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CONFLICTING PRACTICES IN HIGHER EDUCATION: A PRACTITIONER'S PERSPECTIVE

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DECLARATION

I, AK Patel, hereby declare that this work contains no material which has been accepted for the award of any degree in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the paper.

AK Patel **04 November 2022**

Signed **Date**

ABSTRACT

Conflicting Practices in Higher Education: A Practitioner's Perspective

The purpose of the study is to provide insights into the challenges faced by academics at a previously disadvantaged university of technology in Durban.

The challenges academics face has been divided thematically in terms of learning and teaching challenges; workload including administrative challenges; research and individual challenges including mentorship, supervision and student challenges.

A systems thinking lens was used throughout the ethnographic study. The soft systems methodology diagramming technique was used to construct a rich picture to unravel the problematical situation with a view to constructing a framework of enquiry for the study.

A living theory paradigm with the aim of improving my practice was maintained throughout the study by the practitioner-researcher using action research.

It is the researcher's intention that the thesis is a new, serious contribution to a critical understanding of the university of technology sector because it offers empirically-based research analysing and dissecting existing challenges at a specific institution that can provide a basis for further research in the sector.

The findings of the study can be of assistance to university leadership and management as well as politicians, policy makers and practitioners not only to understand and absorb the harsh reality of a concrete environment but to think, plan, design and implement strategies and tactics leading to a better institution.

Key words: Systems thinking, Living Theory, Soft Systems Methodology, ethnography

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LIST OF ACRONYMS

4IR	: Fourth Industrial Revolution
CHET	: Centre for Higher Education Transformation
CREST	: Centre for Research on Evaluation, Science and Technology
DHET	: Department of Higher Education and Training
DST	: Department of Science and Technology
NCHE	: National Commission on Higher Education
NDP	: National Development Plan
SAICA	: South African Institute of Chartered Accountants

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BACKGROUND TO THE STUDY

1.1 INTRODUCTION

The work of an academic and researcher in a university in South Africa, Africa and globally is, directly and indirectly, related to the realities and context of seemingly over-ambitious, performance-based, and imposed work goals. For these targeted goals to be achieved, a number of existing realities are necessary. Once such a necessity is achieved, the academic work towards thriving in an ethically responsible manner in their chosen vocation becomes a tangible reality. The existing necessities include solid, honest, transparent, accountable, effective, and efficient leadership, well-trained and capable administrative leadership at all levels, and well-qualified and innovative academic staff. In addition, key elements leading to a successful and forward-looking university are solid and upgraded infrastructure, advanced technology, forward and well-structured planning at both administrative, student and academic levels and challenges, innovative research development, well-structured and widely accepted workloads, especially for academic staff, career guidance, upgraded higher research productivity and solid and successful community engagement.

The present thesis is based on carefully planned and implemented evidence-based research in the context of Mangosuthu University of Technology (MUT), aspiring to provide a grounded reality. The research goals are predominantly based on my effort to build my understanding so that I can become an agent of an innovation culture. Such a thought is based on my belief that my agency should be morally defensible and achievable. I believe that efficiency, effectiveness, honesty, and a high level of ethical behaviour, all based on the realities of living educational theory, are the foundations of my beliefs in social justice in teaching, learning and community engagement. Such feelings are directly related to my belief that the pursuit of academic scholarship cannot be separated from a serious study of the existing realities within a university that play a key role in solidifying a journey to success and excellence.

As an academic at a South African University of Technology, I have a series of obligations to the university leaders, colleagues, our students and their families, our communities and society at large. These obligations are directly and indirectly related to the foundations of the profession, such as teaching and learning, upgrading existing qualifications to the highest levels and being active in the terrain of new knowledge production through publications that are

instrumental in elevating my standards, intellectual output and university increased funding in response to innovative research production. Academic staff is encouraged to pursue vertical qualifications and publish their research findings, as additional funding is dependent on the research output of the university. These realities are accompanied by administrative duties, faculty meetings and responsibilities and participation in national and international conferences. It could be said that the importance of well-planned and researched teaching and learning processes, efforts and achievements cannot be compared with the above-mentioned priorities, but the realities of the development and continuous innovation of the discipline of accountancy make an academic's life more challenging. This is a perpetual reality closely associated with many of the existing challenging circumstances mentioned above.

University academics teaching, researching, and publishing in the field of accountancy in South Africa have been faced in the last ten years with a combined effort on the part of the Department of Higher Education and Training (DHET) and the South African Institute of Chartered Accountants (SAICA) to change radically and urgently the production levels of empirical research publications associated with all aspects and dimensions of accountancy. The position of these organisations is based on their belief that the lack of substantial research output in the paths of university academics led to poor teaching, learning and assessment techniques. It is believed that a lack of new and advanced knowledge of the new realities of the discipline did not enable students to be taught development and research-based competencies. It is felt that sheer 'technical knowledge of accountancy-based issues' is not enough and a barrier to the science-based improvement of senior and graduate students' attributes and student retention rates. It is believed that there is a serious need for radical changes in the discipline, directly related to a well-guided, planned and implemented educational focus and mind shift at all higher education levels. Such initiatives are based on potential future changes that concentrated on educational initiatives per se as the needs involved are based on educational mind shift, academic and knowledge production focus. However, such an official approach does not take into account tertiary educational tangible realities associated with leadership, academia, staff performance and knowledge, infrastructure, digital efficiencies, or deficiencies as outlined above.

The purpose of this thesis is to delve deep inside such realities, utilising honestly and as deeply as possible a process based on experience and knowledge-based living theory that is driven by thorough issues-based research and learning. It is the researcher's opinion that the findings based on educational living empirical realities can be instrumental in assisting all university

role players and stakeholders to meet the existing challenges head-on (Hesketh, 2015; Parsons, Davidowitz & Maughan, 2020; Papageorgiou & Callaghan, 2020: 207-208).

It is within such an educational terrain, that the researcher of the present thesis, with a history of adventure in South African academic institutions; an ambitious professional with a history of health struggles and challenges continues to aspire for teaching and learning excellence despite a history of health struggles and challenges by pursuing new knowledge production through original research and well-studied, planned and implemented work goals. Such ambitions are rooted -in my commitment to our university, all its students, my academic and administrative colleagues and its leadership, and management. I am a strong believer in solid, ethical, and advanced academic work leading to a widely acknowledged honesty that thrives in my perpetual effort to be ethical and responsible in my chosen vocation.

My evidence-based research in the holistic context of MUT is planned and implemented in a way that will pave the path for the creation of a grounded reality. The process is structured in such that it paves the way for the research goals, predominantly building my deep understanding of existing realities. Both the research process and the final findings are instrumental in my aspiration to become an agent of an innovation culture. Such a culture is and continues to be built on the belief and practice leading my agency to be morally defensible and achievable. My academic life is rooted in honesty, efficiency, effectiveness, ethical behaviour and complete respect for all university stakeholders and role players, our communities, and all South Africans.

The roots and realities of living theory are the roots of my thinking and acting as an educator and a human, a family person, and a human being. The truth of this theory is based on its emphasis on social justice in teaching, learning and community engagement. My utilisation of a construct of systems thinking to inform my agency as an academic is the root of my methodological process.

Higher education (HE) in South Africa, Africa and globally faced a wide range of challenges even long before the realities associated with the COVID-19 pandemic. In post-apartheid South Africa, there is a very strong feeling that there is a need for all universities to equate their functions, structures and systems with all existing international norms and practices. The realities of the tertiary education environment, however, have pinpointed the fact that the existing higher education policies are driven by policies concentrating on quantity associated with seriously increased volumes of graduate output, efficiency, quality, and transformation.

Professor Johan Mouton's presentation at the CHAE Conference (March 2016) identified the fact that these policies are at odds with each other. This reality has created a serious and problematic situation for academics throughout the country. Since different stakeholders throughout the terrains of higher education have diverging interests, human intervention is required in the effort to gain a deeper understanding of the existing complexities and their roots and repercussions. An investigation into possible cohesive solutions needs to be adopted in creating processes and systems as the beginning of collective and well-planned methods able to minimise the negative impacts of conflicting policies.

Such existing realities in South African universities will be multiplied in the near future. The process has already begun with the widely accepted decision at the ruling party's latest conference that opened the doors of higher education to large sections of children from the poor and lower middle classes in the country. As the process has started and despite the catastrophic consequences of COVID -19, it is unlikely that the substantial planned increases in enrolment up to 2030 as stated in the National Development Plan will not continue as demand will continue to increase throughout the country.

One of the fundamental problems that exists at present and will most likely increase substantially in the near future is serious academic recruitment, retention and development. Furthermore, the existing circumstances of the working conditions in terms of infrastructure, working hours, technological advancement levels, workloads, the relationships between university leadership and management with the academic and research staff must also be considered.

In a situation like this, it can be said that such a situation can be overturned only when higher education leaders are committed to a process of addressing the problems and challenges the human resources of their institutions face in terms of such realities. This means that the decisive leadership of a higher education institution is in need of a renewed focus on acquiring a holistic understanding of the environment faced by one of the pillars of a university, its academics and researchers.

1.2. PROBLEM STATEMENT

It is a known fact that one of the key expectations of the National Development Plan (NDP) and the Department of Science and Technology (DST) is the undertaking of all higher education stakeholders to implement the call and expectation of the country for increased

production of graduate output. The NDP (2011) recommended the improvement of doctoral qualifications of higher education academic staff from 34% to 75% and the achievement of producing more than 100 doctoral graduates per million by 2030. Such expectations mean that the country needs more than 5000 doctoral graduates per annum, a figure that Mouton in his 2015 contribution considered unrealistic. **Bitzer and Albertyn (2011)** have reiterated that there is increased pressure and workload on supervisors in the process of producing doctorates. Conversely, Badat (2007) highlights the important fact that South African academia has an aging cohort of qualified academics with supervision experience. It is clear that there is a national shortage of skilled academics at several levels, especially at universities of technology.

