it is ironic that a large part of management scholarship excludes time as a factor.

These critiques demonstrate that leadership involves the contribution of multiple agents as well as top-down and bottom-up emergence along different time scales (from minutes to years). Therefore, leadership theory that is narrowly confined to one level of analysis presents an overly restricted, static understanding of leadership phenomena.

Leadership in South African higher education requires the ability to identify what reforms are needed to make our universities more competitive and more attractive for students and for scholars. Infrastructure, data analysis, evidence-based programme design, structural improvements, and the status of teaching - all of these are required by the university of the 21st century. However, these factors will have little impact unless driven by university leadership as an institutional priority.

Although the words 'leadership' and 'leading' are widely used, when people are asked to define them, a wide variety of different conceptions emerge. For example, in their study Bennis and Nanus (1997:4) identified over 850 different definitions of the concept.

Rost (1993) attends to the challenge of providing precise definitions in addressing the overall study and discipline of leadership. He (1993:4) asserts that despite the vast number of leadership studies conducted over the decades - leadership is admittedly everywhere - no one seems to be able to determine or discern what constitutes effective leadership suitable for the modern age: "Scholars and practitioners have not been able to clarify what leadership is, because what is mostly written about leadership has to do with its peripheral elements and content rather than with the essential nature of leadership as a relationship''. Bennis

and Nanus (1997:4) observe that "multiple interpretations of leadership exist, each providing a sliver of insight but each remaining an incomplete and wholly inadequate explanation".

Literature on leadership in higher education is often accompanied by the descriptor 'management'. Middlehurst (1993) indicates that the development of any normative model of the field requires the consideration of both leadership and management, as staff members appear to perceive a difference. The general consensus in the literature is that what leaders need to know and be able to do, requires both 'management' and 'leadership' (Middlehurst & Elton, 1992; Ramsden 1998; Wolverton et al. 2005). Osseo-Asare, Longbottom and Murphy when observing that 'leaders do the right things whereas managers do things right' (2005:151) go on to note: "The first part relates to leadership 'effectiveness' and the second part to management 'efficiency', suggesting that there is a functional relationship between effectiveness and efficiency".

This generally aligns with Ramsden's (1998:108) distinction between management and leadership:

> Management is a way of imposing regulation on the incipient chaos of a large institution…it is a way of keeping the organization on time and on budget. Managers plan, organize, staff and solve problems in current operations. Management is about 'doing things right', about looking at present activities and ensuring they work consistently and well…Leadership is about change, about looking forward and outward, about ensuring the enterprise stays in alignment with a constantly changing environment. It is about establishing direction, about 'doing the right thing'; it enables people to adapt to, and work with change rather than resist it.

Alvesson (2013:107) argues that it is possible for most managers to mix elements of management and leadership. He illustrates this by referring to the following definition of the two concepts:

> Management can get things done through others by the traditional activities of planning, organising, monitoring and controlling – without worrying too much what goes on inside people's heads. Leadership, by contrast, is vitally concerned with what people are thinking and feeling and how they are to be linked to the environment, to the entity and to the job/tasks (Nicholls, 1987:21).

Although management and leadership are different, it is evident that management at all levels has a responsibility for helping individuals make the appropriate linkages and thus managers have to exercise leadership. The broadest and most basic definition of leadership that has been adopted is provided by Northouse (2013:3): "the process whereby an individual influences a group of individuals to achieve a common goal". Although opinions vary widely concerning the differences between management and leadership, there is value in distinguishing between the two terms while at the same time recognising significant overlap between them. This dissertation adopts the definitions of management and leadership proposed by Bennis and Nanus (1997): There is a profound difference between management and leadership, and both are important. To manage means to bring about, to accomplish, to have charge of or responsibility for, to conduct. 'Leading is influencing, guiding in direction, course, action, opinion'.

Another valuable source that distinguishes between leadership and management is Rost (1993), who contends that leadership is a multidirectional influence relationship, and management is a unidirectional authority relationship. Further, Rost (1993) posits that "change is the most distinguishing characteristic of leadership" because without vision, action, and the mobilisation of people toward change, leading will not occur. Senge (1990a:197) stipulates that a shared vision is vital for establishing and maintaining a "learning organization". Senge (1990a) will be later reviewed in depth for his writings on learning organisations.

Zaleznik (1977:71) regards the influence of leaders as "altering moods, evoking images and expectations, and…establishing specific desires and objectives…the net result of this influence is to change the way people think about what is desirable, possible, and necessary".

A central idea in Kotter's (2008) work is that the two systems – management and leadership – are complementary and equally necessary to an organisation's success. However, as Law and Glover (2000:320) observe, at the operational level the differences remain unclear:

> Leadership, management, and administration require different, but overlapping skills, knowledge and abilities. However, on an operative level they are poorly differentiated. Role confusion and overlap between these roles and also that of administrators may give rise to conflict of interest, inequities in workload and inappropriately applied expertise. Inevitably this contributes to inefficiencies, diminished job satisfaction and reduced quality of overall 'management'.

South Africa experienced one type of leadership for most of the 20th century, which was autocratic control under the aegis of apartheid. With the social, political, and economic freedom that now prevails, a range of new approaches to leadership should be explored in education, business, government, and civil society. Generally, a distinctive feature of 'leading' as described in the educational research literature, is an individual's or group's capacity to influence "the goal-directed behaviour of others" (Bryman, 2007:695). House (2004: 15) sees it as being "the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and success of the organizations of which they are members". Many authors add that the focus is on change, with several identifying the important role for the 'transformational leader' in the current rapidly-shifting operating context of universities (Bass, 1995, 1998; Leithwood & Jantzi, 2005).

Concepts of leadership have changed over time and some of them/which are beyond the scope of this thesis. Among these are seven crucial roles that have been identified from a variety of literature sources (Senge, 1990a); they are the following:

- Systems thinker
- Change agent
- Innovator and risk taker
- Servant and steward

- Polychromic coordinator
- Instructor, coach, and mentor
- Visionary and vision builder.

This study will aim to review fundamental concepts of leadership and integrate these with the challenges of higher education to build a new effective leadership framework, rather than restating what is already known. Studies of how higher education leaders manage change, along with their own learning and development, are relatively rare compared, for example, with studies of how higher education students, for their part, manage change and their learning, and what sorts of environments and strategies optimise their engagement and retention. For example, Robinson, Lloyd and Rowe (2008:668) in a meta-analysis of studies of educational leadership observe:

> […] the fact that there are less than 30 published studies in English that have examined the links between leadership research and student outcomes indicates how radically disconnected leadership research is from the core business of teaching and learning.

Sathye (2004:4) states that leadership in higher education poses problems that are distinctly different from leadership in business or government agencies. This is because academic leaders need to stay close to teaching, learning, research, and scholarship to bring out the best in academics. Issues of academic freedom are of great importance and relevance in this context. The existing research does not generally make a point of between leadership in higher education and leadership in other contexts.

2.1.2 Systemic management in practice

This dissertation posits a pragmatic model of leadership grounded in a systemic approach that integrates systemic thinking. Campbell (2000) suggests that systemic thinking represents a particular approach toward describing and explaining lived patterns of behaviour:

> Systemic thinking is a way to make sense of the relatedness of everything around us. In its broadest application, it is a way of thinking that gives practitioners the tools to observe the connectedness of people, things, and ideas: everything connects to everything else (Campbell 2000:7).

Systemic thinking is grounded in Bateson's (1972) work that explores the patterns of communication that constitute human systems. Rather than reduce descriptions of people's behaviour to linear-causal models that emphasise psychological phenomena such as personality traits, belief structures, or motives, Bateson argues that to predict behaviour, a systemic approach must pay attention to the reciprocal or mutual causality among persons. Furthermore, Bateson (1972) argues that human beings exist in a world of interlocking sequences of action, or circuits of interaction, which over time become guided by relational rules.

The sociologist Immanuel Wallerstein is one of the major theorists of global interconnectedness (Jones, 2010:19), the systemic early precursor to globalisation theory. Jones (2010:22) argues that the basis of the Wallerstein epistemological argument for world systems analysis, is that social science represents the

culmination of attempts to develop general laws for all times and places. But what Wallerstein actually argues, is that generalisations need to be specified (i.e., given a context in which they are meaningful) and he did this through the concept of historical systems. These are what he sees as 'societies', and they are systemic because they consist of interlocking parts that constitute a single whole. However, they are also historical because they are entities which are created, develop over a period of time, and reach their demise.

Within a world systems approach, Wallerstein considers the way in which social change occurs between systemic entities (Jones, 2010: 24). One kind of change he describes is that which is a consequence of (dynamic) continuity in which, he argues, that despite the popular notion that cultures are 'timeless', entities are, in fact, constantly dynamic and changing. He suggests that such changes come in two basic types – linear and cyclical.

Universities face continual challenges to their identity, efficiency, and viability as a result of changing social, economic, and political environments. It therefore seems no longer appropriate to characterise these organisations as discrete or isolated entities. They are more usefully understood as 'open systems' (Scott & Davis, 2007) nested within a fast-changing global systemic environment, shaping and in turn being shaped by that environment.

In this climate of change, organisations everywhere have found that survival requires a flexibility that allows continuous organisational renewal as practices and procedures continually adapt to changing circumstances (Senge, 1990b). Organisational management constantly confront complex (or in other words, non-linear and dynamic) systems. Baets and Oldenboom (2009:2) posit that real-life situations are non-linear, dynamic, and in no way Newtonian[2] and that this is particularly the case in social sciences (such as management and organisational behaviour).

In this context, it is interesting to note that the United Nations Development Programme has developed the Index for Human Development (http://hdr.undp.org), which includes broad dimensions (e.g., demographic issues, technological developments, education, and economic development) for more systemic interventions.

Baets and Oldenboom (2009:41) stress that each management phenomena is not only dynamic, but also non-linear, except of course, for the processes that are constructed purposely to be linear (production lines, for example). Such tasks have been built to perform specific tasks, in a way that can be checked and controlled.

[2] The traditional Newtonian paradigm supports the notion of a clockwork universe governed by deterministic laws of nature. It is of the view that logic and reason will lead to the 'right' answer; thereby implying there is a predictable 'right' way and 'right' answer. "The Newtonian view represents a way, a rationale, to control chaos, to be efficient, to overcome superstition, to make things happen in a predictable fashion" (Allen & Boulton 2011:164-181).

Current managerial thinking is still heavily based on causal linkages. Management claims that they can only manage causalities. But in reality, what a manager - a leader - deals with is the interconnectedness of people, and that seems to follow its own pattern of logic. Management theory and practice today are facing the challenge that linear and deterministic ways of thinking about managerial problems may create more problems than they solve (Baets & Oldenboom 2009:55). Similarly, Hassard and Pym (1990) state that the metaphorical, theoretical understandings that emphasise structure, function, negotiation, power, or symbolic construct also fail to reflect the reality and fluidity of organisational change situations.

2.1.3 Hierarchy participation

Collier and Esteban argue that leadership is the responsibility of all, and yet traditionally it is viewed to be exercised by only one person at any given time (2000:212). Dolan, Garcia and Richley (2006) suggest that the following four interconnected trends are heightening organisational complexity and uncertainty, and contributing to situations where the management by objectives (MBO) approach reaches its limits:

- The need for quality and customer orientation
- The need for professional autonomy and responsibility
- The need for 'bosses' to evolve into leaders/facilitators
- The need for 'flatter' and more agile organisational structures.

In traditional hierarchical organisations, purposes are formulated and pursued by those who control the organisation; however, in the current post-industrial context there is shared responsibility, which implies shared purposes and a shared commitment to pursue the common good. Collier and Esteban (2000:209) put forward the idea that systemic leadership is the task of every member of the organisation; however, there is a distinction to be made between systemic leadership and shared or collective leadership. Systemic leadership is asymmetric: people have different capabilities and roles, and responsibilities will shift between different people at different times. Kelly and Allison support this by arguing that "in a web environment, a key role for leaders is to develop a good team composition – selecting, recruiting, and assembling appropriate diverse players" (1998:168).

A good example to illustrate this paradoxical coexistence of hierarchy and participation is that of a string quartet, which is simultaneously participative in that all members expect to have an input into decision-making, and hierarchical because, in performance the lead role is taken by the first violinist (Goldstein, 1998). A different musical metaphor is that of the jazz combo, where there exist unspoken conventions for the way in which the lead passes from whoever is 'soloing' to those 'comping' (i.e. supporting the lead), and for the way in which the process of 'trading fours' (switching between leading and supporting) is initiated (Hatch, 1999:79). In both of these examples, synergy in systemic leadership is achieved not by compromise, nor by the resolution of conflict, but by keeping all aspects in play rather than opting for one or the other of the

alternatives. Systemic leadership shares stewardship and, by implication, accountability for outcomes among all the members of an organisation. In doing this it allows the organisation to lead the community and ultimately to serve that community and the wider world.

2.1.4 Management by values

During the research process, I will adopt a unique ontology: one that allows a change in managerial focus and allows a rethinking of the concept of systemic leadership. This ontology will draw on the triaxial model of organisational values that Dolan, Garcia and Richley (2006) propose, in order to build management tools. These values are economic-pragmatic, ethical-social, and emotional-developmental as follows:

Economic-pragmatic values:

- Efficiency
- Performance standards
- Discipline

Ethical-social values:

- Honesty
- Congruence
- Respect
- Loyalty

Emotional-developmental values (related to trust, freedom and happiness):

- Creativity/ideation
- Life/self-actualisation
- Self-assertion/directedness
- Adaptability/flexibility.

The single most critical success factor for management by values (MBV) is congruence between what corporate leaders believe, and what their actions and decisions communicate that they believe, in both the short and long term (Baets & Oldenboom, 2009). Dolan, Garcia and Richley (2006) maintain that values are more than just words; they guide and direct our behaviour and affect our experiences in our daily lives. Dolan, Garcia and Richley (2006) define MBV as a major change process in the company.

2.1.5 Steward leadership

The concept of the steward dates back centuries to various spiritual traditions in diverse cultures. Historically, stewardship was a means to protect a kingdom while those rightfully in charge were away or, more often, to govern for the sake of an underage king. The underage king represents the next generation. Service over self-interest is chosen most powerfully when building the capacity of the next generation to govern themselves (Block, 1993).

Stewardship entails placing the "the long-term best interests of a group ahead of personal goals that serve an individual's self-interests" (Hernandez, 2008:122). A focus on 'others' rather than 'self' has been a steady theme in the stewardship literature. Many authors, including Senge (1990a), Block (1993) and Hernandez (2007) refer to stewardship as one of the attributes or values of a leader. Wilson (2010:76) notes that:

> Steward leadership is a model that views the primary identity and role of the leader as one who is a steward managing the resources of another that are entrusted into his or her care […] As will be seen, the steward leader model *does* have precedent in contemporary research, but minimally so.

It is interesting to note that in the context of universities, the 'resources of another' are vast and varied. These could potentially include the material resources of the state and other research partners, but also the human potential of a disruptive generation that will inherit the consequences of decisions made today. The responsibility is enormous.

Senge (1990a) refers to the leader as steward and said that being a steward implies that the ultimate 'purpose of one's work is others and not self…that leaders do what they do for something larger than themselves [and]…that their life's work may be the ability to lead but the final goal of this talent is other-directed' (Senge, 1990a:345-352). Therefore, stewardship is another-orientated phenomenon: 'service is central to the idea of stewardship' (Block, 1993:41).

It is important to note that Wilson reminds us that the 'research on steward leadership is still in its infancy' and that 'deficiencies and gaps in knowledge still exist in the current sources' (2010:85). To fulfil this perceived gap, April, Kukard and Peters (2013) create a more rigorous definition of steward leadership by identifying specific qualities of a steward leader within the nine dimensions of the stewardship framework. Further, they include hypotheses on the correlation between these dimensions and aspects such as trust and community-building, in order to explain the concept of steward leadership. Figure 2.1 represents the nine dimensions of stewardship developed by April, Kukard and Peters (2013):

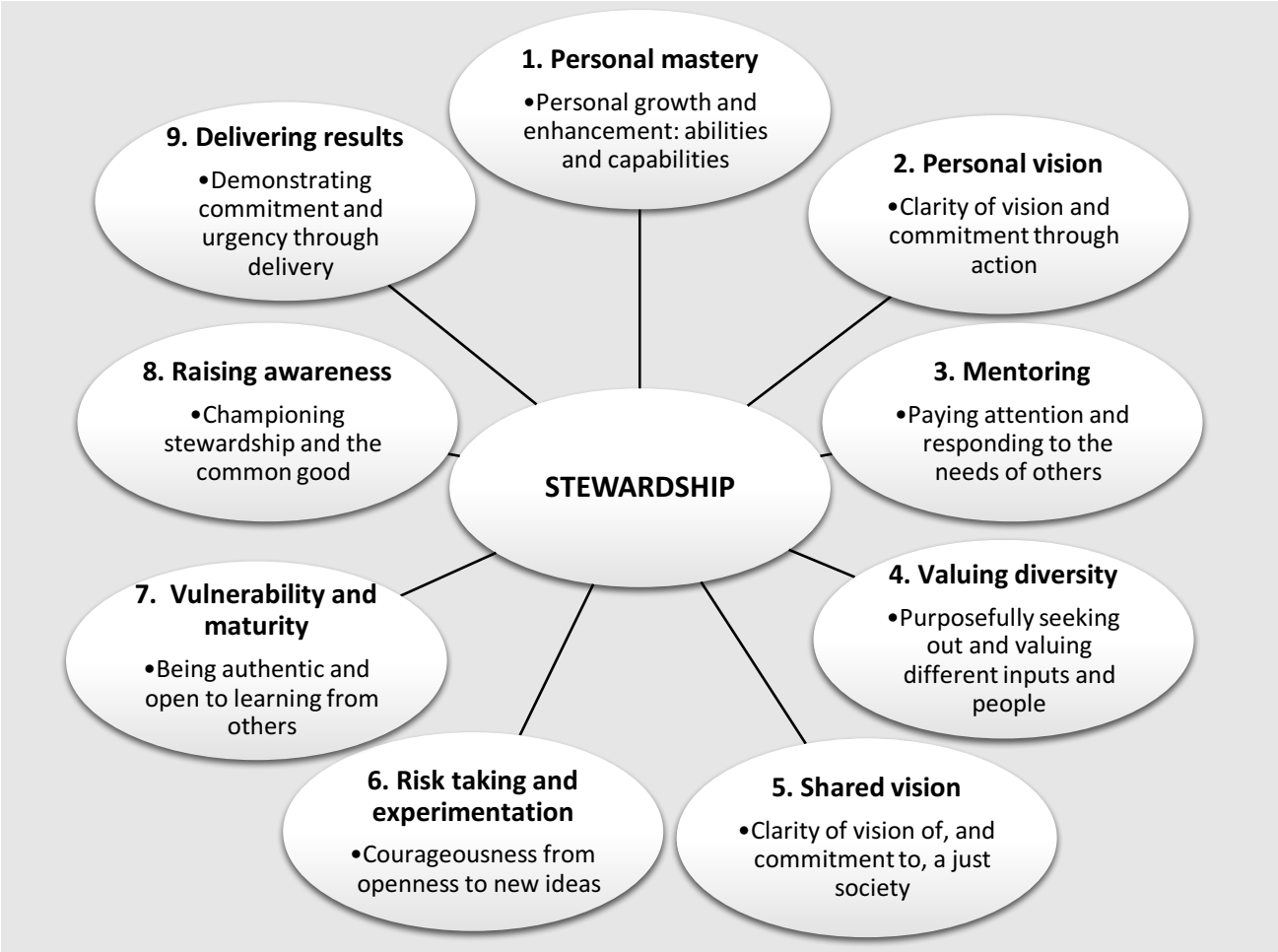


Figure 2.1: Dimensions of stewardship
Source: April, Kukard and Peters (2013:8)

2.1.6 Stewardship theory and agency theory of leadership

Stewardship theorists underline the importance of organisational commitment, asserting that the leader's role in creating stewardship outcomes is to provide clear and consistent role expectations in the service of the organisational mission (Donaldson & Davis, 1991).

In the last two decades, organisational economics and governance have been strongly influenced by agency theory. Agency theory stems from an economics-based paradigm that views man as a rational actor who seeks to maximise his or her individual self-interest (Jensen & Meckling, 1976). According to agency theory, the separation of ownership and management causes a number of results wherein individuals will pursue actions that benefit themselves, regardless of the consequences. At the extreme end of focusing on individual gains, Jensen and Meckling (1976) posit that agents will pursue actions that may diverge from those of the principals. According to agency theory, losses to the principal resulting from interest divergence may be curbed by imposing control structures upon the agent (Davis, Schoorman & Donaldson, 1997:20). Agency theory provides a useful way of explaining relationships where the parties' interests are at odds and can be brought more into alignment through proper monitoring and well-constructed performance and compensation systems.

In contrast to agency theory, stewardship theory draws from sociology and psychology to offer an alternative view in which organisational actors see greater long-term utility in other-focused pro-social behaviour than in self-serving, short-term opportunistic behaviour (Hernandez, 2012:172). Davis, Schoorman and Donaldson (1997) have developed the most detailed explanation of stewardship theory to date. In their paper, the authors provide a detailed description of stewardship theory, its terminology, scope, assumptions and limits, exploring the psychological and situational factors that assist stewards to align their own and their principals' interests (Davis, Schoorman & Donaldson, 1997:21). They describe the conditions under which both agency and stewardship theory might be necessary, and theorise that a steward's behaviour is collective (i.e., focused on achieving the objectives of the organisation), organisation-centred, and autonomous, and that she operates with high authority. The psychological factors that drive stewards are intrinsic motivation, organisation identification, and the use of personal power. Within this paradigm, relationship-centred collaboration within the organisation fosters pro-organisational and trustworthy behaviour in managers (Davis, Schoorman & Donaldson, 1997:21). Stewardship theory defines situations in which managers are not motivated by individual goals, but are stewards, whose motives are aligned with the objectives of their principals. Donaldson and Davis (1991) report on an empirical test of agency and stewardship theory by contrasting how these two views address the governance and incentives of the CEO and their impact on shareholder return. They argue that, for CEOs who are stewards, their pro-organisational actions are best facilitated when the corporate governance structures give them high authority and discretion. Thus, stewardship theorists have focused on the structures that facilitate and empower, rather than those that monitor and control (Davis, Schoorman & Donaldson, 1997:26).

In past work, researchers have outlined the general tenets of stewardship theory, but numerous gaps in the literature remain. Hernandez (2012) asserts that scholars of stewardship theory have focused on distinguishing it from agency theory rather than advancing an understanding of the stewardship construct. In particular, relatively little attention has been paid to how organisational-level factors create the distinct psychological processes that lead to stewardship behaviours. As a consequence, stewardship theory has not been able to inform organisations on how to generate and sustain stewardship, and thus practical relevance is also lacking (Hernandez, 2012:173).

2.1.7 Servant leadership

The concept of servant leadership was initially developed within the management lexicon by Robert K. Greenleaf (1904–1990) in his first essay entitled *The Servant as Leader,* which he wrote in 1970. Frick and Spears (1996), noting that Greenleaf was a Quaker by faith and practice, assert that he strongly believed in the equality of all human beings. He saw the role of leadership as one of service, not just to customers but to the organisation's stakeholders as well.

Spears (1995:2) identifies servant leadership as an approach that 'attempts to simultaneously enhance the personal growth of workers and improve the quality and caring of our many institutions through a combination of teamwork and community, personal involvement in decision-making, and ethical and caring behaviour'. Servant leadership appears to be paradoxical – we see a leader as one who leads and a servant as one who follows, yet the inherent value of the concept of servant leadership is that both leadership and followership are emphasised. The servant leader's primary objective is to serve and meet the needs of others, which optimally should be the prime motivation for leadership (Russel & Stone, 2002). Block (1993) posits that there is a deep hunger within our society for organisations in which people are treated fairly and humanely, and are supported in their personal growth, - where leaders can be trusted to serve the needs of the 'many' rather than the 'few' (Patterson and Stone, 2005:11).

Laub (2004:9) posits that 'servant leadership is not a style of leadership, though it is often portrayed that way in leadership theory texts. It is a paradigm that reshapes our understanding and practice of leadership'. Following from this, servant leadership holds the belief that if the general well-being and development of individuals are initially facilitated, only then will the goals of the organisation be achieved on a long-term basis (Patterson & Stone, 2005). Therefore one can infer that the primary focus is on people and not on the organisation in servant leadership.

Greenleaf's (1977: 13-14) own definition (and litmus test) of the servant leadership concept is often quoted today:

> The servant leader is servant first. It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead ... [servant leadership] manifests itself in the care taken to make sure that other people's highest priority needs are being served. The best test, and difficult to administer, is: Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants? And what is the effect on the least privileged in society; will they benefit, or, at least, not be further deprived?

In an attempt to clarify the concept of servant leadership, Spears (1995) draws on Greenleaf's definition and proposes ten key elements of servant leadership. According to Spears (1995:4-7) these elements or characteristics include those illustrated in Figure 2.2 below.

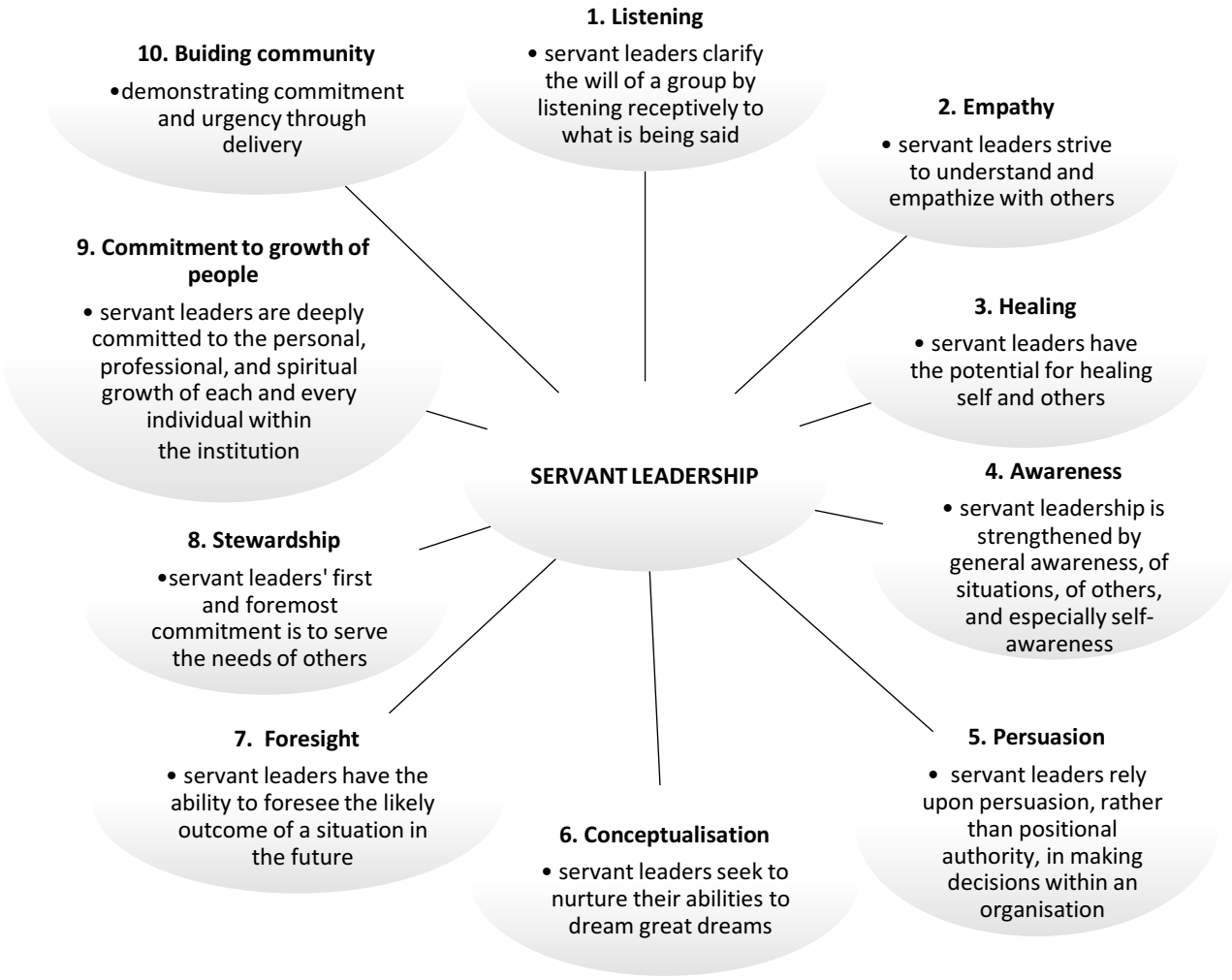


Figure 2.2: Key elements of servant leadership
Source: Adapted from Spears (1995)

However, Spears (1998:6) states that 'these ten characteristics of servant leadership are by no means exhaustive'. Barbuto and Wheeler (2006) combine these ten characteristics of Spears (1995) with a dimension termed 'calling' – the natural desire to serve others, which was fundamental to servant leadership in the early writings of Greenleaf (1977). Barbuto and Wheeler (2006) include this eleventh dimension of servant leadership in their research aimed at developing operational definitions and scales to measure the 10 characteristics of servant leadership identified by Spears (1995).

In the monograph *Leadership by the book: tools to transform your workplace*, Ken Blanchard (1999:42) notes that 'leaders who are servants first will assume leadership only if they see it as best way they can serve. They are called to lead, rather than driven, because they naturally want to be helpful. They aren't possessive about their position. They view it as an act of stewardship, rather than ownership'. The more traditional model of leadership, often based heavily on hierarchical structure and a designated chain of command geared toward increased efficiency, has resulted not only in the moral decline of the relational environment but a pervasive malaise common to the psyche of the contemporary working person. The practices of servant leadership

foster a deeper, more personal sense of vision and inclusiveness, and they produce answers to the failures of leadership found in traditional models.

Bass (2000) offers a distinction between servant and transformational leaders by explaining servant leaders as going beyond transformational leaders in selecting the needs of others and serving others as his main aim, whereas transformational leaders aim to align their own and others' interests with the good of the group, organisation, or society. However, no empirical research exists to support these assumptions.

2.1.8 Transformational leadership

Scholar, political scientist and social historian James MacGregor Burns (1978) conceptualises leadership as either transformational or transactional and is therefore referred to as the originator of transformational leadership theory. The seminal conceptualisation of transformational leadership theory rests on the assertion that certain leader behaviours can arouse followers to a higher level of thinking (Burns, 1978). A principal element of transformational leadership is its emphasis on follower development that is, followers are changed from being self-centred individuals to being committed members of a group (Sashkin, 2004:175). Transformational leaders are those who stimulate and inspire followers to both achieve extraordinary outcomes and in the process develop their own leadership capacity. This is different from transactional leadership, which is about instrumental aspects of work and negotiations with subordinates, and about rewards and conditions for their contributions. Here, leaders and subordinates are viewed as bargaining agents where relative power regulates an exchange process as benefits are issued and received. Deluga (1990:192) insists that transactional leadership theory suggests that subordinates and/or leaders can exercise considerable power and influence by engaging in a mutually beneficial exchange process with their leader.

Bernard Bass (1985) was the first to initiate major research around Burns's ideas. He expands and refines Burns's concepts of transformational leadership by giving more attention to the needs of the follower instead of just the leader. Bass (1985:20) argues that followers can do more than expected if transformational leadership does three things: (1) raises followers' levels of consciousness about the importance of idealised goals; (2) helps followers to transcend their own self-interests for the sake of the organisation; and (3) moves followers to address higher-level needs. Bass (1985) also posits that transformational leadership can move followers to give *extra effort* to exceed expected performance – this would demonstrate how much a leader motivates them to perform beyond contractual expectations. This process leads to high levels of follower satisfaction and commitment to the group and the organisation.

Transformational leadership theory also acknowledges the importance of power and influence processes. Although early research demonstrated that transformational leadership was a particularly powerful source

in military settings (Bass, 1985), more recent research has suggests that 'transformational leadership is important in every sector and setting' (Antonakis & House, 2002:14).

The distinction between charismatic and transformational processes and between positive and negative charisma is one of the more interesting subjects of the research and theory (Bass 1985, Bass & Riggio, 2006). Burns (1978) applies some of the theory first developed by the German sociologist Max Weber (1947), who however, defined Charismatic leadership more narrowly, suggesting that a leader with charisma is 'endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities. These are such as are not accessible to the ordinary person, but are regarded as of divine origin or as exemplary' (1947:358-9). Weber uses *charisma* as a generic descriptor of those particular qualities that would result in influential leaders, not by physical force and strength, but by their image, bearing and spirit, and strong inspirational capability. Followers not only trust and respect the leader, as they would with a transformational leader, but they also idolise or worship the leader as a superhuman hero or spiritual figure (Bass, 1985). Bass and Riggio (2006:5) argue that transformational leadership has much in common with charismatic leadership, but charisma is only part of transformational leadership.

According to Burns (1978), transformational leaders seek to raise the consciousness of followers by appealing to higher ideals and values such as liberty, justice, equality, peace, and humanitarianism, not to baser emotions such as fear, greed, jealousy or hatred. Followers are elevated from their 'everyday selves' to their 'better selves'. For Burns (1978), transformational leadership may be exhibited by anyone in the organisation in any type of position. It may involve people influencing peers or superiors as well as subordinates.

Although there have been alternative measures developed to assess both transformational and charismatic leadership, the most widely accepted instrument used to measure the components of transformational leadership is the Multifactor Leadership Questionnaire (MLQ) developed by Bass (1985). There have been several revisions to the MLQ; its current revised form, MLQ (5X), assesses the Full Range of Leadership (FRL) model, including laissez-faire leadership; the components of transactional leadership, namely management by exception (both active and passive); and contingent reward, as well as the components of transformational leadership (Bass & Riggio, 2006:19).

Bass and Riggio (2006:20) note that originally it was proposed that there were three components to transformational leadership: charismatic-inspirational, intellectually stimulating, and individually considerate. However, later factor analysis has suggested that the charisma factor, what has been subsequently termed idealised influence, was separate from the inspiration factor (inspirational motivation).

There are two parts to the MLQ instrument. The first is the leader form, which asks the leader to rate the frequency of his own behaviour, and the second is the rater form, which requires associates of the leaders to rate the frequency of their leader's transactional and transformational leadership, with anchors rating from 0 = *Not at all* to 4 = *Frequently, if not always*.

Sample items from the MLQ are presented in Table 2.1:

Factor	Sample Item
Idealised influence (attributed charisma)	My leader instils pride in me for being associated with him or her
Idealised influence (behaviours)	My leader specifies the importance of having a strong sense of purpose
Inspirational motivation	My leader articulates a compelling vision of the future
Intellectual stimulation	My leader seeks different perspectives when solving problems
Individualised consideration	My leader spends time teaching and coaching
Contingent reward	My leader makes clear what one can expect to receive when performance goals are achieved
Management-by-exception (active)	My leader focuses attention on irregularities, mistakes, exceptions, and deviations from standards
Management-by-exception (passive)	My leader shows that he or she is a firm believer in "If it ain't broke, don't fix it"
Laissez-Faire	My leader delays responding to urgent requests

Table 2.1: Sample items from the MLQ (5X)
Source: Replicated from Bass and Riggio (2006:21)

It is important to note that Rafferty and Griffin (2004:331-334) propose five more focused and theoretically distinct sub-dimensions of transformational leadership, including vision, inspirational communication, intellectual stimulation, supportive leadership, and personal recognition.

Transformational leadership has been further developed by Bennis (2009:33) who identifies four major strategies characteristic of transformational leaders: (1) a compelling and clear vision through the use of dramatic metaphors and exciting presentations; (2) shared meanings through not only one-to-one communication, but also the activity of creating meaning with others; (3) trust through positioning; and (4) creative deployment of self by nurturing one's strengths and making sure they fit with the organisation's

needs. This strategy also involves positive self-regard or self-confidence and a willingness to risk success as opposed to fearing failure.

The works of Burns, Bass, and others in transformational leadership provide an important foundation for an emphasis on the relationship between leader and follower, the development of followers' motives and morals, and the emphasis on the higher mission of the organisation.

2.1.9 Contingency theories

Emerging in the 1960s, situational and contingency models examine the relationship between micro aspects of the organisational context (such as task design and subordinate development) and leadership (Fiedler, 1997:126). Such situational effects or contingencies have also been explicitly recognised by theorists such as House (1971) and Vroom and Yetton (1973). New theories such as processual theory and transaction cost economics focus more broadly on notions of context and how they affect leadership (Fielder, 1997:127). Jay Galbraith states succinctly two assumptions underlying contingency theory: 'There is no one best way to organise; however, any way of organising is not equally effective' (1973:2).

Similarly, Davis and Powell describe the development of theory on environmental relations and observe that '[u]ncertainty is one of the most critical features of the environment', with contingency theory and resource dependency theory both suggesting that 'a good deal of organisational behaviour consists of adaptive responses to environmental uncertainty' and emphasizing exchange relations 'as the primary source of uncertainty' (1992:317).

A number of theorists have embraced a contingency perspective: the assumption that how a leader and organisation is structured depends on the nature of the environment to which it relates. Contingency theory therefore, strives to capture the cause and effect relationship between the organisation's external environment and its internal structures and processes. In the development of these theories, scholars use biological and physical metaphors from contemporary science to describe the phenomena they observe in the course of change.

Kezar, Carducci and Contreras-McGavin (2006:54) contend that processual theory asserts that situations are not objective realities to which leaders respond; instead, situations are interpreted and created by people in a setting. Moreover, leadership actions are not contingent or objective, fixed situational variables in the organisation. Instead, situational aspects such as employee motivation or task design are interpreted by various people in the context. Processual leadership makes the importance of context more obvious by examining leadership over time and through a sequence of activities (Antonakis, Avolio & Sivasubramaniam 2003:268) – therefore processual studies are longitudinal in nature, observing leadership dynamics over time.

Schoonhoven (1981) authored a cautionary paper titled *Problems with Contingency Theory: Testing Assumptions hidden within the Language of Contingency "Theory"* in which she describes in detail problems with contingency theory that appear to account for much of its mixed empirical support.

2.1.10 Situational leadership theory

Hersey and Blanchard developed a life cycle theory of leadership (1969), later renamed Situational Leadership Theory (SLT) (1988), which proposes that the optimal amount of task and relations behaviour depends upon subordinates' maturity. According to Hersey and Blanchard (1993:184), SLT is based on the interplay among the extent of leader directive (task) behaviour, leader socio-emotional (relationship) behaviour and follower readiness/maturity for performing a certain function. They posit that followers are the most critical factor in leadership events. Yukl (1989:264) asserts that the theory has been popular at managerial workshops but not with leadership scholars. Northouse (2013) notes the lack of a strong evidence-base for SLT. Yet, outside the community of scholars who actively study leadership, SLT is less critically viewed as institutions are regularly exposed to the tenets of the theory (Hersey & Blanchard 1993: 215).

Graeff (1983:285) points out the conceptual weaknesses in the theory, including ambiguous constructs, oversimplification, and a lack of intervening explanatory processes.

2.2 Leadership in Higher Education

The claim that various kinds of transitions are taking place in societies, in the world as a whole, and in higher education has been a recurring and dominant theme in the literature (Bowen, 2015; Segall & Freedman, 2007; Homer-Dixon, 2007). Transitions in institutions of higher education involve such matters as the application of market principles, a demand for wider participation, an expansion in kinds of learning and teaching, and a 'deconstruction' of some of the defining features of the university. A key question that forms part of this study is the role and function of higher education, especially universities, in contemporary South African society. Soudien (2012:31) suggests that 'the university is an evolving idea. Around the world there are dozens of manifestations of what it could be: large, small, tied to corporates such as Microsoft, underwritten by foundations such as the Aga Khan Foundation, focused on single professions such as medicine, business or engineering – all of these present themselves as universities'. But what makes a university a good university remains an intensely difficult question to answer.

To this end, Jean-François Lyotard showed remarkable prescience in his work *The Postmodern Condition* (1984) regarding the development of the university in an era dominated by the rise of information technology. The key insight that Lyotard presents is captured by a term that has become ubiquitous in the criticism of contemporary educational practice: "The true goal of the system" he writes, "the reason it programs itself like a computer is the optimization of the global relationship between input and output:

performativity" (Lyotard 1984:11). Barnett and Standish (2003:216) describe performativity as the term which aptly exposes the jargon and practices of efficiency and effectiveness, quality assurance and control, inspection and accountability that have become so prominent a feature of contemporary educational regimes.

Alvesson (2013:95-117) challenges the assumption that higher education is necessarily best understood as being primarily a vehicle for the improvement of knowledge and intellectual qualifications. He extensively cites Arum and Roksa (2011), who followed 2 200 US students over their university years, using tests designed to investigate critical thinking, analytical reasoning, problem solving, and writing. The study indicates that some 45 percent of students in the sample had made no effective progress in critical thinking, complex reasoning, and writing in their first two years and 37 percent did not improve after four years. According to Arum and Roksa (2011:36) 'an astounding proportion of students are progressing through higher education today without measurable gains in general skills'. The broader purpose of higher education, which should lead to well-informed, reflective, and critically-thinking citizens, is thereby not really being accomplished. Readings argues that the university needs to pay attention to the 'preservation of the activity of thinking' (1996:192).

The more universities there are, the larger the higher education sector is. Politicians, policy-makers, and others often emphasise expanded higher education as the route to economic growth and a reduction in inequality. Readings (1996:21) remarks the easy way in which we have slipped in to the language of 'world class' and 'excellence' and urges that we deconstruct the terms we use and how we use them.

2.3 Organisational theory

Organisational theory is roughly a half-century old as a distinct field of the social sciences. When March and Simon wrote the foundational text for organisational theory in 1958, it was hardly a field at all: 'However much organizations occupy the thoughts of practicing executives and administrators, and however many books for these practitioners have been written about them, the theory of organizations occupies an insignificant place in modern social scienc' (March & Simon, 1958:1). This notion is supported by Scott (2008:73) who states that 'institutions of one type or another can be traced back to the earliest stages of humankind, whereas organizations as we know them are a relatively recent development'.

The leadership literature is replete with theories and models, but seldom does it take into consideration the realities and complexities of real-world organisations. Few studies have taken an interest in leadership in relationship to organisational theory, preferring instead to focus on the dyadic relationship between leaders and followers and thus leaving organisational reality out of the picture (Alvesson, 2013:173). The continued dominance of a rational, mechanistic (Newtonian) model of organisations is reflected in the leadership

literature. On this point, Manville and Ober assert, 'We are in a knowledge economy, but our managerial and governance systems are stuck in the Industrial Era. It's time for a whole new model' (2003:48). Gronn's (1999) perspective resonates with Manville and Ober, as he contends that despite the needs of the Knowledge Era, much of leadership theory remains largely grounded in a bureaucratic framework more appropriate for the Industrial Age.

Therefore, I suggest that the complexities of organisational life require a systemic approach as complex organisations exhibit the properties of nonlinear behaviour. Thompson (1967:6) describes a complex organisation as a set of interdependent parts, which together make up a whole that is interdependent with some larger environment. Universities are dynamic organisations and are required to change in ways that cannot be predicted.

2.3.1 Organisations as systems

The Oxford English Dictionary defines a system as a 'set or assemblage of things connected, associated, or interdependent, so as to form a complex unity; a whole composed of parts in orderly arrangement according to some scheme or plan; rarely applied to a simple or small assemblage of things'. 'Lymphatic system', 'digestive system', 'client relationship management system' and the 'government social grant system' – these are all commonly described as systems. Thus a system is a set of interrelated parts that are experienced as a whole.

An important characteristic of the organisation as system is that it is complex (Carley & Lee, 1998:271). More precisely, in the organisation as system there are many interacting non-linear processes. Anderson (1999: 217) defines a complex system as one that is made up of "many interactions among highly differentiated parts". Allen, Maguire and McKelvey provide a more detailed definition:

> A complex system is a 'whole' made up of a large number of interacting 'parts' or 'agents', which are each governed by some rule or force which relates their behaviour in a given time period contingently to the states of other parts. Interactions among parts are usually though not necessarily local and rich; and can be material or informational. Interactions among parts are usually though not necessarily local and rich; and can be material or informational. As individual parts respond to their own specific local contexts in parallel with other parts, qualitatively distinct emergent patterns, properties and phenomena can arise at the level of the system despite the absence of explicit inter-part co-ordination (2011:2).

Some interesting new perspectives are supplied by the work of Cilliers (1998). In the opening chapter of his seminal book titled *Complexity and postmodernism: understanding complex systems*, Cilliers posits that a complex system is not constituted merely by the sum of its components, but also by the intricate *relationships* between these components (1998:2). Further, he provides a useful description of the characteristics of complex systems. Table 2.2 below summarises these elements.

Table 2.2: Characteristics of complex systems

Characteristic		Explanation
1.	**Elements**	Complex systems consist of a large number of *elements*. When the number is relatively small, the behaviour of the elements can often be given a formal description in conventional terms. However, when the number becomes sufficiently large, conventional means (e.g. a system of differential equations) not only become impractical; but also cease to assist in any *understanding* of the system.
2.	**Interaction**	A large number of elements are necessary but not sufficient. The grains of sand on a beach do not interest us as a complex system. In order to constitute a complex system, the elements have to interact. And this *interaction* must be dynamic.
3.	**Rich**	The interaction is fairly rich, i.e. any element in the system influences, and is influenced by, quite a few other elements. The behaviour of the system, however, is not determined by the exact number of interactions associated with specific elements.
4.	**Non-linear**	The interactions are *non-linear*. Non-linearity also guarantees that small causes can have large results, and vice versa. It is a precondition for complexity.
5.	**Short range**	Interactions usually have a fairly *short range*.
6.	**Loops**	There are *loops* in the interactions.
7.	**Open systems**	Complex systems are usually *open systems*, i.e. they interact with their environment.
8.	**No equilibrium**	Complex systems operate under conditions far from equilibrium.
9.	**History**	Complex systems have a history. Not only do they evolve through time, but their past is co-responsible for their present behaviour.
10.	**Ignorance**	Each element in the system is ignorant of the behaviour of the system as a whole.

Source: Adapted from Cilliers (2008:3)

Espejo and Reyes claim that systemic thinking is a particular way of approaching issues of concern that includes seeing wholes (2011:17). Further, they posit that one of the characteristics of systemic phenomena is that they are complex and therefore difficult to appreciate. This complexity emerges from the relations among the components producing a whole, as well as from the co-development of a system with the many others in its surroundings.

Recent developments in complexity and chaos theories recognise this non-linearity of interactions in the constitution of an observable system:

> The conjunction of a few small events can produce a big effect if their impacts multiply rather than add. The overall effect of events can be unforeseeable if their consequences diffuse unevenly via the

> interaction patterns within the system. In such worlds, current events can dramatically change the probabilities of many future events (Axelrod & Cohen, 1999:14).

These theories attempt to explain mainly dynamic systems that share non-linearity characteristics. Researchers claim that 'the modern workplace continues to change at a radical and accelerated pace' (Cartwright & Holmes, 2006:199) and that 'less and less of current organisational functioning can be called routine' (Palmer & Hardy, 2000:230). Theorists (Weick, 1976: 1-19) have also argued that educational organisations are unusual systems, in that they are "loosely coupled," a characteristic that makes large-scale change less likely to occur rapidly or to affect the whole organisation in dramatic ways.

2.3.2 Complexity theory

It would be useful to provide a working definition of what is meant by 'complexity'; however, the concept remains elusive at both the qualitative and quantitative levels. Nicolis and Prigogine (1989) state that complexity is an idea that is part of our everyday experience. 'We encounter it in extremely diverse contexts throughout our lives, but most commonly we get the feeling that complexity is somehow related to the various manifestations of life' (Nicolis & Prigogine, 1989:6). A broad description is provided by Luhmann (1985:25), who states that complexity entails that, in a system, there are more possibilities than can be actualised. This definition is vague, and therefore it is more useful to provide an analysis of the characteristics of complex systems as developed in the previous section (see Table 2.2).

The origins of the term 'complexity theory' lie in attempts by meteorologists to build mathematical models of weather systems (Lorenz, 1993). Subsequently, scientific disciplines such as biology, physics, chemistry, and mathematics sought to apply a similar approach to their areas of research (Styhre, 2002:343). Complexity theory is the study of self-reinforcing interdependent interactions among adaptive entities and how such interaction produces creativity, learning, adaptability, and change (Marion & Uhl-Bien:2008). Tsoukas, (1998:292) asserts that complexity theory brings to light notions of nonlinearity, instability, disorder, and unpredictability to organisational descriptions. According to complexity theory, innovative organisational behaviours are impelled more by interactive dynamics across an organisation than by leadership action. Complexity envisions organisations as social networks, or complex adaptive systems (CAS), composed of a diversity of adapting agents that recurrently (Cilliers, 1998) interact with, and mutually affect one another, and in so doing generate novel behaviour for the system as a whole (Regine & Lewin, 2000). Leadership's role is not to create that novel behaviour but to foster conditions that enable it.

The distinction between 'simple' and 'complex' is not as obvious as one might intuitively think (Nicolis & Prigogine, 1989:5). Cilliers (1998:2) suggests that many systems appear to be simple, but reveal remarkable complexity when examined closely (e.g. a leaf). Cilliers argues (1998: viii) that if a system can be given a complete description in terms of its individual constituents (despite a huge number of components), it is merely complicated—e.g., jumbo jets or computers are complicated. If relationships in a system cannot be

fully explained by analyzing its individual components because they are not fixed but shifting and changing, it is complex (e.g., the brain is complex). Until recently the differences between complicated and complex were not well understood; and as a result they have often been treated in the same way, as if the same process should be used when one deals with a situation that is complex or complicated.

Under the right conditions, a complex system can *adapt*. This complexity results in novel features (e.g., self-organization) usually referred to as emergent properties. For example, natural language, the Brazilian rainforest and social systems are complex because they are richly interactive, emergent, nonlinearly dynamic, and unpredictable. Because complexity results from the interaction between the components of a system, complexity is manifested at the level of the system itself.

Complex systems are systems consisting of interacting agents (Solow & Szmerekovsky, 2006:52). Such systems are ubiquitous, arising in the biological, social, and physical sciences. Examples include human society with interacting people; an ecosystem of interacting species; the solar system in which the planets and the sun interact through gravity; a bee colony; the human brain consisting of interacting neurons; a business organisation consisting of workers and managers; a financial market of buyers and sellers; the human body consisting of interacting cells, and so on.

The emergence of an organisation theory based on complexity theory has enabled new views of examining and theorising organisational activities (Maguire & McKelvey, 1999:22; Tsoukas, 1998). One of the key contributions of the complexity theory paradigm is the departure from linear models. Tsoukas (1998:293) maintains that "chaos theory highlights the impossibility of long-term prediction for non-linear systems, since the task of prediction would require knowledge of initial conditions of impossibly high accuracy".

Kezar, Carducci and Contreras-McGavin (2006:39) published a report in which they describe chaos theory as challenging the simplicity of earlier theories such as contingency approaches where "'leaders simply match a leadership style to a task or preference of followers. Instead external challenges and the environment in organizations should be examined and taken into account to understand leadership".

The acknowledgement of the non-linearity of complex social and natural systems enables new views on social organisational processes (Styhre, 2002: 343). Complexity theory therefore provides a way to understand universities as complex organisations. McKelvey (1999) points out that complexity theory is particularly relevant for organisations facing rates of external change that exceed their internal rate of change. In a complex, rapidly changing global environment the world is not knowable, and it seems as if organisational outcomes are not directly determined by leader actions. These uncertainty assumptions are based on a 'new science' of complexity that grew out of the physical sciences and moved into the social sciences (Marion & Ulh-Bien, 201:389).

Organisation theory has treated complexity as a structural variable that characterises both organisations and their environments. Daft (1998:11) identifies complexity in organisations with the number of activities or subsystems within the organisation and asserts that it can be measured along three dimensions. Vertical complexity is the number of levels in an organisational hierarchy. Horizontal complexity is the number of job titles or departments across the organisation. Spatial complexity is the number of geographical locations.

It is important to note that Schneider and Somers (2006) described Daft's definition as 'ill equipped'. To remedy this, the authors propose three interrelated building blocks to complexity theory – non-linear dynamics, chaos theory, and adaption and evolution.

Maguire and McKelvey (1999:5) acknowledge that metaphorical applications of complexity science have indeed generated insights, but caution that metaphors need to be deployed explicitly as such rather than unreflexively accepted as valid alternative organisational ontologies.

In a parallel development, computational modelling and complexity science seem to be associated more and more in management research (Maguire & McKelvey, 1999:42). As Maguire et al. (2006:197) write:

> The shift from elegant mathematical representations of idealized processes to agent-based computational models also allows organizational researchers to pursue the epistemological advantages of models and experiments without having to assume away important – or, as some would say, essential – features of organizational reality simply to make the mathematics tractable. These include idiosyncratic heterogeneity among individuals of firms, commonly eliminated by assuming homogeneity; interdependence among agents, commonly eliminated by assuming independence; and the emergent outcomes of agent interactions, commonly ignored because equations necessarily focus on relations among variable at a single level of analysis, treating fast variables as insignificant noise and slow variables as unchanging constants.
>
> So, instead of conceptualizing and studying the world as made up of independent homogenous agents responding as automatons to equilibrating forces seemingly without choice or equivalently, with omnisciently rational choice - bottom-up science offers a more realistic alternative.

Macguire, Allen and McKelvey (2011:22) support this notion by claiming that 'complexity science represents an important development for organizational scholars (and economists) because it provides theories appropriate to Schumpeterian competition and offers mathematical and computational tools to study creative destruction in economic sectors as a complex evolutionary system'.

Scott (2008:159) traces complexity within environments to the number of different items or elements that must be dealt with simultaneously by the organisation. For example, Scott and Meyer (1983) propose that organisations confronting more complex, fragmented environments – such as multiple authorities and/or funding sources – would develop more complex and elaborated internal administrative structures, holding constant the complexity of their work processes.

Anderson (1999:217) puts forward the idea that modern complexity theory suggests that some systems with many interactions among highly differentiated parts can produce surprisingly simple, predictable behaviour

while others generate behaviour that is impossible to forecast, though they feature simple laws and few actors.

Uhl-Bien, Marion and McKelvey (2007:299) described complex adaptive systems (CAS) as a basic unit of analysis in complexity theory: 'CASs are neural-like networks of interacting, interdependent agents who are bonded in a cooperative dynamic by a common goal, outlook, need, etc. They are changeable structures, with multiple overlapping hierarchies, and are like the individuals that comprise them. CASs are linked with one another in a dynamic, interactive network'. Carley and Lee (1998) posit that CASs emerge naturally in social systems and that they are capable of solving problems creatively and are able to learn and adapt quickly. Many authors use the term "complex adaptive system" as a synonym for "complex system". Hazy, Goldstein and Lichtenstein (2007:5) propose that complex systems rely less on computational simulations and more on the study of complex phenomena, and that non-computational complexity studies thus focus on social systems in this formal sense. For the purposes of this study, I propose that the term complex systems be used in the general case of organisations like a university, and that CAS be used to focus on the emergence of new capabilities out of the interaction of semi-autonomous agents.