Transformation issues pertaining to gender and race equality are on the Department of Higher Education and Training (DHET) agenda. In the National Commission on Higher Education (NCHE) , Badat listed the main areas of transformation as systems and structures, equity, quality and responsiveness. Many universities that cannot find and employ suitably qualified black South African academics capable of teaching and being active in knowledge production are under pressure to employ academics from the African continent. Hence, whilst the number of black doctorate students has increased, these figures are skewed as they include students from other African countries (Mouton, 2015). Local production rates are still low.

The work of the Centre for Higher Education Transformation (CHET) and the Centre for Research on Evaluation, Science and Technology (CREST) contributed significantly to the efficiency indicators dealing with completion and attrition (drop-out) rates. The NDP has set an unrealistically high target, expecting 75% of all new doctoral students to graduate. Since national data gathered through the Higher Education Management Information System (HEMIS) showed that approximately 50% of doctoral students would graduate, the target was modified to 65%. We had about 30 doctorates per million of the population in 2010. This, by international standards, is very low. (OECD 2013 quoted in Mouton 2015).

Lastly, a discussion within this context is important regarding issues that concern the quality of doctoral production. Whilst the 1996 NCHE report and the 1997 Education White Paper state that quality is important, neither document discussed methods for quality control. Instead, as Mouton (2015), as well as Badsha and Cloete (2011), point out, the Higher Education Quality Committee (HEQC) accreditation model placed the responsibility on the institutions themselves and proposed that institutions should maintain in-house quality assurance mechanisms.

The four key areas of academics at all universities in South Africa irrespective of their category are teaching and learning research, community engagement and academic citizenship. The key challenges facing academics in these key areas are the following, not necessarily in that order.

A young academic in a lecturer's position is basically but not exclusively required to focus on his/her core business, namely learning and teaching. However, in most tertiary institutions, academics must deal with large classes, under-prepared students, students who cannot communicate fluently in English, impoverished students, poor infrastructure and a multiplicity of administrative functions that consume a portion of their time.

All academics, irrespective of their qualifications and teaching and administrative commitments, amongst other challenges, are required to complete their doctorates, conduct research and publish articles in accredited national and international journals. The Faculty of Economic and Management Sciences at Mangosuthu University of Technology used to have the lowest research output rates in terms of publications and knowledge production. The lack of support and study leave during the academic programme exacerbated and stifled the aspirations of those intending to undertake postgraduate research.

However, things have seemingly changed for the better without being perfect, as with the limited resource and time allocation constraints that are an integral part of this dissertation, many academics have been unable to participate in community engagement and academic citizenship initiatives. Given the above scenario, one can see that higher education policies actual conflict with one another. Research needs to be undertaken to integrate these various perspectives into the work of academic institutions and the academics that populate them.

On the other hand, while there have been significant positive changes in the programmes and policies of universities, a continuous problem is facing mainly universities of technology as professionally qualified academics have been open to change of workplace as both other universities, as well as the private sector, offer higher salaries in order to attract exceptional talent and qualifications. This means that lower salaries offered by universities in South Africa are instrumental in giving birth to a new brain drain, and the drawback of offering low salaries is the strong possibility of the institutions having to rely on a cohort of mediocre academics without creativity, productivity, commitment, and dedication. It is common knowledge that, internationally, the absence of competitive and attractive packages for academics, especially at the lower echelons of the profession, will lead to current and potential academics being coerced to join well-paying positions in the private or public sector.

There is no doubt that there are concrete examples in the intellectual/academic terrain suggesting that the public higher education in South Africa has been seriously and negatively affected by high staff turnover and it is well known that the Mangosuthu University of Technology has been very seriously affected by such realities in terms of the academic exodus. This reality has occurred despite the acknowledged reality that in the last few years there have been attempts to elevate the university at a number of levels with initiatives attempting to chart a way forward for the institution. Despite such efforts, acknowledged by many, the turnover rate continues to mean that the strategies and tactics have been a failure to a large extent, but not all. While a number of initiatives seem to work for a period of time, others seem to be "counter-productive from the onset" (MUT Strategic Plan 2015-2019).

The key objective of the present project is to research, analyse and dissect the complex realities of academia through an investigation and deep analysis of the problems and challenges facing academics and to identify possible interventions that can develop a personal theory of praxis. The present effort will attempt to investigate the different complexities faced by academics in their everyday experience at all levels of teaching and learning, infrastructure, administration and technology at higher education institutions and the problems and challenges associated with them.

The systems approach is the theoretical tool utilised in order to research, analyse and dissect the realities, actions, behaviour and environment shaped by the complexities faced by the Mangosuthu University of Technology.

1.3 PURPOSE OF THE STUDY

The purpose of the study is to utilise theoretical, conceptual, and empirical research bases in an effort to have a clear picture of the realities, ideas, opinions, attitudes and possible solutions of the life experiences of academics within the work environment of their institution, concentrating on their challenges. Within this context, the identification of future interventions that can develop a personal theory of praxis is important.

The challenges investigated are related to teaching and learning that academics face in their daily lives, such as the realities of large class management, the existence or lack of technology and its functionality, lecture venues and its functionality, student pass rates and the reasons thereof, office accommodation including the quality and size of the office and the existing challenges with regards to the preparation regarding their academic career and possibilities; the

key problems associated with the profession; their knowledge regarding the skills and development programmes offered by the university and their requirements of professional development in order to be kept updated of the realities of the industry; he existence of the services of a tutor and the challenges of the relationship and the recommendations and interventions that can be implemented for tutors; the increase in their administrative duties and the reasons, effects, repercussions and challenges associated with it including the realities of students' evaluations the research related challenges at individual and institutional levels ; the academics' involvement in research; the number of publications; the rating of their research and publication skills; their knowledge and understanding of the university's research plan and their thoughts on its quality the knowledge of the MUT's strategic plan 2020-2025; the understanding and advantages of the third stream income and the development of short courses and programmes; the university's incentives in respect of postgraduate training; financial incentives for publications; the realities of Research workshops, training and presentations with regards to research for Masters and Doctoral studies; the necessity of holding a doctorate degree, the intension to undertake further studies; the achievement of publishing in an accredited journal and its importance and the challenges emanating from such an effort; participation and presentation at a conference or a workshop; the existence of a mentor in the efforts to achieve the completion of a postgraduate degree and its importance; the existing challenges and advantages of the relationship and the ways and possibilities of improvement; supervision of higher diploma students at MUT; improvements can be made to supervision practices; the existence of a supervisor for academics of the institution pursuing postgraduate degrees; the guidance and direction offered, existing challenges in the relationship and behaviour, and what improvement are needs and participation in existing research workshops taking place at the university student challenges associated with unpreparedness the reasons and interventions that can be initiated to assist the situation, the reality of students' problems in the use of the English language and possible interventions to be implemented to assist students to communicate effectively and confidently; the existence of socio-economic related problems and possible interventions that can be introduced to support students, the realities of high student drop-outs the challenges facing the academics, staff and leadership of the university.

1.4. SIGNIFICANCE OF THE STUDY

The reality that the South African higher education terrain is facing multiple problems and challenges at all levels that have multiplied during the COVID-19 era has been the topic of

empirical academic research over a number of years. In addition to staff turnover, student upheavals, financial challenges and brain drain, the university has faced numerous challenges. The world's attention is concentrated on the top research universities, competing yearly to elevate themselves to the highest international rankings. On the other hand, there is not much research on debates regarding the universities of technology that accommodate a very significant percentage of the country's future human, intellectual and research professionals who will hopefully become a fundamental stone in the cohort that assists South Africa to make the dreams of the National Development Plan become a reality.

It is within this context that the researcher strongly believes that the thesis is a new, serious contribution to a critical understanding of the university of technology sector because it offers empirically based research analysing and dissecting existing at a specific institution that can provide a basis for further research on the sector. Such a replication through the utilisation of the framework, way of thinking, planning, designing and implementing certain methodologies and designs of different ones, can not only galvanise new and/or duplicated research efforts in respect of the particular sector but also pave the way for the future management of such universities.

It is strongly believed that the nature and findings of the present project will provide a comprehensive and deep understanding of the realities, problems and challenges confronting a significant sector of the country's universities, analysing and dissecting the realities of academic and research praxis of the institution's teaching and research sector.

The findings of the present study can be of assistance to university leadership and management, as well as politicians, policy makers and practitioners, not only to understand and absorb the harsh reality of a concrete environment but to think, plan, design and implement strategies and tactics leading to a better institutional condition regarding the key elements of a university in respect of teaching and learning, wider production of knowledge and wider community engagement and development. Additionally, it is strongly believed that the study has contributed to the body of knowledge through its analysis and recommendations, which could lead to the improvement of the existing circumstances with regard not only to the academic cohort but also to the management and leadership of the institution. The proposals and recommendations can be utilised as a guide and an instrument to the improvement of existing realities and practices, ensuring that not only MUT but also institutions facing similar problems

and challenges can utilise new and innovative paths forward, ensuring present and future success in their functions, processes and structures at all operational and institutional levels.

1.5. AIM AND OBJECTIVES OF THE STUDY

The aim of this study was to gain a deep understanding of the complexities faced by HEI through the use of the systems approach. The research process was related directly and indirectly to the knowledge, opinions, attitudes and beliefs of expectations regarding the realities facing academics and their relationships with existing systems, processes and structures that are the foundations of the relations between the institutional leadership and the academic staff. The analysis and dissection of the data led to an understanding of the university's policies and structures and the possibilities of interventions that could be acceptable and implementable for the benefit of all concerned, including the student population.