Lichtenstein and Plowman (2009) describe three empirical studies which document emergence in distinct contexts. From these studies they documented emergence *within* an organisation, the emergence *of* organisations and emergence *across* organisations. Although the contexts of the case studies vary, this pattern emerges: organisational members or lower-level system participants interacted, exchanged information, and acted without coordination from a central decider, resulting in unintended changes at higher levels within and beyond the focal organisation (Lichtenstein and Plowman, 2009:617). These dynamic processes are at the core of organisational emergence. Marion and Ulh-Bien (2001:391) assert that complexity theory approaches matters more holistically. Therefore, I will explore holism and organisations in the next section.

Evidently there are variations in approaches which have been discussed at length in Chapter 2 of this research. Essentially, leadership is mostly still stuck on the top-down, bureaucratic, hierarchical control nexus. Traditional models of leadership are still focused too narrowly on a limited set of elements, primarily highlighting the leader yet overlooking many other potentially relevant elements of leadership such as the follower and context. Speaking to this problem, Zaccaro and Klimoski noted: 'Most theories of organizational leadership in the psychological literature are largely context free. For example, leadership is typically considered without adequate regard for the structural contingencies that affect and moderate its conduct. We maintain, however, that organizational leadership cannot be modeled effectively without attending to such considerations' (2001:12). It is therefore not surprising that researching the dynamics of leadership has absorbed psychology, management, sociology, historical, and political science scholars for more than a century in trying to determine what constitutes leadership. Although there has been an accumulation of

leadership theories and models associated with individual and in some instances group or collective leadership (Ayman & Korabik, 2010), there is just not sufficient tools in the literature to address the complexity of higher education systems as they appear today.

To address these limitations, leadership theorists like Marion and Uhl-Bien point out that leadership involves '…creating the conditions that enable productive, but largely unspecified, future states' (2001:391). Complexity theory proposes that organisations are complex systems composed of a diversity of agents who interact with and mutually affect one another, leading to spontaneous 'bottom up' emergence of novel behaviour (Marion and Uhl-Bien, 2003:55). Complexity science embodies important, new research methods and an epistemology for understanding the nature of, and the processes underlying, agent self-organisation and emergence (Lichtenstein and McKelvey, 2011:341). In the simplest terms, complexity theory moves away from linear, mechanistic views of the world, where simple cause-and-effect solutions are sought to explain physical and social phenomena, to a perspective of the world as nonlinear and organic, characterized by uncertainty and unpredictability. Further, complexity theory approaches leadership more holistically; that is, complex leaders foster (as oppose to determine) connectivity among diverse agents and enable effective coupling of structures.

The construction of the conceptual framework is based on complexity science, which provides new methodological and conceptual tools for explaining how complex systems like universities emerge and evolve. As described in detail in Chapter 2 of this research, complex systems have four common features: self-organisation, a high degree of inter-relatedness, an adaptive nature and emergence. Further, complex systems are often seen as networks rather than hierarchies. The model aims to demonstrate the continuous non-linear and dynamic interaction of agents within a holistic concept of a university as a complex system.

Very few authors have shown how complexity science explains organisational phenomena more completely or differently than existing management models that are out there. McKelvey cautions management and organisational theorists, that without some clear 'value add', built on a base of high scientific activity and based on sound application to management and organization science, complexity theory may just be another fad (1999a:5). Similarly, Schneider and Somers advise that it is important to bear in mind that although complexity theory has indeed entered the leadership lexicon, its linkage with leadership theory is nascent, indicating that further development of the linkage and its implications are in order (2006:351). In this model, there is an attempt to satisfy both of these criteria: that is, the model aims to provide a clear 'value add' as well as a clear explanation of the application to leadership.

2.3.3 Holism and organisations

The ontology for this research will be explained later, but here I will explore a more holistic approach to leadership in higher education. Holism is a term that is loosely defined and interpreted by many people in a variety of ways. Hookway (2000:162) argues that these differences in position have in common a resistance to understanding larger unities as merely the sum of their parts, and an insistence that we cannot explain or understand the parts without treating them as belonging to such larger wholes.

For the purposes of this research, the definition provided by Baets is accepted. This definition proposes that holism accepts that a whole is constructed out of many smaller parts, but it considers that those smaller parts create, via interaction, more than the sum of the separate parts (2006: 20). Holism therefore puts the study of wholes before that of the parts. It does not try to break down organisations into parts in order to understand them and intervene in them. It concentrates its attention instead at the organisational level and on ensuring that the parts are functioning and are related properly together so that they serve the purposes of the whole. The systems approach described in Senge's seminal book, *The Fifth Discipline* (1990a), make use of the philosophy of holism and the systems vocabulary associated with it.

Jackson (2006:647) argues that holism 'encourages the use of transdisciplinary analogies, it gives attention to both structure and process, it provides a powerful basis for critique, and it enables us to link theory and practice in a learning cycle. As a result there is evidence that holism can help managers make a success of their practice and address broad, strategic issues as well as narrow, technical ones'.

In a world of complexity and change, managers have to tackle a much greater diversity of problem situations. They have to continue to ensure that organisational processes are efficient and that they are served by the latest developments in technology. But this is hardly enough to stay ahead of the game. Staff have to be inspired and the organisation's stock of knowledge captured, distributed, and enhanced, so that the organisation learns faster than its competitors.

Jackson (2006:650) asserts that a benefit deriving from holism is the capacity to recognise the importance of both process and structure in system development and maintenance, and the interdependence between them. Non-systemic thinking tends to emphasise either change and flow or permanence and stability: a divide going back to the pre-Socratic philosophers, Heraclitus and Parmenides.

2.3.4 Learning organisations

Peter Senge's (1990a) monograph was an important work in the literature on the subject of 'learning organisations'. Scholars have proposed a variety of definitions for the concept. Garvin defines the 'learning organisation' as:

> An organisation skilled at creating, acquiring and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights (1998:51).

Pedler, Burgoynes and Boydell propose that the 'learning organisation' is:

> An organisation that facilitates the learning of all its members and consciously transforms itself and its context (1997:3).

Both of these definitions recognise that a learning organisation involves two key elements. First, the organisation must be effective at gathering and creating relevant knowledge and disseminating it through the organisational hierarchy, thereby engaging everyone, at all levels, in the process of learning. Second, the organisation must be able to evaluate the knowledge and be prepared to act on it, as appropriate, to stimulate and guide change.

The learning organisation is an ideal "towards which organizations have to evolve in order to be able to respond to various pressures" (Finger & Brand, 1999:136). Watkins and Marsick contend that in a learning organisation, "people are aligned around a common vision: they sense and interpret their changing environment. They generate new knowledge which they use, in turn, to create innovative products and services to meet customer needs" (1992a:115). Senge defined the learning organisation as one 'where people continuously expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together' (Senge, 2006:3).

Johnson (1998:143) asserts that the characteristic of 'the capacity to create' distinguishes learning organisations more than any other: learning organisations are not those that lie in waiting; they are intended to initiate and forcefully create. Senge's definition also describes learning organisations as having the 'ability to create the results they truly desire''. Learning organisations are better able to achieve because of their capacity to learn from past experience. The learning organisation represents an organisational form in which the capacity for individual and group learning continuously expands. In a learning organisation, the organisation's culture and leadership foster an environment where knowledge acquisition, creation, interpretation, transmission, and application drive organisational transformation and improvement.

Watkins and Marsick argue that each learning organisation looks different. But to a large extent they share features such as the following (1993:8):

- Leaders who model calculated risk taking and experimentation
- Decentralised decision-making and employee empowerment
- Skill inventories and audits of learning capacity
- Systems for sharing learning and using it in the business
- Rewards and structures for employee initiative

- Consideration for long-term consequences and impact on the work of others
- Frequent use of cross-functional work teams
- Opportunities to learn from experience on a daily basis
- A culture of feedback and disclosure

The learning organisation is one that learns continuously and transforms itself (Watkins & Marsick, 1993:8). Learning takes place in individuals, teams, the organisation, and even the communities with which the organisation interacts. Learning also enhances an organisation's capacity for innovation and growth. The learning organisation has embedded systems to capture and share learning.

Johnson (1998:148) posits that Woolner's (1995) five-stage developmental model brings clarity to the evolution of a learning organisation. Woolner (1995) develops a model that identifies five distinct stages through which organisations progress on the way to becoming learning organisations. These five stages are: a forming organisation, a developing organisation, a mature organisation, an adapting organisation, and a learning organisation. Barbara (1995) also proposes five stages, which ware similar to the ideas of Woolner: unconscious incompetence, conscious incompetence, conscious competence, unconscious competence, and mastery.

Learning organisations do not happen automatically. Watkins and Marsick indicate that a long-term commitment must be made by the leadership of the organisation (1993:123). This is not to suggest that leaders at the top of an organisation direct every move. Senge (1990b:7) points out that 'the old days when a Henry Ford or Tom Watson learned for the organization are gone'. In an increasingly dynamic, interdependent, and unpredictable world, it is simply no longer possible for anyone to 'figure it all out at the top'. The old model - 'the top thinks and the local acts' - must now give way to integrated thinking and acting at all levels.

Senge (1990b:9) suggests that in a learning organisation, leaders differ dramatically from the charismatic decision-maker. Leaders are designers, teachers, and stewards. Furthermore, Senge posits that these roles require new skills: the ability to build shared vision; to bring to the surface and challenge prevailing 'mental models'; and to foster more systemic patterns of thinking. Senge's work delineates five disciplines that must be studied and mastered (Senge, 2006). He argues that "A discipline is a developmental path for acquiring certain skills or competencies" (Senge, 1990b:10). A summary of these disciplines is presented in Table 2.3. These are essential elements of the learning organization because they comprise the cumulative work of those who preceded Senge and those who have built upon his work.

Table 2.3: Essential elements of learning organisations

Discipline	Key points
Building shared vision	• Developing a picture of the future that includes the needs of organisational members
Surfacing and testing mental models	• Reflecting on deeply held assumptions about views of the world and the reality around it • Clearly articulating one's perspective, holding it up for scrutiny, and/or using it to influence others
Mastering self	• Creating the results in life that organisational members truly seek • Meditating on personal visions and sources of energy
Learning in teams	Using the practices of dialogue and discussion and distinguishing between them: • Dialogue - free and creative exploration of complex and subtle issues, a deep 'listening' to one another and suspending of one's own views • Discussion - different views are presented and defended and there is a search for the best view to support decisions that must be made at this time
Thinking systemically	Seeing interrelationships and patterns of systems rather than linear cause-effect chains. Seeing processes of change rather than snapshots

Source: Adapted from Senge's Five Disciplines (1990)

'Building a shared vision' is the leadership discipline that requires organisational leaders to translate their personal visions into shared visions that bring organisational members together. Unlike creating traditional 'vision statements', this discipline requires that more than one person is committed to actively and personally working toward a common goal. This discipline is essential to the learning organisation as it serves as a motivator and "provides a focus and energy for learning" (Senge: 1990:10). 'Personal mastery', as described by Senge, is the discipline of finding personal motivation and creativity not only in the workplace but in all aspects of life. Personal mastery is essentially personal life-long learning.

'Team learning' is the discipline based primarily on the concepts of dialogue and discussions, which occur among communities of people who learn from the knowledge and experiences of themselves and others. Gilley and Maycunich (2000:18) submit that team learning allows organisational members to learn more about themselves in the context of others, to deepen their own thoughts and ideas, to build capacity for reflection, and to improve communication and opportunities to collaborate.

Watkins and Marsick (1993:99) believe that the building blocks of team learning involve several activities:

- Framing – an initial perception of an issue, a situation, a person, or an object based on past understanding and present input
- Reframing – transforming that perception into a new understanding or frame
- Integrating perspectives – resolving conflicts by integrating divergent views into an acceptable

understanding without compromise or submission to majority rule

- Experimenting – an action undertaken to test a hypothesis or to discover something new
- Crossing boundaries - two or more individuals or teams communicate to achieve a positive end

'Surfacing mental models' is the discipline of reflecting upon, rethinking, and perhaps changing deeply-held assumptions, values, and beliefs that prove to be faulty, based on new knowledge gained through individual or organisational learning activities. Mental models are very useful in organisational activities as they allow for a common picture to be shared among the collective group. Senge suggests that the most critical mental models are those shared among the key decision-makers, which could "limit an organization's range of actions to what is familiar and comfortable" (1990:186).

'Systems thinking' is considered the fifth discipline that brings all of the other disciplines together. It stems from extensive work in the literature on systems theory and allows organisational members to see the organisation function from a broader perspective. This global perspective allows members to see how parts of an organisation work together to produce results. Systems thinking is a critical skill in that it takes into account the complexity of organisations. Higher education and student affairs organisations are very complex. Thus, the power of systems thinking can provide a path toward organisational improvement.

Senge (1990a) asserts that the more organisational leaders and members master these disciplines, the more the organisation will transform into a learning organisation. Unfortunately, the theoretical underpinnings of the disciplines are not sufficiently attended to in the contexts of organisational activities, processes and practices. More importantly, little research examines how the learning organisation concept and the associated disciplines could impact higher education. In fact, Love and Estanek contend that although higher education institutions espouse learning as a foundation, "they themselves rarely exhibit the characteristics of a learning organization" (2004:51). Woodward, Love and Komives (2000:86) support this argument by stating that "learning occurs in them, but the structures, policies, and staff practices do not promote collective efficacy for organisational learning".

Learning is the gaining of knowledge, information, comprehension, or skill, the process of creating meaning by coupling prior learning with new learning, and the ability to use what has been learned across contexts (Love & Estanek, 2004: 51). Argyris and Schön (1996:11) argue that learning does not "become organisational unless undertaken by individuals who function as agents of an organisation according to its roles and rules." Therefore, the amalgamation of individual learning is a phenomenon of individuals learning as agents of the organisation and is thus a collective phenomenon.

An organisation's "learning system" (Argyris & Schön, 1996:28) is made up of "structures" that channel

organisational learning. Together, these structures, coupled with the "behavioural world of the organisation" (Argyris & Schön, 1996:28) facilitate the conditions for an organisational learning system. Argyris and Schön describe organisational structures (1996:28) as:

- Channels of communication (forums for discussion and debate, formal and informal patterns of interaction)
- Information systems (including their media and technologies)
- The spatial environment of the organisation insofar as it influences patterns of communication
- Procedures and routines that guide individual and interactive inquiry
- Systems of incentives that influence the will to inquire.

'Behavioural world' of the organisation, refers to the understanding of the behaviour, social events, institutions, and processes of the organisation as well as the feelings that permeate the interactions among individuals in such a way as to affect organisational learning. For example, the degree to which patterns of interaction are friendly or hostile, how utterances are interpreted and meanings negotiated and processed, i.e., not rigidly applied. Ulrich and Lake (1990:40) describe 'organisational capability' as the "ability to establish internal structures and processes that influence its members to create organisation-specific competencies, and thus, enable the organisation to adapt to changing and strategic needs". They contend that organizational capability includes people management, and the means through which organisations implement policies and procedures to develop and sustain employee commitment.

Dever (1997:57) states that, 'the idea of a learning organization…is appropriate for institutions whose missions are devoted primarily to educating students and advancing knowledge, not producing goods or providing services for profit'. He further argues that, unlike other quality improvement approaches, the learning organisation is very compatible with the ethos of higher education. For example, using Senge's (1990, 2006) framework for the learning organisation, Dever (1997) contends that unearthing mental models, which brings to the surface underlying values and assumptions, is a key learning goal for students in higher education. He also mentions that Senge's idea of systems thinking, seeing the interrelationships and interconnectedness of many parts, is essential in the understanding of the higher education environment.

'A learning organisation is one in which learning is a continuous, strategically-used process, integrated with and running parallel to work that may yield changes in individual and collectively held perceptions, thinking, behaviours, attitudes, values, beliefs, mental models, systems, strategies, policies, and procedures' (Watkins & Marsick, 1992b:298). This quotation indicates that a learning organisation is not one that is merely thrown together on a whim. The learning organisation concept is used in this dissertation to contribute to a conceptual archetype as many of the ideas, strategies, and practices concerning the learning organisation concept are appropriate for the higher education environment today. Improving higher education from an

organisational perspective could transform the higher education enterprise and all of those who participate in it.

2.3.5 Open systems approach to universities as organizations

Scott and Davis (2007:87) propose that the open system perspective emerged as a part of the intellectual ferment following World War II, although its roots are much older. The founder of general systems theory, Ludwig von Bertalanffy, was concerned about the growing compartmentalization of science: 'The physicist, the biologist, the psychologist and the social scientist are, so to speak, encapsulated in a private universe and it is difficult to get word from one cocoon to another' (Bertalanffy, 1956:1). In a similar fashion, Coffee (1981:4) indicates that there are a number of strengths in using a systems approach: 'It provides a way of treating the complexity that exists in the real world, especially a way of handling specific problems that may have complex aspects. It often furnishes concepts that may begin to elucidate the function and structure of complex sets of relationships… [and] recognizes the complementarity of various modes of enquiry'. All systems are characterized by an assemblage or combination of parts whose relations make them interdependent. On this point, Norbert Wiener, the founder of cybernetics, notes: 'Organisation we must consider as something in which there is interdependence between the several organized parts but in which the interdependence has degrees' (1954:322).

Organizations are not closed systems, sealed off from their environment. There remains the dependency on and the flow of information, knowledge, staff, and so forth from the external environment. From an open systems perspective, environments shape, support, and infiltrate organizations. Scott and Davis (2007:31) argue that often connections with 'external' elements can be more critical than those among 'internal' components. They go further and argue that, for many functions, the distinction between organization and environment is revealed to be shifting, ambiguous and arbitrary. Another critical element Scott and Davis posit is that an open systems perspective stresses the importance of cultural-cognitive elements in the construction of organizations: 'Nothing is more portable than ideas - conceptions, models, schemas and scripts. Organizations swim in this cultural soup and continuously adopt and adapt these templates intendedly and inadvertently' (2007:31).

A university can be perceived as an *open* system characterized by interactions between the university and its environment. The interchange of ideas and resources between the university and the environment contributes to an adaptive state of dynamic 'equilibrium' (Cilliers, 1998:6). The university may be growing or shrinking in student numbers, adding or removing course content, but it never stands still. Each university has a legal identity; each has a vision, a unique mission statement and a set of strategic objectives. This is in contrast to being 'closed' from outside influences and self-sufficient and self-perpetuating, a situation that could not be expected to occur with real-world human organizations in society (Scott & Davis, 2007:31).

The rationale for an open systems perspective is that there are interactions within each university and with its environment regarding such areas as governance, policy, curriculum, teaching and learning, research discovery/clusters, funding, technology, and so forth. Further, there are obvious interactions between and among universities (networks of collaboration) and their socio-political and economic environments. The open systems model of a university also takes into account that individual universities could be experiencing different types of external influences and responding in potentially unique ways as well as sharing approaches in common with other universities.

An open systems perspective is less concerned with distinguishing between formal and informal structures; instead, organizations are viewed as a system of interdependent activities. Cilliers refers to these interdependent activities as 'elements in the system' which, clustered together, form the 'larger-scale phenomena' (Cilliers, 2008:7). Some clusters are tightly connected, while others are loosely coupled. At a methodological level of analysis, the use of an open systems model reflects the value of taking an approach that acknowledges complexity in the relationships between the external influences on organizations, the processes that occur in organizations and the consequences of these influences as outputs (Ashmos & Huber, 1987).

The idea of types of systems that vary both in the complexity of their parts and in the nature of their relations among the parts is usefully elaborated by Boulding, who devised a classification of systems by their level of complexity. Boulding identifies nine system types as illustrated in Table 2.4.

Table 2.4: Boulding's system types

Frameworks	Systems comprising static structures, such as the arrangements of atoms in a crystal or the anatomy of an animal.
Clockworks	Simple dynamic systems with predetermined motions, such as the clock and the solar system.
Cybernetic systems	Systems capable of self-regulation in terms of some externally-prescribed target or criterion, such as a thermostat.
Open systems	Systems capable of self-maintenance based on a throughput of resources from their environment, such as a living cell.
Blueprint growth systems	Systems that reproduce not by duplication but by the production of seeds or eggs containing preprogrammed instructions for development, such as the acorn-oak system or the egg-chicken system.
Internal-image systems	Systems capable of a detailed awareness of the environment in which information is received and organized into an image or knowledge structure of the environment as a whole, a level at which animals function.

Symbol-processing systems	Systems that possess self-consciousness and so are capable of using language. Humans function at this level.
Social systems	Multicephalous systems compromising actors functioning at the previous level, who share a common social order and culture. Social organizations operate at this level.
Transcendental systems	Systems composed of the "absolutes and the inescapable unknowables."

Source: Adapted from Boulding (1956:200-207)

Boulding's classification makes clear that there is a great range and variety of systems and although the nine levels can be distinctly identified and associated with a specific system, they are not meant to be mutually exclusive (Scott & Davis, 2007:89).

Context can have varying impacts on an organisation. The term 'institutional environment' describes the context in which organisations operate that influences and constrains their interactions with others (Ferguson & Ferguson, 2000:339). The awareness of the institutional environment is an essential element of organisational leadership. Ferguson and Ferguson assert that a distinction can be drawn between soft and hard effects in institutional environments (2000:340). A soft effect has informal constraints whereas a hard effect has formal rules and requirements. For universities, hard effects could include changes in curricula, the admissions policy, or a new requirement, like mandatory data management plans required from a national funding agency. Soft effects include emergent technologies like the rapid expansion of online learning, improving student-learning outcomes such as graduation rates, policy, or changes like the decrease in government financial support. Failure to take adequate account of the institutional environment – both hard and soft – can hamper an organisation's development and prospects.

Because of the openness of organizations, determining their boundaries is always difficult. Does a university include within its boundary its students? Its alumni? Visiting academics? The spouses of students in university housing? Pfeffer and Salanick (1978:30) propose to resolve this type of problem by reminding us that individual persons are not enclosed within the boundaries of organizations, only certain of their activities and behaviors are. Although this interpretation helps, it is accepted that many actions have relevance for more than one system simultaneously.

Many organisations seem to be only partially open. We all know, for example, of leaders, teams, and agents who shut out certain kinds of information. Most often, they are open only to information that matches the way in which they already see the world. Kelly and Allison (1998:50) argue that open systems self-organise, which means that structure and process *emerge* from the organisation's history and environmental conditions.

Universities face continual challenges to their identity as a result of social, economic, and political environments. It therefore no longer seems appropriate to characterise these organisations as discrete, isolated entities. It is more useful if they are understood as an open system. The objective of this research is to conceptualize the university as an open system, thereby developing an empirical instrument with which to examine the field of university organizational leadership.

2.4 Institutional theory

The institution and institutionalisation are core concepts of general sociology. Early groundwork for the analysis of social institutions was laid by Montesquieu, Tocqueville, Marx, Weber, and, in particular, Emile Durkheim (Bidwell, 2006:33).

In the past three decades, scholars have described the emergence of a 'new' institutionalism, and thus institutional theory has developed into one of the leading perspectives in organisational analysis (Rowan & Miskel, 1999:359). Scott (2008:118) viewed the ascendance of institutional theory as simply a continuation and extension of the intellectual revolution begun during the mid-1960s that introduced open systems conceptions into the study of organisations. Open systems theory transformed existing approaches by insisting on the importance of the wider context or environment as it constrains, shapes, penetrates, and renews the organisation (Scott & Davis, 2007: 31). Gradually, organisations were seen to be more than production systems; they were also seen as social and cultural systems.

Selznick (1957:5) argues that the term 'organisation' suggests a certain bareness, a lean, no-nonsense system of consciously coordinated activities. He says that an institution is more nearly a natural product of social needs and pressures – a responsive, adaptive organism and states that this distinction is a matter of analysis, not of direct description.

Contingency theory, a branch of systems design, emphasises that design decisions depend – are contingent on – environmental conditions (Scott & Davis, 2007:103). Basically, the theory is guided by the general orientating hypothesis that organisations whose internal features match the demands of their environments will achieve the best adaptation. Meyer and Rowan (2006:3) posit that the basic assumption of institutional thinking (old and new) is that large institutional complexes such as educational institutions, and the practices they give rise to, are contingent and contested.

The varied definitional history of 'institution' reflects the capacious nature of the concept. Given the diversity of institutional forms, Abell (1995:5) defines an institution as 'a set of more or less agreed-upon rules, which carry meaning for and determine the actions of some population of actors'. Jepperson (1991:145) asserts that '*Institution* represents a social order or pattern that has attained a certain state or property; institutionalization denotes the process of such attainment'. Put another way, institutions are those social

patterns that, when chronically reproduced, owe their survival to relatively self-activating social processes. Scott (1995:33) proposes the following definition of institutions:

> Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers – cultures, structures, and routines – and they operate at multiple levels of jurisdiction.

Scott provides another perspective (2008:48) when he states:

> Institutions are comprised of regulative, normative and cultural-cognitive elements that together with associated activities and resources provide stability and meaning to social life.

These are dense definitions containing a number of ideas that will be discussed next. Regulative elements stress rule setting, monitoring, and sanctioning activities. Normative elements 'introduce a prescriptive, evaluative, and obligatory dimension into social life' (Scott 2008:54), and cultural-cognitive elements emphasize the 'shared conceptions that constitute the nature of social reality and the frames through which meaning is made' (Scott 2008:57). Particular institutions are made up of different combinations of these institutional elements, depending on the type of institutional order they support. Each offers a different rationale for claiming legitimacy, whether by virtue of being legally sanctioned, morally authorised, or culturally supported (Scott 2008:51).

Scott (2005:460) argues that institutional theory attends to the deeper and more resilient aspects of social structure. It considers the processes by which structures, including schemas, rules, norms, and routines, become established as authoritative guidelines for social behaviour. It enquires into how these elements are created, diffused, adopted, and adapted over space and time, and how they fall into decline and disuse.

As alluded to earlier, the roots of institutional theory run richly through the formative years of the social sciences, enlisting the insights of scholars like Karl Marx, Emile Durkheim and Max Weber. For the purposes of this research, Durkheim's characterisation of educational institutions in society is illuminating:

> Education has varied infinitely in time and place…Today, it tries to make of the individual an autonomous personality. In Athens, they sought to form cultivated souls, informed, subtle, full of measure and harmony, capable of enjoying beauty and the joys of pure speculation; in Rome, they wanted above all for children to become men of action, devoted to military glory, indifferent to letters and the arts. In the Middle Ages, education was above all Christian; in the Renaissance it assumes a more lay and literary character; today science tends to assume the place in education formerly occupied by the arts (Durkheim, 1956:64).

Certainly, the university has moved a long way from the classic medieval institution that one saw in Bologna, Oxford or Paris. Soudien (2012:31) argues that as a modern social institution, the university is distinct in that it is not set up for the purposes of social, cultural, and economic reproduction. It is, of course, often a vehicle for the transmission of particular forms of power. But in the way in which it is constituted, in the ways in which the disciplines are structured to interrogate meaning, it has within it the potential for disrupting social, cultural, and economic orthodoxy. This capacity is underpinned by its constituent elements. Soudien asserts

that the university is the one institution that rehearses the practices and modalities for the deconstruction of knowledge that authorises the disciplines – but also the methodologies for the reconstruction of self and community (2012:31).

In his book on leadership, Selznick (1957:16,17) elaborates on his views: 'Institutionalization is a process. It is something that happens to an organization over time, reflecting the organization's own distinctive history, the people who have been in it, the groups it embodies and the vested interests they have created, and the way it has adapted to its environment....in what is perhaps its most significant meaning, 'to institutionalize' is to infuse with value beyond the technical requirements of the task at hand'. As organisations become infused with values, they are no longer regarded as expendable tools; participants want to see that they are preserved. Through institutional analysis one learns something about how higher education connects with other vital institutions in society; what the constraints are under which this important part of one's social life takes place; and what the latitude and the limits are that we confront if we attempt to change the existing institutional order.

Scott (2008:132) discusses a number of factors that affect the amount of complexity, hierarchy, and coordination evident in an institutional sector and the types of controls that agencies exercise over the relevant population of organisations in a sector. The factors he mentioned include market conditions, political traditions, the technologies available for use in a sector, and a variety of other conditions.

2.4.1 Legitimacy

'Organizations require more than material resources and technical information if they are to survive and thrive in their social environments. They also need social acceptability and creditability' (Scott et al. 2000:237). Sociologists employ the concept of legitimacy to refer to these conditions. Suchman (1995:574) provides a useful definition of this central concept: 'Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions'. Further, he maintains that legitimacy is a generalised, rather than an event-specific, evaluation and that it is 'possessed objectively, yet created subjectively' (1995:574).

Weber's typology of authority (i.e. traditional authority, rational-legal authority, charismatic authority) had a profound influence on the development of legitimacy; it is based on the differences in the types of norms that legitimate power systems. Scott (2007:47) synthesises Weber's view in detail and asserts that only traditional and rational-legal authority relations are sufficiently stable to provide a foundation for permanent administrative structures, according to Weber. Weber's typology of authority is of interest to the development of organisational theory since it underlies his conception of basic changes occurring in administrative systems over time.

2.4.2 Creating institutions

Institutions do not emerge in a vacuum. Scott argues that they always challenge, borrow from, and to varying degrees, displace prior institutions (2008:94). As Greif (2006:17) points out: 'Beliefs, norms and organizations inherited from the past will constitute part of the initial conditions in the processes leading to new institutions'. Views concerning institutional construction vary greatly, but can roughly be grouped into two categories: naturalistic and agent-based. Naturalistic accounts treat institutionalisation as a 'natural and undirected process' (Strang & Sine 2002:502). In contrast, analysts embracing an agent-based view stress the importance of identifying particular actors as causal agents, emphasising the extent to which intentionality and self-interest are at work (Scott 2008:95).

Institutional agents come in a variety of guises and include both individual and collective actors. Some of the types of agents Scott considers – nation states, professions, and associations – participate in the construction of new institutional forms, but also exercise many kinds of influence on existing forms and processes (2008:97).

Having briefly reviewed institutionalism, it becomes clear that institutional theory presents a powerful set of explanations for the structure and function of higher education institutions in modern societies. Higher education is, and has been, the central cultural institution of the modern system. Over many centuries, it links an ever-expanding set of specific activities, roles, and organisations to a universal and cultural core. And it defines categories of certified persons as carrying these linkages and as possessing both the relevant cultural core and the specific authority and capacity to carry out the roles.

The institutional perspective, more than others, emphasises the importance of the social context within which organisations operate, and several elements can be highlighted when thinking about universities as institutions. First, attention can be more directed to global and national frames that provide higher education, and especially the university, with a compelling rationale. From the classic medieval institution to the present day, universities have not been only local institutions – but a much broader cultural and civilisational mission has always informed higher education. Its legitimacy and its development throughout history have been linked to enacting this broader mission, which today includes the idea that universities are sites for developments that lead to social progress. Second, the university as institution is increasingly standardised around the world. While communities and countries vary with respect to resources and traditions, universities nevertheless grow ever more similar with respect to goals and programmes for meeting these goals. The global era has led to a narrowing of organisational differences across universities within and between countries.

Institutional theory also emphasises how constraints, rules, and norms condition action and contribute to the emulation of established institutions. However, as much as the complex view of institutions can be recognised as curbing and constraining, the ways in which institutions empower actors and enable actions can also be acknowledged.

2.5 Summary of the literature review

This dissertation is designed to build and validate a leadership conceptual model. Over the years there have been a constant plethora of leadership theories, frameworks and models (Bennis, 2009; Burns, 1978; Deluga, 1990); however, Bolden et al. (2003) suggests that nothing in leadership theory has changed since mid-20th century, except for the appearance of transformational/transactional leadership (Burns, 1978; Bass & Riggio, 2006) and distributed/dispersed leadership (Gronn, 2002). Rost surveyed 130+ books published in the 1980's which support the orthodox views that 'leadership is basically doing what the leader wants done' (1993:70). Due to these varied approaches, we have arrived at a point in time where there is a distinct lack of consensus about what actually constitutes this evolving concept of leadership (Bass, 1990; Ayman & Korabik, 2010). Hackman and Wageman remind us that, 'there are no generally accepted definitions of what leadership is, no dominant paradigms for studying it, and little agreement about the best strategies for developing and exercising it' (2007:43).

To date, contemporary trends in leadership theory have focused significantly on what Bennis refers to as tripod forms: 'leaders, followers, and a common goal they want to achieve' (2007:3). Avolio contends that traditional forms of leadership will need to 'advocate fuller and more integrative focus that is multilevel, multicomponent, and interdisciplinary and that recognizes that leadership is a function of the leader, the led, and the complexity of the context' (2007:31). Most of the attention in the leadership literature has been focused on primarily highlighting the leader, yet overlooking many elements that are potentially relevant. Supporting this claim, the *2007 American Psychologist* issue on leadership observes that context has been underspecified in most leadership research, which may have resulted in less variance being accounted for by leadership with various outcomes.

The work of Osborn, Hunt and Jauch (2002:798) provides a useful frame for this study: 'Leadership is not only incremental influence of a boss toward subordinates, but most important it is the collective incremental influence of leaders in and around the system'. The focus of 'in and around' the system provides an important ground for the conceptual model of leadership proposed in this study. While most studies focus on the dyadic influence of leader and subordinate, this model focuses on the multiple interactions throughout the organization and its environment. In complex systems, mutual influence is necessary for survival (Lichtenstein and Plowman, 2009:618).

The aim of the literature review has been to provide the reader with the context of this research. The overall intention has been to argue that the factors reinforcing the status quo in higher education are systemic. The current system is held together in many different cross-cutting ways.

The review of literature examined various leadership theories. This review of contemporary research has also demonstrated that leadership has a long and developed history, although its application has largely been confined to business entities and organisations. Significant areas of undeveloped knowledge, as well as their associated research questions, surface from this review, such as the following:

- How would leadership be characterised differently, if at all, if one approached it from the perspective of a systemic approach?
- What are the primary characteristics of the leader in a university? What are the primary characteristics of a manager (if different)?
- To what extent do university organisational leaders understand and view their role?
- Would the field of knowledge be improved or advanced if a theory or conceptual model of university leadership were proposed and studied?
- In what ways would knowledge be advanced, and the performance of universities improved, if other stakeholders viewed their roles in a systemic nature?

The aforementioned sources of literature demonstrate that the integration of leadership within the discipline of organisational theory is still an under developed field. Considering the extensive number of sources that have been written on leadership in general, it is surprising that few have tried to bring the systemic view of organisational leaders together with leadership theory or models. The prevalent model of leadership appears to be the model of individual behaviour, but that model is inadequate to address the full range of challenges and issues that university leaders face.

Definitions and approaches to organisations and institutions were explored for this research. It can be concluded that organisations are vital mechanisms for pursuing collective goals in modern societies. Organisations encompass generic social processes but carry them out by means of distinctive structural arrangements. Since the primary question of this research looks at the competencies required for leadership to enhance organisational capability within South African universities, it was critical to understand the complexities of organisations as systems that shape this research project. Effective leadership is difficult in a world of highly dynamic complexity. Decisions may create unanticipated side effects and delayed consequences. Attempts to stabilise the system may destabilise it. Decisions may provoke reactions by other agents seeking to restore the balance that has been upset. Decisions may move the system into a new regime of behaviour where unexpected and unfamiliar dynamics arise. For all these reasons, organisations, more

specifically universities, are viewed as complex systems, made up of a large number of interacting parts or agents.

Further, I propose that the university's becoming a learning organisation could mitigate many concerns regarding higher education, as it would address the human aspect of organisational functioning. The paucity of such humanistic approaches in higher education leadership represents a significant gap in the literature.

As mentioned earlier, there are changes brought on by 'tectonic stresses' in higher education. The emergence of these stresses has introduced new elements of competition and has forced established institutions to become more market-minded and entrepreneurial. Institutional theory suggests that fundamental change in higher education requires much more than changing an organisation's formal structure or work practices. In fact, these aspects of organisations are deeply embedded in, and defined by, complex regulatory, normative, and cognitive constraints. To this point, a variety of evidence and arguments has been assembled to support the case that university leadership merits attention. I discussed the characteristics of complex systems in order to develop a sensitivity for the nature of complexity. This is critical for when I start to develop the proposed conceptual model. Table 2.5 summarises the key elements of the literature review that are relevant to the development of the conceptual model and the research process.

Table 2.5: Key elements and assumptions derived from the literature review

Leadership theory	• Most leadership theory considers the individual – for this research, a leader is nothing more than an agent in the system. • Leadership theory provides rational tools and techniques that are inadequate to enabling leaders to choose the future of their organisations. This is because the assumed 'if…then' causality required for such tools to be effective, does not apply to dynamic human interaction. • Leaders have to move past leadership theory to exercise practical judgment in ambiguous and uncertain situations. • Leadership in relation to organisational theory is underdeveloped – there is a dominant focus on the dyadic relationship between leaders and followers, thus leaving organisational complexity out of the picture.
Organisational theory	• The university is a system and therefore a systemic approach is applied. • It is an open system interacting with the environment – the outside world is part of the system. • Holism – useful in understanding a university. The continuous non-linear and dynamic interaction of agents is described within a holistic lens. • Dynamics of a university are non-linear – e.g. a small percentage change in international grant funding can lead to compounded issues in a research project; a minor policy change can have widespread ramifications to various agents. • Agent-based structure of a university; agent has responsibility. • Five disciplines of Senge's learning organisation are useful in understanding the dynamics of a university and driving the system. • Senge's "Building a Shared Vision" is the leadership discipline that drives the system. • Senge's leadership discipline of systems thinking - seeing the interrelationships and interconnectedness of many parts - is an essential goal in university leadership.
Complexity theory	• Complex systems have a history – university systems are greatly influenced by their history. They have evolved over time and their past is co-responsible for their present behaviour. • Interactions in systems are non-linear – these elements could help one understand one's problem. • University is certainly an open system – influenced by the political system, science and technology, international relationships, the stability of society, etc. • Since universities are driven by the dynamics of social and political demands, they can never be in a state of equilibrium. • An element in the system may belong to more than one clustering – an academic can be a postgraduate student, an alumnus of a previous university, a teacher of an undergraduate course and a leader of a student organisation. Clusters are dynamic and interact with other clusters both directly as well as through the individual members they share with each other.
	• Higher education is, and has been a cultural institution of the modern system.

Institutional theory	• Leaders do not feature much in the literature on institutions; however, they can engage influentially in the political processes of institutions, and they have some constrained ability to articulate particular norms, rules, and routines. • Leaders can be constrained by the ideological nature of institutions reflected in organisations. • However, leaders do articulate routines and procedures and they do seek to enforce them.

These key elements will provide the basis for the development of the conceptual model in Chapter 4. However, in the following chapter, we first explore the research paradigm that will guide this development.

CHAPTER 3: RESEARCH PARADIGM

Chapter 2 reviewed the literature on the fields of leadership, organisational studies, and institutional theory. The application of complexity science to various organisational contexts and the use of complex adaptive systems to model organisational phenomena examined. The literature review addressed the underlying basis for the proposition that organisations are non-linear and dynamic, and that they consist of complex social and natural systems. It was demonstrated that complexity science represented an important development for organizational scholars that has been used in various management contexts to explain phenomena such as leadership. Further, the philosophies of holism and organisations were described relative to the understanding of complexity. Chapter three builds on chapters one and two and begins with a brief overview the most common research paradigms. The chapter concludes with a description of the ontological and epistemological choices I have made as well as the implications of the specific paradigm I have chosen for this research.

3.1. What is a paradigm?

I regard myself as a practitioner and not a philosopher of science. However, I acknowledge that underlying any form of research is a philosophical approach that informs one of the nature of the phenomena under review. I also note that using an established paradigm (such as grounded theory, critical realism, pragmatism) allows one to build on a coherent and well-developed approach to research, rather than having to construct all of this by oneself.

Maxwell asserts (2009:223) that one of the critical decisions a researcher needs to undertake in designing a study is to select a paradigm (or paradigms) within which the work will be situated, since this will guide research design decisions and justify these decisions. *Paradigm* might also be called research tradition or *worldview*, meaning 'a basic set of beliefs that guide action' (Guba, 1990:7). The use of the word *paradigm* derives from the work of the historian Thomas Kuhn, and refers to a set of general philosophical principles about the nature of the world (ontology) and how we understand it (epistemology), and the assumptions that tend to be shared by researchers working in a specific field or tradition. It includes the language, theories, methods, and limits of the science; most importantly, it includes the way scientists see the data, laws, and theories of their science. Kuhn's paradigms and philosophical positions will be detailed later in this chapter.

Technically, the study of what exists is referred to as *ontology* and the study of how we come to know these objects of existence (the study of knowledge) is referred to as *epistemology* (Bechara and Van de Ven, 2007:36).

Before undertaking a historical review of the philosophy and practice of science, it is also important to clarify, in a 'reflexive' (Alvesson & Sköldberg, 2010) spirit, the ontological and epistemological approach that this

research process adopts. Reflexivity is characterised by different types of recursive turns each providing different insights and perspectives (Alvesson & Sköldberg, 2010:5). Reflexivity also allows the researcher to reflect about how her role in the study, and her personal background, culture and experiences hold potential for shaping her experiences, such as the themes advanced and the meanings ascribed to data. Reflexive research takes account of this researcher involvement.

3.2 A typology of the philosophy of science

Specific philosophical perspectives can influence the way complex systems are approached, and the intention of this research is to argue that some of these perspectives are of special value to the study of complexity. In order to apply a philosophical foundation to the study of complexity, a general understanding of the different philosophies must first be developed.

The purpose of reviewing the structure and logic of scientific inquiry is to construct a backdrop against which to view the selected research design and execution. Scientists have to submit their research decisions constantly to critical reflection (which theory to select; which indicators to use in the measurement of a phenomenon; which research design to choose, and so forth). Studies in the philosophy of science generally aim to bring greater conceptual clarity to some key concepts in science such as truth, objectivity, validity, and progress.

This chapter also emphasises that a philosophy underlying scientific practice is a choice, and should not simply be a default inherited without question. Maxwell (2009) argues that the selection of a paradigm (or paradigms) is not a matter of 'free' choice. He notes, 'You have already made many assumptions about the world, your topic, and how we can understand these, even if you have never consciously examined these. Choosing a paradigm or tradition primarily involves assessing which paradigms best fit with your own assumptions and methodological preferences' (2009:224). Understanding the implications of this choice is important for reflexive and responsible scientific inquiry.

It is acknowledged that the term 'science' often reflects two meanings: science as a product (scientific knowledge) and science as an on-going process (scientific research). Bechara and Van de Ven propose that '…science is an error correction process that is based on evidence from the world, rather than merely reflecting the scientist's opinions of the world' (2007: 65). For the purposes of the present research, the focus is on science as a body of knowledge:

> As a product or outcome of scientific research, scientific knowledge can be defined as the body of propositions (factual statements, hypotheses, models, theories, laws), which, at a specific time is accepted by the scientific community (for instance the community of sociologists or psychologists), as being valid and reasonably correct (Mouton, 1996:13).

Science consists of different kinds of components, for example factual and descriptive statements, explanatory hypotheses and theories, laws and models, various kinds of assumptions and postulates, and,

usually implicitly-held beliefs and values. In the world of science, the aim is to generate valid and convincing descriptions and explanations of the world. Mouton (1996:9) referred to this as the 'epistemic interest' of science.

Philosophers of science have different views on the degree of interconnectedness of these various components. At one end of the spectrum is the 'logical positivist' view that science is an axiomatic or deductive system where all the elements can be deductively inferred from a few core axioms and postulates. At the other end of the spectrum, we find various views that interpret science as a "loosely held network or 'web' of related statements" (Mouton, 1996:14). An understanding of the complex phenomena being investigated can be enhanced by engaging the perspectives of diverse scholars and stakeholders. Appreciating these diverse perspectives often requires communicating across different philosophical positions. It also requires maintaining the various intellectual differences that not only create an opportunity for exchange, but also for the productive interplay of perspectives, models, and world views (Alvesson & Sköldberg, 2010). In the next section, the overarching philosophical ideas of various positions are discussed.

3.2.1 Logical positivism and the ideal of unified science

During the 20th century *positivism* became, and remained, the dominant philosophy of science. Creswell (2014:7) states that this worldview is sometimes called the *scientific method*, or doing *science research*; it is also called *positivist/postpositivist research*, *empirical science* and *postpositivism*. In 1925, a group of German scientists trained in logic, mathematics, and physics, met in Vienna to form an informal discussion group on the philosophy of science; it was known as the Vienna Circle (*Wiener Kreis*) (Babbie & Mouton, 2001: 24). In 1929, this group published their manifesto: *The Scientific World-View* and their approach came to be called 'logical positivism'. Alvesson and Sköldberg identified the key concepts of positivism as 'theory and data, induction and deduction, law-like statements, verification and falsification' (2010:15). Baets (2006:21) describes the credo of logical positivism as advocating a strictly reductionist unit of science, the key words in his view being 'rationality, clarity, measurability, and consistency'. It is reductionist in that the intent is to reduce the ideas into a small, discrete set to test, such as the variables that comprise hypotheses and research questions (Creswell, 2014:7). Replication (reliability) is important to positivists. They only consider something as true if different researchers are able to replicate a study and get the same results. Positivists hold a deterministic philosophy whereby causes determine outcomes or effects and the need is to identify and assess the causes that influence outcomes, such as those found in experiments. Logical positivists founded their epistemology using terms comprising three 'languages': '(1) logical and mathematical terms; (2) theoretical terms; and (3) observation terms' (Suppe, 1977:12).

The idea that the social sciences should be modelled on the example of the natural sciences remained a key thesis of positivism from its beginning until the 1950s (Mouton, 1996:14). From the 1960s, however, positivism was the target of strong and growing criticism, in particular from the Marxist left. Along with Karl

Popper, Norman Hanson held that a major defect of logical positivism was that it confines attention only to the finished product of scientific theorizing and gives no attention to the process of reasoning whereby laws, hypotheses, and theories receive their tentative first proposal (Hanson, 1958:71). Despite its prominence in the natural sciences, Suppe (2000:102) pronounced that the 'heart' of logical empiricism stopped beating on 26 March 1969, the opening day of a symposium in Illinois, when one of its foremost standard bearers, Carl Hempel, openly admitted that he no longer accepted the basic theses of this approach.

3.2.2 Body of knowledge (Popper)

Popper replaced positivism's induction and verification with *abduction* and *falsification* (Bechara & Van de Ven 2007:46). He argued that the process of developing a theory does not begin with an inductive enumeration of observational data, but rather with creative intuition:

> We do not take even our own observations quite seriously, or accept them as scientific observations, until we have repeated and tested them. Only by such repetitions can we convince ourselves that we are not dealing with a mere isolated "coincidence," but with events which, on account of their regularity and reproducibility, are in principle intersubjectively testable (1959: 45).

Karl Popper (1902-1994) developed his normative theory as a critique of the Vienna Circle (Baets, 2006:22). He maintained that a scientific community ought to be, and to a considerable degree actually is, an 'open society' where no dominant paradigm is sacred (Frankfort-Nachmias & Nachmias, 1996:19). Critical rationalism (as his school of thought is called) posits that science's goal of discovery through universal statements proceeds by deduction and falsification and that scientific progress must therefore proceed through the elimination of theories that are false (Ulrich, 2006:3). 'Until proven to the contrary' is an expression based on Popper's theory (Baets, 2006:22); that is, the empirical value of a theory depends on the possibility of falsification. This, for Popper, is the logical process of trying to prove that a hypothesis is wrong. This is done by showing that the testable instances (or cases) of the hypothesis are not supported by the evidence (Mouton, 1996:15).

Popper's ideas had a delayed but very strong impact, inverting everything in logical positivism, stating that theories, rather than being proved, can only be 'corroborated' by repeated attempts at falsification. With his criticism, Popper landed a fundamental blow against logical empiricism, and refuted its most central theses.

3.2.3 Relativism

Relativism represents a host of philosophical schools, a full description of which is beyond the scope of this chapter. These schools include historical relativism, social constructivism, postmodernism, critical theory, and hermeneutics (Bechara and Van de Ven, 2007: 46). The broad category of relativism, typically associated with qualitative approaches, breaks away from the positivist assumption that scientific knowledge is cumulative, unmediated, and a complete representation of reality. Creswell and Clark provide a concise definition for this general term: 'The understanding or meaning of phenomena, formed through participants

and their subjective views, make up this worldview. When participants provide their understandings, they speak from meanings shaped by social interaction with others and from their own personal histories' (2011:40). In this worldview, the logic is deductive since the research is shaped from the individual perspective to broad patterns and, ultimately, to broad understandings.

3.2.4 Paradigms of science (Kuhn)

One of the first critics of positivism was the historical relativist Thomas Kuhn who became one of the most influential philosophers of science with the publication of his book, *The Structure of Scientific Revolutions,* in 1970. His basic premise is that science enjoys long periods of stable growth that are infrequently punctuated by scientific revolutions. He argues that we should distinguish between two clear phases in the history of all disciplines, namely periods of 'normal science' and 'scientific revolutions', respectively (Shareef, 2007:272).

Central to Kuhn's philosophy of science is the concept of the paradigm, or the dominant theory of any historical period. Kuhn (1970: 10) defined paradigms by stating: 'By choosing the term paradigm, I mean to suggest that some accepted example of actual practice - examples which include law, theory, application, and instrumentation together - provide models from which spring particular coherent traditions of scientific research. The study of paradigms is what mainly prepares the student for membership in the particular scientific community for which he [*sic*] will later practice'.

A 'paradigm' is a cluster of beliefs for a scientist in a particular discipline and influences what should be studied, how research should be done, and how results should be interpreted (Bryman, 2012:630). Mouton asserts that the notion of 'paradigm' is derived from the field of language. A 'paradigm' case refers to a model example (exemplar), which typically provides a solution to some grammatical problem (1996:15). Kuhn suggests that we view scientific knowledge as consisting of sets of exemplars or paradigms. Essentially, a paradigm is a consensual set of beliefs and practices that guide a field.

Unlike the positivist interpretation of science as an edifice that is slowly but surely being constructed, Kuhn's view of science emphasises the fact that it does not grow linearly and accumulatively (Mouton, 1996:16). Kuhn is probably the most influential relativist. Historical relativism 'made scientific knowledge a social phenomenon in which science became a subjective, and, to varying degrees, an irrational enterprise' (Suppe 1977:705). Kuhn described normal science as a puzzle-solving process and found that paradigms (like puzzles) have a predetermined solution: One of the things a scientific community acquires with a paradigm is a criterion for choosing problems that, while the paradigm is taken for granted, can be assumed to have a solution (Kuhn, 1970:37). Consequently, studies that don't find expected outcomes are usually not published, since scientists are fundamentally engaged in empirical research to further articulate the paradigm. Eventually, an accumulation of anomalies causes a paradigm shift. Kuhn (1970) noted that it often takes the scientific community a generation to convert to a new paradigm. There are numerous criticisms of Kuhn's

beliefs, and it is often argued that his science is irrational and subjective, leaving it with no objective or independent basis of resolving disputes – an 'anti-empirical idealism' (Suppe, 1977:151).

More recently, a fascinating piece of scholarship was published by David L. Morgan (2007), who examines Kuhn's (1970) writing and summarises Bechara and Van de Ven, 2007: 46 the four most common versions of the term 'paradigm' as it is found in the social sciences. All four versions 'treat paradigms as shared belief systems that influence the kinds of knowledge researchers seek and how they interpret the evidence they collect' (2007:50). What distinguishes the four versions is the level of generality of that belief system. Morgan argues strongly for paradigms, meaning 'shared beliefs and practices within research communities consisting of 'practitioners of a scientific speciality' who are absorbed in the same technical literature' (2007:53). According to Morgan, this version of paradigms is what Kuhn (1970) himself preferred, as he talked about a community of practitioners.

3.2.5 Lakatos on scientific research

The rational reconstruction of scientific progress was a much-debated issue in the 1960s and Lakatos tried to establish an equilibrium between Popper's and Kuhn's theories (Baets, 2006:24). The Hungarian Imre Lakatos (1922-1974) is an important philosopher of mathematics and one of the most influential philosophers of science. Familiar with Kuhn's seemingly contrary suggestion that scientists never take an anomalous observation to refute or even challenge the paradigm under which they work, Lakatos tried to resolve this apparent conflict by formulating his own distinctive position, which he called 'the methodology of scientific research programmes (MSRP)' (Nickles, 2000:207). According to MSRP, the relevant units of, and for, analysis are not individual theories or conjectures, but entire research programmes. These have been compared to complicated systems of fortifications, the aim of which is to protect the 'hard core' of the theory by different kinds of 'immunization strategies' (Alvesson & Sköldberg 2010:21). Such strategies were just what Popper had criticised.

Lakatos describes Newton's gravitational theory as a classic example of a successful research programme (1970:133). He goes on to explain that when this research programme was first produced, it was submerged in an ocean of 'anomalies' and opposed by the observational theories supporting these anomalies. But Newton turned one counter-instance after another into corroborating instances, primarily by overthrowing the original observational theories in the light of which this 'contrary evidence' was established.

3.2.6 Pragmatism

Another position about worldviews comes from the pragmatists. In the social sciences, in particular, there were vigorous reactions towards logical positivism. Firstly, there was pragmatism, or symbolic interactionism, represented by among others John Dewey, C.S. Pierce, William James, George Herbert Mead, Richard Rorty and Donald Davidson (Cherryholmes, 1992:13).

Dewey joined the University of Chicago in 1894, and, although he taught there for only 10 years, he left a legacy of pragmatism and a concern for concrete, empirical fieldwork that had a major influence on the Department of Sociology there (Babbie & Mouton, 2001:55). The influence of the Chicago school, as it came to be known, was decisive in breaking away from the social survey movement and establishing an independent repertoire of methods for sociologists to use. The emphasis on practical, empirical research led to a series of monographs published in the 1920s and 1930s. Babbie and Mouton (2001:56) mention a range of works that became trademarks of the Chicago school - these works rested on research methods that can be classified in three main categories:

1. Participant observation
2. Unstructured or in-depth interviewing
3. The use of personal documents.

Pragmatism sought to reconcile rationalism and empiricism by showing that knowing and doing are indivisibly part of the same process (Bechara & Van de Ven, 2007:54). In the philosophy of science, pragmatism was viewed as an alternative to logical positivism and it was aligned with instrumentalism, the view that scientific theories are not true or false but, but rather better or worse instruments for prediction (Misak, 2001:335).