To achieve the aim of the study, the following objectives are derived:

- To obtain a deeper understanding of the complexities of higher education praxis.
- To investigate and analyse the challenges facing academics (such as infrastructure-related challenges, lack of technology advancement, professional, academic and research development, heavy workload including added administrative duties, career guidance, new knowledge management production challenges, higher research productivity and pursuit of postgraduate degrees' and student problems and challenges).
- To identify possible interventions that can develop a personal theory of practice.

1.6. WORLDVIEW OF THE KEY CHALLENGES IN THE HIGHER EDUCATION LANDSCAPE

The rich picture below has been developed by the researcher to depict his worldview of the key challenges in the higher education landscape. These realities are the foundations of conflicting practices in higher education that will be researched, analysed, and dissected by the researcher**.**

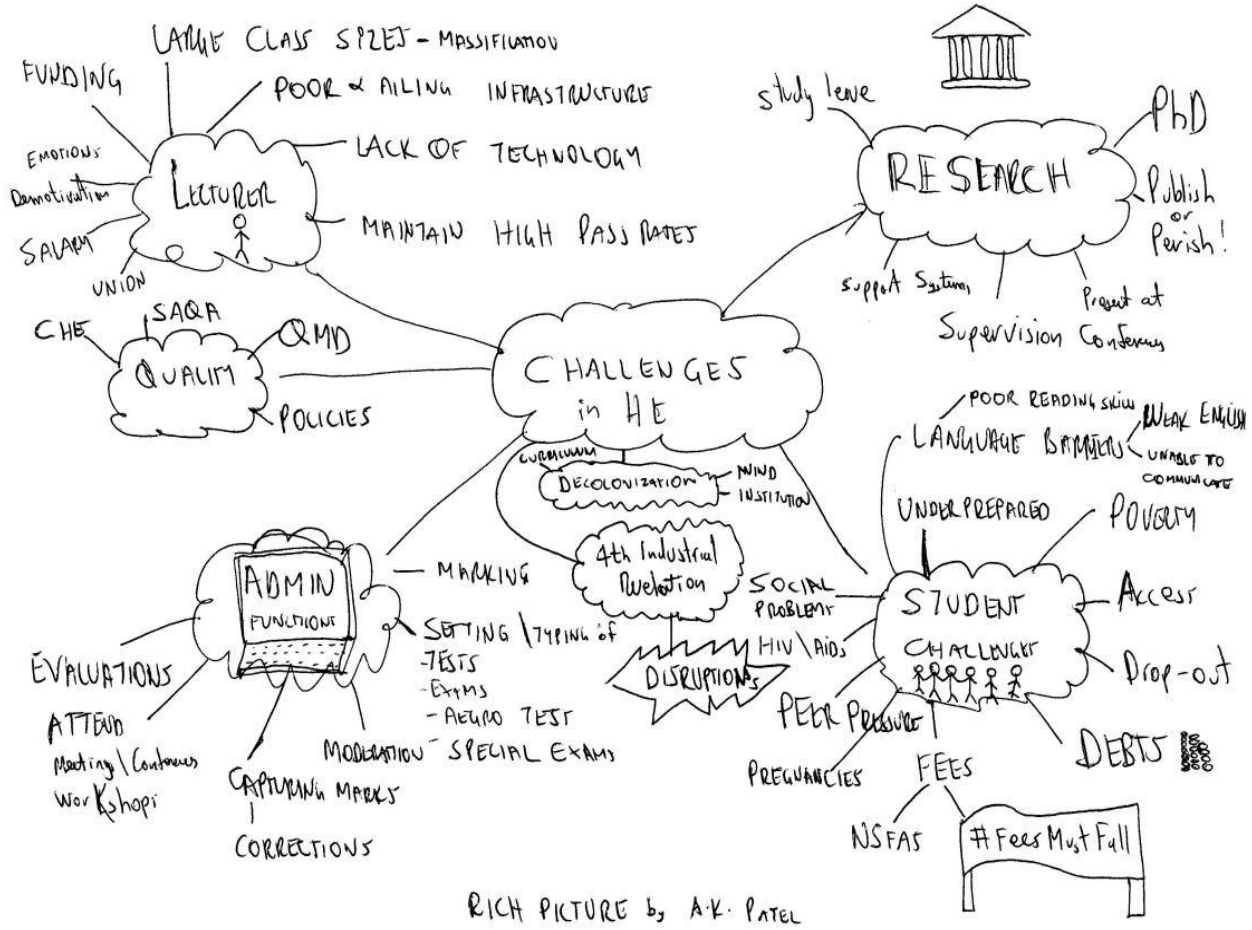

Figure 1.1 Rich Picture depicting the worldview of the key challenges in the higher education landscape

1.7. A BRIEF LITERATURE REVIEW

The section covers a number of fundamental issues and challenges associated with the study. Due to the limitations of space, the rest of the items associated with the literature review are included in the relevant and main part of the thesis.

1.7.1 THEORETICAL FOUNDATION

There are many reasons why a university succeeds or fails in its institutional mission and vision, aims and objectives. Its competitiveness is founded on a number of factors; job satisfaction, skills, expertise, experience and development are the most important ones. Given the realities of the South African university terrain, the country's universities of technology are simply unable to reach the heights or compete with the rest.

When the needs of employees are fulfilled through rigorous planning and implementation, their capabilities, intellectual and developmental advancement the key priorities for the leadership of a university are fulfilled, together with the existence of appropriate infrastructure, solid administrative services and financial and professional incentives. Such initiatives when undertaken are of great value for both the institution and its intellectual capital ensuring in the majority of cases the successful completion of the institutional vision and mission, aims and objectives.

Within this context, it is easy to understand that the appropriate theory to be applied as the foundation of the empirical exploration is one that cannot separate the 'whole' (the institution) from its 'parts' (academic, research and administrative staff, infrastructure, policies, rules and regulations, vision and mission, work conditions and council). Such a unity ('holism') was the basis of the theory underlying the present endeavour, systems thinking.

It is a theoretical framework utilised successfully in a wide spectrum of disciplines in all scientific fields, with the system comprising inter-related and inter-dependent parts, which are directly or indirectly influenced by surrounding environments, defined by structures and purpose and expressed through their functions and functionality. It has been utilised in most, if not all, sciences in the effort to thoroughly investigate phenomena holistically through a process of shifting attention from one part to the whole **(Jackson, 2003).**

A very wide and important exponents and developers of the system both theoretically and empirically in diverse disciplines such as sociology, biology, ecology, linguistics, management and organisational theory were instrumental in expanding the dimensions of the theory through

the development of principles and concepts that enlarge the theoretical scope of their many followers in many knowledge landscapes. Their holistic perspective, synonymous with the theory, underlines its interdisciplinary nature. The theory leads to the negation of fragmented knowledge (Luhmann 2013).

The pioneering book by Ludwig von Bertalanffy (Bertalanffy 1968) opens a new path of understanding and dissecting phenomena. It was supplemented by the influential contribution of Sterman (2000) that systems thinking provides the researcher with the theoretical and conceptual tools, as well as the structural dynamics of complex systems through the utilisation of a comprehensive modelling method, leading to a thorough scientific analysis of complex systems.

Sterman's first major exercise in the empirical field in his effort to build the belief in the unity of theory and praxis was his research on a highly disputed historical reality in the United States, the attempt of the then government to use the 'partial de-regulation' of the electricity sector in the State of California.

The university under investigation is a system comprising a wide variety of elements with defined operational tasks of a vision and mission, aims, objectives, common goals and plans that are obligated to follow existing policies, rules and regulations through acts based on interdependence and interaction. In order to achieve success, the university components such as leadership, management, academics and administrators have the obligation to abide by existing policies, rules and regulations that are directly related to the planning, designing and implementation based on the aims and objectives of the institution. The above points to the fact that the university as a system is rooted in a wide range of relationships with supra-systems and sub-systems that are the determinants of the existing human relations and behaviour through participation and interaction at all systemic/organisational levels.

The successful functionality of a university depends on the adjustment and understanding of all institutional role players in relation to the existing challenges and realities of situations and the shaping of its operational functions, processes and structures in accordance with its ability, commitment and dedication. Success can be realised only when carefully planned and implemented channels of communication, innovative information flows, and harmonisation and rationalisation of its development with external and internal components are achieved (Sterman, 2000).

1.7.2. EDUCATIONAL PRAXIS

Universities' important functions in society, such as research, education, and community engagement, are directly related to committed and critical educational praxis. Such praxis is directly related to the university's civic purpose to educate students and prepare and enable them in their future participation and contribution to society, in the process of building a 'developmental inclusive democracy' (Kemmis et al. 2014, 27).

Given the fact that today's universities throughout the world and South Africa are not a niche for critical educational praxis due to a wide variety of realities that have changed universities significantly, such as the dominance of technological and digital advancement, globalisation, student massification, and the marketisation of education, the demand for a serious reflection in respect of the role of universities in society and what might be needed in universities to deal with them is urgent. Within such a complex reality, the significance of academics' commitment and action is important. Inevitably, the existing realities and practices at a South African university of technology are fundamental in shaping the academics' consciousness and commitment to critical educational praxis as a foundation of development and transformation of the institution and society at large (Kemmis et al. 2014).