Cherryholmes maintains that for 'pragmatists, values and visions of human action and interaction precede a search for descriptions, theories, explanations, and narratives. Pragmatic research is driven by anticipated consequences. Pragmatic choices about what to research and how to go about it are conditioned by where we want to go in the broadest sense. Values, aesthetics, politics, and social and normative preferences are integral to pragmatic research, its interpretation, and its utilization' (1992:13).

There are many forms of pragmatism, with different points of emphasis and interpretations in each. Creswell states that for many pragmatists, the worldview arises out of actions, situations, and consequences rather than pre-existing conditions, as in positivism (2014:10). Dewey himself referred to his version of pragmatism as 'instrumentalism', which is grounded in scientific realism and viewed as a means to remove doubt through social consensus (Bechara & Van de Ven, 2007:57).

> The presupposition and tendencies of pragmatism are distinctly realistic; not idealistic…Instrumentalism is thus thoroughly realistic as to the objective or fulfilling conditions of knowledge (Dewey, 1905:324).

Dewey contended that the success of theories is based on their ability to realise the goals of societal improvement and development. In reading Creswell (2014) and Cherryholmes (1992), one can gain a sense of the key assumptions of pragmatism, as follows:

- Pragmatist researchers look to the 'what' and 'how' of research based on its intended consequences.
- Individual researchers have a freedom of choice. They are 'free' to choose the methods, techniques, and procedures of research that best meet their needs and purposes.
- Pragmatists agree that research always occurs in social, historical, political, and other contexts.
- Pragmatism is not committed to any one system of philosophy and reality. Creswell holds that this "applies to mixed-methods research in that inquirers draw liberally from both quantitative and qualitative assumptions when they engage in their research" (2014:11).

Pragmatic research therefore includes both qualitative and quantitative research. From the reflexive perspective of pragmatic research, any inquiry raises the following questions:

- What is the inquiry for?
- Who is it for?
- How do researchers' values influence the research?

Onwuegbuzie and Leech (2007:383) observe the following:

> Pragmatic researchers are more likely to promote collaboration among researchers, regardless of philosophical orientation. By having a positive attitude towards both techniques, pragmatic researchers are in a better position to use qualitative research to inform the quantitative portion of research studies, and *vice versa*. Pragmatic research places the emphasis on the process of inquiry itself that includes multiple ways of observing.

3.2.7 Postmodernism

Postmodernism is a recent intellectual movement and still a work in progress. Since the 1980s, philosophers have been interested in postmodernism. In the past 30 years, a steady stream of loosely-related ideas and critiques primarily generated by European social-cultural theorists challenged many of the central assumptions underlying contemporary social science. According to Bechara and Van de Ven, perhaps the strongest negation of positivism is postmodernism, which is sceptical of modern science, technology, and social transformations produced by the Enlightenment (2007:48). Well-known names in postmodernism are Derrida, Foucault, Deleuze, and Lyotard; Nietzsche was the early guiding spirit. They reacted against rationalism, utopianism, and the tendency to base everything on a scientific approach (Baets, 2006:27).

Current debates between postmodernists and modernists in social theory have their origins in the influential Lyotard critique of modernism, entitled *The Post-modern Condition*, in which he attempts to analyse the underlying conditions of modern knowledge. At the heart of the postmodern critique of the positivist conception of social theories lies its rejection of the assumed similarities between natural and social phenomena (Babbie & Mouton, 2001:40). The postmodernist argues that it is precisely because the social world and social phenomena are so fundamentally different from natural phenomena that one has no reason to believe that social theories will have the same form and logical structure as natural-science theories.

Postmodernists stress the importance of the symbolic, cultural elements of the social world. Our social world is socially constructed, and what we see or believe depends on the social situation and our location in it. As Agger observes, 'Postmodernism rejects the view that science can be spoken in a singular, universal voice', but maintains rather that 'every knowledge is contextualised by its historical and cultural nature' (1991:121).

Babbie and Mouton (2001:45) point out that the postmodernist critique of modernist social sciences is found in its rejection of two key tenets: the promise of a positive science (universal and objective) and the promise of an emancipatory science. In contrast, postmodern social theory supports the search for concrete, context-specific, and historically-situated narratives that are not divorced from the social and political interests of actual people.

3.2.8 Realism

This section is devoted to a description of the 'realist' paradigm or 'school' in the philosophy of science. Realism, as a form of scientific explanation, has a long history. Critical realism originated in the writings of the English philosopher Roy Bhaskar, who is considered its founding father (Alvesson & Sköldberg, 2009:39). However, Mouton (1993:226) contends that a 'discussion of realism in the social sciences today would have to take into account the works of, among others, Russell Keat, John Urry, Roy Bhaskar, Andrew Sayer, Rom Harré, Paul Secord, and William Outhwaite'. Critical realism was born out of a frustration with positivism's non-humanistic and narrow focus and its emphasis on the causal nature of universal laws. It can be viewed as a '…middle ground between positivism and relativism' (Bechara & Van de Ven, 2007:61). It is widely accepted in the literature that although there are 'family resemblances' between the various 'realisms', there are also major differences between the realist paradigm as it has been developed by philosophers of the natural sciences on the one hand, and realism as a philosophy of the social sciences on the other.

Although there are numerous forms of realism, the common argument that underlies most of these positions is that of an objective ontology that presupposes the existence of mind-independent reality and the ability of a theory to capture partial aspects of reality (Bechara and Van de Ven, 2007:63). Critical realism holds that real structures exist independently of human consciousness, a view similar to that of positivists, who believe that a single object reality exists; however, the approach by most realists is still very different from the positivist model of deductive explanation, which seeks to establish predictable patterns and the exact relation between cause and effect (Alvesson & Sköldberg, 2009:42). Therefore, critical realists propose that our "knowledge of reality is a result of social conditioning" (Saunders, Lewis & Thornhill, 2009). That is, they support the view that knowledge is a social construct, which is similar to what the interpretivists believe.

Pawson and Tilley's (1997) description of the critical realist view is consistent with the argument described above. They note:

> Realism has sought to position itself as a model of scientific explanation which avoids the traditional

> epistemological poles of positivism and relativism. Realism's key feature is its stress on the mechanics of explanation, and its attempt to show that the usage of such explanatory strategies can lead to a progressive body of scientific knowledge (1997: 55-6).

Du Plooy-Cilliers (2014:32) contends that critical realists propose there are certain institutions (such as schools, churches, the family, and so on); practices (religious practices such as weddings, cultural practices such as rites of passage, and so on); and ideologies (dominant ideas such as capitalism) to which members of a society subscribe due to socialisation and indoctrination. These institutions, practices, and ideologies empower certain people and constrain others, and they influence people's realities. The core belief for critical realists is that the material, cultural, and historical conditions in which people find themselves may hold them back. Van de Ven makes the following case for critical realism:

> Most phenomena in the social world are too rich to be understood adequately by any single person or perspective….[and] any given theoretical model is a partial representation of a complex phenomenon that reflects the perspective of the model builder....this requires scholars to be far more reflexive and transparent about their roles, interests, and perspectives...than they have [been] in the past (2007:14).

In its application to the social sciences, realism is the view that reality exists independently of the mind, or from the researcher's ideas and descriptions of it (O'Leary, 2007). Bechara and Van de Ven (2007: 58) put forward the idea that realism is a philosophical theory that is partly metaphysical and partly empirical. In contrast to positivism and relativism, scientific realism (a strong form of realism) contends that science develops statements that are true at both theoretical and observational levels of phenomena. It claims that science continues to progress by attaining closer approximations of reality. 'We cannot know that our current theories are true, but they are truer than earlier theories, and will retain at least approximate truth when they are replaced by something more accurate in the future' (Chalmers, 1999:238).

McMullin states that scientific realists adhere to the premise 'that the long-term success of a scientific theory gives reason to believe that something like the entities and structure postulated by the theory actually exists' (1984: 26).

> The charaterisation of scientific realism given by Bas C. van Fraassen (1980) is a solid definition: Scientific realism is the position that scientific theory construction aims to give us a literally true story of what the world is like, and that acceptance of a scientific theory involves the belief that it is true…According to the realist, when someone proposes a theory, he is asserting it to be true…the idea of a literally true account has two aspects; the language is to be literally construed; and so construed, the account it true (9, 10).

Pragmatists, constructivists, and scientific realists agree that scientific research always occurs in social, historical, political, and other contexts. However, scientific realists draw distinctions from this point on. Where other philosophies take the historically- and socially-situated assumptions very seriously - that when this world is read we can never be quite sure if we are reading 'the world' or reading ourselves - it appears

that scientific realists believe that it is possible to 'explain the real world' by discovering more complex layers of reality to explain the other levels (House, 1991:3).

It is important to distinguish scientific realism from naive realism, which is clearly inadequate. The following example provided by House makes this point: A naive realist would hold that a lemon is really yellow. A scientific realist would hold that a lemon appears to be yellow because of the refraction of light off its surface, the particular nature of light waves, and the structure of the human eye, thus invoking the causal entities and structures that produce the phenomenon, that is, the yellowness of the lemon. The analysis does not stop with surface events but examines the underlying patterns and tendencies (1991:3).

Table 3.1: Taxonomy of philosophy of science – comparison of the characteristics of logical positivism, relativism, pragmatism and realism

Philosophy	Ontology	Epistemology	Design consequences
Logical Positivism Philosophical movement inspired by empiricism and positivism (Vienna Circle).	Objective – reality is the empirical world.	The correspondence between our statements and reality through inductive verification of deductive falsification.	Deduction Induction Hypotheses testing Experimental Design
Relativism Contemporary intellectual movement characterised by its scepticism about the foundations of the Western philosophy (Kuhn).	Subjective – reality is socially constructed.	Subjective – there is no epistemology to the incommensurability of discourses.	Ethnographic Design Empiricism
Pragmatism Philosophical movement characterised by the relation of theory and praxis and specifically in the predetermined outcomes of an inquiry (Dewey).	Subjective: Similar to postmodernism. Objective: reality places limitations and constraints on our actions.	Subjective and dependent of practical consequences.	Experimental Designs Qualitative research Mix-methods Design Participant observation

Realism Philosophical movement characterised by the existence of a mind-independent reality and the ability of a theory to capture partial aspects of reality.	Reality changes over time and is governed by underlying structures.	Knowledge should supply people with the tools needed to change their own world there is no predefined or predetermined methodology or criteria to judge the veracity of our knowledge.	Narrative Design Empirical experimentation Mixed methods are used: quantitative and qualitative methods are combined.

Source: Adapted from Baets (2006:29) and Bechara & Van de Ven (2007:39)

3.3 The wider view: the holistic world

Up to this point, we have looked at various philosophies of science. While conclusions arrived at through the classical scientific method of falsifiable hypotheses and reductionist experimentation are considered by some scholars to have superior value to those arrived at by other means (Popper, 1959:45), a holistic approach is adopted by others in an effort to better understand complex phenomena (Jackson, 2006). As discussed in the previous chapter, holism puts the study of wholes before that of the parts. The practice of holism lacks the detailed complexity of reductionism in seeking to define and focus on parts, but it better reflects the complexity of phenomena by including the dynamics that characterize a system. Systems theorist Fritjof Capra suggests that the reductionist paradigm yielded a 'self-assertive' mode of thinking and value setting. Alternatively, the holist paradigm is 'integrative'. The table below reflects this shift in values:

Table 3.2: Reductionist and Holist Thinking and Values

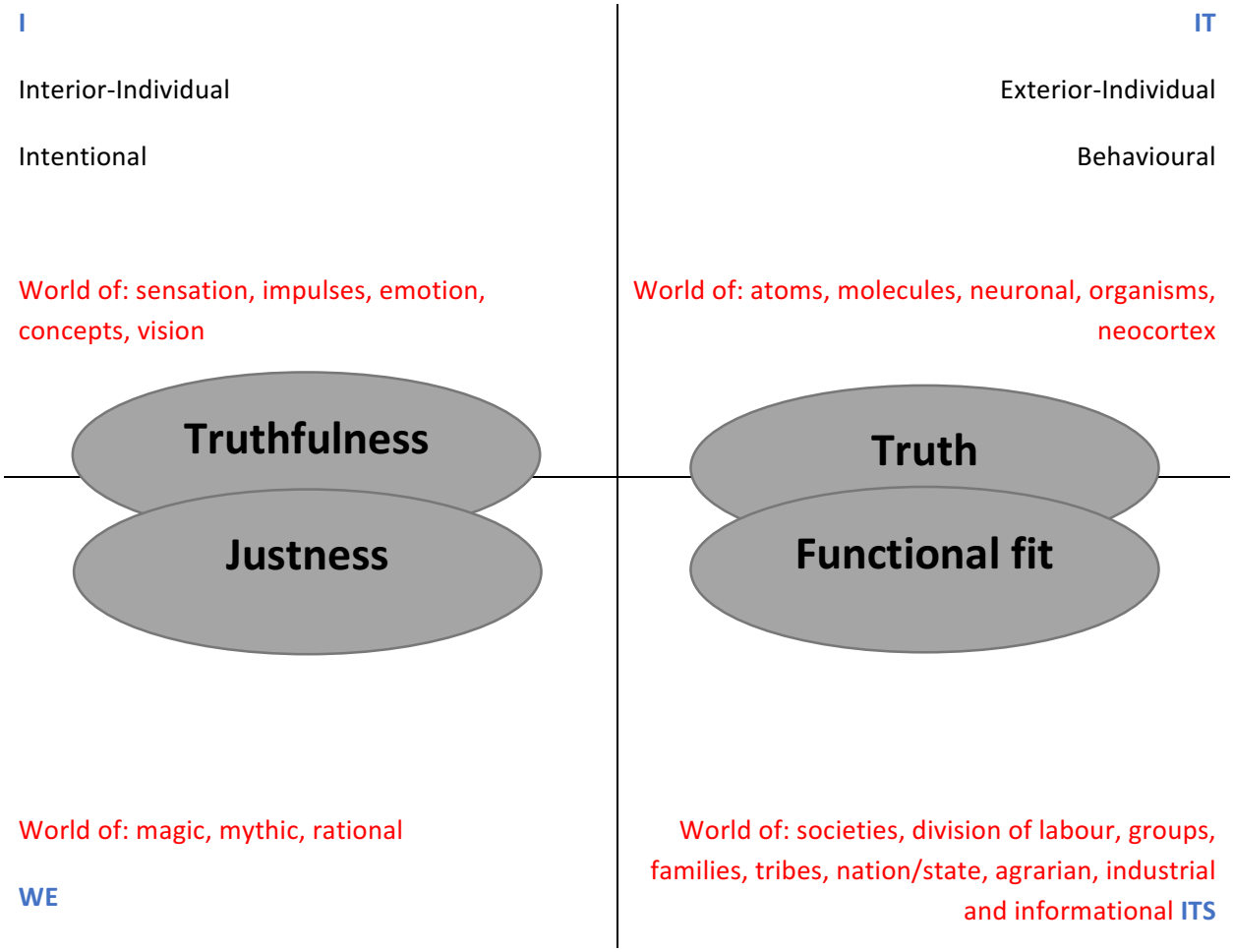
Thinking		**Values**	
Self-Assertive (Reductionist)	**Integrative (Holist)**	**Self-Assertive (Reductionist)**	**Integrative (Holist)**
rational	intuitive	expansion	conservation
analysis	synthesis	competition	cooperation
reductionist	holistic	quantity	quality
linear	nonlinear	domination	partnership

(Capra, 1996: 10)

Holism, as an approach to gaining understanding, has been around for at least as long as reductionism. Jackson (2006:650) summarises holism well by explaining that the ancient Greek philosopher Aristotle reasoned that the parts of the body only make sense in terms of the way they function to support the whole organism, and used this biological analogy to consider how individuals need to be related to the state. However, with the advent of the scientific revolution in the 17th century, which was premised on a method that endorsed reductionism, holism was pushed to the margins of scholarly debate and left to the likes of romantic poets to explore. Not until the middle of the 20th century with Bertalanffy's (1956) 'general systems theory' and Wiener's (1954) 'cybernetics' did holism regain a degree of scientific respectability. Modern complexity sciences and philosophy have also shown strong theoretical aspirations to move 'beyond reductionism', which phrase was made the title of a group of articles about complex systems in the journal *Science* (1999, vol. 284 no. 5411).

Baets (2006:123) built on the idea of holism using one of Ken Wilber's concepts. Wilber visualised the different dimensions of the image of the holistic world. It is summarised in Figure 3.3 below:

Figure 3.3: Ken Wilber's holistic model



Source: Replicated from Baets (2006:123)

The figure is developed around two dichotomies: external-internal and individual-networked (or collective). The top two quadrants refer to the individual level. The bottom quadrants refer to the collective level. The quadrants on the left have to do with the internalisation of Man (or processes or things), while the quadrants on the right examine the mechanical part (the external). A holistic image is obtained, according to Wilber, if all the quadrants receive sufficient attention. He labelled these quadrants the 'I' quadrant, the 'we' quadrant, the 'it' quadrant and the 'its' quadrant. All the quadrants matter in order to achieve a life, an observation, a research endeavour, and a holistic interpretation.

Individual or subjective consciousness does not exist in a vacuum. Wilber (2001) notes that individual consciousness is inextricably linked with the objective organism and brain (upper right quadrant); with nature, social systems, and environment (lower right quadrant); and with cultural settings, communal values, and worldviews (lower left quadrant). Wilber (2001) skillfully crafts a compelling argument as to how each of these quadrants have numerous waves, streams and types. In his books, such as A Brief History of Everything (1996), The Eye of Spirit (1997), and Integral Psychology (2000), he provides a wide variety of examples from each quadrant, as they relate to art and literary interpretation, feminism and gender studies, anthropology, education, philosophy and psychology.

Understanding what the brain produces requires attention to the left part of the diagram. In humans, this refers to the causes, namely the emotions, feelings, concepts, etc., that are used in daily life.

No matter how complete the understanding of the right quadrants is, it still says nothing about what a human thinks or feels. To comprehend the dimensions on the left quadrants, the classical approaches are insufficient. Communication is the only means to try to understand how people feel and what emotions they experience. Holism, as defined by Wilber is evidently founded on a constructivist approach.

Wilber (2001) cautions that typical holistic approaches often overlook the prime directive, which is that it is the health of the overall spiral, and not any one level, that is the central imperative. He asserts that there are a large number of 'truly integral theorists, working with these ideas and the applications of an all-quadrant, all-level education' (2001:96) according to which both the organizational structures and the core curriculum offered to students have been organized around an all-quadrant, all-level format.

Wilber's four-quadrant holistic model represents a ''map'' or theoretical ''window'' for interpreting reality, the universe, all that exists, or ''everything,'' as Wilber (2001) states. However, as Wilber has also pointed out in several publications, the four-quadrant model is merely a map and so shares all the shortcomings of representation; in other words, the conceptual map should not be mistaken for the territory it represents. Nevertheless, even as we take into consideration its representational shortcomings, it is important to have a ''map,'' especially when we want to know what direction we are going in. In summary, holism can be said to

consist of an ensemble of 'I', 'we', 'it' and 'its'. Applying this holistic model of Wilber's to university management, it is indeed possible to describe the continuous non-linear and dynamic interaction of agents within a holistic concept. To develop a complete, broad and integrated picture of a human activity, such as leadership, one should study the four quadrants of this picture to form a systemic view.

3.4 The complexity perspective

Chapter 2 provided a brief introduction to what is meant by 'complexity'. The complexity paradigm is a recent developing discourse that draws upon a number of insights from complexity science in order to frame leadership as a property of a dynamic environment. To this end, it views leadership within an organization as human social constructions that emanate from the rich connections and interdependencies of organizations and their members. Uhl-Bien (2006) describes this leadership concept in detail as the 'relational perspective' and importantly, extends leadership processes specifically within a system capacity for adapting to change, dealing with ambiguities and responding more effectively to complex problems.

3.4.1 Emergence, self-organising systems and nonlinearity

Certain distinguishing properties of the complexity paradigm are important to consider before we move onto the conceptual model framework in chapter 4. Firstly, a clear definition of *emergence* is important to guide the development of the model. Emergence is widely recognised in the literature as complexity theory's 'anchor point phenomenon' (Chiles, Meyer & Hench, 2004:502). The American School[3] which consists largely of scholars associated with the Santa Fe Institute emphasises this agent self-organisation absent outside influence. In its simplest form, emergence is a systemic process through which properties and, or structure come into being that are unexpected, given the known attributes of component agents and environmental forces. Mihata (1997:31) provides a useful summary of previous reviews of emergence in sociology and management:

> The concept of emergence is most often used today to refer to the process by which patterns or global-level structures arise from interactive local-level processes. This "structure" or "pattern" cannot be understood or predicted from the behaviour or properties of the component units alone.... In the doctrine of emergence, the combination of elements with one another brings with it something that was not there before.

This summary opines that in the realm of organisations, encounters and interactions do not take place in an ordained manner, nor do they evolve in a completely disorderly manner. Through interactions, agents learn and adapt to each other to create something new. Mihata revisits the work of Philosopher Herbert Mead who provided an intuitive definition in 1938:

> When things get together, there then arises something that was not there before, and that character is something that cannot be stated in terms of the elements which go to make up the combination. It remains to be seen in what sense we can now characterise that which has so emerged (Quoted in

[3] The North American School and the European School of complexity broadly anchor the development of complexity science. For a comprehensive comparison see Maguire et al (2006:168).

Mihata, 1997:30).

Lichtenstein and McKelvey (2011) utilise this definition to skilfully craft propositions addressing the value of emergence and complexity for integrating theory and practice in the field. They observe that emergence involves two, interdependent mechanisms: (1) the reformulation of existing elements to produce outcomes that are qualitatively different from the original elements; and (2) self-organisation. Reformulation is defined as the expansion, transformation and combination of multiple interacting elements. Self-organisation is the process in which 'the internal organisation of a system, normally an open system, increases in complexity without being guided or managed by an outside source' (Uhl-Bien, Marion and McKelvey, 2007: 308). In other words, self-organisation is the spontaneous emergence of a non-equilibrium structural organisation. Many debates have centred on the origins of self-organisation. Merali and Allen argue that the concept of self-organisation came from many areas of research: Prigogine's work on chemical substances along with Eigen's work on enzymes, Haken's articulation of lasers and Maturana and Varela's concept of autopoiesis in living systems (2011:41). Although the researchers mentioned were working in very different areas, they arrived at similar conclusions regarding the principles that characterise self-organisation systems. That is:

- Continual flow of energy through the system
- The flow of energy allows for a 'far from equilibrium' condition; meaning that there is a degree of uncertainty and ambiguity
- Open feedback loops, with internal structures that are linked firmly to the environment. Feedback loops create the complexity where cause and effect are blurred
- A high number of inter-connected relationships exist, too complex to map or calculate.

A notable example of reformulation and self-organisation is exemplified in a 2003 study of complexity theory and Al-Qaeda, by Marion and Uhl-Bien. The authors argue that the Islamic militancy spawned a complex structured organisation whereby various dynamics (and several key events served as catalysts to speed up the emergence) enabled reformulation and self-organisation of the Islamic group and its ideologies. Similarly, political impacts such as the Arab Spring uprisings and protest movements like Occupy are exemplars of reformulation and self-organisation.

Our interdependence in a fast-changing world requires radical leadership rethinking. Globalisation and the network society have had wide-ranging impacts, reconfiguring how we relate, organise and communicate. This study exemplifies the power of a networked system, based on relationships, shared needs and values aligned behind and informal and emergent leader.

The final characteristic I want to emphasise in the complexity paradigm is that of *nonlinearity*, meaning that 'reciprocal interactions of agents create results that are often amplified and thus impossible to predict'

(Lichtenstein & Plowman, 2009: 623); that is, when nonlinearity is present, there is no direct relation between the strength of a cause and the consequence of the effect. Eoyang asserts that 'nonlinear dynamics focuses on change that may or may not involve Newtonian assumptions of absolute time, scale-dependent space, or physical mass' (2011:320). Put quite simply, nonlinearity means that the parts are constructed in a way such that the output from one particular part is not necessarily proportionate to its input. The weather system is often cited as an example in which small additions of energy don't necessarily lead to small changes in the system's behaviour. Given the tendency towards nonlinearity and the inevitable evolving changes in a complex system this study will later empirically explore rich, unexpected interactions of university leaders that have led to unexpected and mutually supportive outcomes.

3.5 The philosophical foundations of this study

It is important to clarify, in a reflexive way, the choices I have made that will guide this research. After extensively reviewing the literature on leadership and organisational theory (Chapter 2), I have chosen a complexity-science approach in developing my conceptual model for leadership in higher education. Further, because a critical-realist paradigmatic perspective within a holistic ontology is a moderate framework that avoids both completely positivist and relativist points of view, I have concluded that this is the most suitable philosophical approach to adopt in developing the conceptual model, as well as understanding the phenomena under investigation. There are several advantages to this perspective:

First, a *critical realist* paradigmatic perspective within a holistic ontology secures epistemological legitimacy, for this complexity-science based model. McKelvey citing Holton declares convincingly that '…the singular advantage of the realist method is its empirically based, self-correcting approach to the discovery of truth' (Holton, 1993; McKelvey, 2002:754). Thus, critical realist science pursues truthful knowledge that derives '…at least in part [from] …the way the world is'' (Bechara & Van de Ven, 2007:58).

Moreover, epistemologically, *critical realist* thinking accepts that humans' understanding of reality is 'limited' (Bechara & Van de Ven, 2007:37). Accordingly, this paradigm recognizes that methods of enquiry reflect an underlying set of values and perspectives.

Finally, methodologically, critical realism is also pluralistic and inclusive. The selection of method depends on the research context since '…some methods are better warranted than others depending on the phenomenon' (Bechara & Van de Ven, 2007:38).

Owing to the limitations of positivism, it is easy to reject it as 'unscientific' or 'unrealistic'. By contrast, and in company with Schutt (2004:79), some think there are significant benefits to be gained from adopting a more eclectic approach that is open to, and integrates, some of the differences of alternative philosophies of science. However, I contend that it *is* important to situate this research within a specific research paradigm, as I have done.

Therefore, this research process is based on the following key elements of a philosophy of science:

- There is a real world out there (World 1), but our individual understanding of it is limited. In general, physical, material things are easier to understand than reflexive and emergent social processes (World 2).
- Knowing a complex reality demands use of multiple perspectives.
- No form of inquiry can be impartial; some methods are better warranted than others, depending on the phenomenon.

Again, this research process adopts an ontological holistic paradigm based on the following principles:

- A holistic ontology is required for understanding complexity in organisations.
- The holistic ontology is based on the assumption that constituent elements can interact to produce multiplicative and non-linear outcomes.
- Traditional leadership theory has limited ability to explore and understand postmodern leadership; complexity theory is used as a new-science approach to explaining leadership processes.
- Complexity theory provides an explanation for understanding universities as complex organisations.
- Research built on single traits or attitudes can be quite misleading. Complex situations are reduced to one dimension as if that dimension alone could explain many of the phenomena under study, or could exist independently of the broader aspects of personality.
- The approach for this research is systemic, meaning that things have to be seen in context. People have to be viewed in the context of their family, their culture, and their work environment. Organisations need to be looked in this way. A systemic view gives a more realistic perspective on difficult situations. This approach deals with the fact that most behaviour is not completely rational.
- Becoming successful is dependent on the highly complex interface between leaders, followers, and the contexts they operate in.
- Leading these new network-orientated organisations is quite different from giving direction in organisations characterised by traditional, functional, hierarchical leadership.
- In a world of complexity, change leaders are asked to tackle a much greater variety of problems.

For all these reasons, the most relevant paradigm for the purposes of this research is a *critical realist* epistemology - an approach that recognizes idiosyncratic perceptions of the world and social construction by scientific communities. In this paradigm, researchers are accountable for their representations of reality. The selection of methodological tools adopted for this research was determined by the philosophical choices described above. These tools will be the subject of Chapter 5.

3.6 Summary

Philosophy of science is a study of what underlies choice, and in both leadership and research, choices abound. In this chapter, I have reviewed some of the reasons why positivism and relativism were abandoned by philosophers. Postmodernism, constructivism, and relativism often surface at the beginning of the research process. But *effective* complexity science, as applied to leadership in higher education, needs to rise above the level of pseudoscience if its claims are to be valid and believable. In conclusion, the purpose of this historical review of key concepts has been to identify the various views of science and to initiate a process of reflexivity in situating this research in a philosophy that is suitable and best fits the assumptions and methodological preferences of the researcher. Again, and for the reasons outlined above, these preferences are a complexity science approach and a critical-realist paradigmatic perspective within a holistic ontology.

CHAPTER 4: A CONCEPTUAL MODEL OF LEADERSHIP

Having reviewed the literature in chapter two, and proposed a *critical realist* approach, within a holistic paradigm as a basis for this research in chapter three, this chapter builds on the preceding work, in putting forward a conceptual model drawing upon ideas and concepts from complexity science and holism. I have chosen to interpret holism using Ken Wilber's (2000) approach; he defines *holism* as an eternal dynamic interaction between four 'spheres': the interior-individual (emotions and consciousness) and exterior-individual sphere (mechanical); the interior-collective (common values) and exterior-collective (mechanical and contextual) spheres. Further, the approach fits into the *sciences of complexity* as described by Nicolis and Prigogine (1989) who defined *complexity science* as the study of dynamic non-linear systems with many interacting parts that exhibit a global behavior not reducible to the interactions between them. This chapter introduces the development of a conceptual model of interrelated quadrants designed to enhance the understanding of university leadership from a systemic perspective, based on my best understanding of the current literature and theory.

4.1 Assumptions

Before proceeding to examine the detail of the conceptual model, there are a few important assumptions about the nature of complex environments that need to be emphasised: the first is that organizations are open systems and thus inherently too dynamic and unpredictable to be defined by a simplistic model. Wheatley noted that '…Natural systems participate openly with their environment and complex structures emerge' (1992:340). Therefore, the focus is on how leadership might bring about conditions that enable or facilitate organisational structures and effectiveness, in contrast to determining it.

Secondly, I propose that organisations are viewed as Complex Adaptive Systems (CAS) that cannot be understood by being reduced to a collection of its basic constituents, since the interactions between the CAS and the environment leads it to function at the edge of chaos for optimal buffering and adaptability. The term CAS[4] emerged from the Santa Fe Institute. A critical feature of CAS is the emergence of order that comes through many iterations of random interactions between agents operating within the system. These interactions often take the form of clusters of elements which co-operate with each other, and also compete with other clusters (Cilliers, 1998:7). CASs are unique and desirable in their ability to *adapt* rapidly and creatively to environmental changes.

Moreover, though Marion and Uhl-Bien (2003) propose that leaders should enable the creation of complex

[4] For a complete explanation on the origins of CAS, see *Complex Adaptive Systems*, In G.A. Cowan, D. Pines, and D. Meltzer (eds). *Complexity: Metaphors, Models and Reality*. Sante Fe Institute Studies in the Sciences of Complexity. Proc. Vo. XIX Reading, MA: Addison-Wesley, 1994) pp. 14-45. Available: http://tuvalu.santafe.edu/~mgm/Site/Publications_files/MGM%20113.pdf

adaptive systems, this model also accepts that to facilitate their functional role, leaders must be able to create cellular networks[5] as suggested by Miles et al. (1999:163). McKelvey (2010) effectively demonstrates that leaders need to learn how to promote agent heterogeneity and enable connectionist networking, self-organization, and adaptive learning in search of improved agent and collective fitness. Most leadership theories have suggested the opposite to this (Rost, 1993; Northouse, 2013; Bass, 1995).

Finally, it must be emphasized that the research design selected for advancing the conceptual model is based on the premise that it is to be validated in the field. Van de Ven (2013:143) asserts that 'because models include a host of instrumental assumptions and practices that are not reflected in the theory itself, models occupy an autonomous role in scientific work and serve as *mediators* between theories and data'. He goes further by stating that a research model is 'an instrument for linking theory with data in terms of function, representation, and learning'. It was for this very reason that I sought to develop a model based on legitimate theory, then going into the field and testing/adapting the model so that it would represent some aspects of the world via the data collected.

The next section introduces a simplified framework for use as a reference for developing intermediate and expert leaders within the higher education sector. Complexity theory literature and holism as drawn from Ken Wilber's theories and the researcher's own interpretation of the complexities involved in leading higher education institutions, have informed the proposed framework.

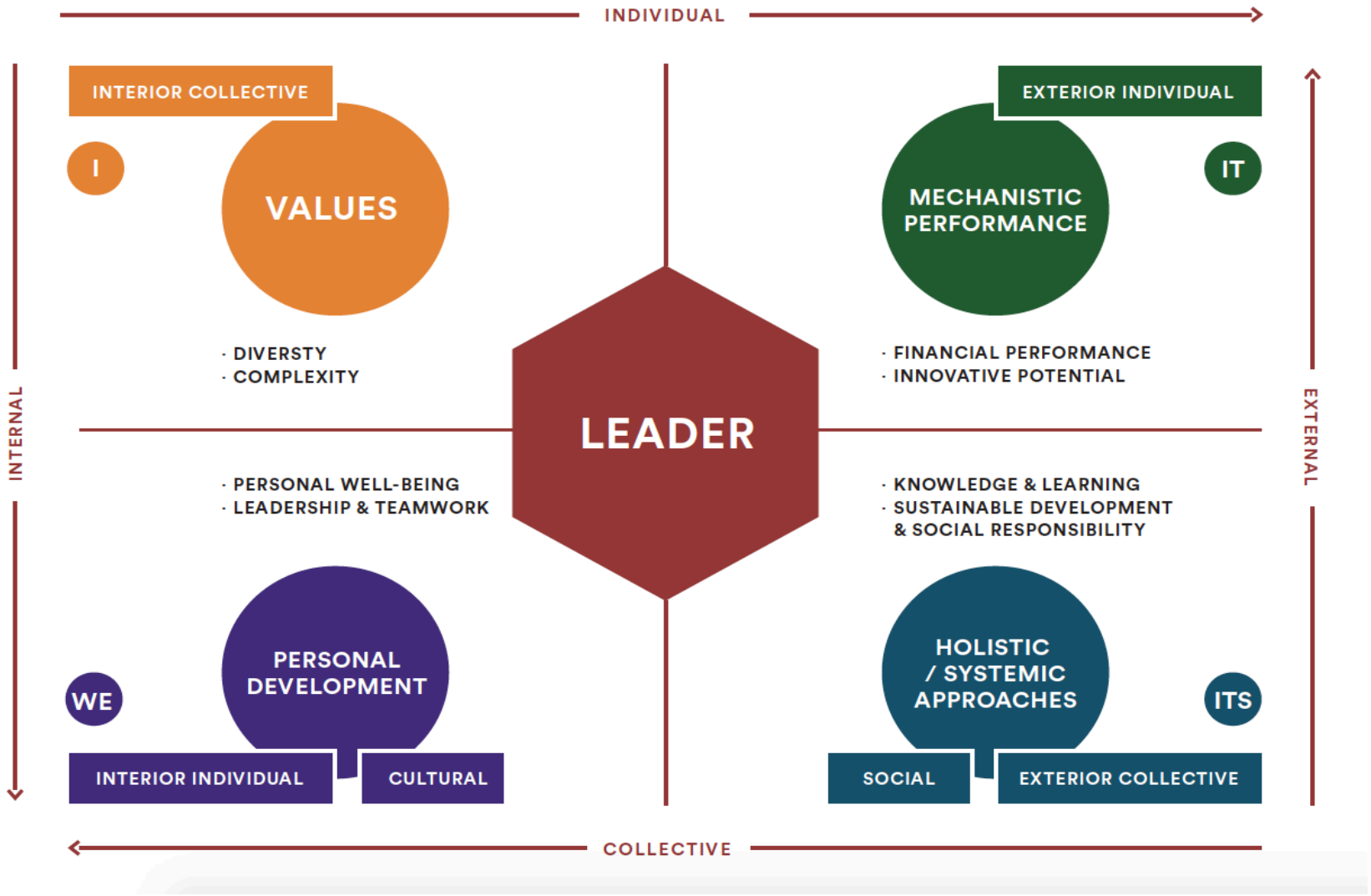
4.2 Conceptual framework development

In developing a complexity conceptual leadership model, I propose to use four holistic quadrants based on the Ken Wilber model (2000) as discussed in chapter three (see Figure 4.1). These quadrants are:

1. **Values** – structured under Diversity and Complexity
2. **Personal development** – structured under Personal well-being; and Leadership and teamwork
3. **Mechanistic Performance** – structured under Financial performance and Innovative potential
4. **Holistic Performance** – structured under Sustainable development and social responsibility; and Knowledge and learning

[5] The cellular metaphor suggests a living, adaptive organization. Cells in living organisms possess fundamental functions of life and can act alone to meet a particular need. However, by acting in concert, cells can perform more complex functions (1999:162). A 'cell' is a team, department, strategic business unit or firm which has an entrepreneurial responsibility to the larger organization. A 'cellular network' has to be able to 'reorganize continually'; requires collaborative skills necessary to make appropriate linkages; and requires 'self-organization, and member ownership' (Miles et al. 1999:163).

Figure 4.1 A conceptual model of leadership for higher education



As noted, the model is based on the Wilber holistic model as adapted to a leadership context by Baets and Oldenboom (2009). Each of its quadrants talks to various themes: The values quadrant is subdivided into themes of 'diversity' and 'complexity'. The personal development quadrant is subdivided into the themes of 'personal well-being' and 'leadership and teamwork'. The two so-called external quadrants are more classic and familiar to leaders. The mechanistic performance has been subdivided into financial performance and innovative potential. The final quadrant focuses on systemic performance. The themes relate directly to systemic concepts of performance, such as sustainable development, social responsibility, knowledge management and organisational learning. As established in the literature review, these systemic themes are an essential contribution to sustainable performance and therefore need to be present in the holistic conceptual tool.

These quadrants and their subthemes represent values and approaches for leadership in higher education that will bring about the desired conditions within the open system. These, in turn, give rise to the possibility of the system's successful adaptation within complexity. This model focuses on leadership in the context of dynamically changing networks of informally interacting agents: agents are in constant interaction exchanging information, learning, and adapting their behaviors in locally coherent ways.

4.3 A holistic model

This model builds on Wilber's (2000) concepts since it resonates with the complex adaptive system that is the university. Wilber visualizes various dimensions of the holistic world (see Figure 3.3 in previous chapter). In traditional and reductionist approaches it is often the external individual sphere that receives most attention. Traditional leadership theory places particular emphasis on the collective, but always the external sphere. This holistic model goes beyond the traditional, by including more qualitative aspects that speak to values, reflections and the consciousness of individual leaders (represented by the left quadrants).

As can be seen from Figure 4.2, cells interact with each other in multiple and complex ways. In considering leadership in higher education, this conceptual model posits two levels of analysis that together comprise the targets for leaders: these are the (1) external-internal and (2) individual-collective axes (see Figure 4.1). The top two quadrants refer to the individual level and the bottom two quadrants refer to the collective level. The quadrants on the left represent the internal dynamics of man, while the quadrants on the right let us examine the mechanical (external) part. In Wilber, a holistic image is achieved if all the quadrants – he calls them the 'I', the 'We', the 'It' and 'Its' - receive sufficient attention. In the same way, in the leadership model presented here, all the quadrants and their subthemes should be given equal weight in order to obtain a holistic interpretation.

4.3.1 External-internal level

In this model, it is imperative that the leader enhances the capacity of the open system by responding to the external network conditions in which an organization is situated. A major condition for collaboration to occur between cells in the CAS, for the possibility of innovation, is that they must be able to interact with both the environment and with each other at great frequency. The extent to which the cells connect to one another in a network, referred to as *structural closure*, has also been found to be associated with the success of initiation and adoption of change in organizations (Battilana and Casciaro, 2012).

4.3.2 Individual-collective level

At the individual level, the conceptual model moves away from the cellular network focus to the individual behaviors required of formal and informal individual leaders within the complex system. In the model, at the individual level, the leader's role is one of facilitating the conditions for spontaneous and emergent leadership. The leader will recognize certain expertise within the system and facilitate exchanges among the networks in order to enable synergies from the interactions between information and expertise to be achieved. Uhl-Bien, Marion and McKelvey (2007) posit that individual cells in adaptive networks can act in an enabling role by adopting behaviors that enhance their interactive contributions. For example, they can enlarge their personal networks to increase the amount of access and network resources for the organisation. Leaders will be required to examine impediments to information entry and look at ways to enhance knowledge exchange.

At the collective level, leadership within a complex system lends itself to the idea of nonlinearity, whereby interactions of cells in the system create results that are often unpredictable. This occurs through appropriately structured cellular networks rather than formal teams. The collective level recognizes leadership as a collective emergent possibility within the complex system, where the interaction of the cells within the network becomes the central focus. Uhl-Bien, Marion and McKelvey (2007) convincingly argue that leaders should foster conditions that create interaction, interdependence, asymmetrical information, complex network dynamics, and tension.

The target for the leadership conceptual model at both the individual-collective and external-internal level are presented here to clarify the axes described within the system. It reflects the idea that different members within the university will possess different perceptions of a problem, of needs, and at times, incongruent outcomes that yet, together create the force for action.

4.4 The dynamics of the holistic model

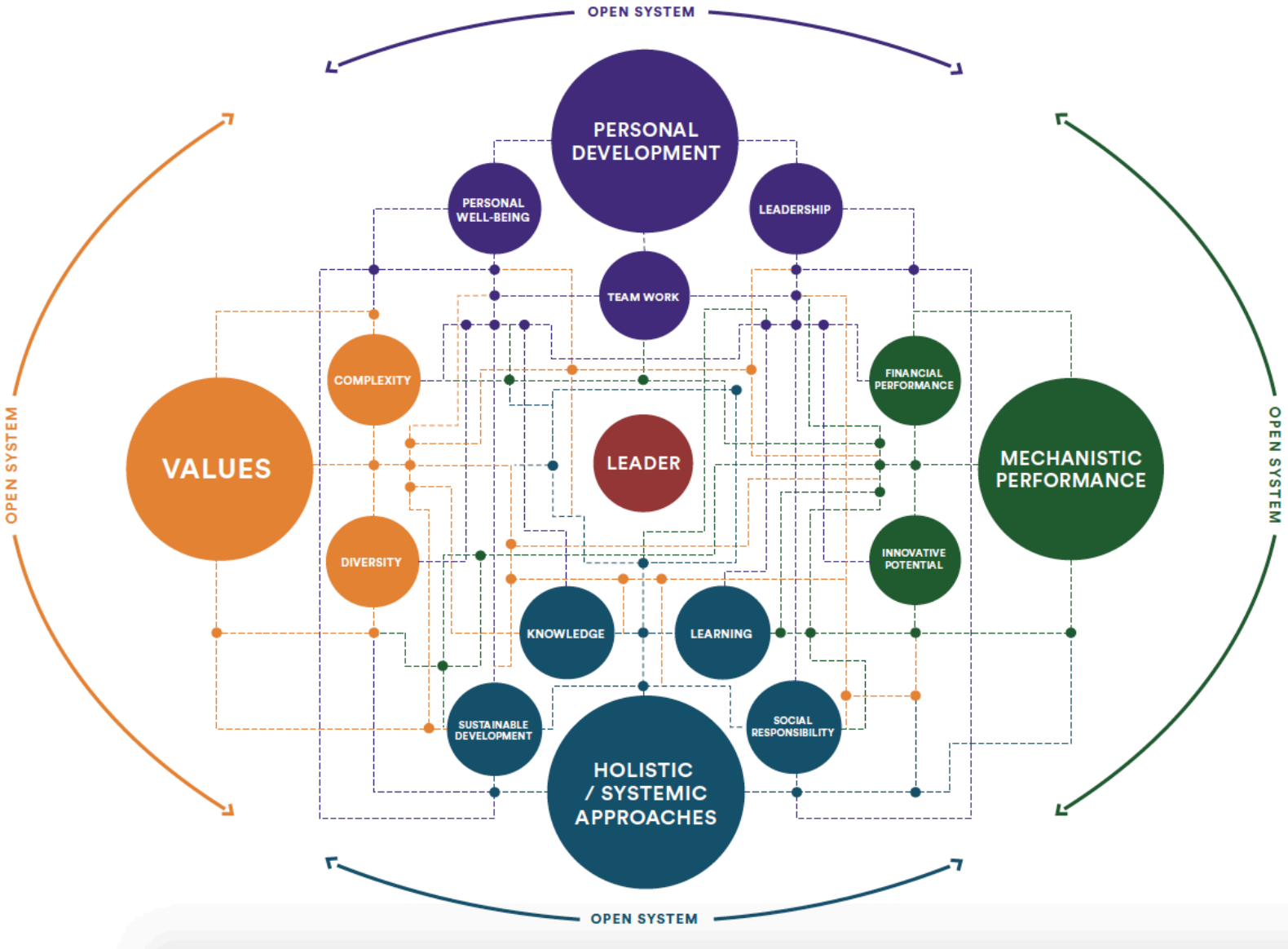
A basic unit within a CAS is the cell, which in this context refers to sets of individuals possessing shared

interrelationships and interests (team, department, business unit etc.). A further unit is that of cellular networks, which refer to the emergent structures that arise when cells interact in the system: when these networks interact, they are able to engage in behaviors and activities that can lead to reaching common understandings from which reformulations and self-organization behaviors arise, based around problem-solving and creativity (Marion and Uhl-Bien, 2001; Clarke, 2012). Self-organisation is the spontaneous emergence of a non-equilibrium structural organisation. The role of leadership here is to facilitate and capitalize on this emergent co-ordination, and create the conditions that promote bottom-up behaviors which give rise to relational leadership: 'the relational focus is one that moves beyond unidirectional or even reciprocal leader/follower relationships to one that recognizes leadership wherever it occurs; is not restricted to a single or even a small set of formal or informal leaders; and, in its strongest form, functions as a dynamic system embedding leadership, environmental, and organizational aspects' (Hunt & Dodge, 2000:448).

Leadership, then, is an emergent, interactive dynamic that comes forth from self-organization and reformulation. Enhancing the adaptive capacity of an organizational system to respond to complexity requires a focus on the network conditions in which an organization is situated. In order for self-organization in the system to occur, the systemic process of emergence (as discussed in chapter 3) is critical to allow for properties and/or structures to come into being that are unexpected, given the known attributes of component agents and environmental forces.

Lichtenstein and Plowman (2009) make an interesting contribution to the wider understanding of the behaviors and actions that can encourage emergence in and across organizations. They synthesize three empirical studies which document emergence and reveal nine specific behaviors that foster the contextual conditions for emergence to occur. Based on the findings of this study, as well as that of Marion and Uhl-Bien (2003), it should be emphasized that this model can only be successfully understood with reference to the dynamics of emergence as a critical feature, as opposed to specific directives by designated leaders in higher education. Thus, rather than leadership being embodied in a certain Dean or Chancellor, I propose that it emerges throughout the organization as a positive influence, novelty and outcome.

Figure 4.2 A conceptual model of leadership for higher education as a complex adaptive system



4.5 Rationale for the model's sub-themes

As described in section 4.2 above, each quadrant of the model comprises certain related sub-themes. The sub-themes give clarity and elaborate upon the major components of the model. This section will treat these important sub-themes in detail and explain their roles within the model.

4.5.1 Values: Diversity and Complexity

Diversity: Although South Africa is a complex mix of cultures and subcultures, the dominant management practices are, for historical reasons, Anglo-American (Booysen 1999:15). I suggest that after more than a century of oppression and racial conflict, South Africa is ready to move beyond an assimilationist approach and address the lack of diversity and other barriers that South African universities face, in order to create a diverse and inclusive environment. This research assumes that South African university leaders are ready to challenge the status quo and collectively make strides towards a multicultural environment. If university leadership are not ready to challenge the status quo, it is unlikely that they will drive a diverse and inclusive environment (Booysen, 1999), and the relevance and importance of this leadership model would be undermined.

A second assumption is that diversity and inclusion will benefit the moral, social, and economic fabric of the higher education sector and that they are therefore a worthwhile organisational challenge. In a diverse workforce, people from different cultural or social groups are forced to interact with one another constantly. It has become a truism that being around those unlike ourselves can increase creative thinking, enhance discovery, and improve performance; while excessive homogeneity can lead to stagnation and poor problem-solving abilities. A recent piece of research by Duarte et al. (2015), suggests that academia itself has stopped short in both the understanding and practice of true diversity – the diversity of ideas – and that this problem is taking a toll on the quality and reliability of scholarly work.

Diversity can be operationalised in various ways, such as demographically (e.g., diverse cultural and ethnic groups, races, genders, or ages) or intellectually (e.g., variations in intellectual viewpoints or professional expertise). Seeking demographic diversity has many benefits, including combating effects of past and present discrimination, increasing tolerance, and, in academic contexts, creating bodies of faculty who will be more demographically appealing to students from diverse backgrounds. Duarte et al. suggest that intellectual or 'view-point diversity' as they call it, is likely to have a variety of positive effects by reducing the impact of two familiar phenomena, 'confirmation bias and groupthink/majority consensus' (2015:7).

Cox (2001) urges us to seek diversity because it is socially just and morally desirable: he maintains that studies of diversity in organisations have shown that an exposure to diverse colleagues helps leaders to make better

decisions and cultivate new ideas by drawing on a larger pool of information and valuable experiences.

One of the hallmarks of a complex system is its heterogeneity, that is, the vast diversity of components, agents and parts, each involved in an ongoing variety of distinct interactions with each other. Therefore, if we conceive of the university as a complex system, diversity in the system is essential. Complex systems thrive on the challenge of conflicting constraints and diverse pressures; thus, leadership in organizations seen as complex systems will enable diversity rather than promoting leader-brokered consensus. Here, leaders will emphasize the importance of individual and dissenting voices, which will lead to greater diversity and thus greater innovation.

Complexity: In Chapter 2, I make the case for a complexity perspective. I argue that universities are complex systems, whose properties of non-linearity, disequilibrium, and emergence require a reconceptualization of leadership. I also argue that there is a notable paucity of empirical research focussing specifically on leadership in higher education within the realm of complexity science.

The assumptions of complexity science fit the dynamics of social, managerial, and organizational behaviour in high velocity, knowledge-type environments (Henrickson & McKelvey, 2002:7288). The term complexity captures the greater levels of uncertainty, ambiguity, interdependencies, and interrelatedness that now characterize the environments in which universities operate.

This model adopts the complexity-science based leadership view that Goldstein, Hazy and Lichtenstein suggest, a view that sees 'leadership as an influence process that arises through *interactions* across the organisation; leadership happens in the 'space between' people as they interact' (2011:2). Complexity science empowers individuals by demonstrating how they can alter a system, collectively making new things happen. Goldstein, Hazy and Lichtenstein agree with this, writing: '…what is exciting about the advent of complexity science is that it helps explain, for the first time, why some organisations are able to adapt and change and grow, and why others fail...'.

Complexity theory approaches matters holistically. Instead of viewing leadership just as interpersonal influence, complexity theory sees leadership as providing linkages to 'emergent structures'. Marion and Uhl-Bien (2002) argue convincingly that volatile environments demand complexity thinking as opposed to hierarchical structures, where complexity thinking is not particularly desirable.

Complexity science, the 'study of the behaviour of large collections of…simple, interacting units, endowed with the potential to evolve with time' (Coveney, 2003: 1058), allows us to develop leadership perspectives that

extend beyond bureaucratic assumptions to add a view of leadership as a complex interactive dynamic through which adaptive outcomes emerge.

4.5.2 Personal Development: Personal well-being; Leadership and teamwork:

The personal development quadrant is subdivided into the constructs of personal well-being and leadership and teamwork. The first construct speaks to the undeniable link between well-being, happiness in one's job, and the individual's contribution to the development of the organisation. It is understood that personal well-being at work can have crucial effects for both individuals and organisations. In a time of crisis - like the current one in the South African higher education sector, where campuses have been shut down for long periods of time – the issue of well-being becomes more important for higher education institutions and for society at large.

In the work environment, employees' personal well-being has been associated with, among other things, productivity (Zelenski et al., 2008) and organizational commitment (Fisher, 2010). Bassi et al. (2012) also remind us that personal well-being at work influences employees' self-esteem, mental status, and anxiety levels, and spills over into their private lives, in terms of overall quality of life as well as satisfaction with other life domains, such as family. For the purpose of this research, the personal well-being construct speaks to the individual's happiness in their job, and their contribution to the development of the organisation.

According to Ryan and Deci, the fullest representation of human nature shows people to be curious and self-motivated (2000:68): 'at our best we are agentic and inspired, striving to learn, extend ourselves, master new skills, and apply our talents responsibly'. Further, these authors assert that most people show considerable effort, agency, and commitment in their lives, and that these traits appear to be more normative than exceptional, thereby suggesting some very positive and persistent features of human nature. However, it is also clear that the human spirit can be diminished or crushed and that individuals can come to reject growth and responsibility.

This analysis is based on self-determination theory (SDT), described by Ryan and Deci (2000) as an 'approach to human motivation and personality that uses traditional empirical methods…its arena is the investigation of people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation…as well as the conditions that foster those positive processes' (2000:68). Accordingly, other research guided by SDT has focused on environmental factors that are contingent for the facilitation of healthy motivation and well-being. Ryan and Deci (2000) conclude that the findings have led to three innate psychological needs – competence, autonomy, and relatedness – and when these are satisfied, personal well-being and self-motivation

are enhanced. Thus, it is important that leaders be aware that human beings can be proactive and engaged, or, alternatively, passive and alienated, largely as a function of the social-contextual conditions in which they develop and function.

Leadership and teamwork: An understanding of team dynamics and how the whole can be greater than the sum of its parts is critical for a leader. Hillier, Day and Vance suggested that increasingly unpredictable, dynamic and complex organisational environments require a growing reliance on effective team work (2006:387). This argument provides the basis for a model whereby the actions of multiple players provide an emergent possibility for a more collective, social enterprise rather than the endeavours of one individual.

Complexity leadership requires fostering close patterns of interdependence between organizational actors in order to better understand complex problems and coordinate responsive actions within the social system (Clarke, 2013: 139). Therefore, leadership and teamwork are critical to the organisational network in capitalising on the intelligence that is available. From a complexity perspective, teamwork is seen as central to different organisational units coming together, interacting, and generating new knowledge and mutual learning. The emergence of polyarchy should be seen as positive, as it allows leadership to focus on critical issues and team members to spot solutions; in so doing, leaders also demonstrate the ability to follow.

This particular construct is critical for leadership as seen through a complexity-theory lens: teams need to move towards self-organisation, allowing polyarchy to thrive. In a genuine team, there is a wide diversity of opinions, backgrounds and capabilities. Complexity science shows us how to engage all members of the team through network connectivity and interactional resonance. Differences in perspective are encouraged to coexist and persist, since out of them come the seeds of innovation.

4.5.3 Mechanistic Performance: Financial Performance and Innovative Potential:

The mechanistic quadrant is more traditional and is divided into the financial performance and innovative potential constructs. Financial performance has developed into a critical feature, especially since the unprecedented student protests in late 2015 on South African university campuses. Leaders in South African higher education have had to face the question of how to sustain the financing of higher education institutions, without fee increases (and in some cases, without registration fees too) being levied and paid.

The South African government has been under pressure to respond to demands for free university tuition. University leadership cannot make this decision without government support, but, as a stopgap, have agreed to

a no fee-increase concession. Cloete (2016) argues that the fees crisis, which is a symptom of a bigger problem, was caused by the proportion of government funding to university budgets decreasing from 49% in 2000 to 40%, and in some cases to 30%, by 2013. Third-stream income almost doubled in rand value, but remained constant as a percentage of budgets. The shortfall was made up by student fees, which increased by 42% from 2010 to 2014 (9% p.a. in contrast to a 5-6% national inflation rate). In essence, fees increased every year beyond inflation and students had had enough. The situation is becoming increasingly polarised. Government has not provided decisive leadership, and therefore leadership in higher education will be required to craft, jointly, a fresh way forward.

In his seminal work on understanding the historical dynamics of wealth and income, economist Thomas Piketty argues in *Capital in the 21st Century*: 'To maintain a competitive edge in a rapidly transforming knowledge economy, countries need to invest more in quality education. Not even minimum wage schedules can multiply wages by factors of five or ten: to achieve that level of progress, education and technology are the decisive factors.' (2014:313). Education is the only hope for South Africa. Universities have to create the leadership that can somehow create the good jobs that will make a better life for all.

Education funding is a point of contention in many countries, with student debt often crippling the living standards of many graduates, however some countries appear to be getting it right (Gibbons, 2016). Universities were at high risk of students being unable to complete the 2016 academic year, which would have had a catastrophic financial toll on institutions as well as on productivity, wasted overheads, delayed degrees, and expired bursaries. Pervasive fear and anger will propel the cycle of violence if this mechanistic issue is not resolved.

Mechanistically, what is clearly required is a comprehensive deal between universities, the state, big employers, retail banks, and the National Student Financial Aid Scheme (NSFAS). A new integrated system, combining loans, scholarships, and subsidies is one way we can ensure that deserving students get funding. However, for this to happen, various agents within the system need to trust each other and to negotiate flexibly and in good faith.

Innovative Potential: Innovation has become a buzz word in many sectors, higher education included. Creating new services, patents, new products, new ways of disseminating research, new processes, new models, organisational forms, and new curricula seem to constitute many universities' agendas. In a study by Goldstein, Hazy and Lichtenstein, the authors demonstrate that traditional visionary leadership can kill innovative potential. 'Complexity science shows how the typical focus on "heroic" and charismatic leaders can [actually] result in a *lack* of innovation in modern organisations' (2011:2).

Scientific progress is driven by innovation, which serves to produce a diversity of ideas. Chang and Harrington propose that the key elements of innovation include: (a) the endogenous development of networks through which ideas disseminate and spread, (b) the discovery of new ideas, and (c) the observation and adoption of ideas (2007:657-660). For innovation to occur, new ideas must be generated that have the potential to create positive change in the organisation, and these ideas must then flow into the formal organisational systems and structures to effect this change. Truly adaptable organisations innovate their practices, processes, strategies, and structures so that their internal capacities become a match for turbulent environmental conditions. Achieving this is simply not possible through the traditional hierarchy.

An empirical study by Surie and Hazy (2010) provides useful insights into leadership that creates the context to stimulate innovation in complex systems. In this research, the authors argue that for adaptation to occur, effective leadership must create a system in which appropriate collections of knowledgeable individuals can be brought together and allowed to act with minimal friction and under conditions that 'catalyse innovation' (2010:15). The model that Surie and Hazy propose yields fresh insights into the dynamic processes underlying innovation in that it suggests that it is not simply the composition of the team or the ability to increase interactions but *how* interactions are managed and regulated that leads to innovation. Moreover, rather than focusing on individual interactions between leaders and followers, their perspective on generative leadership emphasizes the *organizational* capacity to enhance connectivity, and thereby promote innovation by synthesizing and recombining ideas from different parts of the system and adapting them to fit a changing and dynamic context.

For the purposes of this model, innovation is viewed as a social process rather than as a purely technical one; innovation therefore emerges in the context of social interactions to solve problems. The implications of these principles to the understanding of innovation are that for innovation to occur leadership creates a system which in essence is an effective context – the outcome of system-wide processes and interactions is innovation.

Marion and Uhl-Bien (2001) argue that a driver of innovation occurs when the interactions between agents spark tension that leads to adaptive change: when agents interact they may experience tension in the form of pressures on, and challenges to, their personal knowledge base. Such challenges to agents' schema can, under the right enabling conditions, foster realignments of their cognitive maps to resonate better with new information. Agent interactions can generate tension through which novel information can emerge. Real change, then, whether desired or not, represents a serious personal and collective experience characterized by ambivalence and

uncertainty; and, if the change works out, it can result in a sense of mastery, accomplishment, and professional growth, using tension to spark innovation. McKelvey (2010) convincingly argues that Jack Welch was a consistent user of management by tension during his tenure at GE.

This new perspective expands the potential for creativity and positive change within an organisation. The conceptual model aims to highlight the dynamic and ever-changing process of leading. This view is borrowed from systems theory, leadership theory, and organisational theory, as well as from complexity science. Self-organisation, a characteristic of complex adaptive systems, is mainly accomplished in the model by a feedback loop in which an increase in knowledge will increase motivation and effectiveness. Emergence can appear in the simulations of the model, and will be identified as such if the pattern produced by the agents cannot be explained by the interactions between them.

The conceptual model suggests that leadership in a complex system, like a university, takes place during interactions among agents when those interactions lead to changes in the way agents expect to relate to one another in the future. A complexity-science epistemology is based on the ontological assumption of connected constituent elements that can interact to produce nonlinear outcomes. This change can be due to changes in a perceived purpose, strategy, or objective, or to changes in perceived norms as to acceptable behaviours and modes of communication.

4.5.4 Holistic performance: Knowledge and learning and Sustainable development and social responsibility

The final quadrant focuses on systemic performance: the constructs relate directly to concepts such as sustainable development, social responsibility, knowledge management and organisational learning. Within classic managerial approaches, other than for personal ethical motivation, there is no reason for an organisation to be responsible or sustainable. Often, leaders have a highly reductionist view of their organisation, focusing primarily on short-term performance, thus making sustainability counterproductive.

Within this classic management paradigm, there is very little space for innovation around values and social responsiveness. However, it is now imperative that universities contribute to the wider societal needs of South Africa. In a country that grapples with the contradictions of incredible prosperity and deepening levels of poverty, the question uppermost in the minds of university leadership should be: What is the role of the knowledge-producing body in engaging with these contradictions? McMillan and Pollack, in their reflective piece *In Search of Service Living*, locate the issue within a very specific and local South African context: 'If we are considering ways in which the university can play a more meaningful role in broader society, then we need to ask about the

role of students within this and therefore, what are the knowledge, skills, values and attributes we want out students to reflect as a dimension of their knowledge of their particular course' (2010:90). This study is persuasive, and its authors argue that much more space in the curriculum should be established to explore a wide range of issues, including social justice issues, e.g. poverty and inequality, to North-South relations, diversity and transformation, and the ability to think critically about them in both the South African and the global contexts. Similarly, Colby et al. (2007) suggest 'A good liberal education should provide students with the intellectual capacity to make sense of their environment and locate themselves within the complex influences of their time and place'.

Knowledge and Learning: McKelvey asserts that in the post-industrial era, the success of an organisation lies more in its social assets, like learning capacity, than in physical assets (2001:183). This means that success is dependent on speeding up the organization's ability to absorb new knowledge, develop new insights, and use knowledge to solve environmentally-posed problems, all in the context of dynamic, ill-structured environments. Learning opportunities thus become the basis of competitive advantage if organizations can be early to adapt to the evolving conditions.

The leadership model proposed in this dissertation focuses on enabling the learning capacity of complex environments within a context of knowledge-producing organisations. The university plays a particular set of roles in the global knowledge economy: it acts as a provider both in education and research, as well as playing historically well-established roles in terms of applied problem solving. Further, as has been put forward in this final quadrant, the university acts as a conduit for the development of wider societal impacts, and contributes to the wider social and innovation system of society. Goldstein, Hazy and Lichtenstein (2011) consistently argue throughout their monograph that the new age is about an economy where knowledge is a core commodity and the rapid production of knowledge and innovation is critical to survival for organisations.

4.6 Discussion

Classical leadership studies have primarily focused on leaders, while neglecting the dynamic complex systems in which these leaders operate. The sub-themes in each quadrant of the model emerged for several reasons. First, each one aligns with the assumptions of the ontological and epistemological approach chosen for this research. Second, each exists within a particular discourse, aligning it to ontological, epistemological, and methodological assumptions shared by many within a scholarly community, thus mitigating an overly prescriptive use in practice. Finally, these sub-themes frequently overlap in the literature surveyed in the literature review in chapter 2, suggesting their interrelatedness and the appropriateness of further examining their relationships.

I have examined the details of each sub-theme within the proposed conceptual model. This model illustrates the potential for the continuous development of both leader and those who form part of his cell/cellular network. If we were to bring the holistic image represented by the model into daily management practice, we would create not only more effective and human-orientated leadership, but also the potential for creativity and innovation. From this holistic perspective, personal development is almost automatically generated.

Leadership effectiveness in an organisation cannot be looked at in isolation, and therefore the focus in this model is on the interrelatedness and holistic nature of leadership in organisations. Here the behaviour of individuals (cells) interacts with wider organizational processes and networks that together produce overall leadership. As can be seen from the conceptual framework in Figure 4.1, cells interact with each other, influenced by many different relationships. When we view the university as a complex adaptive system, the focus is no longer on discrete components, events, or systems; instead, the heart of the new complexity paradigm is the interactions and networks that connect the individual cells or networks.

Hazy, Goldstein and Lichtenstein (2007:1) posit that in complexity parlance, cells represent semi-autonomous entities that can interact with other cells and change behaviour (i.e. learn) as a result of those interactions. Further, they argue that one can define the cells as any 'level' of organisation, including, for example: traits, individuals, procedures or routines, decision-making units, systems, firms and so forth. Eventually all interactions lead to the same cell – the leader. The cells in the system interact with one another and the outside world, which in turn influences the behaviour of the complex system. The complex system will constantly adapt to the environment. Autonomous cells simulate the dynamics of the model. They interact freely and randomly, but the real-life openness between cells of certain cellular networks is included in the model to indicate the probability that cells of one cluster will move to cells of another.

This conceptual model is designed to challenge the underlying assumptions of the leader and the lens through which we view leadership. It is therefore the implications of complexity thinking that I have argued for, as I believe the shift from a linear simplistic attitude to a nonlinear complex one is significantly more challenging than a simple switch from one framework to another. The combination of interactions and interdependencies is required for complex functioning and the production of emergent outcomes. I am claiming in this model that insights from complexity science have the power to reframe leadership in higher education, but only if these insights are properly understood.

Leadership plays a key role in the creation of emergent conditions in organisations, as leaders are responsible for the creation and translation of symbols and the flow of information. I recognise that complexity leadership accepts that bureaucracy is inevitable and useful in organisations, but that we need new ways of thinking about how leadership can and should function within bureaucratic structures to meet the needs for adaptability and responsiveness to the knowledge era.

The proposed model provides a clear and unambiguous framework for driving responsibility downward, sparking self-organisation and innovation, and making the university much more responsive and adaptive to change. I also accept that conventional constructs of leadership have too often focused on the charismatic visionary individual. This view is echoed by James Surowiecki (2005), who, in his book *The Wisdom of Crowds*, argues that collective wisdom, or the decentralisation of decision-making, is a better option than allowing leadership to be encapsulated in an individual, since human beings are not perfectly designed decision makers. Further, Surowiecki argues that collective intelligence can be brought to bear on a wide variety of problems, and complexity in itself is no bar to its application. He suggests that the more power that is given to a single individual in the face of complexity and uncertainty, the more likely it is that bad decisions will be made. As a result, there are good reasons for organisations to try to think past hierarchy and structure (2005:xviii). I conclude with the assumption that complexity theory approaches matters more holistically. Instead of viewing leadership as just individual influence, complexity theory sees leadership as providing linkages to emergent structures.

A fundamental difference in this model is that, while other leadership models speak of styles, traits, etc., this one shows how differing behaviours can be blended. Given the complex nature of what is involved (human dynamics in often fast-changing environments) the outcome is probabilistic rather than deterministic. I contend that studying leadership without the specific inclusion of these quadrants limits the scope of knowledge in this area. Thus, leadership cannot be built exclusively around controlling the future; rather it depends on being able to foster interactive conditions that enable a productive future. At a practical level, a lack of attention to the quadrants discussed, and the dynamics that they produce, can create problems in the development of leaders in higher education for tomorrow.

Finally, in Scott's (2004) overview of the development of the study of organisations, he argues strongly for increased attention to the *relationships* through which organisational activity is conducted. Making interactions and relationships primary creates a new avenue for standards in organisations. Whereas previous leadership studies have focused on the individual, the conceptual model proposed here is based on relationships and complex interactions, and reflects the complexity of institutions in higher education, thus increasing the

relevance of the theoretical underpinning, and providing new insights for leaders in the complex world of higher education.

4.7 Summary

In this chapter, I have proposed a model for leadership in higher education based on the Wilber (2000) model, as adapted by Baets for the management context. The model consists of four quadrants and each of these quadrants speaks to various themes. The model acknowledges the dynamic interactions within a complex system, such as a university, between the various agents in the system. To facilitate their functional role, leaders must be able to create cellular networks; these can be between the leaders, followers, and others in the system. Self-organisation and the emergence of order are the products of many iterations of random interactions between agents operating within the system. Chapter 5 will present the selected research design and methodology to facilitate the validation of the proposed model.

CHAPTER 5: RESEARCH APPROACH

This research study proposes a conceptual framework that can be used to more fully understand and improve leadership in higher education institutions. Up to this point, the following have been introduced: the study, the context and the significance of the research, its rationale, the ontological and epistemological assumptions guiding the work, and the initial draft of the conceptual model. This chapter describes the study's research design and methodology and discusses the following: (a) the rationale for the research approach; (b) a description of the population and sampling frame; (c) an overview of the research design; (d) the methods of data collection; (e) analysis and synthesis of the data; (f) issues of validity and reliability; (g) ethical considerations; and (h) the limitations of the study. The chapter culminates with a brief concluding summary.

5.1 Purpose of this research

The purpose of this research is to investigate and validate a conceptual model that includes the primary competencies required by leadership in higher education. Further, I explore the predominant models of leadership applied by leaders in higher education today, thereby deepening knowledge on organisational leadership and leadership development theory and practice in higher education. Finally, I synthesise a description of leadership as a cogent model for South African higher education institutions. To achieve these objectives, the explanatory mixed-method research methodology is adopted: 'the data analysis procedures in the explanatory design involve first collecting quantitative data, analysing the data, and using the results to inform the follow-up qualitative data collection' (Creswell & Clark, 2011:221).

5.1.1 Research questions

Because of the range of potential research questions, answering all of them would extend well beyond the scope of a single study or dissertation. From the analysis and discussion undertaken in chapters one and two, there are three main research questions that require exploration of university-related leadership phenomena, the context for which is outlined in the background and literature review preceding chapter four. Therefore, I propose the following three primary research questions as the logical and achievable starting point for this study of university leadership:

1. What is the current typology of leadership within South African higher education institutions?
2. What are the main challenges facing university leadership in South Africa?
3. What are the competencies required for leadership to enhance organisational capability within South African universities?

5.1.2 Variables

The following variables contextualized this study:

Table 5.1: Research Variables Identified

Variable	Description
Independent	Affective/emotive outlook
Dependent	Leadership success (team membership)
Control of confounding variables	Participants at universities that were part of major restructuring (mergers) Participants at universities that were historically black/white University size University language Institutional age

Source: Author

5.2 Population and sampling frame

The study was conducted over four years with persons in leadership positions across South African universities. During this period, the population base ranged between 185 and 210 people, depending on resignations, secondments, and recruitment of personnel. The Cassandra© survey was run from January to August 2015 and all individuals who met the criteria for phase 1 were invited to participate in the research survey. The response rate was 35%, with 74 out of the 210 contacted completing the survey. For the qualitative analysis, fifteen one-to-one semi-structured interviews were held with a random stratified sample across the country to gauge individual responses to leadership within South African universities. These interviews were conducted from May 2016 to June 2017.

5.2.1 Unit of analysis (Phase 1)

The unit of analysis chosen for participation in the first phase of the field research was individuals in leadership positions within the 25 South African universities (see Table 5.2). The *target population* was restricted to personnel occupying the following senior management positions:

1. Vice-Chancellor (VC) and/or Principal and/or Rector
2. Deputy Vice-Chancellor (DVC) and/or Vice-Principal
3. Faculty Dean

This scenario, therefore, presents three distinct populations, rather than one homogenous population. Excluded were personnel who were in an acting capacity in the above positions or who had been in one of the above positions for less than six months. This cross-sectional sampling frame is inclusive of 'leadership' across all types of universities in South Africa, representing the diversity that exists in the HE sector.

Table 5.2: South African Higher Education Institutions

1	Cape Peninsula University of Technology
2	Central University of Technology
3	Durban University of Technology
4	Mangosuthu University of Technology
5	Nelson Mandela Metropolitan University
6	North-West University
7	Rhodes University
8	Sol Plaatjie University
9	Stellenbosch University
10	Tshwane University of Technology
11	University of Cape Town
12	University of Fort Hare
13	University of Johannesburg
14	University of Kwa Zulu Natal
15	University of Limpopo
16	University of Mpumalanga
17	University of Pretoria
18	University of South Africa
19	University of Venda
20	University of Zululand
21	University of the Free State
22	University of the Western Cape
23	University of the Witwatersrand

24	Vaal University of Technology
25	Walter Sisulu University

Source: Higher Education South Africa (HESA:2015)

The rationale for the inclusion of Deans in the population sample was multi-fold: Deans within South African HEI's are generally responsible for the full range of activities associated with academic leadership, management, and administration of the faculty in all matters, including teaching and learning, research, community engagement, and involvement in the profession. Additionally, Deans are expected to participate fully in broader University strategy formulation and implementation, including matters related to size and shape, enrolment planning, and equity and institutional culture. Deans are also expected to contribute towards the development of sustainable financial plans for the University. The Dean has both an inward- and an outward-facing role, and is expected to interact with schools (for purposes of understanding the nature of first-time entering students, and recruitment); other higher education institutions; the Department of Higher Education and Training (DHET); the Council on Higher Education (CHE); and commerce and industry.

The 25 higher education institutions were classified into *types*, based on variables such as *size* (from small, i.e. less than 1 000 students, to large, i.e. over 25 000 students); *language* (historically Afrikaans or historically English and so forth); range of *disciplines* (from one main focus area, to multi-disciplinary, covering all or most of the traditional and emergent areas taught and researched through universities); *institutional age* (19th to 21st century); form of *governance* (boards, councils, senates, convocations); *reputation* (ranking profile); and research and teaching profiles.

Table 5.3 outlines whether the survey respondents reflect the population in the sector in terms of gender, race, and type of institution. In the defined categories of gender, race, and title, the numbers suggest that the sample generally does reflect the research population across the sector.

Table 5.3 Demographics of the Cassandra Tool survey respondents

	Designated Title	Higher Education Institution (HEI)	Type (Historical)	Gender	Race
1	Dean	University of the Western Cape	HBU[6]	Female	Indian
2	Dean	Cape Peninsula University of Technology	HBU	Female	Black
3	Dean	University of Cape Town	HWU[7]	Female	Foreigner
4	Dean	University of Cape Town	HWU	Female	White
5	Dean	Stellenbosch University	HWU	Female	White
6	Dean	Stellenbosch University	HWU	Male	White
7	Vice-Chancellor	Cape Peninsula University of Technology	HBU	Male	Black
8	Dean	University of the Western Cape	HBU	Male	White
9	Dean	University of the Western Cape	HBU	Female	Coloured
10	Deputy Vice-Chancellor	Cape Peninsula University of Technology	HBU	Male	Coloured
11	Dean	Stellenbosch University	HWU	Male	Coloured
12	Dean	University of Cape Town	HWU	Male	White
13	Dean	Stellenbosch University	HWU	Female	White
14	Executive Dean	Nelson Mandela Metropolitan University	HWU	Female	Foreigner
15	Executive Dean	Nelson Mandela Metropolitan University	HWU	Male	White
16	Deputy Vice-Chancellor	Rhodes University	HWU	Male	White

[6] Historically Black University (HBU)
[7] Historically White University (HWU)

	Designated Title	Higher Education Institution (HEI)	Type (Historical)	Gender	Race
17	Dean	Rhodes University	HWU	Male	White
18	Dean	University of Fort Hare	HBU	Male	Black
19	Executive Dean	Nelson Mandela Metropolitan University	HWU	Male	Coloured
20	Deputy Vice-Chancellor	Nelson Mandela Metropolitan University	HWU	Male	White
21	Executive Dean	Nelson Mandela Metropolitan University	HWU	Male	White
22	Deputy Vice-Chancellor	Rhodes University	HWU	Female	White
23	Vice-Chancellor	University of Fort Hare	HBU	Male	Black
24	Deputy Vice-Chancellor	University of Fort Hare	HBU	Male	Foreigner
25	Dean	University of the Western Cape	HBU	Male	Indian
26	Dean	Stellenbosch University	HWU	Male	Coloured
27	Vice-Chancellor	Sol Plaatje University	N/A	Male	Coloured
28	Deputy Vice-Chancellor	University of Mpumalanga	N/A	Male	White
29	Dean	Cape Peninsula University of Technology	HBU	Male	Black
30	Deputy Vice-Chancellor	University of the Western Cape	HBU	Male	White
31	Deputy Vice-Chancellor	University of Cape Town	HWU	Female	White
32	Dean	University of the Free State	HWU	Male	Coloured
33	Vice-Chancellor and Principal	Central University of Technology	HBU	Male	Black
34	Deputy Vice-Chancellor	Central University of Technology	HBU	Male	Foreigner
35	Dean	University of the Free State	HWU	Male	White
36	Dean	University of the Free State	HWU	Female	White
37	Vice-Rector	University of the Free State	HWU	Male	Coloured
38	Dean	University of the Free State	HWU	Male	Black
39	Dean	University of the Free State	HWU	Female	Foreigner

	Designated Title	Higher Education Institution (HEI)	Type (Historical)	Gender	Race
40	Vice-Rector	University of the Free State	HWU	Male	White
41	Vice-Rector	University of the Free State	HWU	Male	White
42	Deputy Vice-Chancellor and Head of College	University of KwaZulu-Natal	HWU	Male	Foreigner
43	Vice-Chancellor and Principal	University of KwaZulu-Natal	HWU	Male	White
44	Executive Dean	Durban University of Technology	HBU	Male	Indian
45	Executive Dean	Durban University of Technology	HBU	Male	Indian
46	Deputy Vice-Chancellor	University of KwaZulu-Natal	HWU	Female	Indian
47	Deputy Vice-Chancellor	Mangosuthu University of Technology	HBU	Male	Black
48	Dean and Head of College	University of KwaZulu-Natal	HWU	Male	White
49	Deputy Vice-Chancellor	University of KwaZulu-Natal	HWU	Male	Foreigner
50	Vice-Rector	Stellenbosch University	HWU	Male	White
51	Deputy Vice-Chancellor	University of Cape Town	HWU	Male	Coloured
52	Rector and Vice-Chancellor	University of the Western Cape	HBU	Male	Coloured
53	Dean	Cape Peninsula University of Technology	HBU	Male	White
54	Executive Dean	University of Johannesburg	HWU	Male	White
55	Dean	University of the Witwatersrand	HWU	Male	Coloured
56	Deputy Vice-Chancellor	University of the Witwatersrand	HWU	Male	Black
57	Deputy Vice-Chancellor	University of the Witwatersrand	HWU	Male	Foreigner
58	Executive Dean	University of Johannesburg	HWU	Male	White
59	Deputy Vice-Chancellor	University of Johannesburg	HWU	Female	Indian
60	Deputy Vice-Chancellor	University of Limpopo	HBU	Male	Black
61	Deputy Vice-Chancellor	University of the North-West	HWU	Male	White
62	Deputy Vice-Chancellor	University of the North-West	HWU	Male	White

	Designated Title	Higher Education Institution (HEI)	Type (Historical)	Gender	Race
63	Deputy Vice-Chancellor	Vaal University of Technology	HWU	Male	Black
64	Dean	University of Pretoria	HWU	Male	Indian
65	Vice-Principal	University of Pretoria	HWU	Male	Black
66	Dean	University of Pretoria	HWU	Female	White
67	Dean	University of Pretoria	HWU	Male	White
68	Dean	University of Pretoria	HWU	Male	White
69	Vice-Principal	University of Pretoria	HWU	Male	Coloured
70	Executive Dean	University of South Africa	HWU	Female	White
71	Executive Dean	University of South Africa	HWU	Female	Black
72	Executive Dean	University of South Africa	HWU	Female	Black
73	Executive Dean	University of South Africa	HWU	Female	Black
74	Vice-Rector	Stellenbosch University	HWU	Male	Coloured

Source: Author

5.2.2 Unit of analysis (Phase 2)

For phase 2 of the research process, purposive sampling was employed, based on the researcher's judgment and taking the aims of the study into account. The researcher carefully selected informants and interviewees who it was thought could best help to answer the research questions posed for this study. These individuals were identified through several sources, including personal contacts, citations in the scholarly literature, and information in the media by HE analysts or commentators. A subset of individuals in leadership positions at institutions locally and abroad was identified at this stage. The most appropriate technique during this phase was to interview individuals from higher education institutions abroad.

5.3 Research Design

Mouton identifies the main function of a research design to be to enable the researcher to anticipate what the appropriate research decisions should be, so as to maximise the validity of the eventual results. Further, Mouton posits that the rationale for a research design is to plan and structure a research project in such a way that the eventual validity of the research findings is maximised through either lessening or, where possible, eliminating

potential error (1996:108). In the most elementary sense, Yin argues that a research design is the 'logical sequence that connects the empirical data to a study's initial research questions and ultimately, to its conclusion'…and that 'every type of empirical research has an implicit, if not explicit, research design' (2014:28).

This research study can be classified as an empirical study that uses primary empirical data, i.e. data collected by the researcher that did not exist before the research began. In order to address the problem statement posed in section one, as well as to address the research questions and objectives, the research design selected here is a *cross-sectional (primarily synchronic) mixed methods survey design*, which is exploratory in nature. By exploratory the researcher means a study that 'aims to seek new insights, ask specific questions and assess phenomena in a new light' (Saunders, Lewis & Thornhill, 2009:139); by cross-sectional I mean that the data will be collected at one point in time. A study is best described as exploratory when it is relatively new or the researcher examines a new interest (Babbie & Mouton, 2001). The research contains no hypotheses or predictions and the data will be obtained via observation and summation by the researcher.

It is a widely held view that a survey is perhaps the most frequently used research design in the social sciences. The history of survey research in South Africa dates back to the late seventeenth century, when demographic data was first collected in the Cape (Shell, 1994:39). In a typical survey, the researcher selects a sample of respondents and administers a standardized questionnaire to them. As with all research designs, it is important that the researcher keep in mind the inherent strengths and weaknesses of the selected design. Standardised surveys have an important strength in regard to measurement; however, Babbie and Mouton (1998:262) caution that by designing questions that will be at least minimally appropriate to all respondents, one might miss what is most significant about many respondents. The survey design is inherently positivistic, and has often been criticised for being limited in dealing with the context of social life, for being inflexible, and for possibly being subject to inauthentic responses (Babbie & Mouton 2008:263). It is clear that the survey design is not without its critics; however, this design is still the preferred type of data-collection procedure for this study, based on the following reasons:

- Survey research is probably the best design available for collecting original data for describing a population too large to observe directly.
- The purposive sampling employed provides a group of respondents whose characteristics could be taken to reflect those of the larger population. Extrapolation from sample to population is called 'inductive generalization' (Mouton, 1996:80).

To develop a survey that minimises flaws, the following factors were incorporated into its development based

on suggestions by Fowler (2009):

- The particular survey instrument was selected as a theoretical frame for the data collection because of its broad applicability and identification as a tool that has a holistic view to leadership and management.
- Survey questions included explanatory notes to avoid ambiguity.
- Answers to questions were given in the form of a Likert scale to facilitate quantitative analysis.
- Participants were given three options for how to take the self-administered survey - online, telephonic or printed copy - to provide ease of access as well as to reduce nonresponse.

Smith (2009) suggested that some of the positive characteristics of quantitative research are that it is objective, controlled, systematic, valid, and reliable. It is objective in the sense that respondents are presented with the identical instrument. It is controlled because the data is defined, gathered, and evaluated according to prescribed rules that can be reviewed for error and measured by validity and reliability.

5.4 Research Methodology

Whereas the section above provides a general overview of the study's design, this section will chronologically detail the methodological approach. Both quantitative and qualitative methodologies will be used in a two-part approach to the field research. By implication, this will involve mixed methods, which Johnson, Onwuegbuzie and Turner (2007:123) define as follows:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

Mouton (1996:38-39) suggests that the use of a mixed methodology is one of the best ways to improve the quality and validity of social research, as well as to develop a richer, and deeper understanding of the research problem being examined. Matveev (2002) argues that the use of different research methods allows the researcher to build on the strengths of each method and to minimise its weaknesses.

Most mixed methods writers have argued for the broad use of some version of pragmatism as the most useful philosophy to support mixed methods research. Johnson, Onwuegbuzie and Turner (2007:125) support this argument, stating:

> We agree that pragmatism is a well-developed and attractive philosophy for integrating perspectives and approaches. Pragmatism offers an epistemological justification (i.e., via pragmatic epistemic values

or standards) and logic (i.e., use the combination of methods and ideas that helps one best frame, address, and provide tentative answers to one's research question[s]) for mixing approaches and methods.

In response to this, Creswell and Clark (2011:51) state that 'some believe that there is a single worldview that informs mixed methods, such as pragmatism, transformative approaches, or critical realism. Others hold that multiple worldviews can inform a mixed methods study and that the choice of worldview is related to the type of mixed methods design chosen. A recent stance is that worldviews form within scholarly communities and that they may vary from community to community.' The authors argue that regardless of worldview, the assumptions behind a mixed methods study need to be identified and stated: it is therefore useful to emphasise that for the purposes of this research, the critical-realist paradigmatic perspective was selected. As stated in chapter 3, critical realist science pursues truthful knowledge that derives at least in part from the way the world is. This choice resonates with the pragmatic approach since both worldviews contribute toward finding appropriate solutions, as well as stimulating additional research (Davis, 2014). In addition, the practicality of pragmatism underscored by Johnson and Onwuegbuzie (2004) was considered as relevant to this study.

Since the rationale and conceptual rigor of both quantitative and qualitative research is well documented, only summary sources will be presented in support of the use of these methodologies.

5.4.1 Motivation for the choice of mixed methods methodology

The explanatory mixed methods research methodology was selected and motivated according to the summary of the consolidated research presented in Table 5.4:

Table 5.4: Summary motivation for choice of mixed method methodology

Scholar	Motivation put forward for explanatory mixed method research methodology
Creswell & Clark 2011	'…provides more evidence for studying a research problem than either quantitative or qualitative research alone' (Creswell & Clark 2011:12).
Creswell 2014	'…its strength of drawing on both qualitative and quantitative research and minimizing the limitations of both approaches' (Creswell 2014:218).
Creswell & Clark 2011 Bryman 2012	Improvement of research results as one approach cannot answer the research question sufficiently.
Creswell 2014	Triangulation of results of both methods enhances research meaningfulness.

Source: Author

5.4.2 Benefits associated with explanatory mixed methods research methodology

A summary of benefits associated with the explanatory mixed methods research methodology is here presented based on the observations of scholars Leedy and Ormrod (2014), Johnson and Onwuegbuzie (2004), Bryman (2012) and Creswell and Clark (2011).

1. Comprehensive answering of research questions, as qualitative and quantitative methods complement each other in terms of weaknesses, as 'words, pictures, and narrative, can be used to add meaning to numbers' and vice versa. (Johnson & Onwuegbuzie, 2004: 21).
2. The understanding of the issue being researched could be enhanced because the research questions were answered in unique ways.
3. Complementarity of the two paradigms is improved without focusing unnecessarily on epistemological and ontological arguments.
4. Quantitative and qualitative data sets can be treated as separate entities during the collection and analysis processes, but equal value can be attached to both sets of data.

5.4.3 Challenges Associated with the explanatory mixed methods research methodology

The challenges associated with the mixed methods design approach are summarised here based on the observations of scholars Creswell and Clark (2011); Bryman (2012); Leedy and Ormrod (2014) as well as Morgan (2014):

1. The combination of quantitative and qualitative research representing two different paradigms (views of the truth and two sets of data) is challenging.
2. Time, skill, and energy demands because of concurrent data collection.
3. It might be a challenge convincing others of the merits of this approach (especially purists) as it is claimed that research rigour is compromised.
4. Replication of the qualitative part of the study could be challenging.
5. The challenges researchers face are intensified. Small argues that 'the most important skill for the mixed methods researcher today will be the ability to write and think across not only methodological techniques but also epistemological perspectives' (2011: 79).

5.4.4 Reliability and Validity in Mixed Methods research

It is widely accepted that validity and reliability are important cornerstones of research in the social sciences, and stand for research quality and rigour. In this section, the focus is not on the reliability and validity of the measurement instruments, but rather on the overall research effort. Qualitative validity indicates that 'the

researcher checks for the accuracy of the findings by employing certain procedures, while qualitative reliability indicates that the researcher's approach is consistent across different researchers and different projects' (Creswell, 2014:201).

Creswell & Clark put forward the idea that 'quantitative validity means that the scores received from participants are meaningful indicators of the construct being measured' (2011:210), while quantitative reliability 'means that scores received from participants are consistent and stable over time' (2011:211).

5.4.4.1 Validity

Drawing on suggestions by Leedy & Ormrod (2015:336-337) the following aspects in Table 5.5 were identified and considered important.

Table 5.5: Validity Descriptions and Mixed Methods Research

Concept	Descriptive Words
Internal validity	''…the extent to which the study enables defensible conclusions about cause-and-effect and other between-variable relationships" (Leedy & Ormrod, 2015:336).
External validity	Generalizability of the research results (Saunders, Lewis & Thornhill, 2009; Leedy & Ormrod, 2015).
Credibility, authenticity and trustworthiness	The extent to which, when other individuals read the study's findings, it is "…convincing and worth taking seriously" (Leedy & Ormrod, 2015:336).

Source: Author

Creswell (2014) makes several recommendations to increase validity in mixed methods research studies. The first relates to the issue of the different methods speaking sufficiently to one another while controlling for confounding variables. To this end, Creswell (2014) recommends that the qualitative and quantitative phases of the research be kept sufficiently similar that appropriate and justified comparisons can be made. This recommendation was followed by having selection criteria for participants (see 5.2.1). Creswell also suggests that researchers should 'spend a prolonged time in the field,' (2014:202) so that the researcher develops a rich understanding of the phenomena being investigated. This recommendation was followed by travelling to 21 of 25 South African public university sites to meet participants over a period of two years.

The explanatory mixed research methodology was adopted based on the recommendation of Leedy & Ormrod (2015) that the data from both phases be of equal importance and mutually supportive, as well as the researcher being able to explain inconsistencies in the findings related to the research question within the overall research problem.

Creswell and Clark describe *validity in mixed methods research* as 'employing strategies that address potential issues in data collection, data analysis, and the interpretations that might compromise the merging or connecting of the quantitative and qualitative strands of the study and the conclusions drawn from the combination' (2011:239). These authors list several potential threats to validity for a mixed methods study design that could appear during the various phases. The strategies they propose to address each threat, as presented in Table 5.6 below, served as a guide for this research.

Table 5.6: Potential Validity Threats and Strategies in a Mixed Methods Study Design

Potential Validity Threats when Merging Data	**Strategies for Minimizing the Threat**
Data Collection issues	
Selecting inappropriate individuals for the quantitative and qualitative data collection	Draw quantitative and qualitative samples from the same population to make the data comparable.
Obtaining unequal sample sizes for the qualitative and quantitative data collection	Use large qualitative samples or small quantitative samples so that the same number of cases can be selected.
Introducing potential bias through one data collection on the other data collection (adding qualitative data into a trial while the trial is going on).	Use separate data collection procedures, and collect data at the end of an experiment.
Collecting two types of data that do not address the same topics	Address the same question (parallel) in both quantitative and qualitative data collection.
Data analysis issues	
Using inadequate approaches to converge the data (e.g., uninterpretable display)	Develop a joint display with quantitative categorical data and qualitative themes or use other display configurations.
Make illogical comparisons of the two results of	Find quotes that match the statistical results

analysis	
Utilizing inadequate data transformation approaches	Keep the transformation straightforward (e.g., count codes or themes), and use procedures to enhance reliability and validity of transformed scores.
Using inappropriate statistics to analyse quantitated qualitative results	Examine the distribution of scores, and consider use of nonparametric statistics, if needed.
Interpretation issues	
Not resolving divergent findings	Use strategies such as gathering more data, reanalysing the current data, and evaluating the procedures.
Not discussing the mixed methods research questions	Address each mix methods question.
Giving more weight to one form of data than the other	Use procedures to present both sets of results in an equal way (e.g., a joint display) or provide a rationale for why one form of data provided a better understanding of the problem.
Not interpreting the mix methods results in light of the advocacy or social science lens.	Return in the interpretation of a transformative study to the lens used in the beginning of the study, and advance a call for action based on the results.
Not relating the stages or projects in a multiphase study to each other	Consider how a problem, a theory, or a lens, might be overarching way to connect the stages or projects.

Source: Adapted from Creswell & Clark 2011:240

5.4.4.2 Triangulation

Mixed methods research allows for triangulation, and in this study triangulation will incorporate a review of the literature, quantitative data (the survey), and qualitative data (the interviews). The father of triangulation is Denzin (1989), who defines it thusly:

> Triangulation, or the use of multiple methods, is a plan of action that will raise sociologists [and other social science researchers] above the personal biases that stem from single methodologies. By combining methods and investigators in the same study, observers can partially overcome the deficiencies that flow from one investigator or method (1989:236).

Creswell advocates for triangulating 'different data sources of information by examining evidence from the sources, and using it to build a coherent justification for themes. If themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the

validity of the study' (2014:201). Semi-structured interviews and discussions were included in this research based on Creswell's recommendations.

5.5 Data Collection

The data collection procedures for this mixed methods study followed those put forward by Creswell and Clark (2011:173).

5.5.1 Data Collection Procedure: Quantitative Data

The quantitative field research began with a quantitative survey of current leadership in South African Universities.

1. **Sites:** The researcher identified all current public higher education institutions in South Africa (see Table 5.1).
2. **Participants for the study**: Participants in the study were limited to senior leadership occupying the roles of Vice-Chancellor, Deputy Vice-Chancellor, and Dean.
3. **Obtaining permissions**: Following a recommendation of Creswell and Clark (2011), permission was obtained from the highest authority levels within the different universities. After this, the researcher contacted eligible respondents via email explaining the study, requesting their participation, and providing possible interview dates. It was the preference of the researcher to employ a face-to-face interview, which involves direct, in-person contact between an interviewer and interviewee. This personal contact occurred for 83% of the responses. The method was found to be generally the best choice in sustaining respondents' attention and motivation. Ten percent of interviews were conducted telephonically and 7% via paper-and-pencil, where the questionnaire was hand-delivered and filled out individually.
4. **Pretesting:** Survey pretesting was conducted to evaluate the survey's effectiveness. For several pragmatic considerations, the survey was administered to a small sample of respondents (only Deans) at universities within the Western Cape. Indicators of problems included respondents asking the interviewer to repeat or clarify certain questions, as well as the interviewer inadvertently skipping questions. The questions were amended accordingly, and question numbers and section breaks were added to the survey.

The survey instrument used in this study is Cassandra©, which was developed by Baets and Oldenboom (2009). A major advantage of using this instrument was that it allowed the researcher to capitalize on the expertise of its creators.

5.5.2 Data Collection Procedure: Qualitative Data

A smaller pool of subjects was identified through the results of the survey for the second, qualitative phase of field research, which consisted of in-depth, semi-structured interviews. In discussing a qualitative approach, Saunders, Lewis and Thornhill (2009) provide useful insights when they assert that 'the more ambiguous and elastic our concepts, the less possible it is to quantify our data in a meaningful way'. A qualitative approach is well suited to such elastic concepts and captures the richness and fullness of a subject in as realistic a manner as possible. The research questions aim to explore the nuances and complexities of higher education and the leadership it requires, and thus fit into the 'ambiguous and elastic concepts' described by Saunders, Lewis and Thornhill (2009).

In a research design that employs qualitative methods, it is important that there exists "a reflexive process operating through every stage of a project" (Hammersley & Atkinson, 1995:24). Maxwell (2009:215) argues that during this process, the activities of collecting and analysing data; developing and modifying theory; elaborating or refocusing the research questions; and identifying and dealing with validity threats are usually going on more less simultaneously, each influencing all of the others.

The phenomenological approach was considered applicable to this research. A summary of the phenomenological approach is provided by Leedy and Ormrod in Table 5.7 below.

Table 5.7: Distinguishing Characteristics of Qualitative Research Designs

Design	Purpose	Focus	Methods of Data Collection	Methods of Data Analysis
Phenomenological study	'…study that attempts to understand people's perceptions and perspectives relative to a particular situation'.	'…Looking at multiple perspectives on the same situation'. The particular phenomenon was typically experienced by the participant.	• Almost exclusively lengthy interviews (perhaps 1-2 hours in length) • Purposeful sampling typically from 5 to 25 individuals	• Searching for meaningful themes reflecting various aspects of the experience

Source: Leedy & Ormrod (2015:273)

The phenomenological approach was embedded in the qualitative phase of this study. This approach was considered appropriate because of the participants' experience with the phenomena under investigation (Leedy & Ormrod, 2015). The phenomenological interview is one where '...the researcher and participants work together to arrive at the heart of the matter' (Tesch 1994:147).

The limitations of the phenomenological approach referred to by Leedy & Ormrod (2015) were noted, that is that throughout the data collection process it is important to 'suspend any preconceived notions or personal experiences that may unduly influence' (2015:274) what is heard.

5.7 Instrumentation

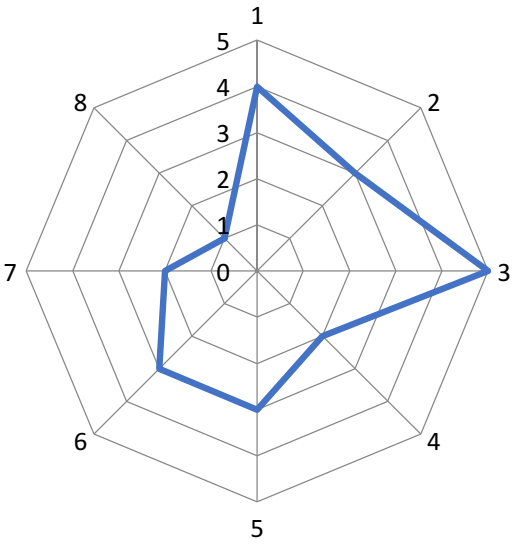
5.7.1 Instrument 1: Cassandra© Tool

The basis of the quantitative analysis is a survey called Cassandra©, developed by Baets and Oldenboom (2009). In Greek mythology Cassandra ('she who entangles men') was a daughter of King Priam and Queen Hecuba of Troy, and her beauty caused Apollo to grant her the gift of prophecy. However, when she did not return his love, Apollo placed a curse on her so that no one would ever believe her predictions. This is a metaphor that illustrates the shifting paradigm of leadership (Baets & Oldenboom 2009:143).

The Cassandra© tool is a Likert scale survey consisting of 69 questions. The participant scores all questions on a scale of 1-5. Questions are formulated in such a way that ideally someone would want to have an average value of 5 on all axes, providing an actionable picture of the themes that need further attention or development where scores fall below 5. An average score per sub-theme (as described in the previous chapter) is calculated; a raster diagram represents the 8 axes.

Figure 5.1: Cassandra© Diagram

The holistic diagnostic tool for personal sustainable performance



The axes are:

Values

Axis 1 - Diversity

Axis 2 - Complexity

Personal Development

Axis 3 – Personal well being

Axis 4 – Leadership and teamwork

Mechanistic Performance

Axis 5 – Financial performance

Axis 6 – Innovative potential

Holistic Performance

Axis 7 – Sustainable development and social responsibility

Axis 8 – Knowledge and learning

The scores are based on the four-quadrant model described in chapter 4 and allow for comparisons among the leaders regarding the coherence, level, and variation of their values orientation. Cassandra© has been developed in personal and corporate versions. For the purposes of this research, the personal version was utilised to give

the users an insight into their potential for being a leader for sustainable performance. The tool is orientated to the manager/leader as a person.

5.7.2 Validity and Reliability for Cassandra©

The Cassandra© holistic diagnostic tool has been tested for its stability and validity in order to design, in advance, controls that will deal with both anticipated and unanticipated threats to validity. A detailed description of this testing can be found in Baets and Oldenboom (2009); it employed the techniques of "Factorial Analysis (FA), based on Malhotra (2004), using data collected amongst Master's of Management students, who follow a curriculum within a more systemic management concept" (Baets and Oldenboom 2013:230). As noted, Cassandra© has 8 axes, and a relatively high number of questions compared to more classical tools. The high number of questions ensures that there is sufficient variance in the approach.

Baets and Oldenboom's (2009) understanding of sustainable performance is fresh and unique. They postulate that sustainable performance is not a concept to be administered, but rather one to be co-created daily within the interconnectedness of people inside and outside the organisation (2009:144). Baets and Oldenboom (2009) assert that there are no commonly accepted managerial theories which give the manager tools for managing differently than they have in the past. They argue that sustainable development cannot be seen other than within a larger, holistic perspective.

The diagnostic tool is based on the Wilber holistic model (2000) as discussed in chapter 4. Firstly, it is an inventory of attributes and secondly, it can be used as a guide for transforming into a manager capable of and prepared for a different way of management. The tool firstly focuses on the person who aspires to be a transformational leader and thereby, it is in fact, a tool for personal development. The purpose of the analysis is to provide insights into the ontology, building blocks, managerial skills, and leadership qualities required to start working for sustainable performance for Universities. The tool allows one to diagnose and equally to follow up on managerial performance.

5.7.3 Limitations of using the Survey Design

Surveys are the "method of choice for much data collection in the [social sciences]" (Wright and Marsden 2010:10), especially in sociology and political science. Yet, there are a few limitations in the use of this design. An inherent weakness of surveys is their reliance almost exclusively on self-reporting of behaviour rather than on independent observations of behaviour. As a consequence, validity and reliability may be undermined by respondents' lack of truthfulness or instability of opinions. Another disadvantage of surveys relates to their use in explanatory research. The "criteria for inferring cause-and-effect relationships cannot be established as easily in surveys as in experiments" (Dixon, Singleton and Straits, 2016:237), and therefore inferences can be drawn

with less confidence than those based on experimental research. Despite these limitations, the major strengths of surveys lie in their ability to provide reasonably accurate estimations of population characteristics and their versatility in speaking to a wide range of topics.

5.7.4 Instrument 2: Semi-structured Interviews

The qualitative component of this research consists of semi-structured interviews. Participants were chosen from the list of survey participants. In addition, leaders in international higher education institutions were also interviewed. This served to engage international leaders more deeply on the subjects under investigation as well as to gauge whether the conceptual model is relevant to their contexts. The process of interviewing began with the identification of major themes to be investigated in more depth, based on the categories and issues discovered during the literature review and the Cassandra© surveys. Coding schemes were applied to the in-depth interview data through an iterative process of refining and elaborating further codes and sub-codes that surfaced out of the data. The final coded interview data was analysed to discover themes and patterns, to make linkages between categories, and to highlight non-conforming sets of information about leadership in higher education. The interviews sought to elicit the subject's understanding, perceptions, and attitudes towards systemic leadership and to further refine the typology required for the model.

Each interviewee was interviewed according to the semi-structured interview guide attached as Appendix D. The benefit of a semi-structured interview gave the researcher the benefit of probing for more information when necessary. The interview guide was given to the interviewee along with an Information Sheet on the Research Project and a Research Participation Consent form. All interviews were conducted in English.

5.7.5 Limitations of using semi-structured interviews

Several scholars have acknowledged challenges with the use of semi-structured interviews (Dixon, Singleton & Straits, 2015; Leedy & Ormrod, 2015; Bryman, 2012). These are summarised as follows:

1. It is time-consuming and resource intensive.
2. Transcribing audio-recordings is time-consuming.
3. Telephonic interviews could reduce the reliability of data due to a lack of face-to-face contact; it is more difficult for interviewers to establish trust and rapport with participants.
4. Data quality could be compromised when the interview duration is shortened.

5.7.6 Validity and reliability for interviews

Different approaches to validity and reliability in qualitative research were considered. Scholars like Dixon, Singleton and Straits contend that the reliability and validity of the data 'are highly dependent on the observational, interactive and interpretive skills of the researcher' (2016:284). There is an ongoing discourse regarding the appropriate terminology to indicate validity and reliability in qualitative research; certain schools reject the terms *validity* and *reliability*, preferring instead *credibility* and *dependability*. Bloomberg and Volpe recommend using the term 'trustworthiness' (2016:162) as a means of reassuring readers that a study using qualitative research was of significance and value.

Koonin (2014:259) provides a useful comparison of terminology between quantitative and qualitative research when referring to validity and credibility. This is presented below in Table 5.7.

Table 5.8: Comparison of Qualitative and Quantitative terminology

Qualitative Terminology	Quantitative Terminology
• Credibility • Transferability • Dependability • Conformability	• Internal validity • External validity • Reliability • Objectivity

Source: Koonin (2014:259)

Like Bloomberg and Volpe (2016), Koonin contends that the overarching term that should be used for validity and reliability in qualitative research is 'trustworthiness', which is further divided into credibility, transferability, dependability and confirmability (2014:258):

- *Credibility* refers to the accuracy of the researcher's account of the data and information provided. Credibility is increased with the triangulation of data and collection methods, as well as when the researcher spends long periods of time with participants.
- *Transferability* is the ability of the findings to be applied to a similar situation and delivering similar results. Bloomberg and Volpe (2016:164) provide similar insights, although they emphasize the highly subjective nature of transferability as findings are judged '…by the reader'.
- *Dependability* refers to whether one can track the processes and procedures used to collect and interpret the data. Bloomberg and Volpe refer to this as the 'audit trail' (2016:163).
- *Confirmability* is described as the availability of evidence that supports the findings of the research. Here, there is the requirement upon the researcher to have described the research process fully so as to allow for others to scrutinize the research design.

In an effort to address the validity and reliability concerns (credibility, transferability, dependability and confirmability) in the qualitative phase of this study, the researcher did the following:

1. *Credibility*

   The accuracy of the transcriptions (data provided by the participants) was achieved as the researcher adhered to basic transcription protocols as stipulated by Dixon, Singleton and Straits (2016:399-401). Data integrity was achieved by capturing the interview data verbatim. The researcher transcribed all of the interviews and utilized 'attribute coding' (Dixon, Singleton and Straits 2016:403) to organize and store the data.

   Personal bias was minimized as the researcher, in a reflexive manner, clarified the possible influence of her prior experience within the higher education sector. Creswell asserts that 'this self-reflection creates an open and honest narrative that will resonate well with readers' (2014:202).

2. *Transferability*

   The researcher detailed the procedures for the data collection in detail so that the findings could be applied to a similar situation. Further, the researcher went into great depth to provide background to the current context of the research study.

3. *Dependability*

   The research process was documented comprehensively. Further, plans were made to make the raw data available (according to a research data management plan) once the examination process has been completed.

4. *Confirmability*

   Confirmability was achieved by the comprehensive documentation process.

5.8 Data Analysis

The data-analysis procedures for mixed methods studies recommended by Creswell and Clark (2011:205-206) were followed for this study (See Annexure A). The challenges throughout the data collection and analysis phase were to make sense of large amounts of data, to identify significant patterns, and to construct a framework. In this regard, Bloomberg and Volpe caution researchers to make data analysis and data collection a simultaneous activity to avoid the risk of 'repetitious, unfocused and overwhelming data' (2016:175).

5.8.1 Quantitative Data Analysis

The formal process of data analysis began with the aggregating of all scores received from the Cassandra© survey. The quantitative analyses were conducted in two phases:

1. Linear Statistical Analysis
2. Nonlinear Statistical Analysis

5.8.1.1 Linear Statistical Analysis

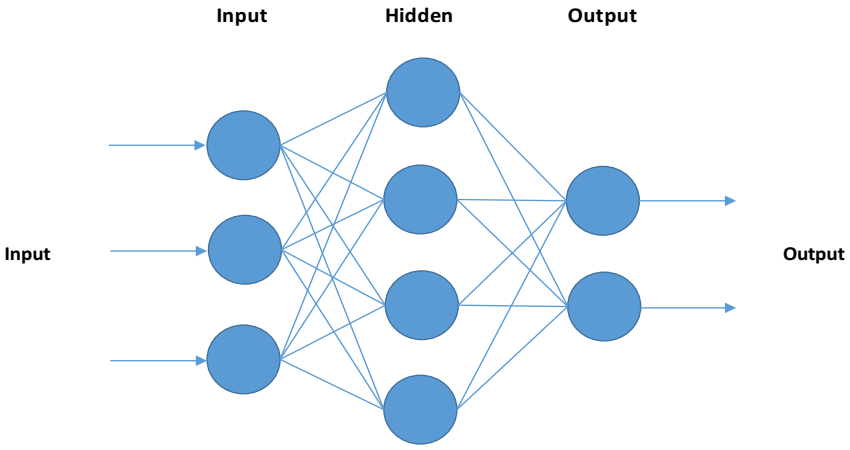
Linear statistical methods were employed on the raw data provided by survey participants, as recommended by Creswell and Clark (2011). Both descriptive and inferential statistics were deemed to be appropriate for discussion of the research questions for this study. This included the analysis of means, correlations and principal component analysis (PCA). The means were examined to determine which items related highly to the respondents' perception of the conceptual model's quadrants and sub-themes. Correlations were examined to gain a deeper understanding of the data and understand which items were related and which were unrelated. This gave the researcher an understanding of which items related strongly to other items and were therefore important to this research. Finally, PCA was conducted to establish which linear components exist within the data and how a particular variable might contribute to that component. Linear statistical analyses were done using IBM SPSS Statistics, Version 22.