This means, firstly, that a serious understanding of the existing conditions, relationships and realities of a specific institution that are fundamental and shape the everyday life of an academic and researcher needs to be researched, analysed and dissected in the best possible way forward. Such a way is an important path in shaping the realities of educational praxis. Such praxis refers to the actions that all university employees, especially academics take when confronted with all the exigencies and then plan the next appropriate pattern of action (Castells 2001)

Active intellectuals and professional academics are participants in the continuous processes of teaching and learning, research, and community engagement, which are key elements of reflective and critical thinking and critical educational praxis. Such praxis is rooted primarily in the existence of critical questions regarding professional practice and intellectual development, and positive collegial, community and social relations. A critical disposition is a key element of praxis that is directly related to the intellectual capacity leading to autonomous agency and thinking, leading to 'empowering action' that is rooted in reflective communication and interaction not only with colleagues but also all sectors of a tertiary institution. Such

intellectual and professional attitudes rooted in a critical disposition and capacity for critical thinking are key to the serious improvement of the teaching and learning processes as well as new knowledge generation (**Mahon & Galloway 2017: 19-20)**.

Academics are integral parts of critical educational praxis due to their intellectual work, their direct relationships with students, their understanding of the situations and challenges facing the university, their production of new knowledge through research, and their active engagement at all levels of professional, intellectual and scholarly activity. Their intellectual creativity in teaching and learning, research and community engagement are of crucial importance in studying and relating to the existing problems and challenges of an institution in the effort to move forward to the intellectual and educational paths to positive change at all operational and institutional levels. Such positive change needs to be sustainable because intellectual creativity and innovation are crucial in challenging outdated, ideologically-based assumptions regarding the present and future of an institution. Collaborative conversations with all sectors of the institution are key elements of the success of educational praxis in theory and reality. (**Hartman & Darab. 2012**).

Educational praxis only expands through reflexive communication and critical dialogues in the classrooms and academic, departmental, and administrative meetings in the efforts to build common understanding, respect, coordination and common action, self-understanding developing critical insights into challenges and problems facing the institution. In other words, they could practise being critical. Regular group meetings create critical dialogue and inquiry in terms of examining practices and conditions related to everyday academic work, infrastructure, departmental structures and working conditions, as well as the roots of students' failures or successes **(Mahon & Galloway 2017: 184-185).**

The success and continuation of educational praxis are rooted in the academics' intellectual autonomy and flexibility, which leads to professional judgement and responses to the existing institutional circumstances and their direct relationship with educational praxis. Such knowledge and relationships shape both ideas, plans, agency and action. Academic intellectuals develop options and openings for courses of action instrumental in educational praxis, as they are keenly aware of important issues such as heavy workload, massification, student poverty and hunger and the lack of appropriate technological facilities, amongst others. Such challenges are key barriers to processes of designing innovations in teaching, learning and activities and

the negotiations of the new aspects of learning directly with students during the COVID-19 pandemic. (Hardy et al. 2016).

Intensification of academic work associated with heavy workloads on most occasions results in limited time for reflection, critical debates, energy for research and scholarship, limited resources, and added pressure to produce 'measurable outputs' and competing demands. Expanding class sizes negatively affects the time that academics could spend with individual students limiting the development of productive and trusting relationship, while bureaucratic mechanisms such as measuring performance management, quality assurance procedures, subject evaluations, and assessment regulations have created additional challenges and problems. These realities are in the heart of the present study, which aspires to open new doors of knowledge in the realities of complexity, leadership and educational praxis (Walker et al. 2019: 201).

The role of academics as intellectuals and knowledge producers and distributors is one of the key elements of educational praxis and messengers of the process of re-emphasising internal goods of educational work. As the carriers of intellectual reflection of collaborative communicative spaces, critical dialogue and reflection, they are not only the foundations of excellence in teaching and learning but also at the forefront of scrutinising university arrangements, challenges and problems, playing an active role in positive changes (Dyer et al. 1021: 20-21).

This is because MUT, like all universities facing challenges to existing realities, processes, arrangements, structures and practices that are changeable. This means that the possibilities for critical educational praxis in its finer form depend on academics' knowledge of the realities and challenges that exist both in their everyday lives and beyond, which shape their everyday practice and praxis. Their understanding, planning and action will shape their challenges and how they deal them. These are led by the critical questions that need to be asked today.

1.7.3. THE ACADEMIC CHALLENGES

This section will deal with the major challenges faced by academics of the university and the related contexts.

1.7.3.1. WORKLOAD

Academic workload is directly related to all expected duties and responsibilities that need to be completed within specific time frames and include teaching, new knowledge production,

community engagement and administration duties including supervising, marking, and invigilating examinations. The responsibilities and guidelines are planned by the faculty's leaders who are also the officials responsible for the flexibility of the responsible structures and official process.

Inevitably once the relationships and involvement of all interested and participating parties are balanced and the functionality of teaching, learning and research terrains reaches widely accepted levels of mutual satisfaction, the path to success is widely opened widely. However, when planning and implementing in terms of academic workloads on the part of leadership and management is not considered equitable and inappropriate by the majority of academic employees then the relationships cease to be as fruitful as they should be. In the case of South Africa's universities of technology, realities such as student massification have led to a significant number of challenges leading to the reality that the institutional leadership group has the final say in terms of workload allocation and distribution at all levels (Nnadozie, 2015).

International research indicates that a balanced allocation of academic workload amongst academics in all disciplines is a necessity because it balances duties and responsibilities, especially when based on pre-determined formulas. This is because such an arrangement benefits both research, teaching, and supervision responsibilities (Teater and Mendoza, 2018).

Academics in developed countries are following a relatively new trend, which has been echoed by their South African counterparts in recent years. This trend has resulted in academics concentrating more on research than on their duties and responsibilities towards students. (Gopaul et al. 2016).

Such a reality has proven to be a serious challenge for the respective university leadership, mainly due to the realities faced because of the student massification trends internationally. South African-based research on the subject has produced several contradictory findings, including differences in the working hours of dedicated academic activities, pinpointing serious inequalities in the allocation and distribution of academic employees' workload (Makhubela et al. 2015); a number of 'pull factors' pointing to positive aspects of the working environment of the university, and six 'push' factors, including working with students not prepared for university, issues of power and race, heavy workload, lack of training and induction, challenges facing female academics and frustrations towards slow institutional change (Portnoi, 2015) and one indicated that the great majority of academics faced a heavy administrative workload, which was more than what their secretaries were expected to do. The vast majority of both

groups agreed that there was a serious lack of equity and transparency between the different workloads that were performed by different individuals and that there was an urgent need for a workload model that would guarantee a fairer balance in regard to the relationship between the work performed by each group (Qwabe, 2016).

1.8. REPERCUSSIONS OF WORKLOAD AND MASSIFICATION AS CHALLENGES FOR ACADEMICS

1.8.1. LACK OF TECHNOLOGY

One of the key elements for success at universities, especially at a university of technology, is the existence of sufficient technological sources and resources for all sectors of an institution aspiring to integrate teaching, learning and research, leading to new production knowledge with technology. This is because the majority of academic disciplines of such a university are directly related to the production of goods, which can only be successful through the knowledge and utilisation of technological innovations. For universities with limited resources, the conditions conducive to the integration of technology into teaching, learning and research become, on occasion, a very difficult task.

On the other hand, the demands of university leadership, management, students, parents, the community and the state expect that all academics have sufficient, if not excellent, technical/technological knowledge so they can advance their contribution to the teaching and learning processes. These demands, however, are voices in a desert when the lack of sufficient technological equipment is evident, especially at a university of technology populated by students who have not used technologically-based devices in their lives and expect their institutions to be the first step towards a brighter future. These students have chosen a university of technology because it could be their first positive step towards a better future, which at present and in the future is the one paving the way to the already existing realities of the 4th Industrial Revolution (Chen et al. 2015).

The fact that the Mangosuthu University of Technology in its strategic and research plans has concentrated on excellence at all levels indicates that student and academic engagement is an essential element of success in an environment that creates and advances the opportunities for all role players to become acquainted with computer-based technologies associated with all functions and processes of advanced hardware, software, and micro-processing features of computers and mobile devices that have become key instruments in the terrain of teaching and learning.

The Mangosuthu University of Technology will have to address several key issues faced in the future, including acquiring enough financial resources and integrating technology into the teaching and learning process, in an effort to enhance the students' and academics' learning and research experiences. Once this process, is completed there is the possibility that their performance will be in the development path and their outcomes will be increased. For such an increase to become a reality in the future there is the need the most important element is the commitment and dedication emanating from all parties**.**

Despite the problems and challenges that academics face daily, there is a clear understanding on their part that under the existing circumstances, teaching and learning as well research as the foundation of new knowledge production are directly and indirectly related to understanding, debating, accepting, planning and implementing strategic initiatives associated with technology, that can be an instrumental tool in a process of enhancing their efforts to focus on their pedagogical and knowledge acquisition processes. The outcomes of such a focus will enhance the learning processes and realities instrumental in elevating the students' competencies and capacities at all levels. Such outcomes are rooted in the relationship of technological innovations on the fundamentals of the existing curricula as well as the adopted teaching strategies (Kilfoil, 2015: 2).

1.8.2. ADMINISTRATIVE WORKLOAD

The foundations of teaching and learning are based on the commitment, genuine efforts, motivation and excellence of the existing academic staff of the university and the zest for knowledge on the part of the students. One of possibly the most debated issues internationally, negatively affecting academics, is the added administrative work that has become a reality in tertiary education globally. A recent, thoroughly researched project amongst 300 academics and researchers in three developed countries indicated that in the last few years, the addition of administrative work was a serious barrier to academic and research activities, which led to tensions at all levels of their professional and personal lives. The fact that participants indicated that almost half of their services were concentrated on pure administrative duties was thought to be a serious destabilising factor in their professional and personal lives (**Kottler, & Englar-Carlson, 2016)**

International research has shown conclusively that despite the fact that teaching, learning and research are the fundamental duties and responsibilities of academics and their priorities, the realities point to the fact that university leadership insists on the addition of administrative

duties, resulting in the fact that academics spend much less time with students, a serious impediment to the core functions of universities as it has serious professional and personal implications for academics. Similar trends have been described in terms of universities on the African Continent and in South Africa, where the additional administrative duties have had negative effects on the overall performance of both academics and students, as well as research productivity, especially evident among early-career academics aspiring for retention and development. In addition, research has shown that added administrative responsibilities increase occupational stress amongst academics as the workload has increased substantially and work-life balance has been disturbed, negatively results impacting academics' health (Mohamedbhai 2011:170-178).

Inevitably, heavy work engagement has been described as the root of burnout with negative consequences for academics, especially females as the extended demands, especially at technical universities have been described as important structural changes, with serious negative impacts on academics' performances and their personal lives. Such realities, on many occasions, lead to dilemmas as levels of dissatisfaction towards the institutional leadership and management could lead to a break in employee-employer relationships with serious consequences for the smooth functioning of the institution (Theron & Dodd, 2011).

1.8.3. RESEARCH VERSUS TEACHING AND THE MASSIFICATION REALITIES

While there is an almost common agreement that teaching and research are both directly connected in South Africa, there is still a debate regarding existing contradictions related to the relationship between the two and their subsequent repercussions. Although the two processes are the foundations of an academic system and profession, as the 'absolute synergy' of these activities is a real necessity, they also form an important link with the most valuable asset of the university, its students. The successful link of teaching with path-breaking research on the part of academics in a specific university is important for students, who, in most cases, respect the 'inseparable nature' of the two. For students, it is important, then, to realise that the teaching they receive is based on the academics' own research. On the other hand, however, the fact revolving around the ever-increasing tendency of a large number of universities globally, and South Africa, to introduce policies shift tertiary institutions towards an intellectual orientation and priorities to research production has led to a reality of pushing teaching activities in the background. This reality, it is believed, is detrimental to the students. This trend is, directly and

indirectly, related to universities' competition in respect of their international competition in the institutions' rating scales.

Such realities that have received very serious attention and a wide terrain of different opinions take serious cognisance of the intellectual, scholastic, teaching and empirical research roles of academics, as well as their key contribution to society's social, political, economic and intellectual development, have been summarised and put the debate in a new humanist terrain by Boyer as early as 1996 (Boyer 1996). His analysis concentrated on the 'scholarship of service' and later the 'scholarship of engagement'. The analysis was rooted in the strong belief that the key role of any university was its service to humanity through innovative research and teaching (Boyer, 1996).

A position very similar to this has been adopted by the latest strategic and research plans of the Mangosuthu University of Technology, which advocate a fresh approach to the achievement of cooperation, integration, and synergy between academics and students with the surrounding communities in a collective effort to develop substantially a community engagement platform that includes teaching, learning and research that are directly related to the communities' needs, problems and challenges.

1.9. THE CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

1.9.1. INTRODUCTION

The section deals with the conceptual framework and research methodology utilised in the study. It begins with the conceptual framework used, where the researcher outlines the reasons for the choice of the specific topic and the importance of such a step forward in the dissection of realities and challenges that exist at a university of technology and the specified objectives to be pursued and the scope of the project.

The utilisation of knowledge and experience of the researcher is the foundation upon which the plan is built regarding the use of the appropriate research methodology, design and methods, the study participants as well as the strategies, tactics and techniques to be used in all these necessary steps including the paradigms to be followed and the analysis and interpretation of the collected data.

Such a framework conceptualises the present research undertaking, as a reflective operationalisation of the project in its totality.

1.9.2. CONCEPTUAL FRAMEWORK: THE LIVING THEORY

A conceptual framework has been described as a key tool that orientates and guides the way of thinking of the researcher, one that leads to structures, processes, practices and plans, in short, a foundation that is the root upon which the specific research topic is based. Such a framework guides all aspects of the methodological terrain, beginning with the research problem, the relevant questions to be asked, their relationship with the hypotheses, the processes and structures of the literature review, the theories that will be applied, the broad methodological frameworks and design to be utilised, the instruments and required procedures, the analysis of data and the interpretation of findings, as well as the recommendations and conclusions). In brief, the conceptual framework can be described as the link that connects all ideas and concepts in the researcher's mind. It is a continuous, uninterrupted process based on plans, designs, implementation and conclusions of a research project from the beginning to the end(Ravitch & Riggan, 2017)

This means that the researcher utilises existing knowledge regarding the circumstances and situations of a particular phenomenon to build a framework that will be utilised in the research process. On the other hand, the theoretical framework is the outcome of other theorists' writings and perspectives that have been deemed necessary for empirical research. They can be used in relevant parts of a researcher's work, such as the literature review or the analysis and interpretation of the collected data (Johnson & Christensen, 2017).

1.9.3 CONTEMPORARY TURBULENCE IN SOUTH AFRICAN UNIVERSITIES

It is within this context that it is considered important to briefly outline a key social and educational process that has and still shapes opinions, attitudes, thoughts, actions and relationships within all universities in South Africa, including the Mangosuthu University of Technology and all its role players and shareholders, the perpetual 'turbulence' at the country's institutions.

Such behaviour and actions have been rooted for many years in the historical demand of the vast majority of the country's youth for free or affordable access to education, leading to escape from poverty, participation in South Africa's development, and the creation of job opportunities both in the private and public sectors. The youth's activities and struggles were one of the seminal social and educational struggles in the effort to level the playing field after the collapse of the apartheid regime in 1994.

As the heroic Black student strikes in 1976, mostly based in the township of Soweto showed the youth's rejection of the Bantu education system, the recent uprisings paved the way forward for hundreds of thousands of poor, low-income and lower-middle-income youths to free tertiary education. The recent youth struggles were based on the reality that young people, irrespective of class or race, this time took matters into their own hands with one central aim and objective: to achieve free higher education for all the country's students, especially the poor, marginalised and vulnerable.

Before the struggle was transformed into a challenging reality, the #FeesMustFall movement, which began in 2015 and dominated the local and international press, social and news media and the hearts and minds of many millions of people for years was the main 'struggle weapon' in the hands of the country's youth that created challenges, problems and dilemmas. It was a continuation of the #RhodesMustFall movement that started at the University of Cape Town. Its main objective was to remove the statue of Cecil John Rhodes from the university and to immediately deconstruct 'institutional racism' at all South Africa's universities (Chipkin, 2016; du Preez, 2016).

The reality of the situation was based on the undeniable fact that university costs in the country have escalated over the years, while on the other hand there was a decrease in the financial support of poor students. The situation led to continuous student protests, first in Gauteng and then spreading throughout the country, especially after several universities raised their fees significantly (a number of them above 10%). Following serious interruptions, a number of the university leaders suspended such increases with the hope of stopping student activism. It proved to be an impossible task as the movement spread throughout the country and became associated directly with the right to affordable education (Habib, 2016).

Despite the fact that the then President established a Commission of Inquiry into Higher Education and Training, aimed at finding and creating opportunities for free education at universities, the Fees Must Fall movement continued to exist and protest. The situation continued after the announcement by the Commission for the continuation of the fee increases in 2017. The protests continued throughout the country and, on occasion, turned violent at a number of universities, especially the University of the Witwatersrand (Wits) and the University of Cape Town. The presidential announcement of 2017 guaranteed that the country's government would provide free university education to students from households

with a ‘combined annual income of up to R350 000’ from 2018, a promise that was kept until today (Areff & Spies, 2017; Heher, 2017a; Heher, 2017b).

Despite the implementation of this generous initiative a new wave of protests spread throughout the country in 2019, mostly in Gauteng and KwaZulu demanding free accommodation for those affected by historical debt. A Durban University of Technology student was killed during the protests as campus security attempted to dispel the protesting students (Ritchie, 2019).

While the COVID-19 pandemic was at its worst, during mid-March 2021, massive protests began at Wits University following the decision of the university to deny registration to students for the new academic year as they owed tuition fees from 2020. The key demands, included immediate registration of students who owed money for the previous years and for the government to increase student funding. As the days passed, the protests continued as students blocked the roads around the university while they were carefully observed by substantial numbers of police personnel who began to fire rubber bullets. An innocent passer-by was killed (O’Rega, 2021).

All these events followed the announcement of the country’s Minister of Higher Education, that the National Treasury had decreased its contribution to NSFAS (the National Students Financial Aid Scheme), meaning that the country’s first-year students would not be able to benefit from it in 2021 (Nzimande, 2021).

1.9.4. LIVING THEORY

It needs to be stated and clarified within the context of the present research that despite the fact that systems thinking as a concept and a conceptual framework has a multiplicity of applications in a wide array of disciplines, in the terrain of management science the focus lies on systems thinking as a way of approaching, understanding, and researching. This means the acceptance of systems thinking as a theoretical framework, but the investigation takes place through the application of systems thinking. Despite the fact that historically systems thinking focused on hard systems, SSM softened the discourse considerably. Systems thinking, thus, is an investigative approach to systemic action, and in many cases, complexity has reshaped the discourse on systems thinking in practice. Systemic patterns are in a continuous process of evolution in non-binary ways.

Living theory and action research, the conceptual framework of the present study, are integral parts of the qualitative paradigm that epitomises the methodological unity of ontological and epistemological assumptions. It is based on the belief that precise, and transparent research is founded on a deep understanding of the philosophical underpinnings that are fundamental in the choice of methods, methodology questions of substance and research intentions (Grix, 2004: 57-58). The fundamentals of the living theory point to the fact that scientific research can never be objectively observed from the outside, but its truth is related to and gained through the direct experience of people.