5.8.1.2 Nonlinear Statistical Analysis

Neural networks (NN) were developed separately in different fields – 'statistics and artificial intelligence' – based on essentially identical models (Hastie, Tibshirani and Friedman, 2013:389). NN are algorithms that are patterned after the structure of the human brain: 'a neural network may be envisioned as a highly connected structure of processing elements that attempt to mimic the parallel computation ability of the biological brain' (DeTienne, DeTienne, & Joshi, 2003:237). They are therefore not constrained by a predefined mathematical relationship between dependent and independent variables, and can thus implicitly detect complex nonlinear relationships between variables.

The NN architecture selected for this research was the widely used multilayer, feed-forward backpropagation network, as can be seen in Figure 5.2. Palocsay and White (2004) explain succinctly how neural networks process information: the first layer has input nodes that send data via connection links to the second layer of nodes, and then, via more connection links, to the third layer of output nodes. The number of nodes in the input layer is based on the number of features in a data set. The second layer is called the hidden layer. More complex systems will have multiple hidden layers of nodes. The neural network is put together by connecting the nodes. Below is an example of a basic neural network:

Figure 5.2: Neural Network architecture



Source: Palocsay and White (2004:393)

In this figure, the leftmost layer of the network is called the input layer, and the rightmost layer the output layer, which, in this example, has two nodes.

DeTienne, DeTienne, & Joshi (2003) contend that, in recent years, neural networks have been gaining popularity as statistical and decision-making tools in applied settings such as business and the social sciences for the following reasons:

- NN are beneficial in problems where the phenomena exhibit nonlinear patterns.
- NN have been shown to outperform multiple regression in data analysis in several problem domains.
- NN offer capabilities beyond those of regression, such as the ability to deal with nonlinear relationships, missing data, and outliers.
- NN can be used in combination with classical statistical approaches, so researchers can take advantages of the strengths of both techniques.

In contrast, researchers like Palocsay and White (2004); Tu (1996); and DeTienne, DeTienne, & Joshi (2003), point out several disadvantages of neural networks:

- They have limited ability to explicitly identify possible causal relationships.
- They lack explanatory capability in comparison to traditional statistical models.
- Their ability to model interactions and nonlinearities implicitly may lead to overfitting.

NeuroXL (http://www.neuroxl.com/), a Microsoft Excel-based artificial neural network classification package, was used to cluster responses from the sample group and to model the various simulations of neural networks. An NN clustering process is useful for understanding the typology of a sample specifically because it draws out,

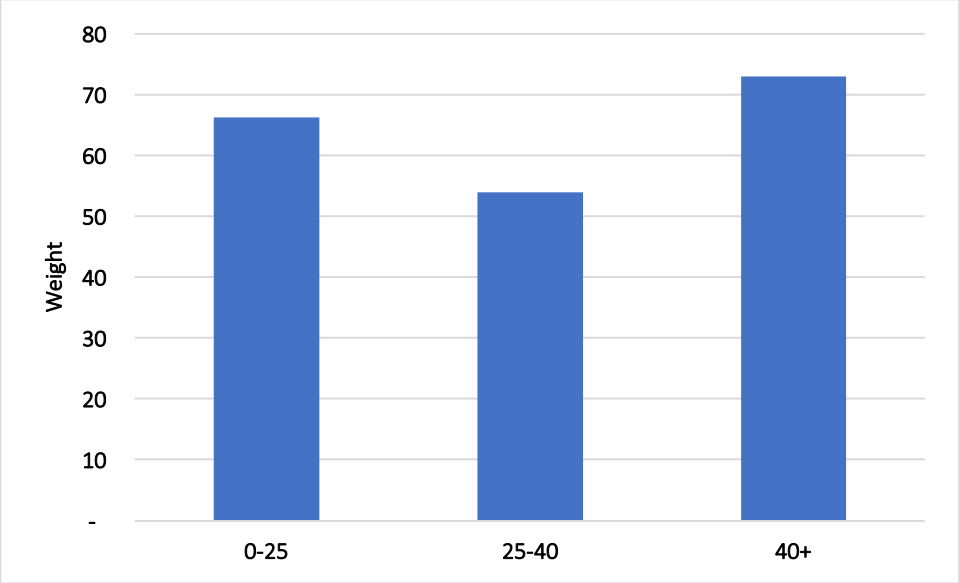
rather than compresses, differences in data. Consider, for example, a group of 10 men whose ages and weights are known (Jaquet, 2012):

Table 5.9: Ages and weights of men

Man	Age	Weight (kg)
1	23	55
2	45	70
3	54	78
4	32	54
5	19	51
6	23	74
7	57	67
8	44	62
9	41	88
10	24	85

A linear method for analyzing the relationship between age and weight with this data would be to plot a histogram of average weights clustered by age group, as can be seen in Figure 5.2:

Figure 5.3 Histogram of ages and weights of men



Quite differently, an unsupervised NN approach would highlight those differences, rather than reducing the differences in data. For example, in Table 5.10 there are two groups of younger respondents. One that has a relatively low weight and another that has a relatively high weight:

Table 5.10 Clusters of young men's weights

Person	Age	Weight (kg)
1	23	55
2	45	70
3	54	78
4	32	54
5	19	51
6	23	78
7	57	67
8	44	62
9	41	88
10	24	85

For the present research, the use of NNs was deemed to be necessary because the researcher was searching for underlying patterns in the 69 questions that make up the survey. Thus, neural network analysis presented an exciting and complementary methodology for this project. The researcher felt that the two analytical techniques were complementary and used both techniques to exploit the strengths of each.

5.8.2 Qualitative Data Analysis

Bezuidenhout and Cronje (2014:232) describe qualitative data analysis as 'the process of bringing order, structure and meaning to the mass of data'. The interviews were transcribed by the researcher and the process of coding the transcripts proceeded. Bezuidenhout and Cronje describe eight steps in the process of qualitative content analysis which were adopted by this researcher for the qualitative analysis phase:

1. Prepare the data.
2. Define the coding unit to be analysed.
3. Develop categories and a coding scheme or conceptual framework.
4. Test the coding scheme on a sample text.
5. Code all text.
6. Assess coding consistency.
7. Draw conclusions from (interpret) the coded data.
8. Report method and findings.

(Bezuidenhout & Cronje, 2014:235)

5.9 Ethical considerations

In any research study, ethical issues relating to the protection of the participants are of vital concern (Bloomberg & Volpe, 2016). Ethical principles were carefully observed in this research by following UCT ethical guidelines for research. The signed Ethical Clearance Form for the study is attached (Annexure B). Subjects were informed of the purpose, methods, and possible uses of the research, and signed informed consent and permission documents were obtained from each interview subject. Confidentiality was guaranteed through the anonymous reporting of the survey results and through the use of pseudonyms. All participation was voluntary, and no harm will come to research subjects, either real or perceived.

5.10 Informed consent and confidentiality

Participants were invited via email to participate in the survey using Cassandra©; it was made clear that participation was voluntary and that participants could withdraw should they wish to do so. The researcher sent an invitation for participants to complete the survey data and stated that the survey was being done for research purposes, stressed its complete confidentiality, and encourage participants to complete the survey.

The Cassandra© tool's confidentiality clause was stated at the beginning of the survey: 'This survey is confidential and all answers will remain strictly anonymous …. You should therefore feel absolutely free to complete the survey as truthfully and openly as you can, safe in the knowledge that your responses are completely anonymous'.

For the semi-structured interviews, similarly, it was clearly stated that the information was strictly confidential and would be used solely for research purposes. The responses to the questions were consolidated with all other responses to determine measures that affect success in leadership in higher education.

It was further made clear that after the Cassandra© survey was completed, the researcher would be provided with the raw data which would be analysed and used to give managers and employees some feedback on the survey results.

Research notes were kept confidential in order to protect the individuals who participated in the research. Further, all quotes that could identify interviewees were removed. In the reporting of findings in chapters six and seven, all quotes are anonymous.

5.11 Data Collection and Preparation

5.11.1 Semi-structured interviews

Interviews involved the process of making an appointment with each potential interviewee and a confirmation by email to explain the research project and set a time and place for the interview. Due to the seniority of participants, demands on their time due to organizational priorities took precedence over participating in the research. Hence, the interviews were often rescheduled to accommodate them.

The questions for the semi-structured interviews were sent to all participants before the interviews commenced. The interviews actually developed differently for the participants, leading to interesting insights for the researcher. Participants were given an *Information Sheet on the Research Project* and a *Research Participation Consent Form*. All interviews were conducted in English.

5.11.2 Other data sources

Non-interactive data was obtained from institutional hard copy documents and websites. These included legislation, policy and programme materials, reports, position papers, and strategic and operational plans.

5.12 Summary

The purpose of this chapter has been to outline the research design and methodology used to test the research questions and guide all phases of the field research. This chapter laid out the rationales for the quantitative and qualitative methods chosen for this study. It examined the research questions, instruments, methodologies, and data analysis techniques of the study. The next chapter outlines the findings of these processes.

CHAPTER 6: FINDINGS

In chapter six, the findings of the analysis are presented and discussed in light of the first two questions defined for this research:

1. What is the current typology of leadership within South African higher education institutions?
2. What are the main challenges facing university leadership in South Africa?

The format of this chapter follows the research strategy outlined in chapter 5. The statistical analytical techniques used will be discussed in Section A, followed by clustering via neural networks in Section B, and an analysis of the qualitative findings of the study in Section C.

SECTION A

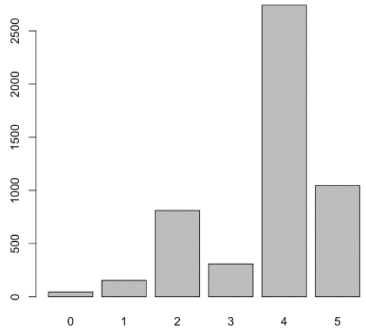
6.1 Data Analysis Procedure

The survey instrument was administered by the researcher, who made appointments with all of the participants and travelled to each of the universities represented by them across South Africa. Active email addresses of the identified participants were obtained through the respective university websites. In total, the researcher contacted 204 persons (Vice-Chancellors, Deputy Vice-Chancellors, and Deans) and 74 (36%) completed responses were captured. No participant reported being uncomfortable completing the instrument with the researcher present or online via a link made available to participants. Survey responses were stored anonymously in a secured server; they were then formatted into a frequency distribution table to allow for ease of item analysis, as can be seen in Annexure C.

6.2 Exploratory Analysis

The distribution of responses seemed positive overall, with the majority (53.7%) of responses being 4's "Agree"

Figure 6.1: Distribution of responses



Source: Author

For most questions the medians are mostly 4's, as might be expected from the above output. In most axes, there is at least one question that does not have a median 4 response. This is true for most axes, except for Complexity and Knowledge & Learning, where all the questions' medians are 4.

6.3 Assessment of Cassandra© Mean Scores

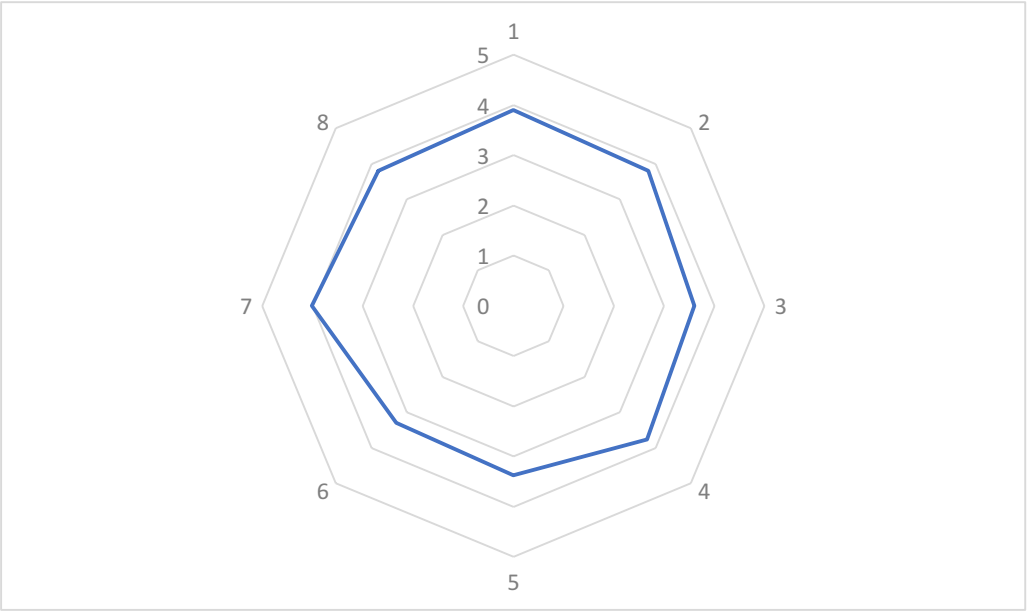
In total, the study consisted of 74 (*n*) respondents from 21 out of the 25 public universities in South Africa. Respondents were asked to grade their response on a Likert scale of 1 – 5, where 1 represents "strongly disagree", 2 represents "disagree", 3 represents "neither agree nor disagree", 4 represents "agree" and 5 represents "strongly agree". The overall average responses (arithmetic mean) to the various sections of the questionnaire are displayed in Table 6.1, below, and represented graphically on the raster diagram that follows. The means were examined to determine which of the conceptual model's quadrants and sub-themes related highly to the participants' perception of leadership.

Table 6.1: South African University Leadership overall mean scores (n 69)

Values	Axis 1: Diversity	3.90	3.85
	Axis 2: Complexity	3.81	
Personal Development	Axis 3: Personal wellbeing	3.60	3.68
	Axis 4: Leadership and teamwork	3.77	
Mechanistic Performance	Axis 5: Financial performance	3.37	3.34
	Axis 6: Innovative potential	3.30	
Holistic Performance	Axis 7: Sustainable development and social responsibility	4.01	3.91
	Axis 8: Knowledge and learning	3.80	

Source: Author

Figure 6.2: Overall mean scores



Source: Author

The 69 questions that constituted the survey were adapted from the original version of the Cassandra© tool. Looking at the overall responses, we see that participants scored highest in the Holistic Performance quadrant (3.91), on both the Sustainable Development and Social Responsibility (4.01) and Knowledge and Learning (3.80) dimensions. The Mechanistic Performance quadrant received the lowest score (3.34) of the four quadrants, due to the Innovative Potential axis receiving an overall score of 3.30.

It is worth repeating that the approach developed and proposed here is inscribed in the holistic paradigm. The Holistic quadrant of Wilber's (2000) holistic management tool refers to the networked and external perspective and involves a systemic and ecological approach to management. The overall response for this quadrant (3.91), including the Sustainable Development and Social Responsibility (4.01), as well as the Knowledge and Learning (3.80) dimensions, was positive. The questions/statements that received the most positive responses were those pertaining to the effects of confidence, motivation, and human interactions on learning. High scores were also received for questions/statements regarding honesty, integrity, direct communication, and conscious behaviors.

This perspective informs us of the systemic and networked view of the sector, and the response received for this quadrant indicates that while results are positive, there is room for improvements in this area.

Table 6.2: Axis 1 – Diversity

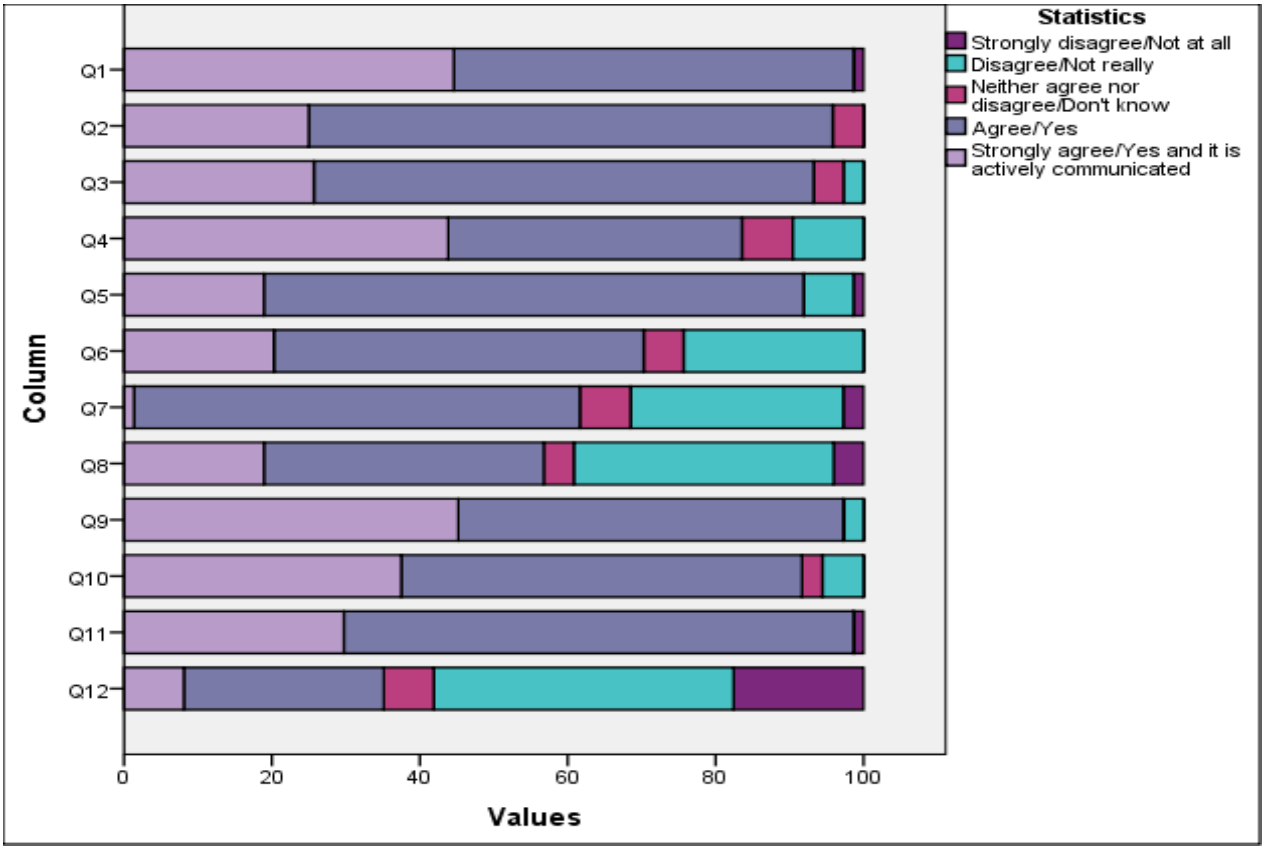
Q1	Do you base your actions on a personal ethical code for yourself?	4.41
Q2	Do you sometimes reflect on the financial and ecological sustainability of your actions?	4.21
Q3	Do you often have a long term focus in your decisions?	4.16
Q4	Do you pay attention in your daily life and professional practice to not discriminate with respect to race, language, religion, upbringing, etc.?	4.18
Q5	Do you have a social responsibility orientation in your personal actions, in your private life as well as in your professional life?	4.01
Q6	In all that you do, do you take care of the interests of all the parties involved?	3.66
Q7	Do you pay sufficient attention to assessing someone's work environment for all people you engage with?	3.29
Q8	In your organization, do you pay sufficient attention to the retention of talent?	3.32
Q9	Do you consider a variety of opinions to be of value; and do you actively appreciate that variety?	4.40
Q10	Do you pay attention to communicating correctly with those around you?	4.24
Q11	Leadership should be strongly committed. In situations where you are expected to show leadership, do you show such commitment?	4.26
Q12	Do you see that active interest groups are an asset for society and where possible do you show an interest in such interest groups?	2.68

It is worth noting that the lowest means in this quadrant pertain to 'work environment' (Q7), 'retention of talent' (Q8) and 'active in interest groups', which was the lowest mean, measuring 2.68. In a recent publication by the Council on Higher Education (CHE) titled *South African Higher Education Reviewed: Two Decades of Democracy* (2016), the statistics on the demographic profile of academic staff show that it is not yet reflective of the demographics of the country. It is therefore concerning that leaders within higher education do not see the need to focus on the retention of talent. According to the Council's publication, 14% of professors and 19% of associate professors in 2012 were black, compared with 10% and 14%, respectively, in 2008 (2016:283). Further, the DHET has initiated a countrywide development programme that seeks to increase the recruitment of scholars as young academics. Shifting the demographic profile of staff should be a high priority for any leader in higher education. This implies that leaders need to act on the lack of diversity within the staff cohort.

The sub-theme of diversity is critical to the current discourse within South African higher education. The birth of the Rhodes Must Fall (RMF) movement, in which students at the University of Cape Town (UCT) demanded the

removal of the statue of Cecil John Rhodes, captured the alienation of the largely black student population at UCT and reflected valid concerns about institutional racism and/or the slow pace of transformation at all of our universities[8]. The stacked bar graph below gives a visual presentation of the percentages in the frequency table of responses by participants in this domain.

Figure 6.3 Divergent stacked bar graph of Diversity domain



Source: Author

There seems to be consensus on most questions; however, divergent views can be seen in Q6, Q7, Q8 and Q12. These questions also seem to produce the lowest means. This suggests that the operationalization of diversity could be improved across the sector. Further, the scores suggest that the knowledge around diversity and the strength of heterogeneity within the sector are insufficient. These findings echo the findings of Duarte et al. (2015), who suggest that academia itself has stopped short in both the understanding and practice of true diversity.

[8] For a more in-depth analyses on this movement see: Reimagining the South African university and critically analysing the struggle for its realization https://www.wits.ac.za/news/latest-news/in-their-own-words/2016/2016-01/reimagining-the-south-african-university-and-critically-analysing-the-struggle-for-its-realisation.html#sthash.RJpZcQXC.dpuf

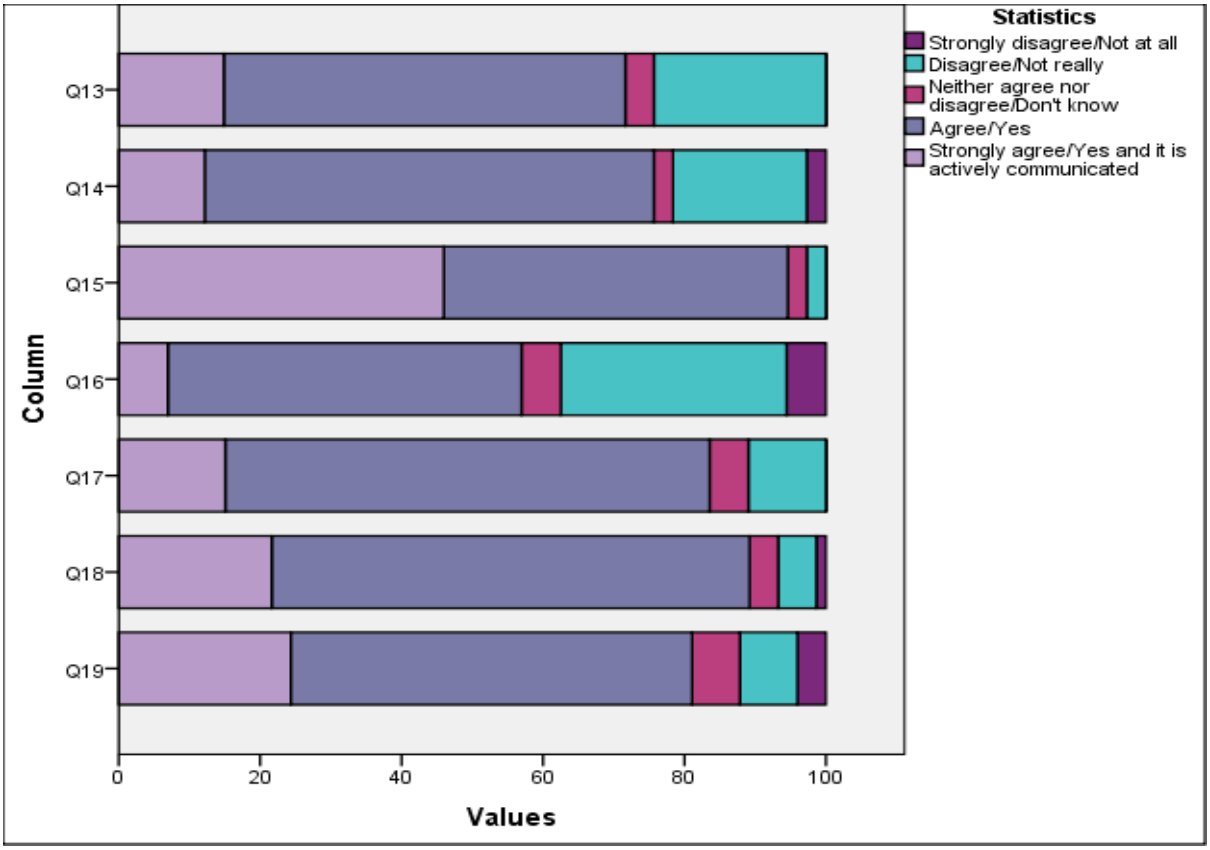
Table 6.3: Axis 2 – Complexity

Q13	Do you understand that you are most dynamic and most creative at the edge of chaos? (Explanation: You are still working within order, but seeking to stretch that order as far as possible away from equilibrium. Thus in your activities, you do not shy away from that edge of chaos, and you regularly/actively seek that edge.)	3.62
Q14	For evolution to take place the new must come about and the old must become extinct. Only creating the new is not sufficient. Is this part of your daily life practice?	3.64
Q15	Do you agree that diversity is a prerequisite for the emergence of the new, and is this attitude part of your daily life practice?	4.38
Q16	Radical unpredictability is an essential characteristic of any organization. It is almost impossible to predict what is going to happen within an organization beyond the very short term. Are you comfortable with that unpredictability and can you take advantage of such unpredictability?	3.21
Q17	The self-organizational capacity of any group is an indicator for sustainability. Do you support self-organization in your immediate environment?	3.88
Q18	Interaction between individual agents is essential for self-organization. Do you empower individuals in order to contribute to self-organization?	4.03
Q19	The quality and strength of agency (the action) is located at the level of interacting individuals or groups. Would you agree on this and do you support the development of competencies in each and every individual, in order for them to be able to be an active player in the aforementioned agency?	3.89

The complexity quadrant contained questions broadly relating to complexity science, touching on the properties of diversity, non-linearity, self-organisation, emergence, and unpredictability. Within this sub-theme, the lowest means are reflected in Q16, which is related to the concept of radical unpredictability (3.21) and chaos within an organization that can lead to creativity (3.62). This could possibly be explained by the nature of higher education institutions in South Africa. The South African policy framework for higher education is not very different from other global higher education systems. However, the burden of the country's history and current societal imbalances has given the purposes of South African higher education a different sense of urgency. The need to deal with all areas of performance of higher education, while simultaneously managing tensions and contradictions between them, points to the difficulties and unpredictability that institutional leaders have to grapple with. They are called upon to align the provision of higher education with government priorities and programs, as articulated in the National Development Plan and the white paper for post-school education and training, while at the same time dealing with the frustrations of students across the sector regarding fees,

transformation, curricular content, etc. Given this, it is conceivable that chaos or disorder could be seen as a threat to the effectiveness of university operations and the academy. The responses in this section reflect that the shared values within institutions are a strength of the sector, especially on the issues of ethics and human interactions.

Figure 6.3 Divergent stacked bar graph of Complexity domain



Source: Author

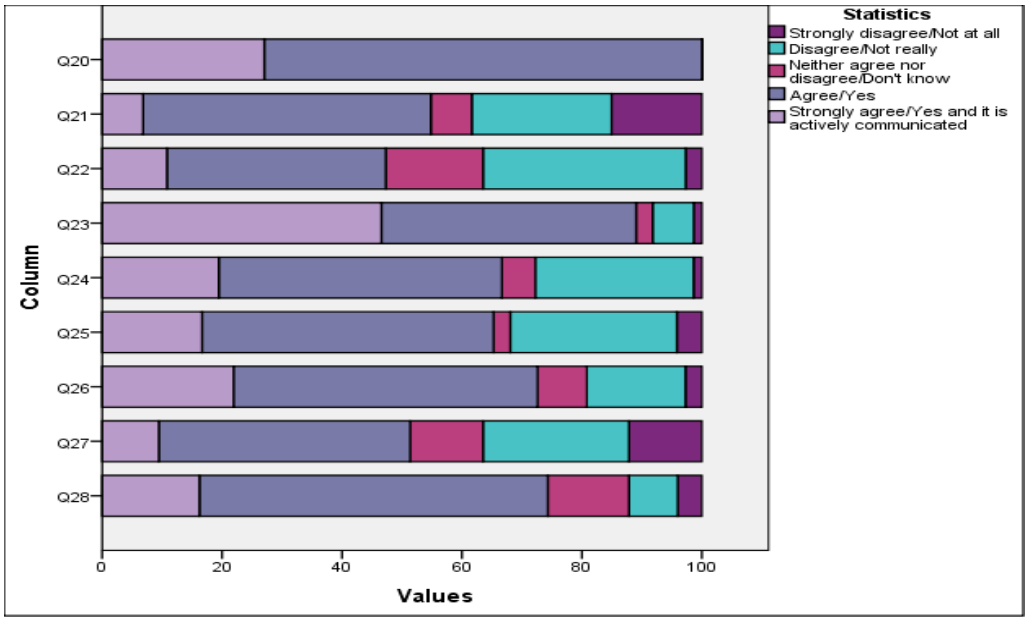
The Values quadrant on Wilber's (2000) holistic management model refers to the individual and networked perspective of the model and represents the shared values and organizational culture that exist. Participants scored high in this quadrant (3.85), particularly on questions regarding the importance of diversity and interactions between individuals. This is relevant to the core relationships that are required by leaders in higher education – interacting with students of various backgrounds, donors, alumni, government, and stakeholders within the corporate and non-profit sectors, in order to deliver on the promise of opening the doors of higher education, both practically and symbolically.

Table 6.4: Axis 3 – Personal well-being

Q20	I value an active approach for the development of individual competencies and skills.	4.27
Q21	One should also value time that is not immediately productive. Do you do so for yourself and for the people working with you?	3.08
Q22	I practice a policy of non-judgment on appearances (facts, humans, observations etc.)?	3.19
Q23	Joy is an active element of my professional and/or social life.	4.26
Q24	I feel valued in my professional environment.	3.57
Q25	In my professional environment, I have a real responsibility and a space to maneuver. I can propose and take action; and I have the support to organize those ideas.	3.46
Q26	There is space for the organization of my desires in my function/activity. I get satisfaction out of my activities, in such a way that it contributes to my personal development and learning.	3.73
Q27	Courage is valued in my professional environment. I am appreciated if I am willing to take courageous decisions and execute difficult but courageous actions.	3.17
Q28	I feel that I am an essential part of the whole; that whole could be the organization, the society, or even a wider concept such as a world community.	3.74

The personal well-being sub-theme contained questions relating to well-being and happiness in one's job. The mean result for this sub-theme was 3.68, which indicates that leaders are relatively happy in their work environment. It is understood that personal well-being at work can have crucial effects for both individuals and organisations. It should be noted that this survey was administered before the 2015 higher education crisis exploded within the sector, when campuses were shut down for long periods of time, resulting in the issue of well-being becoming more salient for higher education institutions and for society at large. Thus, the mean might now be very different for this sub-theme, considering what campuses have experienced in the last 18 months.

Figure 6.4 Divergent stacked bar graph of Personal well-being domain



Source: Author

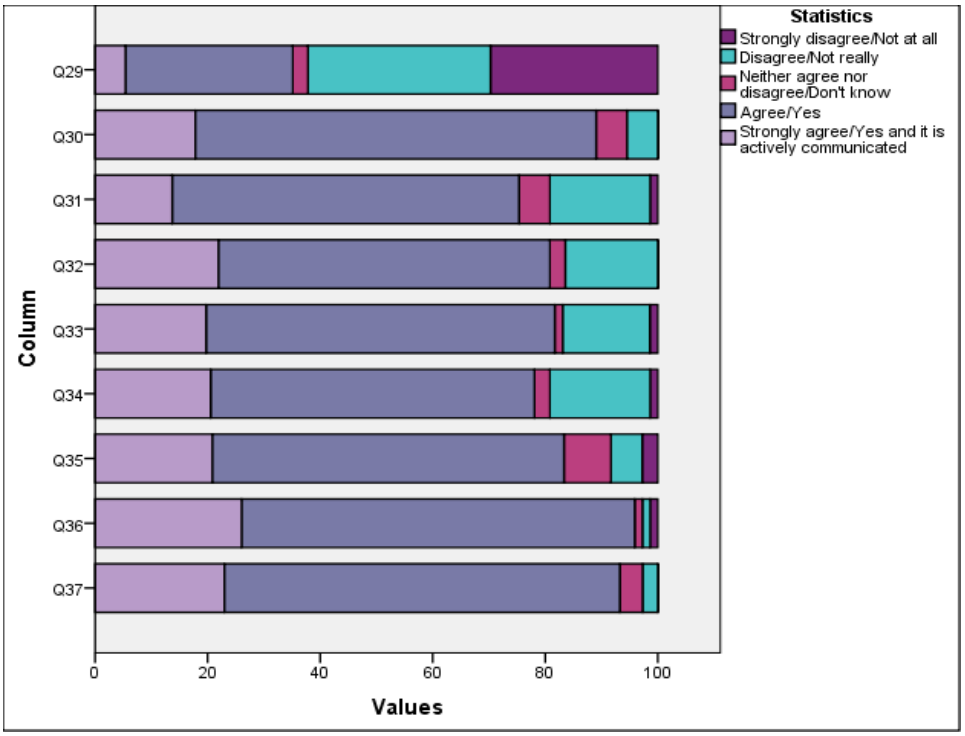
Table 6.5: Axis 4 – Leadership and teamwork

Q29	I operate in an environment where each individual (surrounding me) is well trained and prepared to do his/her job. They are skilled for what they are expected to do.	2.49
Q30	A constant sense of awareness is essential for success. Do you practice such awareness in your daily life?	4.01
Q31	My professional environment is an intense network of communication. We have quality communication with each other and I am contributing actively to such quality communication.	3.68
Q32	My purpose in my professional environment is always clear and shared. For those activities that I am responsible for, I practice the same kind of clarity and transparency in sharing information and taking decisions.	3.86
Q33	In situations where I have responsibility, I create sufficient space for the others to act and to develop themselves.	3.83
Q34	When I have a managerial role, I rather project a vision than correct what happens. I try to avoid correcting people all the time.	3.78

Q35	Rigid leadership creates confusion. When I have a responsible role, I avoid rigidity in my thinking, decision making, and supporting others, with a clear focus on avoiding all confusion that this could cause.	3.93
Q36	Un-clarity causes tension and under-performance. When I have responsibility, I communicate clearly and without too much unnecessary noise, paying attention to the outcome of my communication.	4.18
Q37	I have an external focus that gives meaning to my work. In what I do, I pay attention to my client: the person which we try to serve. This client focus makes my work meaningful and purposeful.	4.14

Today's increasingly unpredictable, dynamic, and complex organisational environments require a growing reliance on effective team work. It is therefore worrying that Q29, dealing with team ability and skills, was the poorest measurement of the survey. This is an area that requires drastic attention.

Figure 6.5 Divergent stacked bar graph of Leadership and Teamwork domain



Source: Author

Overall, the Personal Development quadrant on Wilber's (2000) holistic management tool refers to the individual and internal perspective. The overall score for responses in this quadrant were relatively positive (3.68). The lowest response received was to the question concerning operating in an 'environment where each individual is well trained and prepared to do his/her job. They are skilled for what they are expected to do' (2.49). A low score

was also noted in the question pertaining to valuing the 'time that is not immediately productive. Do you do so; both for yourself and for the people working with you?' (3.08). The question relating to courage and its being valued in the professional environment scored 3.17. The statement regarding 'I practice a policy of non-judgment on appearances (facts; humans; even observations; etc.)?" received an overall score of 3.19. These results are somewhat concerning and speak to an area of weakness and low levels of employee satisfaction regarding feeling valued, being supported, and being able to speak their minds.

The most positive scores in this quadrant were seen in 'leadership developing competencies' in surrounding people (4.27) and 'joy being an active element' of their professional life (4.26). This is reassuring, given the nature of higher education and the need for leadership to be in pursuit of goals and objectives that are often characterized by demands for implementation.

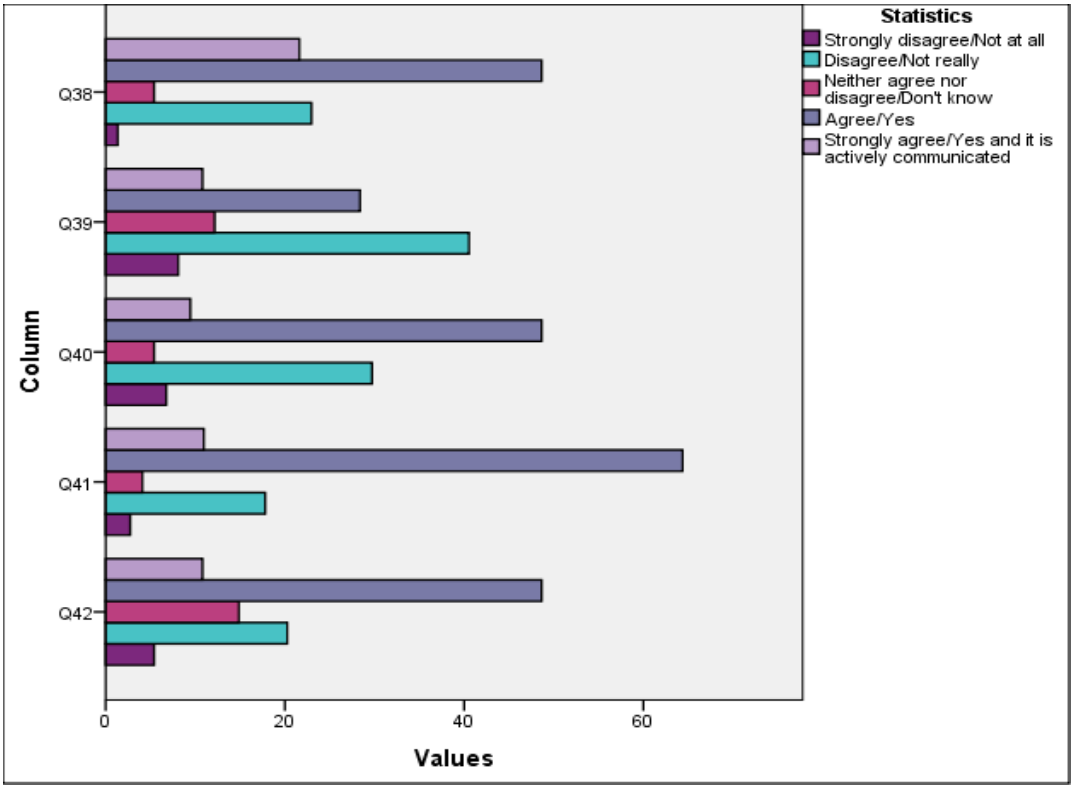
The responses in this quadrant reveal the need for leadership to pay greater attention to the area of Personal Development, and, in particular, the development of surrounding employees to support them in the purposes of higher education. Baets and Oldenboom (2009) suggest that Personal Development should form the basis for all managerial approaches.

Table 6.6: Axis 5 – Financial performance

Q38	I appreciate my revenues as sufficiently above average in society.	3.66
Q39	I appreciate that what I have is above average in our society.	2.93
Q40	My liquidity position is above average in society (I can spend what I really want).	3.24
Q41	I generate enough cash in order to be financially self-sufficient for what I want to do and want to develop.	3.63
Q42	The cash-flow that I am able to generate gives me a comfortable feeling.	3.39

Although this sub-theme was geared to the individual level, its relevance is more pertinent to the collective level. With the advent of the 2015 Fees Must Fall (FMF) movement, whose principle concern is access to quality education for poor students, and who fought for the zero percent fee increase, it is important for leadership to address the broader struggle for not only free education, but also the problems caused by the decrease in the proportion of government funding to university budgets (as noted in Chapter 4). Pervasive fear and anger will continue if this mechanistic issue is not resolved. The questions/statements in the Financial Performance axis refer to the financial performance of individuals, and should therefore be interpreted with caution.

Figure 6.6 Divergent stacked bar graph of financial performance domain



Source: Author

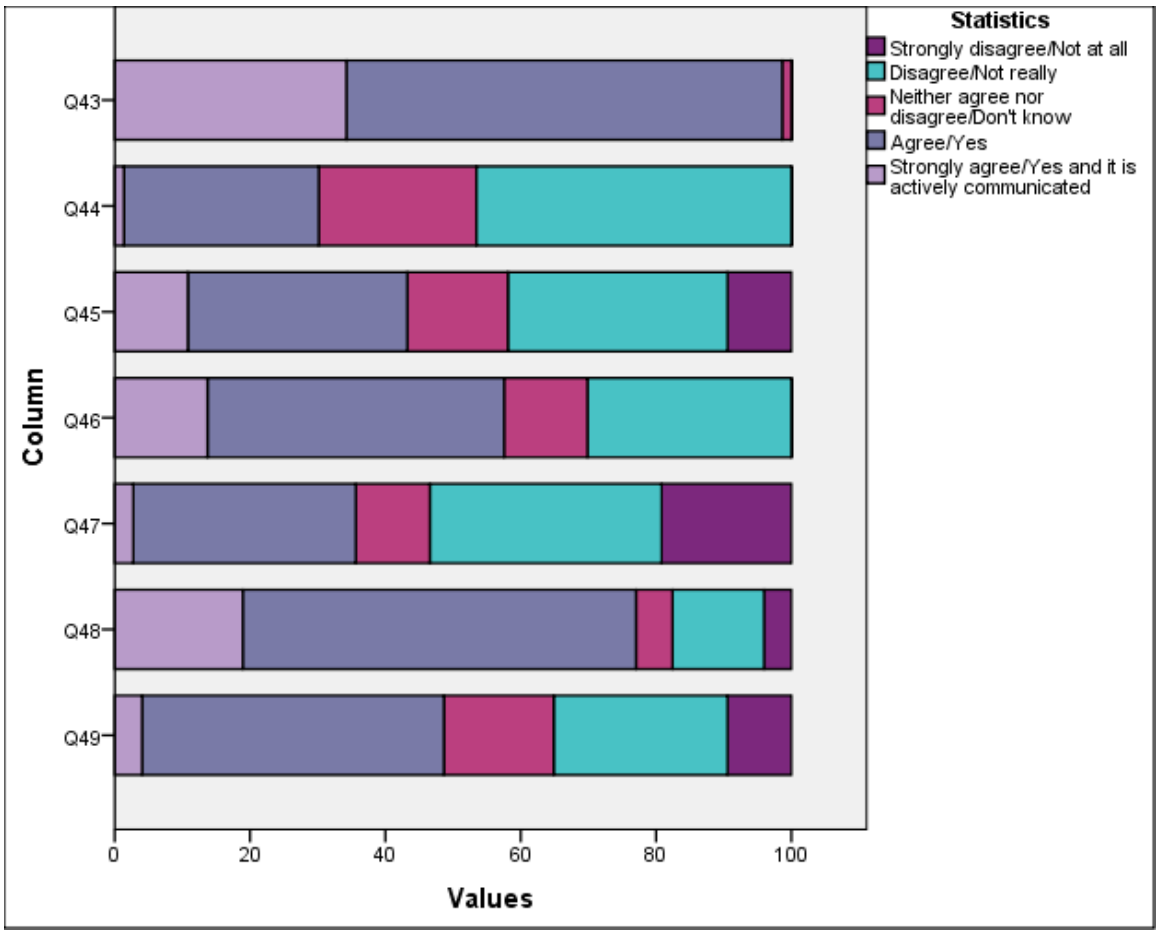
Table 6.7: Axis 6 – Innovative potential

Q43	I actively pay attention to developing new ideas. I do not accept the status quo as sufficient and I explore ways to improve what I do and what we as an organization could do.	4.33
Q44	I am able to produce creativity on demand. I have the skills to do so and I am open to explore creativity in my job.	2.85

Q45	My professional environment regards idea generation as a key business practice. I agree that this is important and I make it a priority in my agenda.	3.03
Q46	I personally develop new ideas on a regular basis. I take pride and have joy in it.	3.41
Q47	Our leadership model in the environment where I work models and rewards innovative thinking.	2.66
Q48	An organization should have a structured process for evaluating/refining new ideas. I agree with this statement and, where possible, will advocate it.	3.74
Q49	Our professional culture values idea assessment/refinement as a core competence for sustainable development.	3.08

The responses for this sub-theme indicate a lack of innovative potential with the higher education sector, which may or may not be justified given the circumstances of each individual's work environment. However, the findings cannot ignore the fact that a culture and climate of support for unstructured idea play is non-existent within our universities.

Figure 6.7 Divergent stacked bar graph of the Innovative potential domain



Source: Author

The Mechanistic quadrant of Wilber's (2000) holistic management model refers to the individual and external perspective. This represents the traditional, classical managerial approach and involves control-orientated procedures and quantitative approaches used to attain mechanistic effectiveness and efficiency (Baets & Oldenboom, 2009). The overall response received for this axis was the lowest (3.30), and the statement that received the lowest score was that pertaining to management 'modelling and rewarding innovative thinking' (2.66).

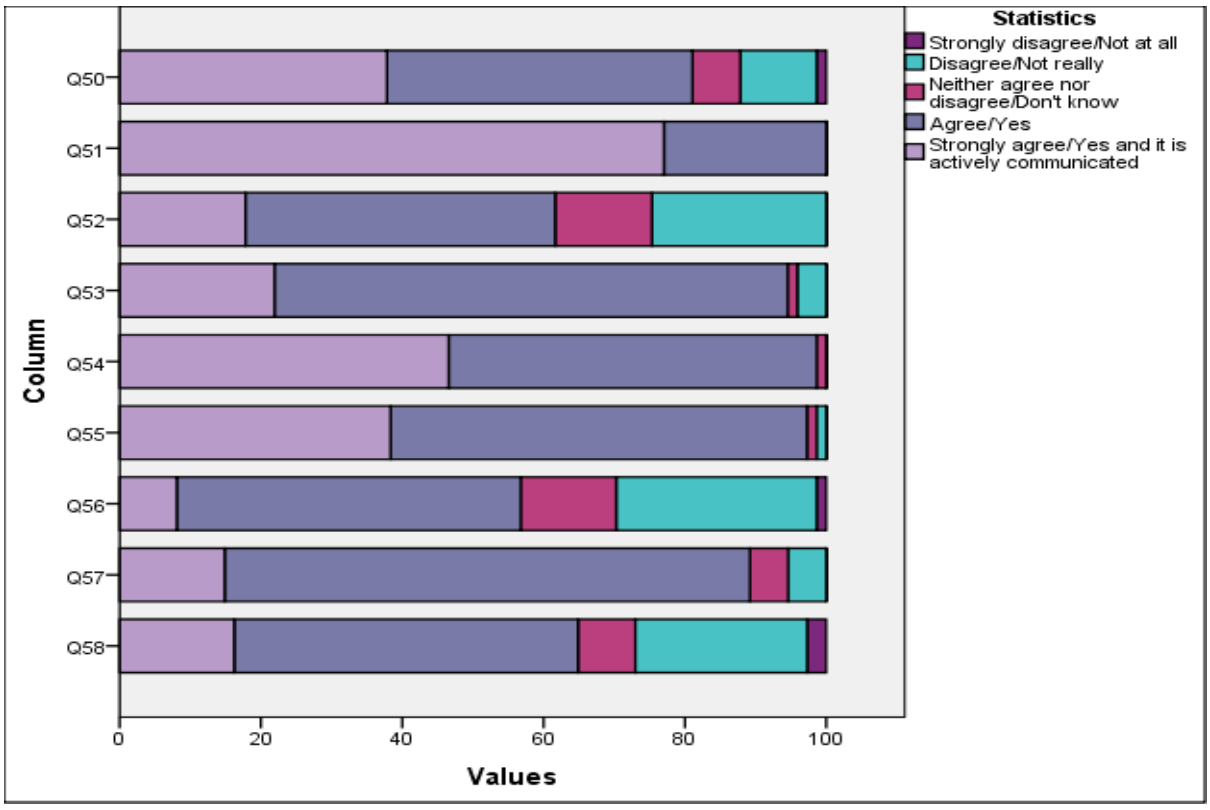
The negative response for innovative thinking highlights the overwhelming contradiction that defines the South African university. Although it is the acknowledged site of knowledge production – there is a general consensus for the university to be the source education and learning - it nonetheless appears not to live up to its function of producing new knowledge rapidly. Most leaders viewed their own institutions as places of excellence and on this ground, universities are vigilant about whom they admit into their ranks. Innovative thinking does not seem to be a prerequisite for leadership per se. Exclusive as universities are, they cannot continue to limit their membership, based on habits of thought that give the environment in which they find themselves their particular character. In reviewing the history of the university, it is striking that hardly any country anywhere has been able to produce the kind of institution where innovation is key, or brought into being universities that are both excellent and open to the development of innovative ideas that would take the idea of the University to new heights, dislodging it from its traditional anchor.

Interestingly, Bowden and Marton (1998) argue that a way to engage with the question of university structure and make-up is for the university to come to "know itself". It has to be constituted as a place that understands the acts and processes of the different kinds of knowledge formation within the various domains of knowledge (1998:287). How it operates as a site of knowledge formation enables the university to become 'aware of [how] one's (own) way of seeing opens up other options. 'Taking other perspectives than one's own is vital in the university's dealing with the community' (Bowden and Marton, 1998:293). The point that these authors make throughout is that an unprecedentedly powerful university can be built by taking variation and innovation in critical aspects fully into account. It must be noted that the responses received in this investigation clearly indicate a lack of innovative potential, which may or may not be justified, given the circumstances of the particular work environments. However, it is clear that what is required is a full systemic change, not just change by a small number of dedicated leaders; otherwise, their isolated efforts and achievements will be washed away by the predominant culture.

Table 6.8: Axis 7 – Sustainable Development and Social Responsibility

Q50	I value unconditional responsibility. (Explanation: One is absolutely responsible for what one does. In my actions, I am unconditionally responsible.)	4.05
Q51	I value essential integrity. (Explanation: Integrity is the key value of a leader; and I seriously strive for that integrity.)	4.77
Q52	I value ontological humility. (Explanation: I accept that all ideas are per se equally valuable and merit being evaluated on their value. I do not think that one assumption is by definition better than another. Every assumption or proposal made has an equal right to be taken seriously. I practice that in my leadership position.)	3.55
Q53	I value conscious behaviors. (Explanation: I make an effort to be conscious of what I do and of the impact of my actions on others.)	4.12
Q54	I value authentic communication. (Explanation: I try to be authentic in my communications and avoid sending double messages or having hidden agendas, etc.)	4.45
Q55	I value constructive negotiation. (Explanation: Negotiation is not a battle but an honest exploration of possible win-win situations. I practice this viewpoint.)	4.34
Q56	I value impeccable coordination. (Explanation: In whatever I do, I make sure that my actions, projects, etc., are coordinated with all who might have an interest in them or might be impacted by them.)	3.34
Q57	I value conscious responses. (Explanation: I pay attention to thinking before I respond, and to giving conscious answers that are part of my integral personality.)	3.99
Q58	I value emotional mastery? (Explanation: I train myself in emotional mastery and I avoid influencing others with my possible emotional instability.)	3.51

Figure 6.8 Divergent stacked bar graph of Sustainable development and social responsibility domain



Source: Author

In the sub-theme presented here, one can deduce from the divergent stack bars that there is no real consensus in Q52 'ontological humility', Q56 'impeccable coordination' and Q58 'emotional mastery'. However, it is positive to note that this sub-theme reported the highest mean score across the survey.

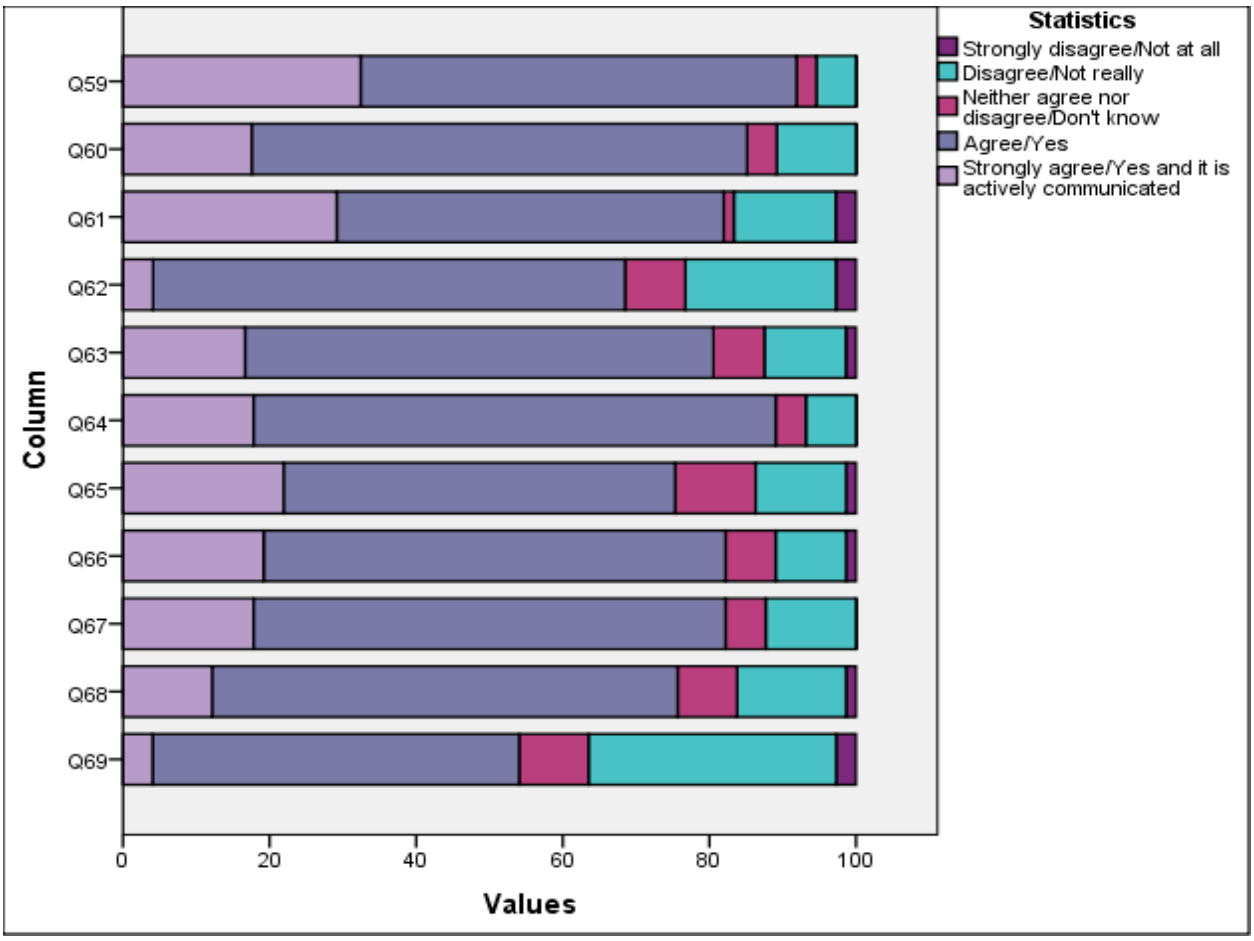
Table 6.9: Axis 8 – Knowledge and learning

Q59	Project managers should use indicators other than only financial factors to measure success. In my role I practice that.	4.19
Q60	The rigidity of processes gives people very little possibility for correction. I avoid this kind of rigidity in processes where I have a responsibility. I allow mistakes and support the correction of them.	3.92
Q61	Interaction is important, so harmony between people is crucial. I actively seek harmony between people in projects and in my interactions with stakeholders.	3.92
Q62	Confidence and control are two contrary variables. However, they are both necessary. In my role, I pay attention to give space to both.	3.47
Q63	Confidence and motivation have a strong influence on the creation and exchange of knowledge. I pay attention to creating that confidence between me and my colleagues. I	3.83

	pay attention to supporting an environment where experience and lessons can be exchanged in a trusted environment.	
Q64	Confidence must always be built; the level at the start is never enough. I pay attention to strengthening the confidence levels in my organization.	4.00
Q65	Interaction without knowledge, does not allow learning. We try to use evidence and facts in our exchanges in order to allow all to learn more easily.	3.82
Q66	Interaction without confidence and motivation does not allow learning. I pay active attention to the creation of a learning culture in my organization, where confidence and motivation are the basic conditions.	3.89
Q67	Motivation and organization seem to interact positively. People are motivated when they work in an organized environment since this improves the motivation of people. In my leadership I pay attention to organizing in a way that will motivate my colleagues.	3.88
Q68	Interaction is always necessary for the construction of confidence. I therefore create situations and events where this interaction can take place.	3.70
Q69	If there are agents at group level who do not cooperate, the learning of the group stops. I resolve issues in the group, in order to avoid their preventing the learning of the group.	3.19

The sub-theme of Knowledge and Learning, enabling the learning capacity of complex environments of knowledge-producing organisations provided satisfactory results, although they were not positively overwhelming.