The above pinpoints the fact that the existing challenges university academics face can only be researched and analysed 'from the inside'. This means that the research is based on the fundamentals of the everyday experience of the people, the realities of their everyday lives, as well as their relationships with colleagues, management, leadership and students. Hence, the present study is based on a conceptual framework and methodology attempting to uncover the truth related to the academics' challenges. Rooted in the qualitative paradigm, the effort is based on the realities of understanding, analysing, dissecting, and demystifying the existing social realities through the eyes, lives and experiences of different participants (Cohen et al. 2007:18-19).

It is necessary to distinguish between living theory research and living-educational-theories in order to comprehend the dynamics of the living theory per se. The aim of the latter is related to the production of explanations provided in respect of the variety of educational influences in an individual's learning and the influences of the environment, existing social, and individual realities and the social circumstances influencing behaviour, practice, or understanding of situations. Living theory research is the conceptual framework that enables and provides opportunities for researchers, leaders and educational practitioners to locate their efforts through its utilisation (Carozzi, 2019).

It is very interesting to note that one of the most significant contributions shaping the dynamics of living theory research was outlined in Whitehead's seminal 1989 paper, which was based directly on improvements in the higher education terrain, including the existing educational and research context, the significance of professional realities, teaching and research programmes and practices, and personal and professional boundaries, as well as geographical, local and international boundaries (Whitehead, 2018a: 3). The theory has proven to be the

guidance to a clear understanding of practice improvement, existence as a living contradiction (Whitehead, 2018a: 3-4).

Such a process opens the path in higher education leadership to seriously study the existing realities, circumstances and challenges, and plan for a future that is destined to learn from the lessons of the past and the present. Such a context allows living theory research to take careful account of the new technological advantages, especially the ones connected to the realities of the 4th Industrial Revolution economics, as well as the findings of a wide spectrum of researchers and theories who have been utilising different paradigms and methodologies in their educational research globally.

The living theory revolves around an academic defining his/her professional identity taking into account the realities of the chosen profession, and the confrontation of the holistic challenges facing them in their lived experience. Confronting these challenges leads to a profound sense of transformational identity. This is the heart of living theory and action research.

1.9.5. THE RESEARCH DESIGN

The research design of an empirical study is the plan that outlines the key elements of research and their connective relationships, an overall framework includes the research questions, the data needed to answer the question, the correct methods utilised in processes of the relevant data collection, and the analysis-based techniques to be used in answering the questions (Gunn 2017: 242-243)

The key aim of the present study was to achieve a deep understanding of the challenges faced by HEIs through the use of the systems approach, and its objectives were to research and analyse the realities facing academics at the university, to seek a deep understanding of the complexities of higher education praxis and to identify possible interventions that could develop a personal theory of practice. Within these parameters, the important questions to be answered were related to the nature and complexities faced by academics in their praxis, the nature of the challenges faced and the possible interventions that can be developed for a personal theory of practice.

Aguado (2009: 252-253) has shown that the research design is a blueprint for the successful undertaking of the study with very crucial controls instrumental in not allowing possible interference of factors that can distort the validity of the expected outcomes. The present study

utilised the qualitative research methodology, which provides the practical ways through which new knowledge regarding social, institutional, or organisational phenomena is empirically investigated and analysed.

Within this context, the utilisation of the process of living theory and action research leads to a deep understanding of the systems and processes as well as the historical, social, educational and cultural contexts that shape the actions and behaviours of a work environment. Such a process provides the researcher with the possibility of creating a coherent, collective story shaped and experienced and by a group of key actors in the university environment. This can be built through the representation and understanding of their life experiences, thoughts, behaviour, actions, and/or inactions within a specific environment (Levitt et al. 2017: 4-5).

The reliability and validity of the exchanges and information emanating from the participants are rooted -in a number of factors, especially the knowledge, skills, rigour, commitment and dedication of the researcher. These key factors allow the researcher and the participants to delve deeper into the data collected through a common understanding, confident mutual trust, respect and agreement on the ways and means of utilising a wide variety of analytical levels and techniques. This process relies on the agreed utilisation of the categorisation of data and the variety of concepts and techniques used. The researcher then categorises questions, responses, conversations, debates and observations, and interprets them according to their understanding of the realities and context**.** Following the above processes, the transcripts are returned to the participants to scrutinise the content and agree on it**.**

1.9.6. THE SAMPLING TECHNIQUE

One of the key elements of an honest, transparent, accountable and appropriate sampling selection and technique is the consultation of the researcher with his/her prospective research participants**.** Debates and consultations with prospective participants led to the final decision that the nature of the conceptual framework and the fundamental principles and research application of the living theory action research would be better served through the use of the purposive sampling method.

As sampling frame is a ‘focused choice’ that is founded on the place, pattern and conditions suitable for the researcher in the process of building a clear understanding and common aims and objectives of the sample population. Such a technique is founded on the researcher’s own knowledge, understanding and judgement of the environment within which the research takes place when choosing the participant in the study (Strauss & Corbin, 1990).

The successful process of participants' selection is rooted mainly in the researcher's utilisation of the past and present knowledge and understanding of the working environment and the choices of the participants cannot only be used as primary data sources but also as co-researchers in a collaborative exercise**.** The purposive sampling used in this study and the identified group of 15 academic staff members from different faculties and support departments were selected following consultations with both academic and administrative staff at the institution.

1.9.7. THE INTERVIEWS

A semi-structured interview was used with the most weight, concentrating on the qualitative nature of the questions and answers. It was felt that the semi-structured interview is useful because it combines a set of pre-determined questions that enables the interviewer to explore particular themes and responses, exchange ideas and propositions and expand the debate as it consists of a clear-cut set of issues to be addressed and questions to be answered**.**

It was felt that the semi-structured interview was appropriate because it allowed all participants to be an integral part of an open and free dialogue on an equal basis and provided a unique opportunity for the researcher to learn and share ideas, beliefs and attitudes shaping the challenges of academics at the institution under the microscope. In this process, exchanges of ideas were open-ended and allowed the researcher to dissect the issues as they were collected, noted and assessed, thus keeping in line with the tradition of qualitative research. The interview schedule was used with a set of inter-related questions asked in the same order to all respondents. Questions aimed at acquiring data and notes were taken, mostly verbatim. Verbatim transcriptions are considered in research as an integral part of analysing and interpreting verbal data**.**

1.9.8. THE CONTEXTUAL DOCUMENTARY ANALYSIS

The secondary data analysis that was conducted utilised all relevant material available from the institution, knowing that this data source provides detailed information on all aspects and angles, duties and responsibilities of all stakeholders and role players and their duties and responsibilities. The study of documents included existing and future institutional plans, planning processes, training and development, infrastructure strengths and weaknesses, documentation on institutional long-term and annual operating plans, state and department reports and audits, as well as archival records and existing organograms. All conversations and debates that took place were recorded, transcribed, categorised, and coded together with the

related field notes before they were scrutinised through a process of analysis that followed a variant content analysis technique (Schreyer, 2012).

All conversations and debates that took place were recorded, transcribed, categorised and coded together with the related field notes before they were scrutinised through a process of analysis that followed a variant content analysis technique

1.9.9. THE RESEARCH ETHICS

The research ethics project is fundamental for universities in South Africa and internationally, hence the researcher's first steps were the requirements from the study institution, the Durban University of Technology and the institution under investigation, and the Mangosuthu University of Technology. The applications for ethical clearance were submitted timeously to both universities and the ethical approvals for the research study were received.

Confidentiality of all participants is a key to the commitment and success of the project and it has been upheld throughout the research process and data collection (Israel & Hay, 2006).

The interviews and debates were conducted by the researcher and it was ensured that the whole process was characterised by and took place in a professional and collegial manner. The first and initial priority of the researcher was to ensure the informed verbal consent of participants, as it is considered the founding principle that underpins the ethical requirements of the study.

Following the first step and in support of the principles, aims, objectives and outcomes of the present project, a consent form and information page were handed out to all participants before any engagement related directly or indirectly to data collection.

Complete confidentiality and anonymity of respondents were guaranteed and upheld throughout the research process**.** The result report did not carry the identities or particulars of the participants guaranteeing, their rights to privacy, anonymity and confidentiality**.**

1.9.10. CONCLUSION

CHAPTER OUTLINE

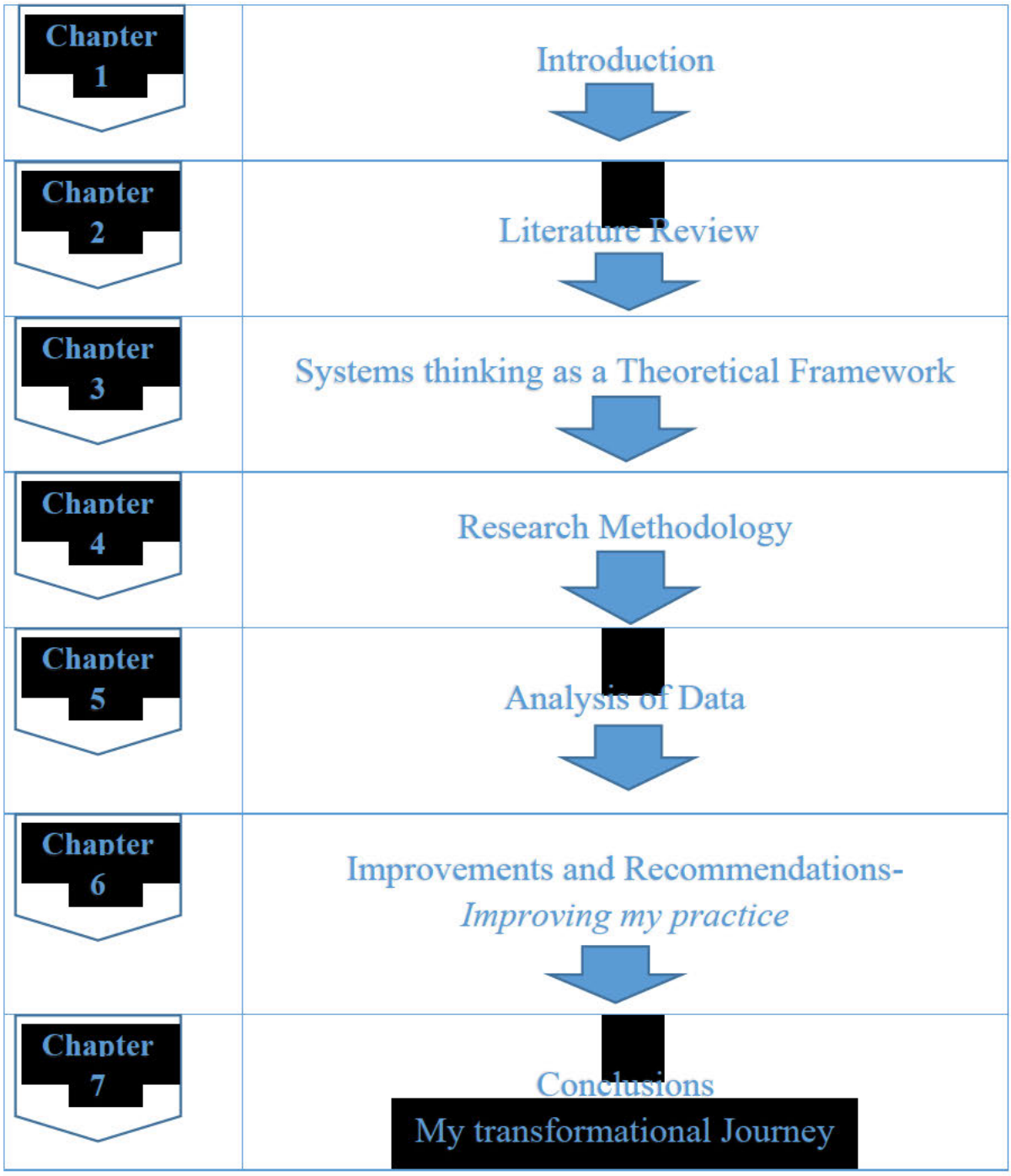

Figure 1.2 Diagram of chapters in this thesis

The first chapter began with a number of the key issues and challenges facing higher education (HE) in South Africa, Africa and globally even before the realities associated with the COVID-19 pandemic. In the turbulent post-apartheid South Africa, the realities facing the government,

universities, academic leadership and millions of students have challenged all role players to achieve the aims and objectives of the National Development Plan at a number of levels. Several struggles shaped by a number of academic, intellectual, political and economic/financial events led to structural, functional, academic and intellectual changes. This led to serious debates that have been dissected in the first part of the chapter in terms of quality, quantity, knowledge production, graduate output, efficiency, quality and transformation.

The exposition and analysis of systems thinking followed as the theoretical framework underlining the project. The conceptual framework upon which the empirical work is based, the living theory, was the instrument chosen to guide the empirical component of the research and analysis of the academics' challenges at the university.

The sections that follow, deal with sections of the literature analysing contemporary empirical research throughout the world and South Africa that is evident in everyday realities of universities throughout the world that are relevant to the researcher's university and topic under investigation**.**

They were followed by the research design based on the qualitative paradigm, which was followed by the steps associated with the sampling procedures, the interview processes as an integral part of living theory action research, the parameters of contextual documentary analysis and the dynamics and realities of the research ethics upon which this empirical effort is based.

All the steps of the introduction to the thesis are directly related to the key challenges facing academics at the institution under investigation and are, amongst others, on student basification, institutional infrastructure, workload, and their repercussions, namely the lack of technology, administrative workload, and research versus teaching.

These are the key issues to be mainly studied and analysed through empirical means in the present study.

CHAPTER 2 LITERATURE REVIEW

THE CONTEXT: THE SOUTH AFRICAN UNIVERSITY LANDSCAPE

2.1. INTRODUCTION

The chapter is an analysis of the current mandates I am subjected to as an academic and how they are related to the future challenges, struggles and endeavours of the university and all its stakeholders and role players. Anyone who follows the recent history of South Africa's universities is aware that despite the government's initiatives to assist the poor, the repercussions of the 'Fees Must Fall' are still the roots of continuing turbulence. The leaderships of almost all South African universities face a situation of fluidity. It is the responsibility of the researcher to utilise an explanatory framework that generates not only serious questions but plans a variety of empirical initiatives in the investigation leading to understanding, explanations, and descriptions. These are directly related to existing realities, regularities, relationships and behaviours of both groups and individuals. terms. A deep understanding of such existing realities and relationships enables positive institutional change, as knowledge and understanding of institutional conditions can lead to positive change.

Within these existing realities and challenges, the new realities facing universities and all stakeholders and role players will be tackled, including the technological realities; the existing forces instrumental in shaping the institutional identity and performance realities and challenges; the perpetual commodification of knowledge and the relations shaped and changed during the challenged-based processes.

This chapter aspires to set up the context and intention of the researcher to contribute to the research purpose that is, directly and indirectly, related to the impact of perceived or real challenges facing academics and researchers who are obligated to follow the country's policies that deal with a number of important issues such as increased volumes of graduate output (quantity), transformation, efficiency, and quality. It is understandable that the first years following South Africa's political transition in 1994 were based on a widespread euphoria, imagining a new, prosperous, successful and transformation-based society built on hard work, honesty, good governance, transparency, effectiveness and efficiency (Moller et al 1999: 246-247; Beall et al. 2005: 246; Mosala et al. 2017).

The second chapter thus begins with a historical and present exploration of South Africa's tertiary education landscape as the first step of the researcher's effort and aspiration to make

an original contribution to knowledge through an empirical effort in the educational and research context of a South African university of technology, with special attention to the existing complexities and challenges facing academics at all levels in their efforts to achieve success in the above policy obligations. Research needs to be undertaken to integrate these various perspectives into the work of academic institutions and the academics and students that populate them. Further complexity arises from the various types of universities espoused in the literature and the process of formation within South Africa.

There was and still is a strong belief that successful, transformed and well-governed universities are very important for the country's democracy and its upliftment because research innovation, high standards of teaching and learning as well as community engagement are instrumental in the country's reputation as well as producing new cohorts of academics and researchers able to advise, devise and assist in the implementation of new, pioneering and forward-looking developmental policies.

These are of fundamental importance for all institutions, in particular, the universities of technology which is the focus of this research.

2.2. UNIVERSITY'S NEW IDENTITY: THOUGHTS IN THE ERA OF THE 4IR

It is important to ground the present research in an analysis of contemporary thinking regarding the identity of universities, their present origination and what forces have shaped their emergent identity, including performativity and the commodification of knowledge and how they are related focus areas of this project.

There is no doubt that the context, nature and realities of education have changed radically in recent decades. These changes associated with performativity, commodification of knowledge, enhanced standardisation and performance indicators, amongst others, pinpoint the fact that the value of education as the foundation of creativity, ethics, morality, and human development has been replaced by a perpetual marketisation of knowledge. Such realities have resulted in increased negative impacts on both academics and students, especially stress (Larson, 2018).

The continuous university competition in terms of reaching the 'top position' in the many 'rating scales' in South Africa, Africa and internationally has created and developed an almost exclusive concentration on 'excellence in performance' in terms of teaching and learning, research productivity and community engagement. All these realities are the result of

aspirations of leading the market-related competition that leads to the perpetuation of standardisation at all levels, control of the curriculum and research realities, and continuous leadership institutional control (Erkkilä, 2014).

Under such circumstances inevitably the majority of academics are or feel disempowered as many institutions are obligated to follow budget cuts, curricula planned to meet the needs of the markets and the university leaderships' continuous demands for the upgrade of research performances and publications that provide extra funding from the private and public sector, non-governmental and civil society organisations (Heilbron et al. (2018).

Such realities have been evident in most South African universities through funding from the NRF (National Research Foundation.) the HSRC (the Human Sciences Research Council) and advanced training courses for the private and public sectors (the third stream).

Pressures associated with the commodification of knowledge and performativity exacerbate heavy workloads for most academics in South Africa and internationally, as do compulsory performance measures, including serious preparations for tenders from both the public and private sectors, serious increases in research and publications in recognised and accredited journals (Mingers & Willmott, 2013: 1052). Internationally and in South Africa, steady performance monitoring and appraisals are the measures of research outputs mainly in high-impact journals and excellence in teaching and learning, which are supplemented with increased Masters or/and Doctorate supervision duties that demand extra administrative duties and responsibilities.

The increasing managerialism associated with most universities tends to become and be transformed into service delivery instruments led by an emphasis on efficiency, effectiveness and outstanding performance levels, even if they really operate with limited funding and resources (Cañibano et al. 2018: 778-778).

The continuous leadership and managerial demands of increased research outputs, extra administrative roles and continuous and long hours of teaching duties and responsibilities have been described internationally as expectations associated directly and indirectly with government cuts in funding for higher education that also have negative effects on academic and research staff retention and development (Demeter, 2019).

It has been shown empirically that performativity and commodification of knowledge, which lead to control, monitoring, and competition are the signs of the relegation of the importance of the social and moral values associated with true educational principles such as integrity, trust, humanism, care and solidarity. Such reality that prevails elevates individualism, self-interest and personal career interests among academics (Hornstein, Tomic & Taylor, 2018).

The performativity and audit culture that have been dominating the professional lives of many, if not most, universities tend to have serious negative effects on both the professional and personal lives of academics and all university staff as they are obligated to perform their duties within the parameters of a performance-oriented culture that pressurises individuals to perform what is considered a 'visible and measurable' work that can be transformed into 'tangible and measurable' outcomes (Busch, 2017).