Figure 6.9 Divergent stacked bar graph of Knowledge and learning domain



Source: Author

The Holistic quadrant of Wilber's (2000) holistic management model refers to the networked and external perspective and involves a systemic and ecological approach to management. The overall response to this quadrant (3.91), including the Sustainable Development and Social Responsibility (4.01), as well as the Knowledge and Learning (3.80) axes, was positive. The questions/statements that received the most positive responses were those pertaining to the effects of confidence, motivation, and human interactions on learning. High scores were also received for questions/statements regarding honesty, integrity, direct communication, and conscious behaviors.

This perspective informs us of the systemic and networked view of the higher education sector, and the responses received for this quadrant indicate that while results are positive, there is room for improvement in this area.

6.4 Validity and Reliability analysis – Cronbach's Alpha

Validity refers to whether an 'instrument measures what it was designed to measure' (Field, 2013:12). It is a necessary but not sufficient condition of measure. Field argues that a second consideration is reliability, which is the ability of the instrument to be interpreted consistently across different situations (2013). This is often also referred to as internal consistency. Cronbach's alpha, which is a numerical coefficient of reliability (Field, 2013) is used in this research as a measure of reliability. A summary of the reliability results per quadrant are presented in the table below.

Table 6.10: Cronbach's alpha on the specified quadrants

Domain	Label	No. of cases	No. of items/questions	Cronbach's Alpha
1	Diversity	67	12	**0.711**
2	Complexity	71	7	0.575
3	Personal well-being	67	9	**0.715**
4	Leadership and teamwork	65	9	0.449
5	Financial performance	73	5	**0.714**
6	Innovative potential	70	7	0.640
7	Sustainable development and Social responsibility	70	9	0.509
8	Knowledge and learning	65	11	0.668

Field (2013) suggests that there are numerous coefficients that can provide estimates of reliability. The survey data were checked for reliability using a Cronbach's alpha test because it is appropriate for attitude questionnaires using Likert scales. Ideally, it is widely accepted that a value of 0.7 is an acceptable value for Cronbach's alpha. Therefore, the closer a score is to 1, the more it indicates reliability or internal consistency. By this criterion, only domains 1, 3, & 5 have reliable items. However, as stated by Field on checking the reliability of a scale: 'Cronbach alpha values are, however, quite sensitive to the number of items in the scale. With short scales (e.g. scales with fewer than ten items), it is common to find quite low Cronbach values (e.g. 0.5). In this case, it may be more appropriate to report the mean inter-item correlation for the items. Field further highlights that Cronbach's alpha should not be used as a measure of a single "underlying factor or construct" (2013:709)

and suggests that, if several factors exist, then the formula should be applied separately to items relating to different factors.

For the Diversity quadrant, the Cronbach alpha value is >0.711; we can conclude that the scales making up this domain are reliable. The values in the column labelled *Cronbach's Alpha if item deleted* (see Annexure E) are the values of the overall alpha if that item (referred to in the first column) isn't included in the calculation. If Cronbach's Alpha value becomes greater when an item is deleted, then it implies that the item in question may need to be deleted from the scale to improve its reliability. The results seem to indicate that questions 1, 9 & 10 may not really 'fit' with the other questions in this domain. This is further substantiated by the very small (and negative) correlations shown in the Corrected Item-Total Correlation column. However, since the alpha value only increases slightly if these questions are removed, the researcher felt it unnecessary to delete any of these variables in order to increase the overall reliability. For the Complexity quadrant, the Cronbach alpha value is >0.575. There are 7 items in this domain, and thus the low score is not too worrying. When we consider the values in the column labelled *Cronbach's Alpha if Item Deleted*, Q13 and Q14 provide values of alpha greater than the overall alpha. Thus, it may be worth deleting these two items to improve reliability. For the Personal Well-being quadrant, the Cronbach alpha value is >0.715; thus we can interpret that there is good reliability for this scale. The Cronbach alpha value for the Leadership and Teamwork quadrant is >0.449. The number of items in this scale contributes to the low alpha score. In the Financial Performance quadrant, the Cronbach alpha value is >0.714, which indicates good reliability. Despite the last 3 sub-themes having an alpha below 0.7, it is important to interpret these results in conjunction with the principle component analysis discussed below.

6.5 Correlations

Each question has a unique label (Q1 to Q69) in the survey, in order to simplify analysis. Correlations were run to determine variables with strong correlations and to determine which variables were most relevant to the survey. The intention, therefore, was to identify the items that represented the core of each category. Annexure F includes the matrix of correlations between items. Field (2013:82) describes Pearson's correlation coefficient as a 'measure of the strength of relationship between two variables'. Inter-item correlations are an essential element in conducting an item analysis of a set of test questions since it examines the extent to which scores on one item are related to scores on all the other items in a scale. In this research, the correlations were run on each of the sub-themes of the Cassandra© survey.

The Diversity variables were recorded as Q1 to Q12. The highest correlations recorded were between Q4 and Q6 (r = .529) and Q5 and Q9 (r = .416). It is interesting to note a negative correlation between Q1 and Q8 (-.229). The following variables correlated with most variables and were therefore considered important in this sub-theme: Q5, Q6, Q11 and Q12. These results are displayed in Annexure F. These findings were confirmed by

checking the Cronbach's alpha 'item if deleted' test, which calculated internal reliability of the data through recalculating the Cronbach's alpha when the item was deleted. When Q5, Q6, Q11 and Q12 were removed, the Cronbach's alpha dropped lower than when any of the other items were removed, indicating that these variables were core to the sub-theme. This can be seen in Table 1, Annexure E.

The Complexity variables were recorded as Q13 to Q19. The highest correlations were between Q17 and Q18 (.386) and Q17 and Q19 (.398). Negative correlations between Q13 and Q15 as well as Q14 and Q15 were noted. These results are displayed in Annexure F. According to these correlations, Q15-Q19 form the heart of the category. The Cronbach's alpha 'item if deleted' reliability test confirmed this finding. The test indicated that when variables Q13 and Q14 were removed from the data set, the reliability of the data increased. This can be seen in Table 2, Annexure E.

The Personal Well-being variables were recorded as Q20 to Q28. The highest correlation was between variables Q25 and Q26 (.676) and Q25 and Q27 (.566). Negative correlations in variables can be seen between Q20 and Q22 and Q21 and Q23. These results are displayed in Annexure F. The following variables were seen as important to this sub-theme: Q20, Q24, Q25, Q26 and Q27. The Cronbach's alpha 'item if deleted' test confirmed this finding by indicating that the Cronbach's alpha would drop if these variables were excluded from the sub-theme data set. It should be noted that the variables in this category show a marginal increase in the Cronbach's alpha if the item were deleted; therefore, we can conclude that all the items are somewhat important to this sub-theme. These results can be seen in Table 3, Annexure E.

The Leadership and Teamwork variables were recorded as Q29 to Q37. There were many negative correlations noted in this matrix. When one looks at the individual responses, it is clear that there is very little consensus among participants on these questions. The following variables were seen as important to this sub-theme: Q29, Q31, Q32, Q33, Q34 and Q36. The Cronbach's alpha 'item if deleted' test confirmed this finding by indicating that the Cronbach's alpha would drop if these variables were excluded from the sub-theme data set. These results can be seen in Table 4, Annexure E.

The Financial Performance variables were recorded as Q38 to Q42. The highest correlations were between Q40 and Q41 (.676) and Q40 and Q42 (.534). The lowest correlations were between variables Q39 and Q41 (.101) and Q39 and Q40 (.149). The following variables were seen as important to this sub-theme: Q38, Q40, Q41, and Q42. The Cronbach's alpha 'item if deleted' test confirmed this finding by indicating that the Cronbach's alpha would drop if these variables were excluded from the sub-theme data set. Q39 was the only variable in this sub-theme that provided a marginal increase in the overall Cronbach's alpha if the item was deleted. These results can be seen in Table 5, Annexure E.

The Innovative Potential variables were recorded as Q43 to Q49. The highest correlation recorded was between Q45 and Q47 (.578) and Q44 and Q47 (.369). A substantive negative correlation was noted between Q43 and Q48 (-.218). Q48 appeared to have the greatest effect on the reliability of this sub-theme and was therefore critical to this dataset. These results can be seen in Table 6, Annexure E.

The Sustainable Development variables were recorded as Q50 to Q58. The highest correlation was between Q53 and Q57 (.289) and Q51 and Q55 (.288). Negative correlations were noted between Q50 and Q52, Q50 and Q53, Q52 and Q53, and Q55 and Q57. Q52 was the only variable in this sub-theme that increased reliability in the data in Cronbach's alpha 'item if deleted' test. These results can be seen in Table 7, Annexure E.

The Knowledge and Learning variables were recorded as Q59 to Q69. The highest correlations recorded were between Q63 and Q64 (.469) and Q62 and Q63 (.456). Negative correlations were observed between Q60 and Q62 (-.009), Q60 and Q67 (-.028) and Q60 and Q69 (-.079). All questions were important to this sub-theme. Cronbach's alpha 'item if deleted' test confirmed this finding by indicating that the Cronbach's alpha would drop if all variables were excluded from the sub-theme data set. Q69 was the only variable in this sub-theme that provided a marginal increase in the overall Cronbach's alpha if the item was deleted. These results can be seen in Table 8, Annexure E.

In an effort to understand key components of the quantitative survey, numerous methodologies were employed. Correlations were run to determine variables with strong correlations and to determine which variables were most relevant to the survey. The intention, therefore, was to highlight the items which represented the core of each category. Annexure F includes the matrix of correlations between items. It tells us how correlated each item is to the others. Values close to 1 or -1 indicate strong correlations while those closer to zero show lack of correlation. In order for a domain/scale to be reliable, the items making up that domain should be correlated. Negative values could indicate that some scores are not correctly reverse-scored.

6.6 Principle Component Analysis (PCA)

Principle component analysis (PCA) is a technique used for locating underlying dimensions of a data set. Field (2013:666) asserts that the technique has three main uses: (1) to understand the structure of a set of variables; (2) to construct a questionnaire that measures an underlying variable; and (3) to reduce a data set to a more manageable size while retaining as much of the original data as possible. In summary, PCA was run to discover if there was an informative way to visualize the data or discover subgroups among the variables or among the observations.

The complete PCA output item analysis can be seen in Annexure G. PCA was applied to the entire data set (Q1 to Q69). It must be noted that there were several non-response items in the data. Of the 74 observations, there were 45 with 1 or more non-responses; this means that 32 (43%) out of the 74 cases have at least one missing data point and thus only 42 cases have complete data. Because of the missing data points, only 42 observations (n=42) were used for the PCA analysis. The scree plot below (Figure 6.9) suggests that we should retain the first 3 principal components based on the elbow method[9]; however, the cumulative explained variance is only 32.5%, and therefore it was felt a more appropriate test would be on each individual axis.

PCA was then applied to each of the 8 sub-themes; the output analysis of this can be found in Annexure G. The analyses are similarly then based on different subsamples, depending on the set under consideration. Axis 1 (Q1 to Q12, Diversity) had 67 observations. Based on the elbow method, 5 principal components were selected which account for 70% of the variation in the data – the 5 components are based on the correlation structures of the set of 12 items underlying the sub-theme. When examining the R-matrix[10] it is noted that Q2, Q3 and Q10 have negative loadings for component 3. We can see that PCA aims to reduce that R-matrix down into a smaller set of dimensions. Eigenvalues[11] (>1) were calculated for each item. From the output, the Kaiser-Meyer-Olkin (KMO)[12] measure of sampling adequacy were calculated. The KMO statistic varies between 0 and 1. Field (2013:684) contends that 'a value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations…a value close to 1 indicates that the patterns of correlations are relatively compact…accepting values greater than .5 as barely acceptable….leading you to either collect more data or rethink which variables to include'. Q1 (.3580) and Q10 (.4846) in this data set are the lowest scores and should be critically considered.

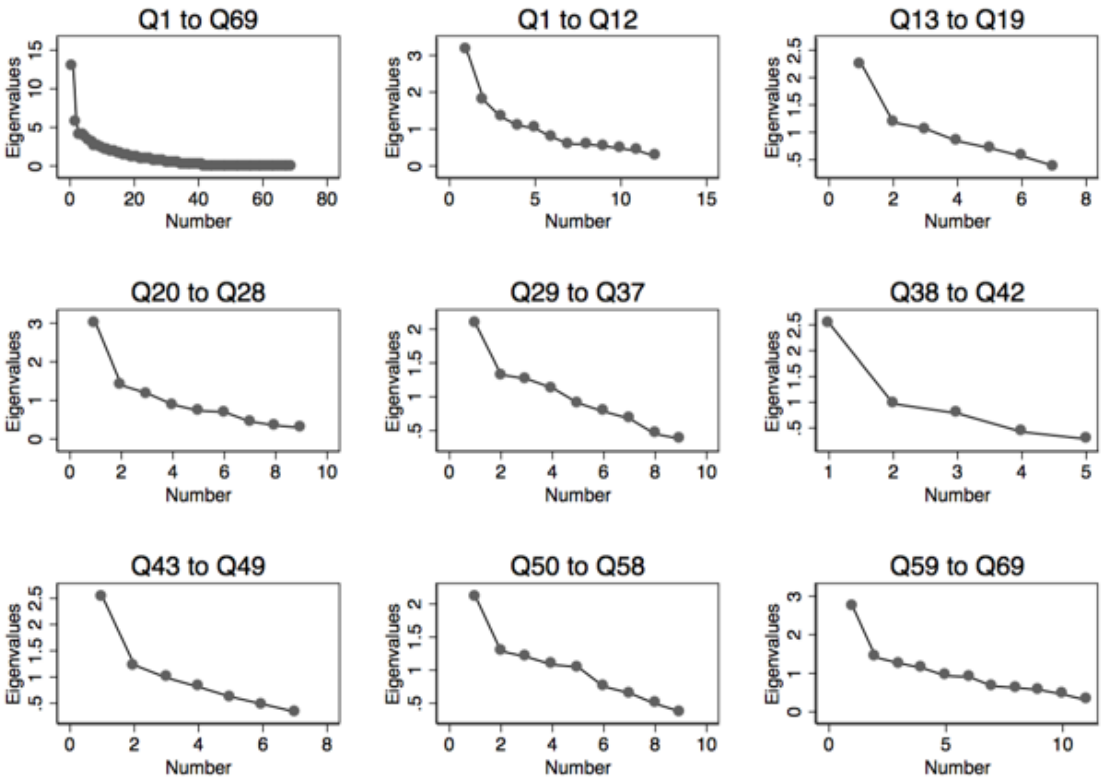
[9] "To determine the appropriate number of components, we look for an elbow (bend) in the scree plot. The number of components is taken to be the point at which the remaining eigenvalues are relatively small and all about the same size" (Johnson & Wichern, 2007:445).

[10] "If we measure several variables […] the correlation between each pair of variables can be arranged in a table. This table is sometimes called the *R*-matrix […]. The diagonal elements of an *R*-Matrix are all ones because each variable will correlate with itself" (Field 2013:667).

[11] "[A] scalar associated with a given linear transformation of a vector space and having the property that there is some nonzero vector which when multiplied by the scalar is equal to the vector obtained by letting the transformation operate on the vector" (Merriam-Webster.com, 2017).

[12] "The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis" (Statistics How To, 2016).

Figure 6.10: Scree plots (Q1 to Q69 and 8 sub-themes)



Axis 2 (Q13-Q19, Complexity) consists of 71 observations. As can be seen from the scree plot in figure 6.9, 3 components account for 64.3% of the variation in the data. When we look at factor loadings (coefficients), component 3 is most negative and component 1 is most positive. The overall KMO statistic is .6534, which indicates that the patterns of correlations are fairly compact. Axis 3 (Q20 to Q28, Personal well-being) has 67 observations; the 3 components are based on the correlation structures of the set of 8 items underlying the sub-theme and account for 62% of the variance. Components 2 and 3 have negative loadings; Q28 'I feel that I am an essential part of the whole' has very large negative loading in component 3 of -.6678. The overall KMO statistic is .7138 which leads us to accept that the correlations are fairly compact. In Axis 4 (Q29 to Q37, Leadership and teamwork) there are 65 observations with 4 components accounting for 64.6% of the variance. Component 1 has a negative (-.2504) which is unusual. Also noted is Q35 ('Rigid leadership creates confusion') which has a large loading for component 3 (.7352); Q36 has a large negative loading for component 4 and Q37 has a large positive loading for component 2 (.6285). In Axis 5 (Q38 to Q42, Financial performance) we have 73 observations with only 1 component which accounts for 51% for the variance. Although 1 component is positive we should

note that there are only 5 questions in this sub-theme. Q39 did not have a high loading and should therefore be considered with caution. The overall KMO statistic is .7328, which is encouraging for the adequacy of dataset. In Axis 6 (Q43 to Q49, Innovative potential) we have 70 observations with 2 principal components, which account for 53.8% of the variance. When we look at the factor loadings, Q43 is significantly large (.6943) in component 2. In the same component, we also note a very large negative loading in Q48 (-.6986). The overall KMO statistic is .7055 which is desirable for the dataset. In Axis 7 (Q50 to Q58, Sustainable Development and Social Responsibility) we have 70 observations, with 75% variance. The KMO statistic of .4999 is concerning and therefore the factor loadings should be looked at more closely. However, we are presented with 5 components; but seeing that there are only 8 questions, it seems more reasonable to accept 2 components based on the scree plot in Figure 6.9. In Axis 8 (Q59 to Q69, Knowledge and learning) we have 65 observations with 4 components (variance 60%). The overall KMO statistic is .61 which is positive for the dataset.

Using PCA allowed for critically comparing items with high means as well as highly correlated items. When faced with a large set of correlated variables, principal components allow us to summarize the set with a smaller number of representative variables that collectively explain most of the variability in the original set. The PCA enabled the researcher to identify which items were emerging as important from each analysis technique and across the techniques. The researcher used this information along with the insights from the literature review to develop the questions for the semi-structured interviews. As highlighted earlier, the intention of the semi-structured interviews was to understand what leaders in higher education felt affected their roles, and to understand the respondents' feelings about some of the leadership variables listed in the conceptual model, as well as to understand whether the numerous measures and components that drive leadership were felt to be required in a South African context.

6.7 Qualitative insights from the Cassandra© survey

Qualitative comments were mostly related to the respondent's organization, the higher education sector, or the survey itself. To maintain the anonymity of the participants, the quotations are not included as an annexure to this research, but the following themes emerged from this component of the research. The theme that came across most powerfully was frustration about not being listened to by government regarding the issues of fees and the National Student Financial Aid Scheme (NFSAS). It is interesting to note that this phase of the research was conducted before the Fees Must Fall students marched to Parliament and achieved, in a matter of 10 days, what vice-chancellors had been advocating for at least 10 years, namely bringing down the costs *to* students of higher education. However, numerous participants also indicated that, since 2007, there has been sustained investment in higher education infrastructure and so the government *has* been forthcoming. Many felt that to

be in a leadership position, the legislative framework within which higher education operates is critical for success.

Within many of the 21 universities visited, there was often the sentiment that a variety of opinions were not listened to, and the feeling of not being valued was pervasive. Being aware of change initiatives and understanding their importance were highlighted as areas for development.

Many participants stressed that one cannot be a leader in academia without being an active academic, using the language of "serving the academic project". In a world of increasing legislative requirements that is more compliance driven, one where decisions need to be justified, 'your role is to minimize the burden on the academic project'.

There was a broad consensus that the sector needs to be expanded, but not at the expense of learning: 'you cannot have a lecturer with 1200 in a classroom'. 'Content is not education – content can be downloaded from anywhere in the world; [it] comes back to institutional culture and the graduates' experience thereof'.

Using these data inputs and experiences, together with the insights gained by the researcher during the course of the research, contributed to the final version of the conceptual leadership model.

SECTION B

6.8 Findings using Artificial Neural Networks

The second part of the analyses uses artificial neural network (ANN) clustering to identify outliers in the typology of leadership attributes in higher education. By treating leadership in the university as a complex system rather than a linear equation, and retaining some of the complexity of that system rather than reducing it, may yield some insights not to be picked up in Section A. The first step in preparing the data for neural network analysis was preprocessing. In the preprocessing step, data cleaning techniques were applied on survey responses which converted those responses into a network readable format. The second step was to apply Neural XL to categorise the data into different clusters.

6.8.1 Clustering – all respondents

To begin with, the responses of all participants were clustered using an unsupervised artificial neural network (ANN) process. The clustering process was first run with the parameter of three clusters and then the process was repeated, each time including an additional cluster. For the first clustering process, certain clusters presented no data and for this reason the simulation was run with more clusters. The reason for this was to find the optimal point at which variances in clusters emerged and then, with the deletion or addition of further

clusters, stopped being significant with similar patterns simply repeating themselves with small degrees of variation.

Figure 6.10 below shows the mean responses to the 8 axes presented in the survey. We can see that cluster 1 deviates substantially from the mean of the sub-theme financial performance as well as the other sub-themes. It can also be seen that on the other end of the scale, cluster 6 also deviates from the general clustering, especially in the personal well-being axis. At the same point, we can see a significant deviation by cluster three. This demonstrates significant incoherence in views and attributes of the current leadership typology in South African higher education. Cluster 6 indicates that there is a group within the sector that provides a reasonable typology of traits to equip them for leadership.

Figure 6.11: Mean Reponses to sub-themes

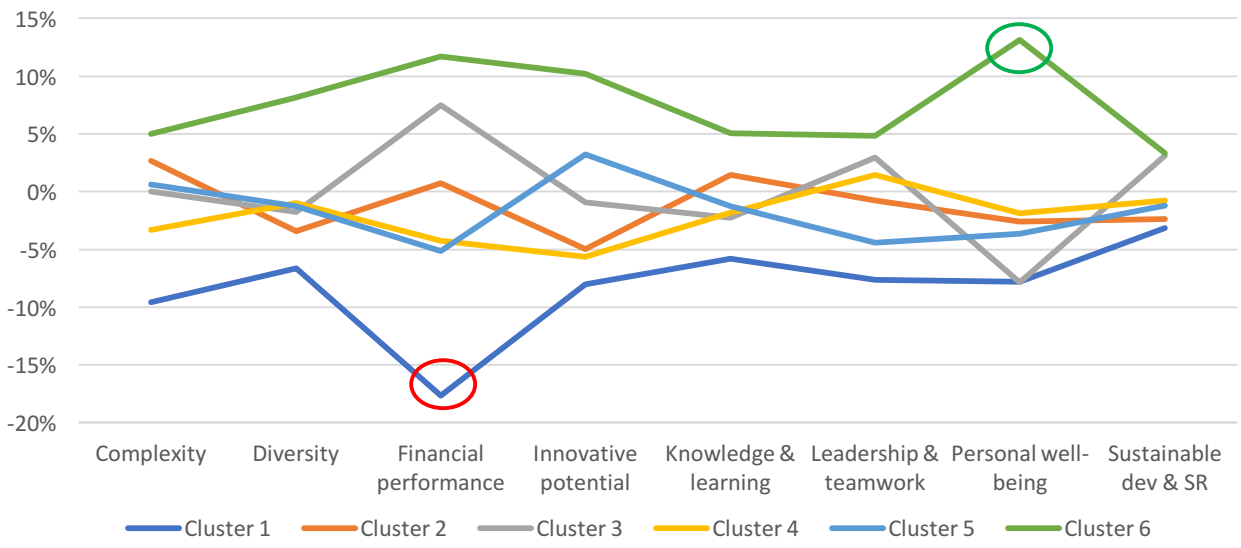


Figure 6.11 demonstrates the size of each cluster relative to the sample group. Clusters 1 and 6, which are the outliers, consist of a significant portion of leadership within the sector: cluster 1 shows the significant variation and represents 12.16% of the sample of the respondents of the survey while cluster 6 represents 24.32%.

Figure 6.12: Proportions of 6 clusters

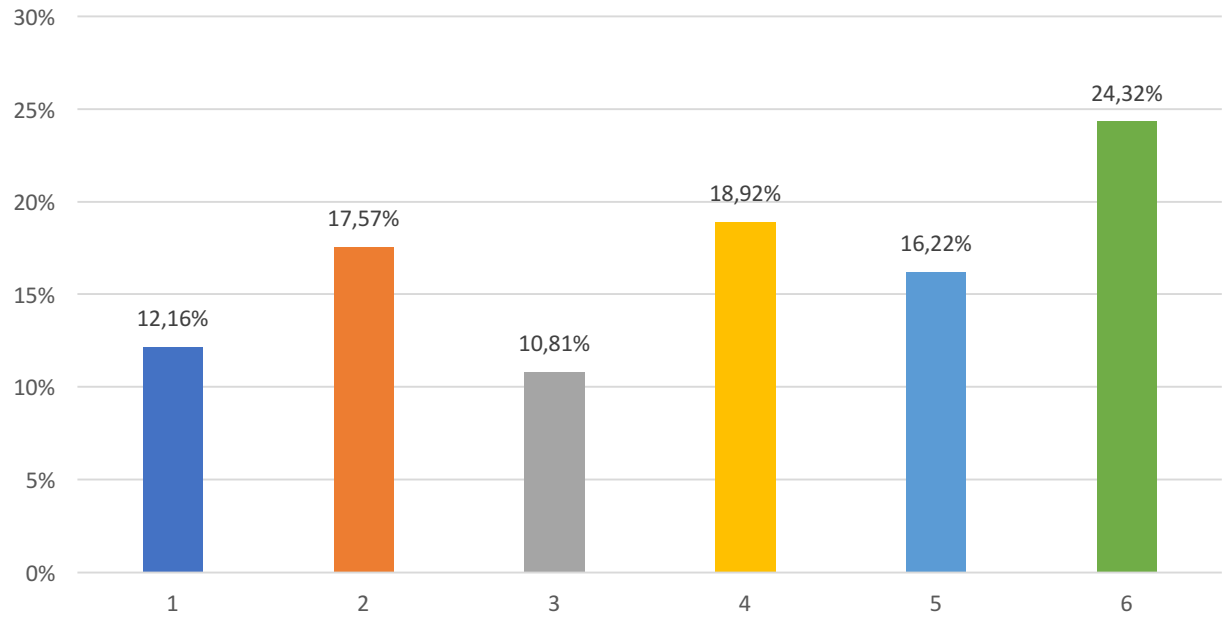


Figure 6.12 refers once again to the sample group but how they are clustered against the four quadrants. Similarly, we see interesting variation in cluster 1 and cluster 6. – representing 38% of the sector. This is useful since it assists us in identifying just how much variation is in the sector. The significant drop at the mechanistic performance is worrying since this is one of the most critical issues facing leaders in higher education today. Clusters 2, 3, 4 and 5 have patterns that are similar enough to not be interpreted as meaningful.

Figure 6.13: Clustering via quadrants

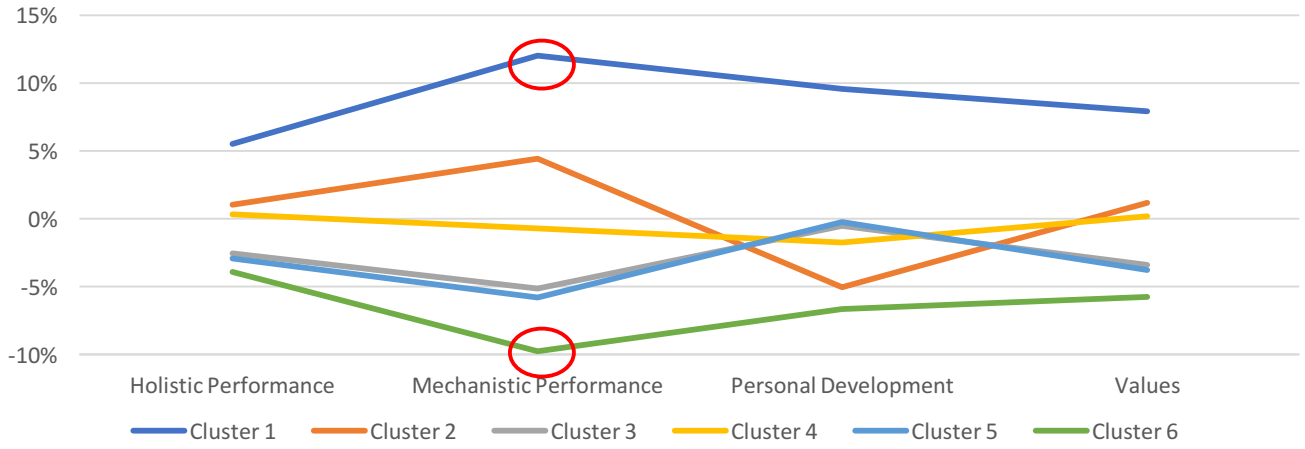
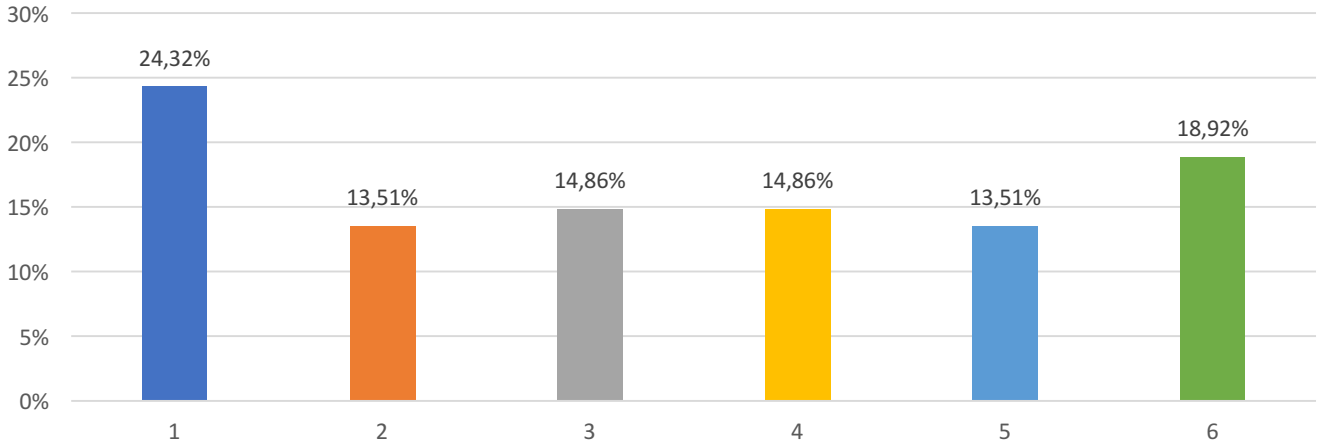


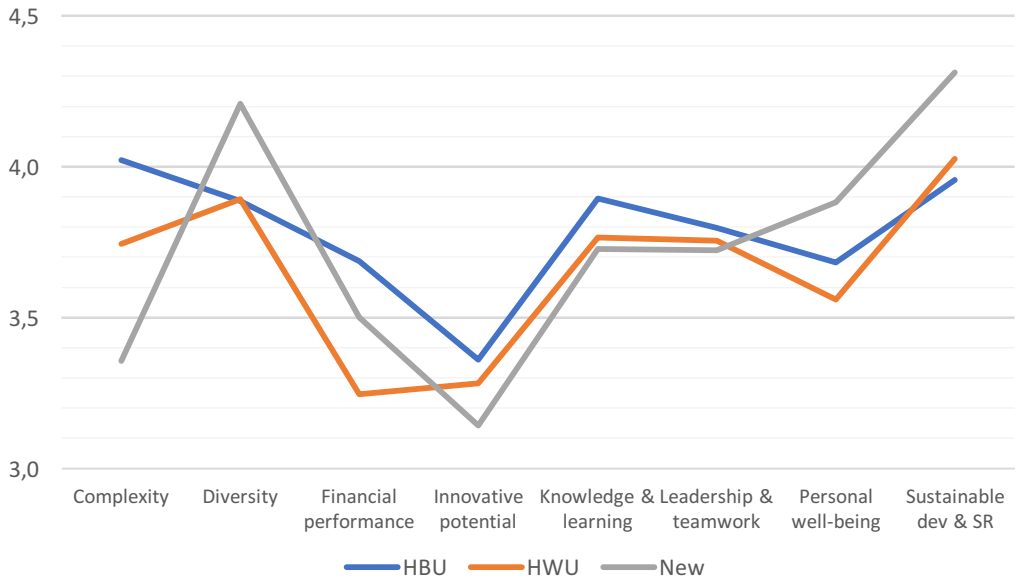
Figure 6.14: Proportions of 6 clusters



6.8.2 Historically White Universities (HWU)

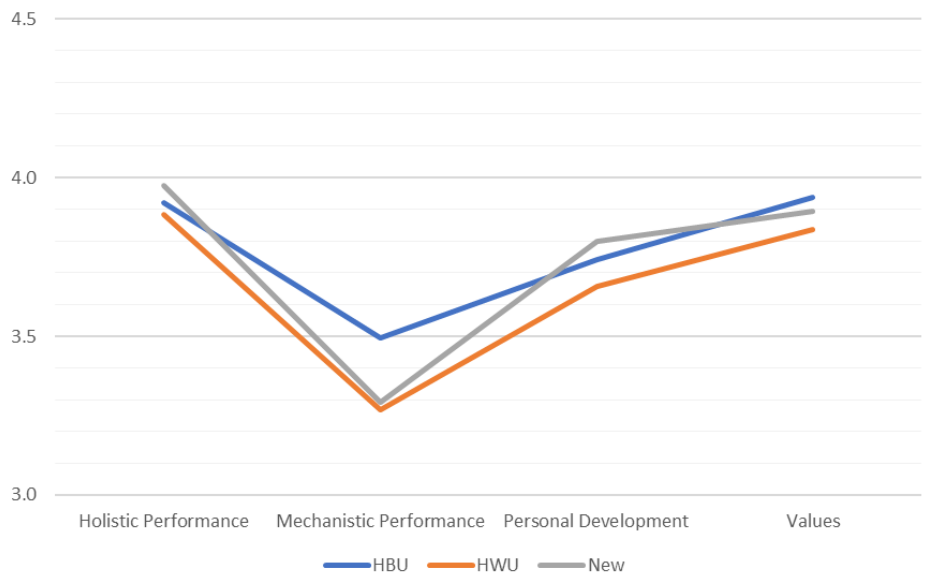
Institutionally challenges differ significantly between historically white universities (HWU) and historically black universities (HBU) within South Africa. As an example, challenges regarding transformation and the diversity of staff and student populations are a much bigger issue to HWU than HBU. Similarly, managing within the parameters of limited resources and infrastructure maybe of bigger concern to those at HBU. It would be interesting to see if these contexts have attributed to a difference in leadership typology. To gain an overview of the data, the figure below compares the responses of participants of HBU and HWU as well as the participants included from new institutions post 1994 (i.e. Sol Plaatje University and University of Mpumalanga).

Figure 6.15: Comparison of HBU and HWU respondents to sub-themes



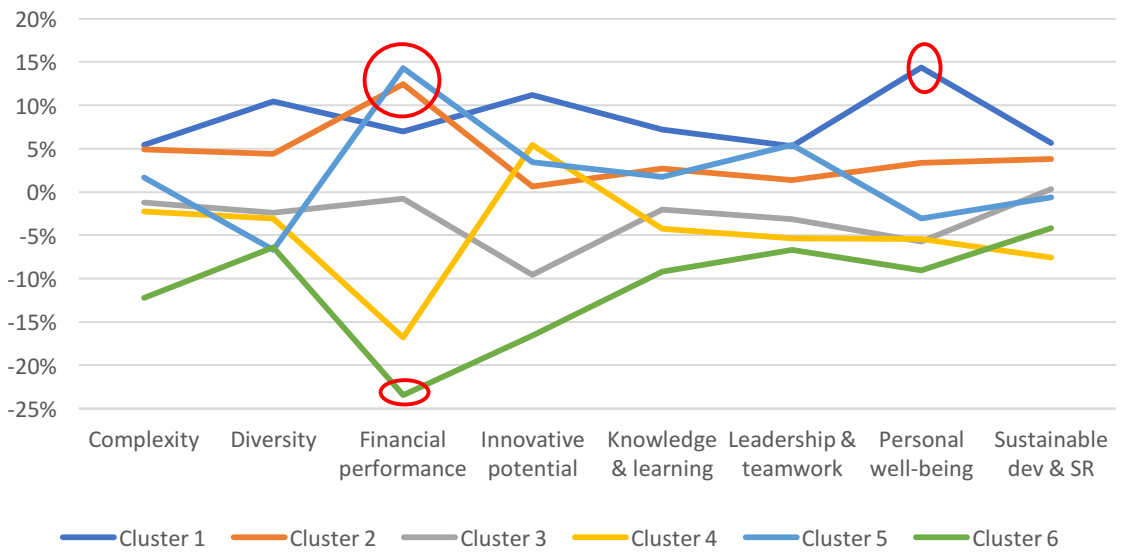
Responses of leaders at HWU are lower through the sub-themes however we can see from Figure 6.14 that there is still some correlation in leadership typology across the sector. Similarly, when responses were analysed according to the four quadrants, as can be seen in Figure, 6.15, there is clear correlation in the sector but with HWU participants scoring lower. There are no significant outliers to reports and the correlation in leadership attributes generally seem to correlate between leaders at HBU and HWU.

Figure 6.16: Comparison of HBU and HWU respondents to quadrants



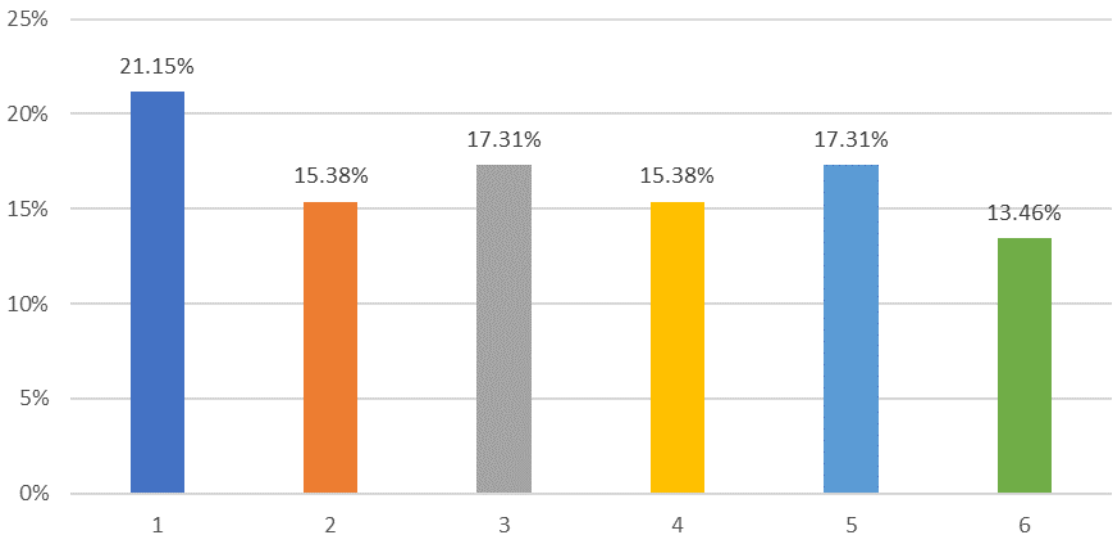
Therefore, simulations were run to see if there were any significant differences in clustering by respondents at these institutions. The dataset revealed 6 distinct clusters; we see greater coherence between the mean values corresponding to clusters -- and –

Figure 6.17: HWU responses to sub-themes



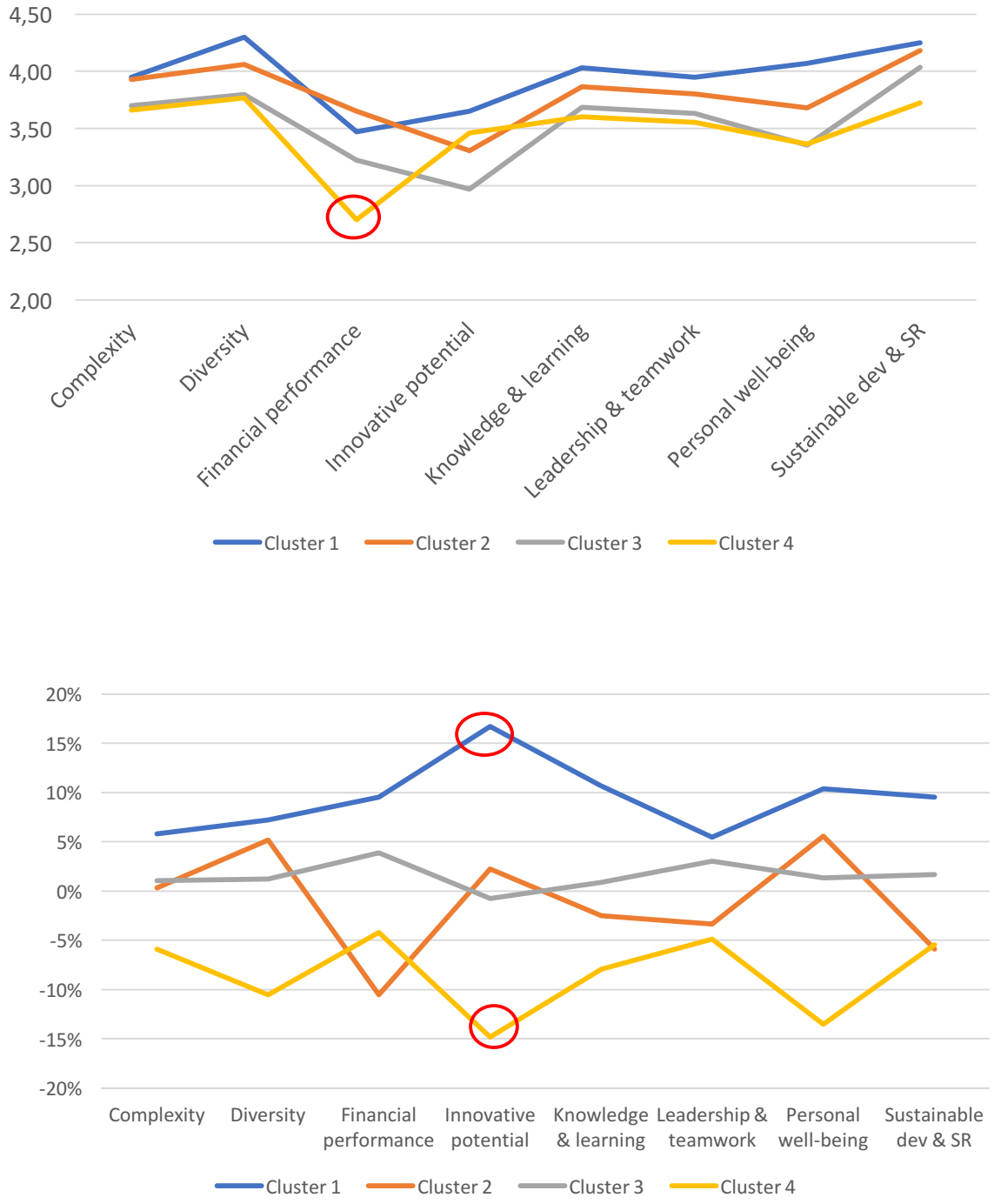
From the Figure 6.16 we can see a significant deviation from the mean for Financial Performance between clusters 5 and 6. Thus we can see that there are clusters in this sub-theme with significantly different views on the mechanistic approach to financial performance, which could perhaps explain the current challenge regarding the financial positions of certain institutions as well as the FMF protests. The diagram below illustrates the weights of the various clusters.

Figure 6.18 HWU cluster proportions

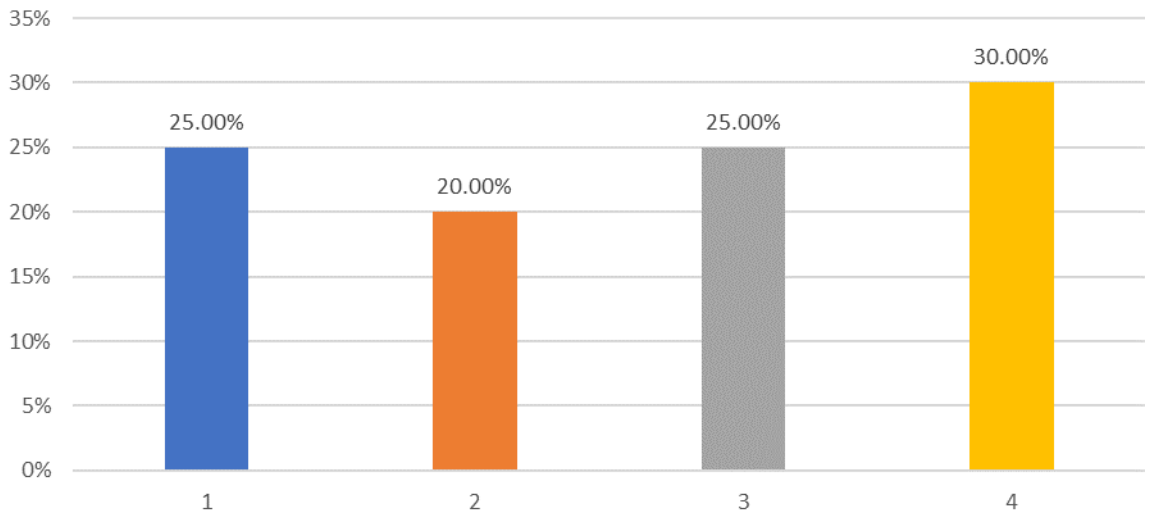


6.8.3 Historically Black Universities (HBU)

Figure 6.19 Clustering - Historically Black Universities (HBU)

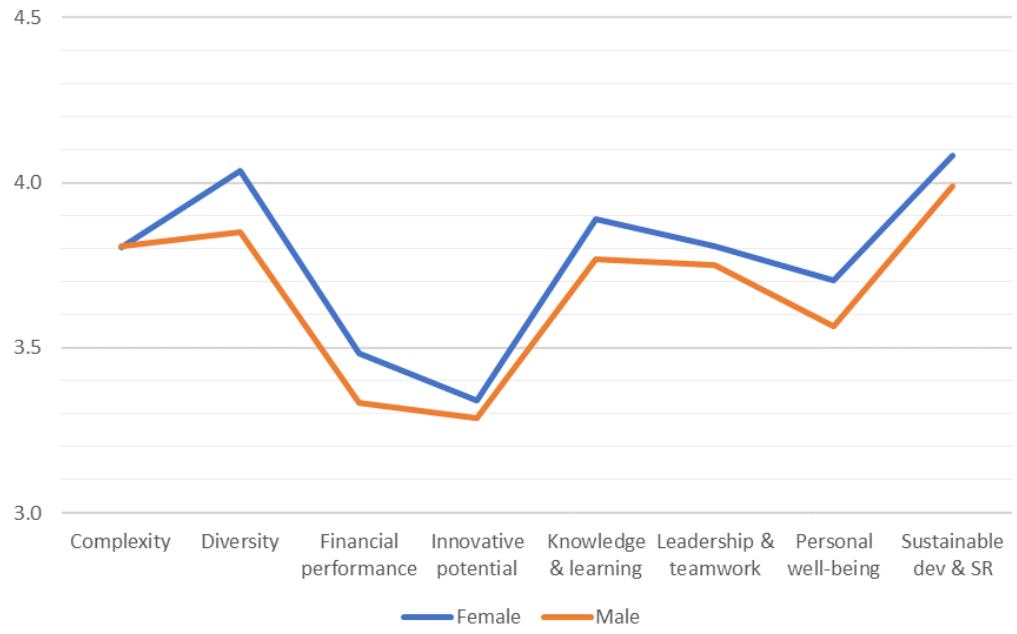


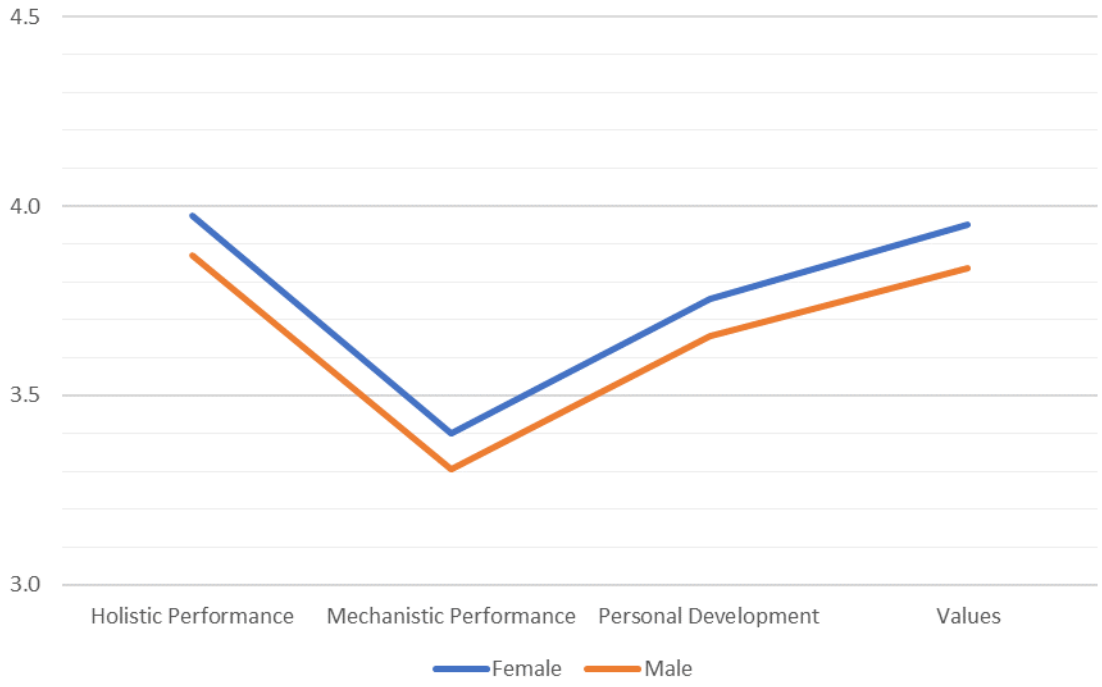
The figure above shows a significant variance from the mean in innovative potential (Cluster 1 and cluster 3) within historically black universities. We also see this in the personal well-being tab (clusters 1 and 4). Cluster 4 makes up 30% of the HBU sector and is this a significant portion of the population we are referring to in this figure.



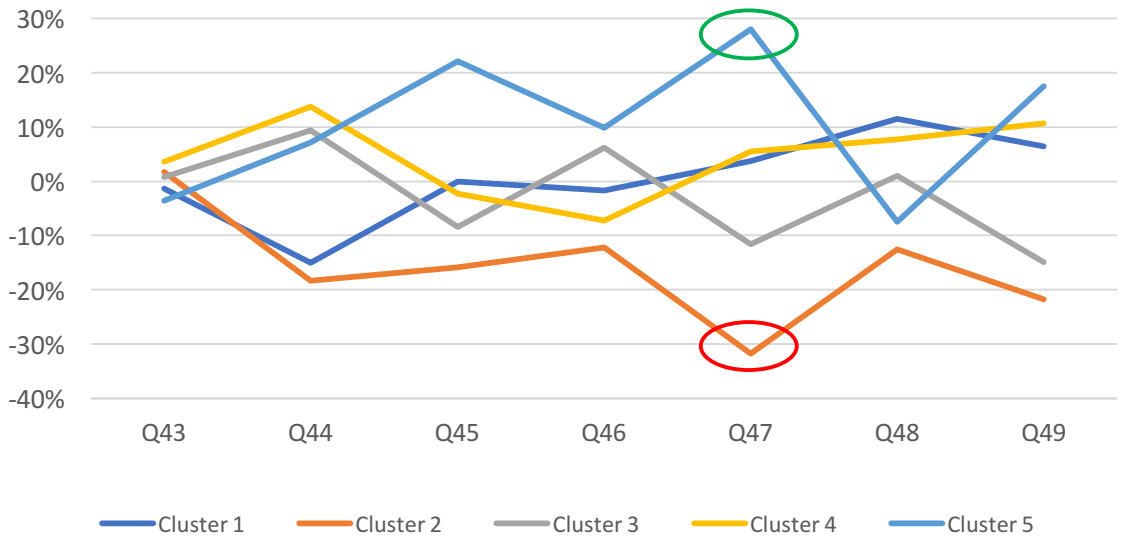
6.8.4 Responses by Gender

There is a growing body of literature investigating models of leadership as they pertain to either gender or culture. Often studies have examined how men and woman differ from one another in their leadership style and behaviour. This study does not cover the scope of gender and culture roles; however, consideration was given to the mean difference between male and females scores. As can be seen in the figure below, there are definite correlation in attributes and attitudes however, female leaders scored consistently higher than their male counterparts.





Iterations were run through the various sub-themes individually to assess if any questions presented significant deviations. The only cluster that is worth reporting refers to Innovative potential, where responses to Q47 ('environment models and rewards innovative thinking) showed significant deviation in participant views.



SECTION C

6.9 Qualitative Data Collection: Semi-structured interviews

6.9.1 Development of the semi-structured interview

The semi-structured interview was developed by comparing items with high and means, highly correlated items and items from the principle component analysis as indicated in Table 6.11 below. Items which occurred twice or three times across the three methodologies were categorised into themes. The themes that were identified as important were: 1) how central teamwork work is for leadership; 2) the current challenges in the sector; 3) attention to the retention of talent; 4) the unpredictability of the sector; 5) the understanding and practice of diversity within the sector; 6) the strengths of staff who work directly with leaders were found to be wanting, as they are not always adequately skilled to do their jobs; 7) Innovation was not a priority for leadership; 8) Complexity science provides a useful tool for leadership in higher education.

Table 6.11: Methodologies used to develop the Semi-structured Interview

Principle Component Analysis (KMO statistic)	Correlations	High means	Theme
	You pay sufficient attention to the retention of talent (.162)	You pay sufficient attention to the retention of talent (Q8)	Talent retention
Do you have a social responsibility reflection in your…professional life (.6032)		Do you have a social responsibility reflection in your…professional life (Q5)	Social responsibility
Diversity is a prerequisite for the emergence of the	Diversity is a prerequisite for the emergence of the	Diversity is a prerequisite for the emergence of the new	Diversity/Complexity

new (.7064)	new (.170)	(Q15)	
	You pay attention to not discriminate with respect to race, language, religion etc. (.162)	You pay attention to not discriminate with respect to race, language, religion etc. (Q4)	Diversity
Do you empower individuals to contribute to self-organisation (.6424)		Do you empower individuals to contribute to self-organisation (Q18)	Complexity (self-organisation)
	Joy is an active part of my professional life (.209)	Joy is an active part of my professional life (Q23)	Personal well-being
I feel valued in my professional environment (.7514)		I feel valued in my professional environment (Q24)	Personal well-being
	Each individual surrounding me is well trained and prepared to do his/her job (.74)	Each individual surrounding me is well trained and prepared to do his/her job (Q29)	Skills
		I avoid rigidity in my thinking (Q35)	Leadership attributes
	I actively pay attention for developing new ideas (.165)	I actively pay attention for developing new ideas (Q43)	Innovation
I am able to produce creativity on demand (.7262)	I am able to produce creativity on demand (.165)	I am able to produce creativity on demand (Q44)	Innovation (Creativity)
Our professional culture values innovation as a core competence for sustainable development (.7319)	Our professional culture values innovation as a core competence for sustainable development (.165)	Our professional culture values innovation as a core competence for sustainable development (Q49)	Innovation
Idea generation is a priority in my agenda (.7345)	Idea generation is a priority in my agenda (.165)	Idea generation is a priority in my agenda (Q45)	Innovation (Idea generation)

6.9.2 Identification of interview participants

The questions for the semi-structured interviews were sent to all participants before the interviews commenced. The interviews actually developed differently for the participants, leading to interesting insights for the researcher. The interview protocol developed (and tested during the pilot phase) is attached (Annexure B).

The hierarchical level of the participants was high. Demands on their time due to organizational priorities took precedence over participating in the research. Hence, the interviews were often rescheduled to accommodate them. This led to 6 of the South Africa interviews being conducted telephonically or via Skype. This was not problematic, due to the researcher's experience with interviewing and the high level of the participants. All interviews lasted between 45 minutes to 1.5 hours and were audio recorded.

6.10 Process of Data Analysis: Semi-Structured Interviews

The different steps followed during the data analysis are summarized as follows:

1. The researcher prepared the transcripts for the interviews personally. This was considered as a preliminary exploration of the data, paving the way for the subsequent analysis (Creswell & Clark, 2011).
2. The next step in this preparatory process of data analysis was based on recommendations of Bloomberg and Volpe (2016:194): the researcher began re-reading all transcripts and additional notes made during the interviews. These recommendations related to alerting the researcher to possible preliminary emerging insights, as well as (once again) a sense of familiarity of the data, even though transcribing was done by the researcher.
3. Thirdly, the researcher considered that the data analysis pays 'attention to unique themes that illustrate the range of the meanings of the phenomenon rather than the statistical significance of the occurrence of particular texts or concepts' (Bezuidenhout & Cronje, 2014:234).
4. During interviews and transcriptions, catch phrases were written down, and notes were made on possible noteworthy codes. These formed part of the field notes.
5. Bezuidenhout & Cronje (2014:240) refer to coding the data as 'the careful scrutiny of your data and taking note of all the relevant and meaningful sections and items'. *Open or substantive coding* was employed: 'in this form of coding, the researcher reads through the entire text in order to get an overall impression and understanding of the text. Concepts related to the words and phrases in the text are identified and noted…the researcher will then group these concepts into bigger categories of concepts' (Bezuidenhout & Cronje (2014:241).

6.11 Findings of the semi-structured interviews

The semi-structured interviews formed important insights into the following research questions:

1. What is the current typology of leadership within South African higher education institutions?
2. What are the main challenges facing university leadership in South Africa?

The interviews provided insights into the attributes of leaders, how they assess their environment and how they contextualized their views and their roles. The sub categories, categories and themes that emerged during analysis are tabulated below.

Code	Category	Theme
Sectorial challenges	International	Diversity
		Funding
		Role of the University
		Funded research
	National	Curriculum reform
		Transformation
		Financial risks
		Government subsidy
		Student protests
		Academic freedom
Leadership success	Networks	Crisis management
		Leadership style
		Team work
		Competencies
	Talent retention	DHET programs
		Internal programs
Environment	Personal well-being	Job-satisfaction
	Social responsibility	Local context
	Complexity	Unpredictability
	Innovation	Critical periods
		Opportunity
		Boundaries and constraints
		Emergence
		Novelty approaches

6.11.1 Leadership style

Many of the interviewees made observations regarding how their styles had changed within the last two years of student unrest. Going into crisis mode their focus and style had changed significantly.

> *'…during the last 2 years when we have been in crisis mode, I've been focusing on holding a team together, on identifying and sorting very much on trying to understand what the students issues are, and on a strategy on what do student protestors really want, what are the different agendas'*
>
> *'…it was much more about intelligence gathering, political networking, talking to other vice-chancellors, engaging with unions to try to steer this ship in assessing what the risks are of protest and shut down versus the financial risks of concessions'*
>
> *'…much more involved and thinking through the finances where previously I might have left it to the Executive Director, Finance'.*
>
> *'…for 8 of the years that I've been vice-chancellor there's been no crisis, there's been no student protest'.*
>
> *'..so the point I want to make is you shift, there's no one thing you're supposed to be doing, it shifts over a period of time'.*
>
> *'I'm more in favour of a network-centric, a collaborative approach to organisations internally where you don't over-accentuate the line function divisions in that vertical hierarchy but you have a matrix like organisation that works in teams together to tackle problems'.*
>
> *'I took the job and you don't take the job if you don't want to make the hard decisions then you mustn't have the courage to take the job'.*
>
> *'I call it situational leadership that every situation is a bit different and in different situations you get different styles. So in a crisis you have to be more like an army General and you have to make decisions, you can't consult widely and you may need to make them in a relatively autocratic way, in a top-down way and that's completely different from a leadership style required for curriculum reform where you know that you have to motivate people and persuade them of the merits of something and get them to support you and it will be slower and it is very consultative'.*

During the non-crisis periods, leaders focused on issues of sustainability, creating the conditions for academic excellence and transformation issues.

> *'…providing academic leadership around global trends…'*

'So sustainability for me during the first period I guess is to do with financial sustainability, the intellect the academic projects sustainability and that involves a whole range of things like staff regeneration, the next generation of academics if you like, observation and diversity of the academy but also the curriculum itself you know its sustainability and its ability to respond to the larger questions of sustainability in society as such'

'So there are all different methods, different leadership approaches to get my way or to get something achieved and you know I look at what works or I try one thing and if that doesn't work I try something else. In that sense there's a kind of experimental thing but that's not so much dealing with uncertainty except the uncertainty of knowing what will work'.

6.11.2 Curriculum reform

A significant theme that emerged throughout the semi-structured interviews was that of curriculum reform. Leaders noted that South Africa needed to substantially improve graduate output, both in terms of numbers and quality as well as that of graduate attributes. South Africa's current curriculum framework was inherited during the colonial period and designed in a different era, for a totally different student body which was in all senses homogeneous, small, and generally privileged. The issue of inter-disciplinarity was a key theme that emerged throughout the interviews.

'…developments around curriculum reform need to be addressed'.

'I've been trying to promote a certain kind of curriculum change and mostly I get push-back from the faculties that the curricula are too full and they can't introduce new things and that probably I won't win that because the Deans clearly have ultimate control over the curricula and it depends on having champions at the ground'.

'…developments with online learning and technology learning as well as introducing inter-disciplinarity within the curricula'.

'…we need to seriously consider the introduction of entrepreneurship into curricula'.

'There is an increasing pressure by professional bodies to direct curriculum and that's a battle that is yet to play it's self out'.

'What we need is students to have knowledge or understanding of how disciplines outside of their own disciplines work, what I would call ways of thinking. If you're a mathematician to know something about the ways of thinking that inform anthropology or psychology so that's taking subjects that are breadth subjects, not outside of your area, that's the reform I would like to see done…'

'We're also innovative in the way we structuring academic programmes. I started this university with a very strong argument that the world of intellectual excitement is no longer in the disciplines, that it's at the boundaries of disciplines now. It's about the capacity of anthropologists to work with engineers etc.'

6.11.3 Research agenda

Some concern was expressed that sponsored research by industry can skew the research agenda set out by universities and that industry could assert claims to the intellectual property produced by university researchers.

'We're not willing to support people who do research thinking just for the pleasure of research and thinking, just for the fact that the world of ideas is worthy of being defended'.

'There's also the pressure of sort of the corporate donors that direct the type of research that people should do, what's happening in the medical sciences, in the clinical industry, in nuclear industry, if you do research it is purely interest driven.'

'The corporates are paying for the marginal costs and that's where they can't own the intellectual property incidentally, just as an aside. They have no business owning the intellectual property because they're actually only paying for marginal costs'.

6.11.4 Academic freedom

Potential threats to academic freedom from both social and commercial pressures were identified.

'I think if we take a dipstick assessment of the sector the threats to academic freedom are quite large'.

'Profit, it's more sustainability driven, make sure we are financially sustainable and in the process we have been sacrificing good academic cultures, habits and academic freedom principles'.

'There are very few universities that still have very active academic freedom committees. We don't find space for that anymore.'

…'religious pressure for people not to each certain forms of knowledge and that sort of thing, that's happening but there are other acts of bigger social pressures

6.11.5 Role of the University

A significant number of observations were made about how managerial and utilitarian approaches to running South African universities threaten to turn them into commercial enterprises rather than places where reason, debate and intellectual enquiry are valued for their own sake. An additional category that also emerged under this theme was that of the University as an agent for the public good.

'The whole pressure towards sustainability in an environment with decreasing resources has made us become a lot more managerial in our approach, more profit driven'.

'…In other word there's an increasing utilitarian view of higher education'

'I think giving meaning to complexity is one of the primary reasons that we exist as a university'.

'There's an increasing [view that sees the university]…and I'm going to be sort of simplistic in my characterisation, as a class clearing house. It's a place that takes young people from poor environments and gives them access to middle class lifestyles. Enormous pressure emerges from that interpretation of what a university does because indeed we do that, we do take young people who are poor and we give them access to middle class lives but it's not our primary core it's not our primary responsibility, and an unthinking analysis of that approach results in an argument that says when you fail a student you are preventing them from freeing themselves from the poverty…'

'I'm concerned about sustainability issues in future and about unrealistic expectations of what the purposes of universities are in post-apartheid South Africa'.

'The civil service like way in which universities are structured in my view does not lend itself to the requirements of what I think should be a modern 21st century multi-disciplinary university should be about.

'But subsidy, since we are public universities, the nation, the public, the taxpayers must make a decision about what value does it bestow on higher education. What is the price that it puts on public higher education as a public good?'.

'We can't make up for subsidy by what we did in student fees now looking at commercialisation as a shortcut because then that has all sorts of risks of predatory and unethical behaviour because then universities start now getting involved in casino-like investment schemes and may tie up valuable public resources in private sector investment schemes that may even go belly-up'.

'I think that universities are still trying to work out their roles now because there's been such a push for transformation and decolonisation and really nobody knows the exact meaning'

'And then finally I think that we have a human rights crisis in the universities. The universities, all of us, pretend to be institutions fundamentally founded on human rights principles yet in our actual day-to-day practice partly because we were forced to by sets of circumstances, by resources, by the nature of funding etc., we're forced to make hard choices about whether we should outsource or not'.

6.11.6 Financial risks

Predictably, all of the interviews revealed a significant preoccupation with the current financial model of funding higher education. Several interviewees felt that this issue had been simmering for years, and had been brought to the attention of the relevant government officials to no avail. To this end, there was some consensus that the crisis achieved the goal of motivating government and other stakeholders to find a sustainable solution.

6.11.6.1 Fees crisis

It was evident that the primary object of concern for university leaders since the fees crisis exploded with the emergence of the FeesMustFall movement in 2015 has been seeking to address the complex problem of reducing the financial burden on poor students while at the same time securing adequate income for sustainability.

> *'I sit here in this structural crisis emerged because subsidies fell, we increased fees and I think that whatever the students have done, the one minimum they've done that is progressive is they've brought an end to a financing model where fees goes up and subsidy goes down'.*
>
> *'I focus on fundraising because obviously we don't have enough money'*
>
> *'If you look at the rate of growth of higher education as a factor of GDP, up until recently it has actually been monstrously inadequate if you compare us to other OECD countries'*
>
> *'…no the risks say of insourcing, or dealing with covering fee shortfalls, or accumulated debt, all of those, have those have massive financial implications. So I've been much more internally focused on the issues that the crisis is about, housing issues etc.'*
>
> *'Well the biggest challenge is the finances. Government finance has been dropping for us so it's been increasing for financial aid, the total budget has been increasing but the money coming to the universities has been dropping, and I think that the financial crisis, the financing is the biggest issue'.*
>
> *'The subsidy rules we know what it is, it's the amount of money that's not grown in tandem with the rising cost of our institutions...'*
>
> *'…I think because the economy is shrinking it's not growing fast enough, all the universities are now in a sense trying to get in on the same act and unless the economy starts growing again, the pool of available resources and the low-hanging fruits are going to become fewer and fewer with more and more players becoming involved as well'*
>
> *'What we've got is effectively 15%, maybe 20%, of students who have access to accommodation. The demand at [---] we have about 6200 beds; probably the demand for residents beds is about 12- to 14000. I'm sure it's the same at [---], and at [---], definitely in the historically Black universities and so this is a huge, huge challenge and the question is how to address that. And I think it can't be addressed through normal solutions and normal procedures. I think you need completely out of the box solutions at a system level.*

6.11.6.2 Government subsidy

In addition to focusing on the issue of student fees, interviewees naturally addressed the other major source of funding, that is, the government subsidy.

> *'…Government has to increase the subsidy'*

'The subsidy has increased but the per capita subsidy has declined'

'…the government has sliced what's called the block grant by taking off conditional grants and those conditional grants have grown at the expense of the block grants, and for a place like [---] we haven't been getting the conditional grants we've only been getting the block grants'

'the amount that's allocated for the research subsidy it grows by about 6% a year but the number of research publications in the country has been growing by about 10 or 12% a year. So although our publications increase we get less money per publication and in total. So I think that there should be more of a fixed sort of formula, a commitment that the unit values of the publications doesn't drop because otherwise it's going to have the counterproductive incentive, it's going to back-fire'

'the other thing I want to address is I would shift in the funding formula allocates about 80% of the block grant for what's called input subsidy and 20% for the output subsidy, in other words when someone graduates you get the output subsidy. Now we think that that incentivises the wrong behaviour because it results in universities taking in large numbers of students because they get the input subsidy and they never graduate. And when we put in our submission to another fees commission we argued that they should shift that maybe to 50/50 because that would put much more'

'What you had is a situation where you've grown the system from 420 000 students to 1.1 million, you've effectively had a situation where the government subsidy has been declining…'

6.11.6.3 Solutions to the crisis

Participants were unified in their thinking regarding possible solutions to the crisis. This thinking was based on the model of fees being a factor of household earnings and of their needing to be multiple fee structures for different income groups. Free higher education was not considered to be viable or moral in a society with such a large disparity in wealth.

'My attitude is that there should be free education for the poor, there should be financial assistance to the missing middle and the affluent must pay'

'My proposal that the student model of a graduate tax is probably the best model that exists, although I don't think it can be realised immediately. So what I would argue is we have the current bank model that's coming out now and that as we achieve growth rates and the expansion of the tax base then we progressively migrate from the banking model to the student graduate tax model over a period of 10 or 15 years'.

'So one solution is to stop growing the number of students at university and I think that that would be sensible to stop growing because I think we've admitted students into university which I think frankly shouldn't be there given the school preparation, very high failure rates, so the result it's a very inefficient system and the money's being wasted and that we should rather be spending the money on making sure that people get through, keeping them in university for longer, taking in fewer students and ensuring that the amount per student grows'

'the State should give grants to the very poor, not loans, and that for the middle income it should be a loan system which is an income contingent loan meaning that you pay back according to what you earn and for the current crisis I think that they should start incrementally extending loans to people in the missing middle so that people get a real sense that their cost of study is coming down immediately so they don't have to have a solution that's free or funds the whole thing with loans immediately but they should increase the funding of loans so that let's say 20% of the fee is covered for the missing middle group so that they at least feel that the burden is lighter'

'Fees will still continue as part of the new dispensation but as a factor of or as a proportion of the overall funding requirements of universities I think is going to decline.'

6.11.7 Transformation and diversity

Inevitably, the history of South Africa will always lend itself to commentary regarding issues of transformation and diversity. During the interviews, several observations on these topics were explored. They pertained to not only the transformation of the professoriate but also to the institutional culture as well as the student body. There was an apparent lack of agreement on the value and morality of so-called foundation or bridging programmes.

'… [Transformation] has many different dimensions but it has been a key focus'

'The country's neglect of African languages is disgraceful, and I…know that dictionaries don't define language, it's creative writing. So we'll do that and we'll build it around a Heritage Studies programme'

'…and then transformation in terms of the investment in changing particularly the demography and the culture of the place, those are all important'

'The transformation struggles are difficult and I don't think we're always responding to them in the right way. The high failure rates of Black students cannot on its own be explained by the quality of grade 12 education. There's something more that universities have not been willing to challenge. What I'm saying is the pressures are internal as well as external'

'And so the imperative for me was about fostering an institutional culture that was more inclusive, more diverse and more open and more reflective of the world outside of the university culture'.

'I think the FeesMustFall crisis gave it political prominence so if there's any good from that campaign, this is certainly one thing, it has raised this issue much more viscerally in the heads of university administrators where there were now demands from within and outside universities for much greater attention to be given to the next generation of academics that is more diverse and representative of the population of the country as such'.

'And then of course there are also changes in the academic system taking place with older staff members retiring at a rate faster than our ability to replace them with experienced staff and more diverse staff and we are battling to hold onto talent and so I guess these are variables that manifest themselves in startling new ways than what was the case before'.

'…so there's a lot of work that I'm doing on transformation but I contextualise transformation from the purpose of what a university is. So it's not transformation in terms of employment equity alone, it's transformation in teaching and learning, transformation in research innovation and transformation in engaged scholarship and then I not only look at employment equity that obviously cuts across that, I look at the physical environment and how welcoming that is…'

'There's no decolonised institution in Africa that's a model for us and we've got to make sure that we retain our excellence in the face of all the other pressures'

'…the vast majority of whom are Black and they are alienated from the institutional environments within they are located. I think this is true they are alienated from the symbolic expressions, from the naming traditions, from the nature of the professoriate, from the institutional culture and so I think alienation is the one big challenge'.

'…our university is still very strongly poor students, probably 10% of our students come from homes that speak English, probably 90% of our students come from township and rural schools, Coloured and African. So we're a very different university'.

'I started a conversation with academic staff around what this transformation means and what do we need to do to overcome [the challenges of] transformation and effectively spent an enormous amount of time doing a series of consultations. That was controversial because at some point African staff members refused to engage. I used to go to these forums and then they wouldn't engage. And then they said it felt uncomfortable in engaging in open forums and so I had an engagement with African staff alone and that created all kinds of tensions.

'We don't have foundation programmes and I don't like foundation programmes. We put students straight into the mainstream programme…We've produced better than 90% course pass rates. 80% of the students who started with us will graduate. The national average is 56%...'

'Why did I insist on no academic development programmes? I just find them politically offensive. It's a ghetto where Black people are sent. You could go home after 2 years without a qualification. I find it offensive that we treat students like that, Black students. So my argument is I'm going to look for intellectual talent, it doesn't matter what the shape of their noses are or the texture of their hair, and when I find it I'm going to nurture it and our residences are learning spaces.

6.11.8 Teamwork

All of the interviewees reflected on the importance of teamwork but most also, expressed reservations about the competence and skills set of their respective teams.

'…teamwork is essential and I think that's a sort of moot point almost that modern organisations are simply too complex, too multi-varied in the responsibilities and the knowledge skills required to run these organisations that are literally mini-government if you like'

'And so teamwork is absolutely essential, more so because of the growing levels of complexity in which the university has to now function and respond to'.

'None of what I do is delivered by me. It's actually delivered by a team of 8, 9 or 10 people all of whom have distinctive roles and each one of them plays that role in a kind of distinctive way'

'And so teamwork is absolutely essential, more so because of the growing levels of complexity in which the university has to now function and respond to'.

'I do rely on a team very, very strongly'

'…the way that the university works, it's actually I [who] make the decisions but I use that group as an advisory group, but in effect they make the decisions. I would seldom make decision without them'.

'…it is an absolute requirement that you have to have a solid and a well working team to work with you. Because first of all you come in with your own hopeful strengths but also considerable weaknesses and shortcomings, and you have to then pick a team that can be complimentary to you in the sense that can make up for the things that you would not be able to offer and also to be able to reach into parts of what has to be done more effectively than you would be able to do.'

'So my feeling is that I'm not as well supported'

6.11.8.1 Competencies

'…I think it's a sort of I think the correct answer or a good answer would be yes but I can't say that unequivocally that is the case. So I think there is a combination of people that I believe in my team specifically is not necessarily operating in the manner I think they should, and there's not a lack of commitment, there's not a lack of energy, there's not a lack of passion but there is definitely a lack and a shortage of would they be able to think through you know, think through the challenges and contextualise it and frame it that the type'

'So I don't think I'm surrounded by very competent individuals. I think they have some strengths, in general I don't think they have adequate skills and but I mean there are some of course but there are too many who I think are not strong enough and I end up either doing their work or checking up on them, micro-managing because I don't trust the information, I don't trust that their judgement or that they've thought something through fully or they don't have and I mean part is because the world they're in has changed'.

'I think universities don't train people to be in managerial posts because these are also managerial posts we manage people. And if you've been a lecturer or a professor and you're doing your research and teaching people management is not part of the toolbox that you have. So I think that people are not trained for it, nor are people trained in crisis, nor are people trained in almost providing pastoral care'.

'If they don't rise to the challenge then you move on and you make the hard choices because not to do that compromises the output and compromises the output, compromises the institution'.

'There is distribution, a distribution of energy and passion but there's not a distribution of what I expect them to be operating at a level of an executive level or a strategic level'.

6.11.9 Personal well-being and job satisfaction

Almost all of the interviewees expressed a difference in their job satisfaction between the pre- and post-crisis period. Undoubtedly the student protests presented various stressful situations for all of them. However, a sense of vocation or duty and a strong sense of commitment to community were felt by several of the interviewees.

> *'I've been really happy in my job really until a year ago…and in the last year it has been really stressful so I can say I've been happy in it for the last year because it's stressful'*

> *'…the stress is partly because whereas by and large up until a year ago, the issues that were the challenges and the issues that were causes of stress or protest were broadly in my control in the sense that I could do something about them. Whereas the FeesMustFall campaign and the demand for free education is beyond my control. It's firstly a national campaign, it's national solidarity so I can't say it's possible to have a local solution to that problem and so you just feel caught between a rock and a hard place. Actually the solutions aren't in your hands and so you can't even be pre-emptive or pro-active except to try'*

> *'…this job allows you to act out your values in ways that give meaning to other people's lives that makes it valuable'.*

> *'Pardon the expression…this is the shittiest job in the country'*

6.11.10 Student protests

On the recent student protests the university protests offered a wide variety of insights both as to the motivation behind them and their character. Interestingly, interviewees emphasized generational differences among the current student cohort, in particular referring to the 'born free' generation.

> *'Many of our students come from townships where service delivery protests have long been common and where the only time they see any action is when there are violent protests there and they don't really see any reason why that same mode of protest shouldn't be brought onto the campus. So as the student body has transformed and we've got many more students from poor backgrounds and township backgrounds I think that we've brought onto campus a group of students for whom that is familiar and not unacceptable'*

> *'They don't have access to government directly, they don't have ways of putting pressure on the Minister and they reckon if they can close down the 5 leading universities in the country, the Minister won't be able to ignore them. So the goal is shut down, the goal is not to get me to agree to something or to get me to concede this concessions or that concession, the goal was shut down and would be provoking or pushing in order to trigger that shut down'.*

> *'The students are not homogenous … our strategy is to address the issues that can be addressed in order to strip that support away from the militant group that just wants to shut down in the hope that that militant group then won't be very large or large enough'.*

'We had a series of engagements and largely managing the student protest which required I believe some difficult decisions some of which we took, some of which you guys ducked'.

'But there's also a challenge in that there's a sort of shift in the attitude of student protestors to a much more violent and disruptive form of protest than we've seen in the past which I think is very worrying, a big challenge and either forces us to respond with high levels of security which even that is not very effective or to even shut down'.

'The other group may be taking it up because they feel nothing's changed, the promise of economic improvement, housing improvement, schooling improvement hasn't changed, they come here 25 years or 20 years after democracy and they feel that nothing has changed. So they are running out of patience. They of course weren't around beforehand so lots has changed and they don't know that but they don't know that because they're born free'

'But I would just, the only thing I would say in reflecting on that is that it's a great pity. I think the world has changed and I'm continuously looking for ways to re-establish that respect, likeness, treating people with dignity and I don't understand why it's happened but I think we're seeing a kind of trans-generational or inter-generational conflict. I don't know I see that, particularly Black students'

'You'll be talking to the SRC and then somebody walks in and says they don't represent us, you have to hold the line. Holding the institutional governance line and the hygienic approach to governance has probably been the most difficult part of the whole period of the protest action'.

'I totally support their push for access and so on so the students had a legitimate demand, but the way they wanted to implement those demands was hijacked by people who do not have the interests of university at heart'.

6.11.11 Talent retention

Following the discussion on transformation, a natural progression was to the question of talent retention. It was widely acknowledged that the retention of black academic staff was a challenge. This was due to several factors such as pressures of the academic job market and the geographic locations of some institutions. Generally, all institutions have internal and sectorial programmes in place, which the leaders reported to be effective.

'So such as we've been able to attract good quality people, retaining them has been a really essential part of what we do…'

'Interestingly, geographical location plays an important role in the retention of equity staff'.

'I also think for black staff, African staff, [---] is a difficult place as a city and we lose staff I think because both [---] and [---] are difficult environments for black staff and we should do more there. I don't have an answer.

'We've had a couple, we've had a couple of the so-called growing your own timber programmes…they've been evaluated and been successful'

'I must say staff-turnover is quite low. In the [---] years that I've been here we've had very low staff turn-over. We've had resignations but in that [---] staff I think I've had [---] resignations'.

'But the short answer to your question is I don't think I paid [enough attention]…if there's one regret that I have is the fact that I did not start much earlier and more ambitiously to create pipelines for new and next generation academics and particularly post-graduate students to come through the system and to be inducted into the academy in a more system-wide programme to ensure that we have equity and diversity into the academic system and also secondly, for succession down the line'.

'My job I see it is to train them, mentor them, support them, provide opportunities because I have this range of networks globally, get them into my networks, give them the possibilities that I had so that they can go out there [and succeed]'.

6.11.12 Complexity and unpredictability

Some leaders showed an instinctive understanding of unpredictability and complexity theory and their underlying concepts.

'The sector has become very unpredictable…'

'So the whole idea of interpreting complex systems is what is demanded of us and I think that as we approach leadership we must take a similar theme'.

'I think we've entered into a much more unpredictable era and not only in the higher education level but at the national level and I fear at the global level. I feel that we're beginning to enter an era of a generational conflict and challenge very much typical of the 1960's. I think we entered into an era of political instability and economic instability and that creates its own tensions. And so I do think we are in a much more unpredictable era'.

'…but in an unpredictable environment and in an environment requiring constant disciplinary, discovery and innovation and so on [the traditional model] often leads to the institution being relatively rigid and inflexible in the way it responds to crises, for example.

'…it's much more unpredictable now than it was and it's the combination of unpredictable funding and unpredictable student protest. Those are the real unpredictable things which happened really mainly in the last 2 to 3 years…'

'The idea of predictability of future funding and social funding so we're not really sure of our state funding. We're very, very unpredictable in our ability to raise bursaries for our students. Sustainability is going to depend on our ability to get external funding for our students'.

'…the new reality, the new normal as we call it now, the post FeesMustFall post outsourcing insourcing period that we're in now requires us to learn new skills, how to manage in highly unstable and unpredictable environments where the student governance problem is functioning at the moment, nobody knows how it will eventually settle, what will come in the place if anything that's going to be a

new existing system, the new labour relations system, the new unions in the higher education market as a result of insourcing…'

'So the labour relations dynamics are changing and they may change in ways that we don't quite know how they will gel so that too we'll have to come to grips with'.

'It's a complex system that demands a significant framework to understand and if your research can contribute to that I think it would make a very significant contribution to understanding. It is about the need for a foundation of analysis and understanding. So I think you're on the right track

'For you as an individual to have either the competency or the levels of over-sight, let alone agency, to give effect to the multiple mandates of the organisations'.

6.11.13 Gender differences

No significant gender differences were noted. There was a general agreement that there was inadequate representation of females in the sector. All of the female interviewees were united in the perception that their leadership styles are often interpreted differently to their male counterparts.

'…there's no difference in leadership style but how that leadership style is interpreted and accepted there's a difference. So you know women who are straight-forward and direct and so on are authoritarian and bossy. A man who's straightforward and direct shows leadership, he can make decisions and so on. So that's it. So it's not our styles necessarily because I don't believe women are softer and men all that stuff but I do believe that the way people receive it'.

'I think that there needs to be better representation of women in senior executive positions'.

'Internally they are not strong but they are assertive and dominating'.

'Well in my own team I'm not sure they're very strong'

'So I don't think they conform to stereotypes. I was thinking when you asked me the question when I said there are differences I was thinking of the Vice Chancellor's nationally and when I think of [---], [---] who's at [---], there was someone at [---], that they're generally quieter I'm not aware or conscious of them contributing much in meetings, but I'm not close to them. I haven't seen how they work inside the universities so I can't really say'

'I'm quite aware of the masculinity of the team and in the sense that we make decisions like men. It's filtered through testosterone in how we make decisions and so it's clear that we need women on our team and in filling the VC position, I'm very keen to have a woman in that position. I'm having difficulty in finding someone. We've had 3 interviews and on one occasion we actually made an offer and it's come to naught. But we'll keep busy and we'll keep finding out I'm still insisting'.

6.11.14 Innovation

As pointed out in Chapter 4, innovation – creating new systems, generating new ideas, producing new organizational forms and developing new intellectual property - has been at the forefront of organizational regeneration in the 21st century. It is no different in universities, where, as revealed in the interviews, innovation has been central to the success of institutions and leaders. Out of these interviews, we can recognise that innovation did not flow from one individual, but rather, was a consequence of a system and system-wide processes that enabled innovation to take place. While there was general agreement about the importance of innovation, opinions differed as to the degree of a culture of innovation in their institutions.

'…there's a culture of innovation and entrepreneurship that's missing here.'

'…we don't have a culture of innovation… But I think in order to make that successful you need to have a culture of innovation and academics are conservative by nature… when you innovate you've got to change a helluva lot of stuff which means you got to work a little harder and so and for some people they think they're doing fine, why do we need to.

'…if you can re-engineer the work environment in a manner that can stimulate innovative thinking and doing then I think that helps to take people beyond motivation, to creating the conditions in the system that stimulates and rewards innovation.'

'…as a Vice Chancellor you certainly can set the tone, you can create the conditions for that, you can incentivise employees, you can inspire them to look at the world in more interesting ways instead of simply reproducing the existing order of things…'

'I think innovative thinking is enabled by a leadership that is open to it ... we've been quite open to it the last couple of years. We've been experimenting with things that work and we continue to do so'.

'I think that there is an appreciation of innovative thinking and a desire for innovative thinking and when I came into office I had a batch of new ideas which we called [---], there were 4 or 5, and I was given pretty free reign to implement them and I managed to secure resources out of the budget for them and they were seen as my thing in a way…'

'There are other areas of innovation which require moving the institution where people have to change how they do things and there I think the nature of universities are inherently conservative'

'So I'm saying I think that both system-wide and institution-wide universities have policies, mechanisms, processes that actually stultify innovative thinking.

'First take your context seriously, find practical solutions to the context you operate in not the context you wish you operated in, and often people make that mistake. They imagine and what they wish for is their reality…as opposed to this is the reality. So context is important'.

'There is place for innovation for the things I have control over and if I'm willing to push hard enough and motivate people, but there are some areas where it's going to be very slow or not at all where I don't really have sufficient authority'

'…indeed we've been an innovative university…this is the first university in South Africa to introduce re-curriculated [---]. I've been concerned that we've been under-educating our teachers since 1994, particularly our Black teachers because we've also been expecting less from them. So we've introduced a new [---] and the rest of the country is now following suit. We're the first university on the continent to offer a [---] in Data Science.'

6.11.14.1 Novelty approaches

Leaders did not talk to the ecological dimensions of innovation, or successful collaborations, capabilities and so forth, but were quick to cite examples of novelty approaches at their institutions.

'Novelty approaches do exist within the sector and there is an appreciation for innovation…'

'There are literally hundreds of really exciting, cutting-edge experiments underway that suggest to me a culture of innovation certainly has taken root some time ago in the university system.'

'Now that system needs to be stimulated or you need to engineer the conditions that will allow for innovative experiments for innovations to take root and to be encouraged from the ground up so that it doesn't depend only on the leader'.

'…I try and create those conditions in the institutional ecosystem within the university that will allow managers and leaders to experiment with new ideas, to encourage them to use the same amount of money that they have, the budget that they have, and to rethink the way in which they do that'.

'So in academia, in the academic part, we look at innovation very much in your teaching and learning styles, how do you teach differently, how do you use tools differently in academia, how do we use big data that is a research component in under-graduate teaching to understand the performance of students better and do predictive analytics to help you'.

6.11.15 Social responsibility

There was consensus as to the importance of social responsiveness but a variety of views as to the meaning of the concept as well as to how the university can best make such contributions.

'You need to be responsive to the social challenges of your time but to do so in a way that doesn't jeopardise the longevity of the institution itself'.

'I think that the university must be socially active but it must be on the basis that it draws from the teaching and research that the university does and it informs the teaching and research that the university does. So the university mustn't get involved in soup kitchen work unless there's also a research project about nutrition and child development, then we'll run a soup kitchen'

'I would define social responsibility as our commitment…to seriously engaging with the rights in the Constitution and ensuring that we carry a huge responsibility for ensuring that those rights are translated for people and that it makes a difference in people's lives and that we support the legal profession to do that'.

'I think what this refers to when it's singled out is engagement with communities outside the university and so that means engaging with immediate communities, usually communities that are disadvantaged and that would not benefit directly from the university, to find ways of doing that'.

'…to connect the university in more meaningful ways than before to the communities surrounding the university to overcome essentially its historical alienation from many parts of the communities of the city in which it is located'.

'We don't create employment, we cannot directly solve the problem of inequality or poverty for that matter but we can work with and train the institutions and provide the data to those institutions in the private sector and in the public sector that directly work at the frontier of tackling the unemployment, inequality and poverty issues'.

'…social responsibility lies…through our teaching and learning, through our research and innovation and through our engagement activities…therein I think we need to make sure that we build the public good purposes of the university and to find new and more innovative ways where we can be more impactful on solving the problems of inequality, poverty and unemployment in society as well and our latest skills that we can give would be training qualifications and skills training because I mean that once you give a person skills then he/she can break out of his/her situation and take their families to social mobility up the income ladder'

'And I've changed social responsibility then to engaged scholarship, is to say that through our scholarship in teaching and learning, through our understanding of research innovation to what extent - because that is what the university is all about - to what extent do we use that strength to be socially responsive'.

6.12 Summary

In this chapter, the quantitative results of the Cassandra© survey and the qualitative findings utilizing semi-structured interviews were presented. In Section A, the quantitative data were analysed by means of several statistical techniques. Section B further analysed these data through clustering via neural networks. Finally, Section C analyzed the qualitative data supplied by the semi-structured interviews with a subset of the original sample population. Significant findings were that the current funding crisis was a major challenge within the sector; however, fee-free higher education for all in the current economic context is neither equitable nor likely to be affordable in the medium term. The research revealed weakness in the understanding and practice of diversity within the sector. The strengths of staff who work directly with leaders were found to be wanting. Innovation was appreciated; however the scope for innovation varied depending on the institutional context.

Leaders demonstrated a keen understanding of complexity science and unpredictability and an appreciation of their role in the management of universities. In the next chapter, these findings will be discussed in greater detail.

CHAPTER 7: DISCUSSION OF KEY FINDINGS

7.1 Introduction

In chapter six the quantitative and qualitative findings of the research were outlined in detail. In this chapter, key findings drawn from these results are discussed with reference to the research questions. At the end of this chapter, an adjusted conceptual model of leadership for those in higher education is introduced taking into account these empirical findings.

7.1.1 Purpose of the study

The purpose of the study was to present and validate a conceptual leadership model that includes the primary competencies required by leaders in higher education. Further, the researcher explored the predominant models of leadership applied by leaders in higher education today, thereby deepening knowledge on organisational leadership, and leadership development theory and practice, in higher education. Finally, a cogent model for South African higher education leaders was synthesized.

7.1.2 Research questions

This discussion of the findings centers on the research questions introduced for the research project in chapter 1:

1. What is the current typology of leadership within South African higher education institutions?
2. What are the main challenges facing university leadership in South Africa?
3. What are the competencies required for leadership to enhance organisational capability within South African universities?

7.2 Discussion of the quantitative findings

To answer questions one and two, the quantitative data supplied by the Cassandra© survey were analysed by running a combination of correlations to identify variables with strong associations, and thereby to determine which variables were most relevant to the typology of current higher education leaders. In addition, principle component analysis (PCA) was performed on the data to discover if there was an informative way to visualize the data or discover subgroups among the variables. These analyses, combined with the qualitative findings from the survey comments and semi-structured interviews, revealed that issues around diversity, teamwork, innovation, talent retention, job satisfaction, financial risks, unpredictability, student protests and the purpose and role of the university, were the predominant common themes that emerged. There follows below a discussion of the prominent findings that emerge.

7.2.1 Values: Diversity and Complexity

As noted in chapter 4, diversity can be operationalized within organizations both demographically and intellectually. The relatively low diversity score from the survey is of concern, as it suggests an incomplete understanding and lack of urgency with which diversity is prioritized. It is widely accepted that being around those unlike ourselves can increase creative thinking, enhance discovery and improve performance. Therefore, if the benefits of complexity thinking are to be fully realized, then diversity – heterogeneity – should be a priority.

Similarly, the complexity score does not convince the researcher that there is a complete understanding of complexity science and the advantages that such a view can yield for organizations and the sector. A complexity stance is critical within a university environment where bureaucratic assumptions are often the mode of operation – this view will allow leaders to move beyond the bureaucracy and enable a conception of leadership as a complex interactive dynamic through which adaptive outcomes can emerge.

7.2.2 Personal development: Personal well-being; leadership and teamwork

The survey questions relating to personal well-being and happiness in one's job yielded results suggesting a high level of job satisfaction. However, it should be noted that the survey was administered prior to the 2015 crisis period and a number of subjects subsequently drew a sharp contrast between how they felt during pre- and post-protest periods.

The score for leadership and teamwork was also relatively high; however, certain responses, as indicated in chapter six, produced some notably low scores. Here, the issue of skills and abilities on the part of team members were major concerns indicating that that leadership training and skills development should be prioritized for the sector.

7.2.3 Mechanistic performance: Financial performance and innovative potential

The questions relating to financial performance in the survey focused on the individual and personal level, and therefore cannot be extrapolated to the organizational level. However, with the current funding crisis, the relevance of this mechanistic performance issue cannot be underestimated. Financial performance at the institutional level was thus explored in greater depth in the qualitative phase of the study.

The responses for the sub-theme of innovative potential indicated a lack of this quality within the higher education sector – yet it is well accepted that support for a culture and climate of unstructured idea play is critical for innovation to emerge. The low score for this sub-theme is worrying and was also extensively explored in the qualitative phase.

7.2.4 Holistic performance: Knowledge and learning; sustainable development and social responsibility

The questions relating to knowledge and learning produced mixed results although none overwhelmingly positive. As noted in chapter 4, universities have a distinct role to play in the knowledge economy, as providers in both education and research, as well as playing historically well-established roles in terms of applied problem solving. It is therefore disappointing that these scores were not higher.

The sustainable development and social responsibility sub-theme produced the highest score in the survey. This high score confirms that an affinity exists among university leaders for a systemic and networked view of the higher education sector.

These sub-themes are important because the university acts as a conduit for the development of wider societal impacts and contributes to the wider social and innovation system of society.

7.3 Discussion of sub-themes via neural networks

The non-linear analysis of the quantitative findings through an examination of their neural networks differs significantly from the statistical analyses in that it aims to identify outliers and differences that do not emerge in the linear analysis. Two significant sub-theme clusters emerged as outliers: financial performance and personal well-being, indicating that there is a divergence in thought around these areas. At the higher level, that of the quadrant, the clusters that emerged were around mechanistic performance. This is telling since mechanistic issues are the primary drivers of the current crisis in the sector and these results indicate a lack of consensus on how to deal with the issues.

The comparison of neural network clusters between historically white universities (HWU) and historically black universities (HBU) indicates a similar typology in leadership styles in both types of institutions. There were no significant outliers to report and the correlations in leadership attributes were generally plotted in parallel at the HWU and HBU institutions.

7.4 Discussion of qualitative findings of the prominent themes

This discussion highlights the predominant common themes that emerged through the semi-structured interviews. Due to the timing of the research project, light was shed on the situation both before and after the crisis period.

7.4.1 Curriculum reform

Curriculum reform emerged as a prominent feature during the qualitative phase of this study. It was obvious that the current curriculum framework was an issue that many leaders were grappling with. The issue of interdisciplinary curricula as well as 'breadth subjects' was at the forefront of the leaders' thoughts.

> *'[W]hat we need is students to have knowledge or understanding of how disciplines outside of their own disciplines work, what I would call ways of thinking. If you're a mathematician to know something about the ways of thinking that inform anthropology or psychology so that's taking subjects that are breadth subjects…that's the reform I would like to see done…'.*

Despite the widely publicized call by students for the "decolonization" of the curriculum since the crisis, significantly this issue did not emerge in discussions with leaders, at least under the same rubric. The university leaders were more comfortable speaking of "transformation", although even this term was acknowledged to be multifarious.

Jansen contends that 'decolonization is a simplistic application of a troubled construct to a much more serious set of challenges currently facing South African universities – and the world at large' (2017a:171). He notes (2017a:155) that 'despite the predictable attention received by curriculum in social transitions or student protests, it is precisely because of its symbolic value that very little if anything in the curriculum changes once the shouting is over. The fact is, very few activists have the time, inclination, expertise, or support to 'make curriculum' differently *within* institutions'. Thus, it is evident that entrenched curriculum structures can only be overcome through deliberate intervention at a systemic level and that the crisis amplified the complexity of the reform of what Jansen elsewhere refers to as '*institutional curriculum'* (2009).

Despite these ambiguities, the leaders recounted that efforts are underway at a number of their institutions to undertake real curriculum reform, i.e., making it relevant to the African context, highlighting African scholarship, engaging with community needs, and ensuring that graduate attributes are congruent with the needs of the economy and society.

7.4.2 Transformation and diversity

If there is one word that encapsulates the multiple challenges facing the South African university today, that word is undoubtedly "transformation". Although it has been somewhat supplanted in recent discourse since the RhodesMustFall movement introduced the more radical-sounding call for "decolonization", the older term still encompasses what most university leaders see as their challenge and their duty. An intrinsic aspect of transformation is demographic representativeness, commonly referred to as "diversity".

Not the least difficult thing to do is providing a succinct definition of all that transformation entails. Several of the interviewees acknowledged this difficulty, by, for example, noting that it has "many different dimensions", that it is "difficult", that forums have been required for academic staff to discuss "what this transformation means", and that "there is no decolonized university in Africa that is a model for us".

And yet, all the leaders interviewed shared general agreement on the cluster of issues that come together in any discussion of transformation. These include diversity, institutional culture, inclusivity, employment equity, the physical environment, and alienation, among others.

First among these, in a country still immersed in the legacies of racial separation, is the demographic diversity of the people within institutions, both among the professoriate, which remains largely white, and, in historically white universities at least, the student body. Several leaders referred to this imperative in terms such as being "more reflective of the world outside the university culture".

Regarding the professoriate, there was wide acknowledgement of the need for "a next generation of academics that is more diverse and more representative of the population of the country as such". However, a major challenge in this regard was that "older staff members [are] retiring at a rate faster than our ability to replace them with experienced staff and more diverse staff". Expressing a related concern, another leader observed "we've got to make sure that we retain our excellence in the face of all the other pressures".

As important as attracting a demographically diverse student body is ensuring their academic success, and this, too, is recognized as a challenge. As one leader put it, "The high failure rates of black students cannot on its own be explained by the quality of grade 12 education. There's something more that the universities have not been willing to challenge".

Although some institutions have reported successes with "foundation" or "bridging" programmes to help introduce students from disadvantaged backgrounds to academic life, there remains disagreement about the justness of such strategies, with one interviewee calling them "politically offensive" and "a ghetto where black people are sent."

However, all the leaders agreed on the importance of creating more inclusive, open, and welcoming environments for their students. One, describing the introduction of a new programme, declared that the "neglect of African languages is disgraceful", and another went so far as to describe students' alienation – "from the institutional environments […] from the symbolic expressions […] from the naming traditions […] from the nature of the professoriate […] and from the institutional culture" as "*the one big challenge*".

7.4.3 Leadership styles

To test whether a typology of distinctive leadership characteristics currently exists among senior leaders in higher education, both the quantitative and qualitative data were taken into account. The quantitative data pointed to diverse styles across the sector. Similarly, the qualitative data analysis showed no definitive single leadership style, but it did reveal a tendency toward theories around 'distributive leadership' and 'situational leadership'.

As discussed in chapter 2, situational leadership theory (SLT) is based on the interplay of leader-directive behavior, leader-relationship behavior and follower readiness and maturity. More specifically, leader-directive behavior is defined as the extent to which the leader engages in specifying subordinates' duties while follower readiness refers to the ability to accomplish a given function. Comments like the following sum up the thread that repeatedly emerged during the interviews: '...there are too many who I think are not strong enough and I end up either doing their work or checking up on them, micro-managing because I don't trust the information…'.

As pointed out in the literature review, there is no single uncontested definition of distributive leadership; however, it does have some identifying characteristics. That is, it is more than a mere delegation of tasks and responsibilities and also more than simple collaborative practice: 'So teamwork is absolutely essential, more so because of the growing levels of complexity in which the university has to now function and respond to'.

In the distributive leadership lexicon, there is a dispersion of agency among multiple members of a group. Members of the group can and often do take a leadership role in order to contribute to the group's functioning. In other words, leadership is exercised more holistically. This was often reported to be the case in many of the institutions:

> *'…well I have a number of circles. My closest team is what I would call the [---], usually expanded to include the registrar though not formally part of the Executive […] then I have a slightly wider circle which is called the [---] management advisory group […] there is in the way that the university works it's actually I make the decisions but I use that group as an advisory group, but in effect they make the decisions. I would seldom make decisions without them".*

In discussion with the interviewees, it became clear that leadership effectiveness was not solely reliant on leadership style as such, but that organizational ideologies as well the contextual conditions within which the leader operated played a significant role as well.

7.4.4 Purpose and role of a university

Considerations of contemporary South African higher education raise fundamental questions about the purpose and role of the university in society – what many of the interviewees, echoing Cardinal Newman, called "the idea of a university".

Among these questions is what value does "the nation, the public, the taxpayers […] bestow on higher education […] as a public good?", as one leader put it. Is the university merely "a class clearing house" meant to "take young people who are poor and give them access to middle class lives", or, as Jonathan Jansen (2017b) describes it, "a sausage machine … whose sole purpose is to produce oven-ready automatons for the job market"? One leader described this as the "increasing utilitarian view of higher education".

While acknowledging that the preparation of students for gainful participation in the economy is indeed one necessary function of the university, the leaders interviewed were nonetheless united in thinking that "it is not our primary core, it's not our primary responsibility".

Rather, the leaders expressed a vision of the university as an intellectual space, where, in Jansen's words, "inquisitive minds come together in the search for meaning […] and [to] probe elusive questions […] a place to experiment, think for yourself and yes, be outrageous".

Closely related to these questions about the purpose of the university are ones about the changing character of academic culture. One leader spoke of the "civil service like way in which universities are structured" and another warned of the "risks of predatory and unethical behavior" introduced by the "commercialization" of the academy.

Most pressing for academic leaders in this environment is the question of "managerialism" versus leadership. One interviewee spoke of the "pressure toward sustainability" and "decreasing resources" causing him and his colleagues to "become a lot more managerial in our approach, more profit driven".

Jansen (2017b) frames all of these dichotomies aptly, when he describes the trend he observes: "Teaching is about coverage. Learning is for the exams. Research is for the marketplace. Graduates are about jobs. Leaders become managers".

7.4.5 Complexity

A key theme throughout this dissertation, and one that sharply distinguishes it from other research projects in higher education leadership, is that complexity is not something to be avoided but is rather capable of yielding great dividends if it is embraced in the appropriate manner. Complexity theory reframes leadership by focusing on the dynamic interactions between all individuals, explaining how those interactions can, under certain

conditions, produce positive emergent outcomes. As put forth in chapter 4, complex systems have a history and there is no doubt that university systems are greatly influenced by their histories. They have evolved over time and their pasts are co-responsible for their present behavior. Inextricable linkages between South Africa's history, situated as it is in the context of the British Empire and South Africa post 1948 under National Party rule, still resonate in the 26 public institutions of higher education in the country. By acknowledging how the system has been influenced by its history, we gain the ability to understand the structures that have made inequality in South Africa so intransigent.

Many of the interviewees demonstrated an instinctive understanding of the properties of unpredictability, nonlinearity, disequilibrium and emergence, thereby confirming an affinity to the underlying concepts of complexity: 'I think giving meaning to complexity is one of the primary reasons that we exist as a university'. Similarly, another participant commented: 'So the whole idea of interpreting complex systems is what is demanded of us and I think that as we approach leadership we must take a similar theme'.

These elements were critical in understanding the interviewees' responses. The university is certainly an open system influenced by the political system, science and technology, international relationships, the stability of society and so forth. Examples like the following clarified the nonlinear and non-proportional effects of the type of complexity current leaders are grappling with:

> *[…] a small percentage change in international grant funding can lead to compounded issues in a research project. Sudden and unexpected drops in international student enrollments have caused enormous shortfalls […]'.*

These scenarios are typical of the examples cited by interviewees. And so, many leaders have found themselves in ambiguous and uncertain situations. Complex systems are undoubtedly stochastic and unpredictable. The uncertainty, unpredictability and uncontrollability of the university system and higher education sector were a strong theme that emerged throughout the quantitative and qualitative phases of this research:

> *'I think we've entered into a much more unpredictable era and not only in the higher education level but at the national level and I fear at the global level. I feel that we're beginning to enter an era of a generational conflict and challenge very much typical of the 1960's. I think we've entered into an era of political instability and economic instability and that creates its own tensions. And so I do think we are in a much more unpredictable era'.*

It is this very unpredictability faced by organizations that signals the adaptive capability of complex systems; their capacity for the emergence of novel ideas, processes and routines is at the heart of complexity. It was also confirmed that leaders viewed their leadership role as crucial to the process of self-organization and that they viewed themselves as context- or condition-setters and designers of learning experiences:

'…[t]o try and create those conditions in the institutional ecosystem within the university that will allow managers and leaders to experiment with new ideas, to encourage them to use the same amount of money that they have, the budget that they have, and to rethink the way in which they do that [...]'.

'…[n]ow that system needs to be stimulated or you need to engineer the conditions that will allow for innovative experiments for innovations to take root and to be encouraged from the ground up so that it doesn't depend only on the leader.'

Interactions in and around the university system were confirmed to be nonlinear. Since universities are driven by the dynamics of social and political demands, they cannot and never should be in a state of equilibrium. Interviewees felt that the system was more complex now than in previous years:

'The growing levels of complexity in which the university has to now function and respond to […] there are multiple demands much more so than when I started in [---] as [---]. It was complex but not so complex as now because the demands are much now [about] what society expects higher education to do […]'.

As noted in chapter four, complexity theory approaches matters holistically; therefore, instead of viewing leadership just as interpersonal influence, complexity theory sees leadership as providing linkages to 'emergent structures'. It was positive to note that several leaders possessed leadership perspectives that extended beyond the bureaucratic assumptions of the university and had a view of leadership as a complex interactive dynamic through which adaptive outcomes emerge. It was also positive to note that most leaders claimed that they engaged with team members, although whether or not differences coexist or diversity is encouraged would only be answerable by the team members themselves.

7.4.6 Innovation

Goldstein, Hazy and Lichtenstein argue that complexity science shows that a moderate degree of disequilibrium can support innovation without initiating any kind of major shift in the organization as a whole (2010:182). Several leaders acknowledged this limited effect, as well as their lack of capacity to innovate; presumably, they were comfortable with the status quo. At many of the institutions, embedded codes of practice include rational tools and techniques that are inadequate for dynamic human interactions. Goldstein, Hazy and Lichtenstein advance the idea of "criticalisation" and demonstrate through various case studies the need for organizations to shift from their current mode of functioning into a mode characterized by non-linearity, unpredictability, and a lack of control.

Notably, there were several commentaries referring to the models and intrinsic structures of the university, which, if analysed critically, do not lend themselves to an ecosystem that can stimulate innovation and thereby not only transform the organisation but the even entire sector:

'… [i]n my view [the current university structure] does not lend itself to the requirements of what I think a modern 21st century multi-disciplinary university should be about […] it accentuates the silo and the disciplinary boundaries of the universities to the detriment of its strong disciplinary ways of functioning and a Weberian system segments the functions and the responsibilities in silos in line function departments that are vertically arranged […]'.

There seems to be a lack of innovation in challenging established models; for example, the traditional teaching model rather than one based on learning by doing; the classroom model instead of learning anywhere; and even the organization of the university, as with faculty autonomy:

'It's like a pyramid that extends from the Vice Chancellor to the lowest ranking employee in the system in a hierarchical and a vertical set of functions and powers and so on. And that system has its virtues for a particular set of directives that it wants to give out in a relatively predictable environment. But in an unpredictable environment and in an environment requiring constant disciplinary discovery and innovation, and so on it often leads to the institution being relatively rigid and inflexible in the way it responds to crises, for example.

Participants noted that modes and approaches to teaching and learning that were inconceivable before are available now, yet the sector has not exploited these ideas. They together with co-operative efforts with cities and other entities to fuel innovation and economic growth were themes that were mentioned regularly: 'I think to some point yes absolutely there's a culture of innovation being rewarded but I don't think it's a radical culture yet. I don't see that at any university at the moment […]'.

Chapter 4 provided an in-depth understanding of the concept of emergence in complex systems. In essence, emergence is the coming into being of new structures, practices and processes that result in the birth of new ventures of organizations in whole or in part; this is both a top-down and a bottom-up process, whereby emergence integrates the strategic vision with the day-to-day workings of leadership. According to complexity science, innovation is not the product of the heroic leader, but rather the outcome of a system-wide set of processes and interactions. This idea appeared to be put into practice at some institutions:

'So what I did very earlier on and it's my style of management and leadership […] to try and create those conditions in the institutional ecosystem within the university that will allow managers and leaders to experiment with new ideas […]'.

Similarly, another participant noted:

Iif you can re-engineer the work environment in a manner that can stimulate innovative thinking … I think that helps to take people beyond motivation, to creating the conditions in the system that stimulates and rewards innovation […]'.

As noted abo under the leadership styles theme, leaders can be constrained by the ideological nature of institutions reflected in their organizations. There is no doubt that this emerged within the qualitative phase.

7.4.7 Fees crisis

Naturally, the fees crisis became a focal point of most of the interviews during the qualitative phase. As noted in chapter one, during this research project, the affordability of fees reached a tipping point following years of annual fee increases well above inflation to compensate for declining subsidies. According to the interviewees, four key factors emerged to create the current crisis: (1) financial support from the government to universities reduced significantly; (2) a rapid increase in the number of students who could not afford fees over the same time; (3) a growing reliance on increasing tuition fees to recover institutional income; and (4) an increasing pattern of undergraduate students who were mainly from academically dysfunctional schools, leading to significant increases in attrition rates.

Another issue regarding fees that emerged was that of the 'funding formula'. As pointed out in the quote below, student numbers have grown, pass rates have declined and in terms of the 'block grant', this is a mixed blessing.

> *'The funding formula [which] allocates about 80% of the block grant for what's called input subsidy and 20% for the output subsidy, in other words when someone graduates you get the output subsidy. Now we think that that incentivizes the wrong behavior because it results in universities taking in large numbers of students because they get the input subsidy and they never graduate. And when we put in our submission to [the] fees commission we argued that they should shift that maybe to 50/50 because that would put much more…pressure on graduation and then you'd be more selective about who you took in and rather use the money carefully'.*

It was became glaringly obvious to the researcher what institutions do: they exploit the formula by increasing enrolments; however, at the same time put pressure on their internal system to enhance pass rates. In a sense, this serves the interests of the DHET, who can then demonstrate in numbers that they have fulfilled their political mandate.

Another issue explored was that of third-stream funding which was discussed at length during the qualitative phase. This refers to a combination of different revenue sources, but in general, third stream income is raised for specific purposes, such as research projects, and cannot be used for the general operations of the university. In general, the activities funded through third-stream income would not be undertaken by the university in the absence of that income. Moreover, it is variable, unreliable, and by contract needs to be used for the purposes for which it is raised. The money cannot be used for core university expenditure. Another example of this type of funding is endowments specific to funding a professorship in a discipline or a bursary or prize. These funds do not defray the costs of the core business of the university.

Participants also brought up the issue of the National Student Financial Aid Scheme (NSFAS) and the fact that some of their universities do not manage their allocations efficiently, which effectively means that money allocated to students in need is returned to the fund.

Many of the interviewees proposed solutions to the current fees crisis. In essence, they all agreed that free higher education was not viable or moral in a society with such large disparities in wealth. Participants were unified in their thinking regarding possible solutions to the crisis. This thinking was based on the model of fees being a factor of household earnings and of there needing to be multiple fee structures for different income groups:

> ''*My attitude is that there should be free education for the poor, there should be financial assistance to the missing middle and the affluent must pay'.*
>
> *'My proposal that the student model of a graduate tax is probably the best model that exists, although I don't think it can be realised immediately. So what I would argue is we have the current bank model that's coming out now and that as we achieve growth rates and the expansion of the tax base then we progressively migrate from the banking model to the student graduate tax model over a period of 10 or 15 years'.*
>
> *'Fees will still continue as part of the new dispensation but as a factor of or as a proportion of the overall funding requirements of universities I think it is going to decline'.*

The combination of student financial aid, undergraduate and postgraduate funding and other student support functions varies in scope from one university to the next. However, it is clear that the university has become an extension of the state welfare system whereby there is an expectation to satisfy student needs. Jansen talks to this as 'part of the normative culture of the post-apartheid university' (2017b:186).

7.4.8 New cohort of students

In a global context, where many academic staff believe that students today differ fundamentally from those in the past, no student cohort has witnessed a more definitive break than the current South African one, which is part of the first and only generation of South Africans that have been through one of the most traumatic social transitions of the 20th century. The demography of the current student body, often referred to as the 'born frees', was a constant theme. Further, there was a sense that generational tensions have been heightened by political leaders' over-promising, this being the consequence of national politics. The number of younger, more technology-driven, and older, more career-driven students, both with an acute awareness of past social injustice, has increased within universities. Interviewees observed that the shifts in campus demographics were critical in the fess crisis and the national agenda movement.

> *'[I]t's not homogenous. So you've got one group of born frees that have come out of model C schools and private schools and middle class backgrounds […] and their experience of alienation is different from the*

students who are coming from township schools or from rural schools and they may have aligned because one group is feeling guilty and cheated about the fact that their black brothers and sisters are so disadvantaged or so deprived and so even though they may be okay, they feel they need to show solidarity and they feel politically that they need to take up that battle and partly because they can because they're privileged enough to take those risks. The other group may be taking it up because they feel nothing's changed, the promise of economic improvement, housing improvement, schooling improvement hasn't changed, they come here 25 years or 20 years after democracy and they feel that nothing has changed. So they are running out of patience. They of course weren't around beforehand so a lot has changed and they don't know that but they don't know that because they're born free'.

However, this is not the case at all universities and the diversity in the sector must be acknowledged: 'Our university is still very strongly poor students, probably 10% of our students come from homes that speak English, probably 90% of our students come from township and rural schools, Coloured and African. So we're a very different university.'

The rapid growth in the number of 'born frees' and at the same time poor students at university has placed an insurmountable burden on universities' financial aid systems. Furthermore, this new cohort have more aggressive demands, yet universities are also struggling with more reporting, compliance and accountability demands made by government, university councils, senates, and other bodies.

7.5 Adjusted model of leadership based on the findings of the study

The final model proposed below was influenced by the quantitative and qualitative results from the survey, insights gleaned from the interviewees, and further reflection on the sources cited in the literature review. It is once again worth recalling the philosophical foundations of this study. For the reasons outlined in Chapter 3, a complexity science approach with a critical realist paradigmatic perspective within a holistic ontology was selected. The selection of methodological tools adopted for this research was determined by this philosophical choice. The findings of the statistical analyses, neural networks and qualitative insights from the semi-structured interviews were combined to inform a more refined model than was initially introduced in Chapter 4.

7.5.1 The original model

The original model is built on Wilbur's (2000) concepts of holism, since they resonate with the complexity science approach. As discussed in chapter 4, Wilbur visualizes various dimensions of the holistic world. The model goes beyond the traditional in that it not only considers the formal mechanistic approaches to management, but includes more qualitative aspects that speak to values, reflections and the consciousness of the individual leader. The dynamics of the holistic model fit the assumptions of complexity science since the term captures the greater levels of uncertainty, ambiguity, interdependencies, and interrelatedness that now characterize the environments in which universities operate. Defining leadership from a holistic perspective provides a richer

understanding of management and presents a meaningful interpretation of the role of the manager and leader. The aim of this dissertation was to consider the various ways in which complexity might inform managerial action in a general sense. There are various tools in complexity science that might be used in the analysis of specific managerial problems but that is beyond the scope of this study.

7.5.2 The adjusted model

The South African university's preoccupation with the questions of equality and human dignity makes it distinctive in global terms. The discussion of these issues in South Africa is intensified due to the country's deeply conflicted history and its legacy of social and economic problems. The conceptual leadership model does not represent a definitive list of factors, nor does it present a hierarchy or particular arrangement of 'attributes' for leaders in South African universities. Rather, the model identifies those factors to be of importance in leadership within higher education. Based on the original model in Chapter 4, the following recommendations will be included in the model to incorporate the findings of the research.

7.5.2.1 Recommendations

1. *Dialogue:* The individual-collective level quadrants move away from the complex system to focus on the individual behaviors required of formal and informal leaders. It is recommended that *dialogue* be included as a sub-theme to these quadrants. While the Cassandra© survey measured diversity awareness, the qualitative findings suggested that, overall, *dialogue* is not only critical to driving the process of diversity and complexity (the values quadrant), but also to improving the understanding of mechanistic performance (financial performance and innovative potential). Clarity should be realized throughout the system via *dialogue.* Greater dialogue would also help to address the issues of the silo and the vertical structural problem which came through strongly in the qualitative findings.

2. *Developing the system's network*: The findings revealed that there was a considerable breakdown in team network dynamics. Many leaders attributed this to a lack of experience, skills and training development among their colleagues. Since complexity leadership requires leaders to develop their skills in effectively managing and developing networks, it is recommended that increased contact and interactions between leaders and team members be built into the model to help develop shared expectations for collaboration.

3. *Students:* A prominent role should be carved out for the student in the model. The findings of this study indicate that the student cohort is changing rapidly both demographically and in terms of their needs, expectations, and even demands. Thus, they should be included as a focal point for future discussions.

4. *Teams for Innovation*: At many of the institutions, innovation was often limited since the responsibility fell, *de facto*, solely on the leader, and not his/her team. As noted above, this is due in part to leaders feeling they could not always rely on the skills and competencies of their team members. To compensate for this shortcoming, and to enable more innovation, the researcher recommends that the model be adjusted to emphasize the distributed responsibility for innovation.

   Leaders in higher education are expected to achieve high levels of performance, while also being subjected to extreme time pressures; thus innovation cannot realistically be their responsibility alone. Innovation team composition therefore needs to be diverse and attention needs to be paid not only to the team members' skills but also to their emotive outlook, which will be crucial for future successful innovation implementation in higher education.

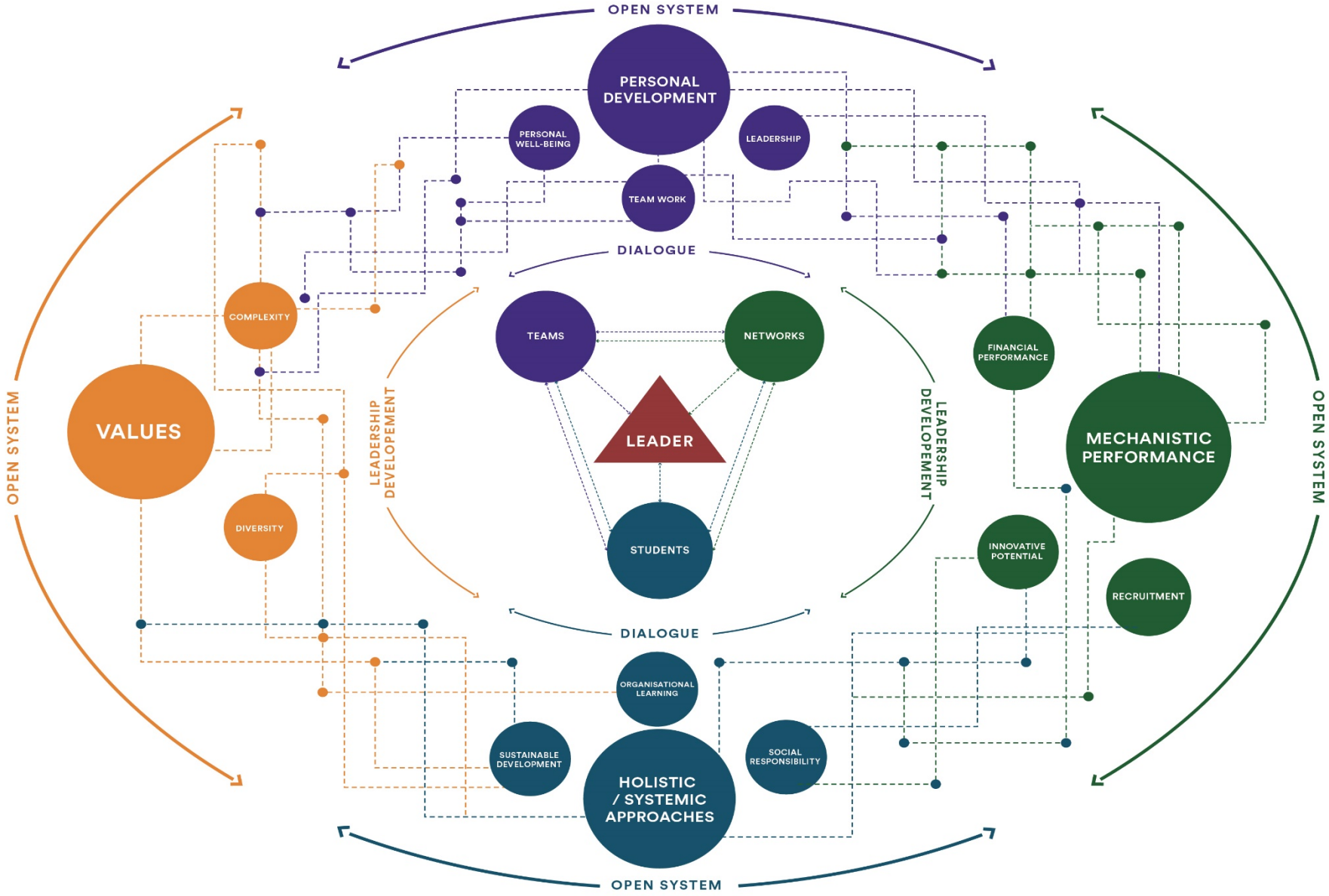
5. *Recruitment:* Individuals forming parts of these innovation teams require a high level of cognitive abilities, coupled with individual emotional intelligence. Academic disciplinary expertise is needed, but also less tangible qualities. To address this variety of needs that innovation requires, and also the continuously changing nature of the team membership, it is recommended that a focus on the recruitment of staff for these teams should be included in the model. As part of this, it is also recommended that human resource practices and routines should be re-evaluated to allow for flexibility and to create more space in innovation.

6. *Organizational learning:* There is a need for leadership to recognize the importance of knowledge co-creation within the CAS that highlights the significance of organizational learning as capturing key system processes associated with adaptation and innovation. From a complexity perspective, new knowledge and learning arise through the interaction between system members who, by coming together, become empowered to identify problems and resolve tensions in the system. Therefore, *organizational learning* should be included in the model.

7. *Targeted leadership development activities*: Leadership development activities should be featured in the model. For example, facilitated conflict resolution sessions and training staff in assertiveness, conflict management, and tolerance of disagreement, could help bring about more productive team climates for airing differences of opinion and opposing perspectives, which is required for heterogeneity and diversity to flourish.

This model aims to provide the theoretical and practical tools to help organizations determine what the organization's goals should be, and the processes they need to develop in order to support complexity leadership in action. The model focuses on both system- and individual-level criteria in order to optimize an organization's capacity for autocatalysis i.e. its adaptive capability arising through distributed intelligence. Further, the model aims to assist those in higher education leadership by providing a conceptual framework that will give rise to the tools required to manage for sustainable performance in an interconnected world.

Figure 7.1: The adjusted conceptual model



7.6 Final findings of the research questions

7.6.1 Question 1: What is the current typology of leadership within South African higher education institutions?

Statistical analyses, correlations and principle component analysis (PCA) techniques, as well as an analysis of the qualitative data, were all used to test this question. The distribution of means by sub-themes showed that no distinctive leadership characteristics currently exist among senior leaders in higher education. Similarly, the analyses of correlations and PCA pointed to diverse styles across the sector. The qualitative data analysis showed no definitive single leadership style, but it did reveal a tendency toward 'distributive leadership' and 'situational leadership' styles.

Further, when analyzing the data in the values quadrant, we can conclude that there are underlying patterns of value-based/team-oriented leadership styles present within the sector. This was confirmed by the PCA as well as by the correlations for the two sub-themes within the quadrant. However, as noted in chapter 2, this value-based/team-oriented leadership style, is most effective in stable environments. When faced with the unpredictability of the current environment, this is not the ideal leadership style for the higher education sector.

The diversity variables showed no relationship with the subthemes of complexity or 'leadership and teamwork'. This finding suggests that participants who valued diversity did not necessarily view complexity science as a useful tool in their leadership style. Similarly, the subtheme of 'innovative potential' showed no real significant relationship with the variables in the sub-themes of complexity or 'leadership and team work'. This provides interesting insights since universities are the site of knowledge production, education and learning – South African university leaders nonetheless do not appear to live up to their sector's function of creating new knowledge rapidly.

For change and adaptation to occur in the sector, an effective leadership style would create a system in which appropriate collections of knowledgeable individuals can be brought together and allowed to interact with minimal friction and under conditions that catalyze innovation. Surie and Hazy (2006) propose a style they call 'generative leadership', which in the researcher's view, is one that would complement the proposed conceptual model presented here. *Generative leadership*, based on complexity theory and complex adaptive systems, is the ability to seek out, foster, and sustain *generative relationships*.

The final conceptual model utilizes a complexity science perspective to yield fresh insights on the dynamic

processes underlying leadership in higher education. It departs somewhat from prior research, in that it suggests that it is not simply the composition of the team or the ability to increase interactions but *how* interactions are managed and regulated via *dialogue*. Goldstein, Hazy and Lichtenstein argue that "generative leadership" does not wait fatalistically for the unexpected to happen, but instead actively participates in and coevolves with the environment and the future (2010:3). Thus, this leadership style is one that should be explored for development within the sector.

7.6.2 Question 2: What are the main challenges facing university leadership in South Africa?

The biggest challenge facing universities in South Africa today is the funding crisis brought about by declining government subsidies, increased enrollments and the student revolt against paying higher fees. Interviewees made the critical observation that the root of this crisis lies outside the university and that many leaders had already taken up the issues with the DHET over the last decade. The steady decline in government subsidy was a recurring theme in every single interview; this issue was also noted in the comments during the quantitative part of the research project which occurred prior to the eruption of the crisis. It is important to note that because of the diversity of the sector, the decline in subsidy has affected various institutions differently. However, overall the efficiency of the higher education sector is hugely impacted by this complex problem.

The operationalization of transformation and diversity was another recurring theme produced by the data. All leaders recognized the complexity of the terms themselves; nonetheless, they found it to be their challenge and responsibility to achieve. Lack of diversity among the professoriate continues to be a dominant theme that not only emerged in this research, but in the public discourse. In the expanding student cohort, diversity of race, but also of class, came to be an issue relevant specifically to historically white universities.

Leaders are grappling with the proper meaning of the university within the South African context. The commercialization of higher education as well as leaders having to prioritize financial sustainability over the needs of staff and students was a recurring issue. Similarly, some participants called the issue the 'corporatization of higher education' in which the true aspirations and the trappings of the corporate model were being experienced within the sector. The rapid growth in the higher education system ('massification') has placed enormous demands on financial resources within each university and thus, the commercialization and/or corporatization is understandable; yet it is widely accepted by leaders that among the roles of the university should be the more idealistic one, as a place where truth is sought for its own sake.

The broad societal changes that have taken place over the last several decades, which Fullan and Scott (2009) refer to as 'change forces' have shifted the landscape of higher education not only in South Africa, but globally as well. As noted in chapter 1, issues of diversity as well as the funding crisis are not unique to this country. Hence, the proposed model is uniquely placed to not only benefit leadership within the South African context but institutions abroad as well

7.6.3 Question 3: What are the competencies required for leadership to enhance organizational capability within South African universities?

The final research question was informed by the quantitative and qualitative results, suggested leadership competencies from various researchers, interviewees' insights and the relevant literature to support the claims. Complexity thinking and nonlinear science are powerful tools. In order to effect these, developing the following competencies are seen as crucial for the leader within the South African higher education sector.

1. *Supporting a "generative leadership*" style: The formal leader role needs to be one of coordinating and coaching rather than of controlling. It is through these supportive functions that spontaneous, self-organizing networks are likely to emerge. As Goldstein, Hazy and Lichtenstein argue, *generative leadership* focuses on the 'quality as well as the quantity of interactions' (2010:195). It takes time to cultivate deeper and richer interactions, but that extra time could be a critical investment that can be made by any leader within the system. Establishing a culture of 'generative leadership' is not easy; however, a systemic approach built over time through the shared interactions of members of the system can create the conditions for the emergence of something new.

2. *Supporting diversity:* Complexity science shows that innovation and learning is embedded in heterogeneity, thus the more difference in the system, the more likely novelty will arise. More than demographic diversity, it is openness to difference of opinion and perspective that will increase the social exchange and information flow in the CAS.

3. *Supporting learning*: A key aspect of this competency is providing team members with the knowledge and skills to manage and resolve conflict, tolerate disagreement, and reach common understandings and accommodations. The actions and behaviors the leader thus undertakes to influence team dynamics and support interdependence and interaction, will facilitate the learning of all the members of the network, and create the conditions for the development of a true 'learning organisation'.

4. *Developing the system's network*: Complexity leadership requires leaders to develop their skills in effectively managing and developing networks, both inside and outside the organization. A leader therefore needs to encourage increased contact and interactions, both within existing and potential relationships, and help to develop shared expectations for collaboration. The importance of social capital in promoting knowledge transfer places a premium on the leader's skills in building social capital to enable the network to function effectively. This emphasizes the leader's relational skills and behaviors that enhance social networks in contrast to motivating network members. Leaders need to focus on building social capital and enhancing social exchange between members in order to maximize adaptive behaviors and innovation.
5. *Embracing tension, ambiguity and unpredictability*: Leaders should foster tension within the CAS to facilitate the interactive dynamics that are the basis for the emergence of adaptive teams that can cope with ambiguity and capitalize on unpredictability. This requires leaders to provide structures and processes that offer opportunities for the surfacing of conflicting perspectives, needs and goals among team members. It necessitates creating a climate that values the diversity of views, and supports teams through providing them with the skills to resolve conflicts and differences, and to tolerate uncertainty.

By developing these competencies, leaders in South African higher education institutions would be, by definition, embracing complexity science and nonlinear thinking. They would also enable their organizations to realize the benefits of the leadership model proposed in this research, and by driving responsibility downward, spark self-organization and innovation, making the university much more responsive and adaptive to change.

7.7 Summary

In this chapter, the key findings of the research project have been summarized and discussed. The draft conceptual model introduced in chapter 4 was validated and adjusted according to the findings. Finally, the research questions were restated and answered with reference to the quantitative and qualitative results of the research.

CHAPTER 8: CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

8.1 Introduction

The purpose of this mixed methods study was to present and validate a conceptual leadership model that includes the primary competencies required by leaders in higher education. This study was conducted in the South African higher education sector and its conclusions based on the research questions and subsequent findings. The following areas are addressed in the conclusions. Firstly, the findings of the research project are recapitulated. Secondly, the final leadership model is presented. Following these conclusions, limitations of the research, recommendations for future research, and the scholarship and knowledge contributions of the project are presented.

8.2 Findings against the research questions

The findings of the first research question addressed the current typology of leadership within South African higher education institutions. It was concluded that there is no dominant style in the sector, though several leaders had an affinity to situational and distributive leadership styles. The researcher proposed a style called 'generative leadership' since it was felt this style would complement the proposed conceptual model presented in this dissertation. Generative leadership, based on complexity, actively participates in and coevolves with the environment and the future and thus it was proposed that this style is one that should be explored for development within the sector.

The second research question investigated the main challenges facing university leadership in South Africa. It was revealed that issues around diversity, teamwork, innovation, talent retention, job satisfaction, financial risks, unpredictability, student protests and the purpose and role of the university, were the predominant common themes that emerged.

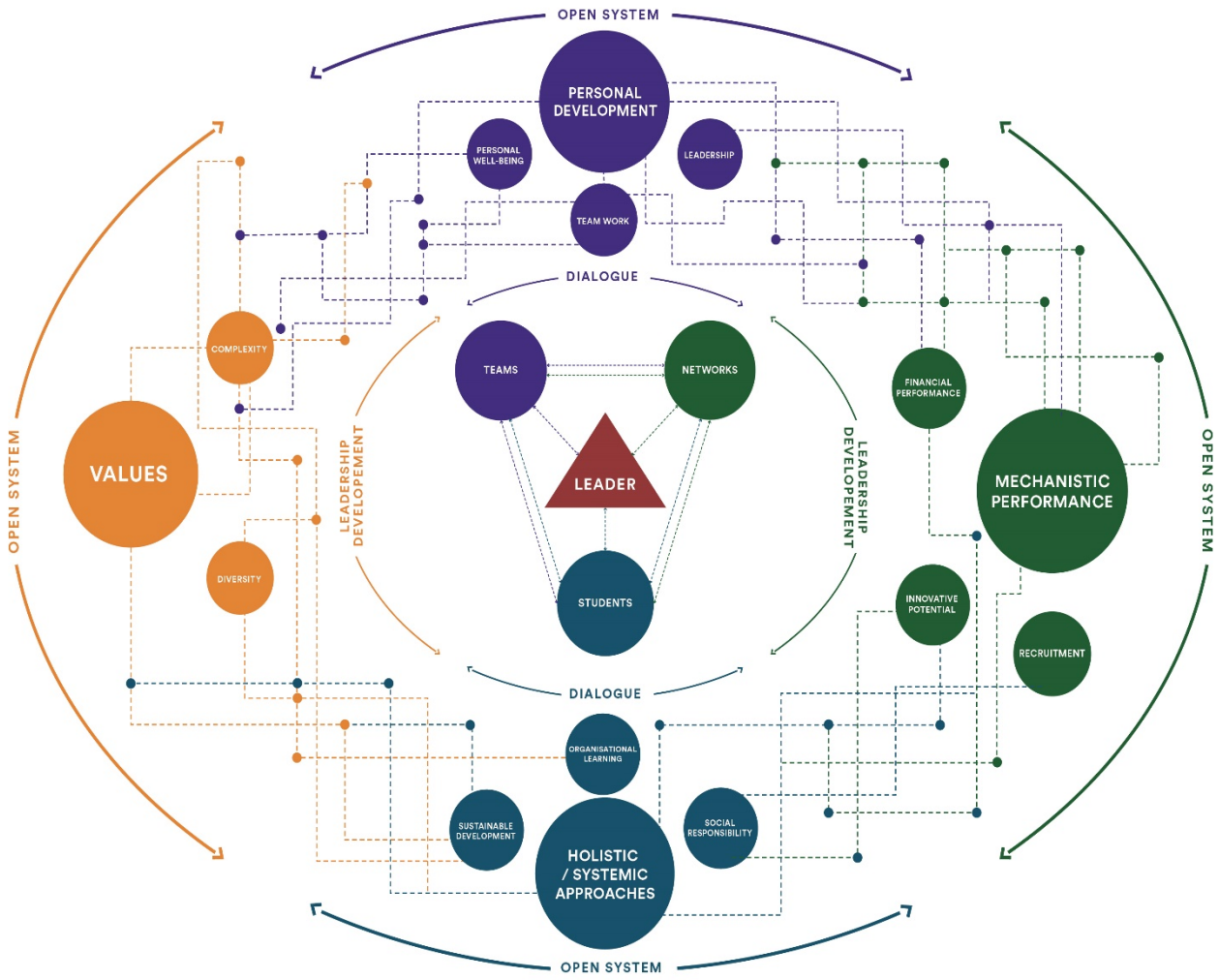
The answers to the third and final question proposed several competencies required for leadership to enhance organizational capability within South African universities. These competencies were informed by the quantitative and qualitative results and by the insights of interviewees. They were: supporting a 'generative leadership' style, diversity, and learning; developing the system's network; and embracing tension, ambiguity and unpredictability. By developing these competencies, leaders in South African higher education institutions would be, by definition, embracing complexity science and nonlinear thinking.

8.3 Final leadership conceptual model

The model proposed here focuses on both system- and individual-level criteria in order to optimize an organization's capacity for autocatalysis, i.e., its adaptive capability arising through distributed intelligence.

Further, the model aims to assist those in higher education leadership by providing a conceptual framework that will give rise to the tools required to manage for sustainable performance in an interconnected world.

Figure 8.1: Final conceptual model of leadership



Source: Author

8.4 Limitations of this research

It is important to acknowledge the limitations of this research study that impacted the research outcomes (Bloomberg & Volpe, 2016). Identified limitations also indicate areas for future research and these are discussed below.

1. A major limitation was the fact that several leaders within the higher education sector who expressed interest in participating in the study withdrew after initially agreeing to participate. The participants' availability was a limitation beyond the researcher's control and even though some participants signed consent forms, they neglected to complete the quantitative survey or did not keep their appointments for the qualitative interviews.

2. The sizes of the qualitative and quantitative sampling frames were limited by several of the stringent criteria for participation in the study. Creswell and Clark (2011) state the importance of the quantitative sample size in the mixed methods design.

3. Statistical analysis limitations must be reported, specifically those relating to the PCA output item analysis as there were several non-response items in the data; the Cronbach alpha values should also be interpreted with caution, since these are quite sensitive to the number of items in each sub-theme scale.

4. A final limitation is that inherent in qualitative research is the potential for the interviewer to inadvertently influence responses and also to introduce bias in the analysis of data which would influence the accuracy of the reporting.

8.5 Recommendations for further research

Firstly, the quantitative component of this research needs to be substantiated with further research. The researcher would suggest that additional quantitative research be conducted to build on the concepts of diversity; complexity; mechanistic performance; innovative potential; and leadership and teamwork to gain a deeper understanding of these phenomena, followed by qualitative research on the perceptions of subordinates to validate the self-reported leadership styles and leader-employee rapport of leaders.

Secondly, the student cohort should be studied in much more detail. Much has been written about student experiences and about the issues that are reported to be alienating appear to be context specific. However, these accounts have not been empirically confirmed. Students who feel alienated and are active on social media are not necessarily representative of their cohort, and thus there needs to be some serious research from the student perspective. Further, there has been much speculation on what makes universities (that is HWU) particularly inhospitable for staff to stay for long periods. It is important for leaders in these universities to know what it is that makes these institutions so alienating.

Recruitment practices are still very traditional in university contexts. Often these practices exclude "outliers" or "mavericks" or persons with no formal qualifications who might nonetheless possess the skill sets required to make substantial contributions. Research should look at best practice and examine how recruitment processes can be adjusted in ways that would enhance innovation within the higher education sector.

Higher education leadership is multidimensional and complex, requiring an exploration through a systemic lens. Because of the economic and political imperatives that drive the complex nature of higher education today, leadership development is critical. In order to effect this model in practice, further research should look at leadership development and ways to implement the conceptual model within universities.

8.6 Knowledge and scholarly contributions

Leadership in higher education has been significantly under researched compared to leadership in primary and secondary school education or in industry. This research contributes to the field of leadership studies and scientific knowledge by providing leaders in universities with a comprehensive suite of leadership components which should be considered for adoption at individual and organizational levels. Furthermore, this research makes a contribution towards understanding some of the challenges in university leadership, the management skills required, the primary roles of university leaders, and their relationships with staff, students and stakeholders.

8.7 Conclusion

Bryman (2007:20) posits that "…mixed methods research should ask a simple question: Has my understanding of my quantitative/qualitative findings, been substantially enhanced by virtue of the fact that I also have qualitative/quantitative findings, and have I demonstrated that enrichment?" This study has confirmed the typology of leadership within the higher education sector, elucidated the challenges facing leaders, and produced a leadership model to enhance leadership within higher education in South Africa. The quantitative and qualitative strands of data complemented each other and enabled the researcher to answer the stated research questions.

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Annexure A

Recommended Quantitative and Qualitative Data Analysis Procedures for Mix Methods Studies

Rigorous Quantitative Data Analysis Procedures	General Procedures in Data Analysis	Persuasive Qualitative Data Analysis Procedures
• Code data by assigning numeric values. • Prepare the data for analysis with a computer program. • Clean the database. • Recode or compute new variables for computer analysis. • Establish codebook.	Preparing the data for analysis	• Organize documents and visual data. • Transcribe text. • Prepare the data for analysis with a computer program.
• Visually inspect data • Conduct descriptive analyses. • Check for trends and distributions.	Exploring the data	• Read through the data. • Write memos. • Develop qualitative codebook.
• Choose an appropriate statistical test • Analyze the data to answer the research questions or test hypotheses. • Report inferential tests, effect sizes, and confidence intervals. • Use quantitative statistical software programs.	Analyzing the data	• Code the data. • Assign labels to codes. • Group codes into themes (or categories). • Interrelate themes (or categories) or abstract to smaller set of themes. • Use qualitative data analysis software programs.
• Represent results in statements of results. • Provide results in tables and figures.	Representing the data analysis	• Represent findings in discussions of themes or categories. • Present visual models, figures, and/or tables.
• Explain how the results address the research questions or hypotheses. • Compare the results with past literature, theories, or prior explanations.	Interpreting the results	• Assess how the research questions were answered. • Compare the findings with the literature. • Reflect on the personal meaning of the findings. • State new questions based on the findings.
• Use external standards. • Validate and check the reliability of scores from past instrument use. • Establish validity and reliability of current data. • Assess the internal and external validity of results.	Validating the data and results	• Use researcher, participant and reviewer standards. • Use validation strategies, such as member checking, triangulation, disconfirming evidence, and external reviewers.

		• Check for the accuracy of the account. • Employ limited procedures for checking reliability.

Annexure B

Ethics Approval letter

FULL COLOUR THINKING

GRADUATE SCHOOL OF BUSINESS
UNIVERSITY OF CAPE TOWN

Graduate School of Business
University of Cape Town Private Bag
X3
Rondebosch 7701

10 April 2015

Cyrill Walters
Graduate School of Business
University of Cape Town

Dear Cyrill,

RE: ETHICS APPROVAL

This is to confirm that ethics approval has been granted for your doctoral research at the Graduate School of Business.

Title of research project: South African higher education: a conceptual leadership model and empirical evidence.

Decision: Ethics approval granted

Yours sincerely,

Dr Mlenga Jere
Chairperson: Ethics in Research Committee
Graduate School of Business

FULL COLOUR THINKING

Annexure C

Frequency table of all data

	Strongly disagree/Not at all		Disagree/Not really		Neither agree nor disagree/Don't know		Agree/Yes		Strongly agree/Yes and it is actively communicated	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Q1	1	1.4%	0	0.0%	0	0.0%	40	54.1%	33	44.6%
Q2	0	0.0%	0	0.0%	3	4.2%	51	70.8%	18	25.0%
Q3	0	0.0%	2	2.7%	3	4.1%	50	67.6%	19	25.7%
Q4	0	0.0%	7	9.6%	5	6.8%	29	39.7%	32	43.8%
Q5	1	1.4%	5	6.8%	0	0.0%	54	73.0%	14	18.9%
Q6	0	0.0%	18	24.3%	4	5.4%	37	50.0%	15	20.3%
Q7	2	2.7%	21	28.8%	5	6.8%	44	60.3%	1	1.4%
Q8	3	4.1%	26	35.1%	3	4.1%	28	37.8%	14	18.9%
Q9	0	0.0%	2	2.7%	0	0.0%	38	52.1%	33	45.2%
Q10	0	0.0%	4	5.6%	2	2.8%	39	54.2%	27	37.5%
Q11	1	1.4%	0	0.0%	0	0.0%	51	68.9%	22	29.7%
Q12	13	17.6%	30	40.5%	5	6.8%	20	27.0%	6	8.1%
Q13	0	0.0%	18	24.3%	3	4.1%	42	56.8%	11	14.9%
Q14	2	2.7%	14	18.9%	2	2.7%	47	63.5%	9	12.2%
Q15	0	0.0%	2	2.7%	2	2.7%	36	48.6%	34	45.9%
Q16	4	5.6%	23	31.9%	4	5.6%	36	50.0%	5	6.9%
Q17	0	0.0%	8	11.0%	4	5.5%	50	68.5%	11	15.1%
Q18	1	1.4%	4	5.4%	3	4.1%	50	67.6%	16	21.6%
Q19	3	4.1%	6	8.1%	5	6.8%	42	56.8%	18	24.3%
Q20	0	0.0%	0	0.0%	0	0.0%	54	73.0%	20	27.0%

Q21	11	15.1%	17	23.3%	5	6.8%	35	47.9%	5	6.8%
Q22	2	2.7%	25	33.8%	12	16.2%	27	36.5%	8	10.8%
Q23	1	1.4%	5	6.8%	2	2.7%	31	42.5%	34	46.6%
Q24	1	1.4%	19	26.4%	4	5.6%	34	47.2%	14	19.4%
Q25	3	4.2%	20	27.8%	2	2.8%	35	48.6%	12	16.7%
Q26	2	2.7%	12	16.4%	6	8.2%	37	50.7%	16	21.9%
Q27	9	12.2%	18	24.3%	9	12.2%	31	41.9%	7	9.5%
Q28	3	4.1%	6	8.1%	10	13.5%	43	58.1%	12	16.2%
Q29	22	29.7%	24	32.4%	2	2.7%	22	29.7%	4	5.4%
Q30	0	0.0%	4	5.5%	4	5.5%	52	71.2%	13	17.8%
Q31	1	1.4%	13	17.8%	4	5.5%	45	61.6%	10	13.7%
Q32	0	0.0%	12	16.4%	2	2.7%	43	58.9%	16	21.9%
Q33	1	1.4%	11	15.5%	1	1.4%	44	62.0%	14	19.7%
Q34	1	1.4%	13	17.8%	2	2.7%	42	57.5%	15	20.5%
Q35	2	2.8%	4	5.6%	6	8.3%	45	62.5%	15	20.8%
Q36	1	1.4%	1	1.4%	1	1.4%	51	69.9%	19	26.0%
Q37	0	0.0%	2	2.7%	3	4.1%	52	70.3%	17	23.0%
Q38	1	1.4%	17	23.0%	4	5.4%	36	48.6%	16	21.6%
Q39	6	8.1%	30	40.5%	9	12.2%	21	28.4%	8	10.8%
Q40	5	6.8%	22	29.7%	4	5.4%	36	48.6%	7	9.5%
Q41	2	2.7%	13	17.8%	3	4.1%	47	64.4%	8	11.0%
Q42	4	5.4%	15	20.3%	11	14.9%	36	48.6%	8	10.8%
Q43	0	0.0%	0	0.0%	1	1.4%	47	64.4%	25	34.2%
Q44	0	0.0%	34	46.6%	17	23.3%	21	28.8%	1	1.4%
Q45	7	9.5%	24	32.4%	11	14.9%	24	32.4%	8	10.8%

Q46	0	0.0%	22	30.1%	9	12.3%	32	43.8%	10	13.7%
Q47	14	19.2%	25	34.2%	8	11.0%	24	32.9%	2	2.7%
Q48	3	4.1%	10	13.5%	4	5.4%	43	58.1%	14	18.9%
Q49	7	9.5%	19	25.7%	12	16.2%	33	44.6%	3	4.1%
Q50	1	1.4%	8	10.8%	5	6.8%	32	43.2%	28	37.8%
Q51	0	0.0%	0	0.0%	0	0.0%	17	23.0%	57	77.0%
Q52	0	0.0%	18	24.7%	10	13.7%	32	43.8%	13	17.8%
Q53	0	0.0%	3	4.1%	1	1.4%	53	72.6%	16	21.9%
Q54	0	0.0%	0	0.0%	1	1.4%	38	52.1%	34	46.6%
v55	0	0.0%	1	1.4%	1	1.4%	43	58.9%	28	38.4%
Q56	1	1.4%	21	28.4%	10	13.5%	36	48.6%	6	8.1%
Q57	0	0.0%	4	5.4%	4	5.4%	55	74.3%	11	14.9%
Q58	2	2.7%	18	24.3%	6	8.1%	36	48.6%	12	16.2%
Q59	0	0.0%	4	5.4%	2	2.7%	44	59.5%	24	32.4%
Q60	0	0.0%	8	10.8%	3	4.1%	50	67.6%	13	17.6%
Q61	2	2.8%	10	13.9%	1	1.4%	38	52.8%	21	29.2%
Q62	2	2.7%	15	20.5%	6	8.2%	47	64.4%	3	4.1%
Q63	1	1.4%	8	11.1%	5	6.9%	46	63.9%	12	16.7%
Q64	0	0.0%	5	6.8%	3	4.1%	52	71.2%	13	17.8%
Q65	1	1.4%	9	12.3%	8	11.0%	39	53.4%	16	21.9%
Q66	1	1.4%	7	9.6%	5	6.8%	46	63.0%	14	19.2%
Q67	0	0.0%	9	12.3%	4	5.5%	47	64.4%	13	17.8%
Q68	1	1.4%	11	14.9%	6	8.1%	47	63.5%	9	12.2%
Q69	2	2.7%	25	33.8%	7	9.5%	37	50.0%	3	4.1%

Annexure D

Qualitative Interviews: Questions to guide Semi-structured interviews

I anticipate that the interview will take around 30-45 minutes of your time. Are you okay with this?

For the purposes of my research I would like to ask you a few questions about the South African higher education landscape and leadership. This information is strictly confidential (between you and me only) and will be used solely for research purposes. The responses to your questions will be consolidated with all other responses to illustrate the leadership typology within SA higher education.

1. What are the three main things you focus on in your role as leader?
2. How central is teamwork to your success?
3. Are you happy in your job?
4. What are the biggest challenges, in your view, facing leadership within the sector?
5. Would you say you pay sufficient attention to the retention of talent? If so, how?
6. Please comment on the success of programs to increase the talent pool at your institution.
7. How unpredictable would you say the HE sector is now? Has it always been like this? How have you adapted your leadership style to deal with unpredictability?
8. Do you operate in an environment where each individual surrounding you is well trained and prepared to do his/her job? Do they have adequate skills for what they are expected to do?
9. Do you perceive that there are gender differences in leadership styles across the sector?
10. Does the environment you work in reward innovative thinking?
11. Is there space for innovation in HE?
12. My research is focused on developing a leadership model based on ideas drawn from complexity science. Do you have any thoughts on how such ideas might contribute to leadership?
13. To deal with uncertainty, leaders often try different approaches and experiment to see what works. Successful experiments can move the organization forward and are sustained or amplified through imitation by others. Has this been your experience?
14. Can you propose a solution to the current fees crisis?
15. What approaches would you suggest to address the decline in government subsidy for Universities.
16. What are the prospects for increasing university income through other sources including innovation, partnerships, sponsored research and exploitation of patents and other intellectual property?
17. If finances were not an issue, what would you do in your capacity as leader?
18. How would you define social responsibility and its role within higher education?

19. Can you reflect on the role of university leadership in the face of student protests where the degree of respect traditionally accorded to leaders seems to have been eroded?

Annexure E

Reliability analysis output

Table 1

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1	42.537	25.889	-.001	.296	.723
Q2	42.776	24.025	.372	.326	.695
Q3	42.821	23.937	.285	.300	.700
Q4	42.791	20.713	.542	.415	.661
Q5	42.955	22.043	.494	.494	.674
Q6	43.313	19.309	.587	.505	.649
Q7	43.642	20.900	.479	.303	.671
Q8	43.701	20.091	.398	.329	.687
Q9	42.552	25.221	.098	.274	.717
Q10	42.731	24.351	.151	.293	.716
Q11	42.716	23.964	.296	.203	.699
Q12	44.299	20.031	.377	.298	.693

Table 2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q13	22.986	10.586	.075	.081	.622
Q14	22.986	10.071	.161	.084	.589
Q15	22.197	10.761	.206	.092	.564
Q16	23.366	8.178	.414	.198	.484
Q17	22.718	9.320	.442	.253	.490
Q18	22.577	9.419	.442	.406	.492
Q19	22.718	8.634	.420	.393	.485

Table 3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q20	28.209	27.077	.245	.137	.714
Q21	29.373	23.904	.244	.204	.722
Q22	29.284	24.509	.253	.231	.715
Q23	28.284	25.994	.168	.188	.725
Q24	28.925	22.646	.430	.373	.682
Q25	29.030	20.090	.646	.533	.634
Q26	28.821	20.210	.709	.584	.625
Q27	29.373	19.874	.619	.488	.638

Q28	28.761	25.336	.209	.206	.720

Table 4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q29	31.538	9.190	.219	.195	.412
Q30	30.169	12.799	-.112	.206	.503
Q31	30.415	9.684	.357	.206	.348
Q32	30.277	9.672	.346	.327	.352
Q33	30.308	9.498	.370	.340	.340
Q34	30.369	10.862	.128	.149	.445
Q35	30.185	11.559	.093	.183	.451
Q36	29.969	11.343	.200	.219	.419
Q37	30.000	12.125	.042	.185	.461

Table 5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q38	13.178	10.676	.385	.214	.700
Q39	13.918	11.743	.179	.055	.785
Q40	13.603	8.826	.634	.496	.594
Q41	13.205	9.554	.677	.589	.592
Q42	13.438	9.583	.571	.443	.626

Table 6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q43	18.829	16.521	-.091	.074	.681
Q44	20.314	13.320	.353	.219	.604
Q45	20.100	10.439	.587	.400	.513
Q46	19.757	12.100	.425	.274	.579
Q47	20.486	10.108	.648	.526	.488
Q48	19.457	15.324	-.006	.069	.709
Q49	20.086	11.616	.468	.351	.563

Table 7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q50	31.986	8.913	.206	.144	.489
Q51	31.271	10.375	.225	.239	.488
Q52	32.514	9.616	.074	.171	.545
Q53	31.914	9.761	.264	.241	.471
Q54	31.586	9.580	.406	.317	.445
Q55	31.671	9.847	.268	.313	.472
Q56	32.686	8.248	.315	.234	.442
Q57	32.057	9.852	.218	.152	.482
Q58	32.543	8.252	.250	.133	.474

Table 8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q59	37.954	19.607	.274	.173	.653
Q60	38.200	19.913	.195	.178	.666
Q61	38.246	17.470	.379	.310	.634
Q62	38.631	18.924	.298	.331	.649
Q63	38.231	18.305	.450	.448	.625
Q64	38.138	18.840	.465	.374	.628

Q65	38.308	18.091	.359	.204	.638
Q66	38.246	17.595	.480	.340	.616
Q67	38.231	19.180	.291	.287	.650
Q68	38.431	19.155	.245	.165	.659
Q69	38.923	19.635	.139	.126	.683

Annexure F

Inter-item Correlation Matrix

Inter-Item Correlation Matrix

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Q1	1.000	.043	-.185	.039	.204	.162	-.071	-.229	.260	.015	-.003	-.060
Q2	.043	1.000	.404	.170	.376	.180	.311	.167	.048	.245	.156	.055
Q3	-.185	.404	1.000	.303	.208	.164	.174	.148	-.112	.006	.155	.207
Q4	.039	.170	.303	1.000	.294	.529	.378	.305	.039	-.048	.226	.377
Q5	.204	.376	.208	.294	1.000	.177	.231	.230	.416	.394	.080	.239
Q6	.162	.180	.164	.529	.177	1.000	.377	.390	-.011	.081	.357	.416
Q7	-.071	.311	.174	.378	.231	.377	1.000	.389	-.025	.102	.246	.240
Q8	-.229	.167	.148	.305	.230	.390	.389	1.000	-.025	.049	.155	.259
Q9	.260	.048	-.112	.039	.416	-.011	-.025	-.025	1.000	.220	-.160	.042
Q10	.015	.245	.006	-.048	.394	.081	.102	.049	.220	1.000	.170	-.099
Q11	-.003	.156	.155	.226	.080	.357	.246	.155	-.160	.170	1.000	.106
Q12	-.060	.055	.207	.377	.239	.416	.240	.259	.042	-.099	.106	1.000

Inter-Item Correlation Matrix

	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Q13	1.000	.094	-.100	.101	.178	.007	-.048
Q14	.094	1.000	.082	.225	.042	-.029	.089
Q15	-.100	.082	1.000	.196	.194	.149	.196
Q16	.101	.225	.196	1.000	.249	.333	.249
Q17	.178	.042	.194	.249	1.000	.386	.398

Q18	.007	-.029	.149	.333	.386	1.000	.578
Q19	-.048	.089	.196	.249	.398	.578	1.000

Inter-Item Correlation Matrix

	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
Q20	1.000	.061	-.014	.018	.305	.149	.187	.216	.199
Q21	.061	1.000	.341	-.039	.008	.279	.217	.208	-.021
Q22	-.014	.341	1.000	.009	.016	.240	.334	.065	.066
Q23	.018	-.039	.009	1.000	.309	.106	.157	.282	-.116

Q24	.305	.008	.016	.309	1.000	.401	.470	.415	.066
Q25	.149	.279	.240	.106	.401	1.000	.676	.566	.203
Q26	.187	.217	.334	.157	.470	.676	1.000	.551	.282
Q27	.216	.208	.065	.282	.415	.566	.551	1.000	.313
Q28	.199	-.021	.066	-.116	.066	.203	.282	.313	1.000

Inter-Item Correlation Matrix

	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37
Q29	1.000	-.209	.251	.288	.192	.100	.018	.114	-.149
Q30	-.209	1.000	-.006	-.026	-.208	.129	-.029	-.191	.215
Q31	.251	-.006	1.000	.300	.354	-.027	.111	.123	-.010
Q32	.288	-.026	.300	1.000	.466	-.059	-.104	.175	-.019
Q33	.192	-.208	.354	.466	1.000	.092	.014	.136	.062
Q34	.100	.129	-.027	-.059	.092	1.000	.202	-.078	.124
Q35	.018	-.029	.111	-.104	.014	.202	1.000	.237	-.111
Q36	.114	-.191	.123	.175	.136	-.078	.237	1.000	.184
Q37	-.149	.215	-.010	-.019	.062	.124	-.111	.184	1.000

Inter-Item Correlation Matrix

	Q38	Q39	Q40	Q41	Q42
Q38	1.000	.093	.400	.426	.227
Q39	.093	1.000	.149	.101	.212
Q40	.400	.149	1.000	.676	.534

Q41	.426	.101	.676	1.000	.631
Q42	.227	.212	.534	.631	1.000

Inter-Item Correlation Matrix

	Q43	Q44	Q45	Q46	Q47	Q48	Q49
Q43	1.000	-.083	.055	.002	-.059	-.218	-.053
Q44	-.083	1.000	.228	.398	.369	-.013	.188
Q45	.055	.228	1.000	.396	.578	.085	.420
Q46	.002	.398	.396	1.000	.390	-.047	.213
Q47	-.059	.369	.578	.390	1.000	.008	.581
Q48	-.218	-.013	.085	-.047	.008	1.000	.033
Q49	-.053	.188	.420	.213	.581	.033	1.000

Inter-Item Correlation Matrix

	Q50	Q51	Q52	Q53	Q54	Q55	Q56	Q57	Q58

Q50	1.000	.190	-.007	-.008	.235	.047	.110	.176	.145
Q51	.190	1.000	-.137	.158	.034	.288	.254	.077	.067
Q52	-.007	-.137	1.000	-.113	.133	.074	.263	-.041	.006
Q53	-.008	.158	-.113	1.000	.195	.280	.207	.289	.185
Q54	.235	.034	.133	.195	1.000	.415	.142	-.005	.312
Q55	.047	.288	.074	.280	.415	1.000	.034	-.011	.148
Q56	.110	.254	.263	.207	.142	.034	1.000	.164	.066
Q57	.176	.077	-.041	.289	-.005	-.011	.164	1.000	.154
Q58	.145	.067	.006	.185	.312	.148	.066	.154	1.000

Inter-Item Correlation Matrix

	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67	Q68	Q69
Q59	1.000	.294	.294	.075	.026	.148	.149	.143	.050	.080	.080
Q60	.294	1.000	.138	-.009	.114	.115	.128	.250	-.028	.106	-.079
Q61	.294	.138	1.000	.348	.138	.175	.196	.349	-.008	.178	.047
Q62	.075	-.009	.348	1.000	.456	.170	.004	.258	.013	.122	.036
Q63	.026	.114	.138	.456	1.000	.469	.227	.362	.155	.161	.116
Q64	.148	.115	.175	.170	.469	1.000	.219	.158	.364	.207	.240
Q65	.149	.128	.196	.004	.227	.219	1.000	.324	.235	.091	.190
Q66	.143	.250	.349	.258	.362	.158	.324	1.000	.241	.138	.057
Q67	.050	-.028	-.008	.013	.155	.364	.235	.241	1.000	.295	.164
Q68	.080	.106	.178	.122	.161	.207	.091	.138	.295	1.000	-.095
Q69	.080	-.079	.047	.036	.116	.240	.190	.057	.164	-.095	1.000