Undoubtedly, such realities are instrumental in the creation and perpetuation of a competitive and stressful work environment where academics experience a 'work-related stress' which in most cases carries significant costs for them and the university. Research has shown that the combination of the duties and responsibilities of academics in terms of research, increased numbers of students and teaching and administrative roles lead to overwork, one of the key elements of psychological and physical stress. In addition, academics employed in very demanding working environments are less likely to excel in their research endeavours and provide outstanding outcomes for students because the increased workload and greater expectations on them at all professional levels make it extremely difficult. In many ways, the existing negative adverse consequences of managerial expectations, demands and competitiveness have been instrumental in the realities of workplace stress and burnout (Mingers & Willmott, 2013: 1053; Marginson, 2016).

2.3. THE SOUTH AFRICAN UNIVERSITIES SINCE 1994

A brief background history of South African universities records that the University of Cape Town was the first established in 1829, and the University of the Witwatersrand (previously called the School of Mines University) in 1895. The University of South Africa (UNISA), which today is correspondence-based and had branches in Potchefstroom, and then Orange Free State, Potchefstroom, Pretoria and Natal. All of them were separated and renamed as Universities of the Orange Free State, Potchefstroom, Natal, and Pretoria. All of them only accepted White students with a small number of exceptions (Reddy 2004).

The University of Fort Hare (UFH), the first exclusively Black African university was called 'South African Native College' and was established in 1916 .The University of the Western Cape (UWC) was established for Coloured students only in the Western Cape Province in 1959 and was then called, the University College of the Western Cape. It was started initially as a branch of UNISA and it became a fully-fledged university in 1970. (Reddy, 2004).

The University of Zululand catered for speakers of the isiZulu and Swazi languages, while the Tswana, Venda, Sotho, Ndebele and Tsonga speakers were serviced by the University of the North established in Transkei, Venda, and Bophuthatswana had their own universities. The University College for Indians, attended only by South African Indians, was initially based on Salisbury Island outside the Durban harbour and was established in 1961. It was moved to Durban in 1972 and renamed the University of Durban Westville (UDW). It was the first university for Indians and was established in Durban, in the then Province of Natal in 1972. (Reddy, 2004).

It can be understood that the 1994 political change in South Africa led to the inevitable process of transformation of the country's university landscape. Apartheid laws such as the Bantu Education Act of 1954 and the Extension of the University Education Act of 1959 were immediately abolished and the deliberations regarding the new way forward began (Badat and Sayed 2009).

Badat's (2010: 4-5) analysis has shown conclusively that the continuous efforts of the first democratic government's efforts to democratic government's efforts to transform the county's higher education realities through a process debated, planned and designed had as a key objective the radical change of the apartheid systems.

Such a vision and plan have faced, at least initially, a wide variety of serious challenges at all levels.

Despite this fact, the researcher has meticulously pinpointed the major steps forward, which he calls 'leaps'. These steps, he described as the output of the colossal efforts instrumental in paving the way forward to the road to transformation.

Such a process, based on thorough debates, planning and action, led to serious institutional changes, founded on a number of well-calculated steps and transformation-based initiatives, which were aimed at changing and developing the existing structures, functions and processes in all aspects of the university's practices, including leadership imperatives, as well as

academic, research, teaching and learning and transformation steps. All were planned, designed and implemented in order to replace the apartheid legacy and realities.

The fundamental changes undertaken were founded on steps based on comprehensive study, debate, planning and implementation of a wide range of policies that were well researched, planned, formulated and implemented at all institutional and organisational levels such as financial resources, academic and research structures and programmes, quality assurance, and community engagement.

These steps were reinforced by the promulgation of new rules, regulations and legislation that led to a series of serious reconfigurations and restructuring of the country's tertiary education entities.

In reality, there were processes installed that were instrumental in beginning initiatives with key aims and objectives, with the main tasks being the testing of realities associated with funding needs, organisational imperatives, programming of teaching, learning and research as well as the existing capacities and capabilities of the institutions. These steps were seen as important in terms of affecting the nature, planning, pace and outcomes of the planned changes in terms of direction and outcomes (Badat 2010)

Given the historical realities of the country and the existing terrain, the problems and challenges associated with real, effective and speedy transformation were at the top of the list. This was a task of major proportions because of the planned multi-faced new processes and structures that could actually lead to complete reconfiguration enabling equity and redress and, hence the adoption of the Transformation in Higher Education Discussion Paper (CHE, 2015a).

The transformational programme set by decisions, policies, rules and regulations was described as a great move forward, advocating and expecting a wide variety of outputs, such as innovative and pioneering research efforts rooted in the expansion of research outputs with a positive effect on innovative new knowledge production, excellence in teaching and learning and continuous and well-thought-out and implemented community participation and engagement. These fundamentals were the only path forward to societal development that would have a positive effect on the long road to transformative thinking, which is key in the universities' role and aspirations to build a democratic, non-racial non-sexist developed society (CHE, 2015).

As Cloete and Maassen (2015:13-15) have shown such a step forward could only be determined by good governance, efficiency and effectiveness in the process of ensuring that laws, policies,

rules and regulations would be instrumental in understanding the country's and the institutions' economic, financial, political, structural, functional factors as the key elements upon which tactical and strategic planning and implementation decisions are taken.

These initiatives have been very significant in the state's efforts to galvanise the existing leadership of higher education institutions and their plans to succeed through the appropriate planning and implantation founded on the determination to succeed in the efforts to completely defeat the apartheid of segregation, racism, categorisation, language policies, and the artificial topographies imposed by the regime. There was a sophisticated plan to dismantle re-organise and dismantle the apartheid legacy (Bunting 2006).

The new situation was prepared in a fresh process based on the belief that the main objective of the way forward targeted processes facilitating a finalised redress of the historical legacies and inequalities of the historical past and to prepare, debate, plan and implement a new path towards transformation based on developing service provision at all institutional and organisation levels and expanding of access to education to all (Badat and Sayed, 2009). A very difficult task for a new democracy indeed.

The continuous deliberations, consultations and research of NCHE (the National Commission on Higher Education) led to a comprehensive report whose expanded findings and recommendations were the basis of the White Paper on Higher Education Transformation of 1996, followed almost immediately by the promulgation of the Higher Education Act, No. 101 of 1997. These research and legal initiatives were instrumental in the creation of the CHE (the Council of Higher Education) and the HEQC (the Higher Education Quality Committee), both established in 1998 and implemented in 1999 (CHE, 2015a).

The key importance of the 1997 White Paper lies in the fact that it signified the new beginnings in the landscape of tertiary education in the country as it included the dynamics of a process aimed at targeting the much talked about 'social transformation' and its key elements at all levels of a highly complicated state sector. In this process, the immediate opening of all universities was the first decisive test. This radical step, planned and implemented, immediately was expected to lead to substantial increases in students and staff, lay the solid foundations of a homogenous higher education system devoid of racial considerations and lead to a fundamental restructuring of the higher education terrain, a process leading to a fresh, completely representative system for all (Reddy, 2004; CHE, 2015).

The White Paper of 1997 was thus the blueprint programme aimed at transforming the country's universities through an articulation of the re-organisation of the new higher education landscape foundations. This was an attempt to create a clean governance model for the sector, which would be instrumental in eradicating outdated apartheid-era realities. It was founded on an innovative model that planned a future for higher education institutions based on a deeply rooted administrative autonomy with a wide range of new governance frameworks (Bunting et al. 2010; Kumalo, 2020:11).

The South African government was envisaged as the sole driver of the new endeavour and would have the responsibility of debating, planning and implementing the sector's goals; be the vehicle of decisions that would determine the aims, objectives and goals of individual higher education institutions and drive the processes of assessments, evaluations and monitoring of the individual institutions' and the system's overall performance (Bunting et al. 2010; Khumalo 2020: 12).

These plans were based on the universal understanding that higher education is the heart, soul and centre of teaching, learning and research and given South Africa's historical realities as a key vehicle and contributor to cementing democracy and the economic and social development of the country. The plan envisaged and proposed a plan for universities that could succeed at all levels in accordance with their key responsibilities, comprising scientific knowledge production, excellence in teaching, financial growth and resource stability, innovative human resources principles, planning and implementation and talented and well-developed and forward-looking faculty, all these foundations guaranteeing quality service to all students (Finlan et al. 2016).

As time passed and many debates developed around the success of the first transformation-based initiatives and the increasing demands and realities on the part of prospective students, whose numbers escalated, new challenges emerged at all organisational and institutional levels, calling on the state to rethink the consolidation of universities. It was thought at the time of challenges that new policies were needed in order to strengthen the transformation process and within this context, a number of new policy documents were produced.

These documents have been considered as the foundation upon which the university mergers were built. The documents once again were based on the research and intellectual work of officials, academics and administrators in the higher education terrain. Once the documents

were produced a wide array of debates, symposia, closed and open colloquia and the creation of specialist bodies were in force.

The major outcome of such processes was the Size and Shape Report whose final version was distributed to all universities, state authorities, university leaders and all role players and stakeholders in 2002. It included proposals guiding the future re-shaping of universities through mergers that should take shape and be concluded in a two-year period (2003-2004). The new reconfiguration of the university terrain was both historical and challenging at all levels and all institutional leaderships as it was based on a document destined to shape the future of both institutions and the country at large (CHE, 2015a).

The CHE policies visualised a merger as a process leading to the combination of one or more separate institutions into a single entity. They were to be led by a single governing body which would be in charge of the combined responsibilities, and their assets and liabilities (CHE, 2001).

The key objective of such a merger initiative was to consolidate the different structures, processes, systems and functions of the proposed, accepted, planned and implemented merged institutions. As a result of this process, the 34 universities and Technikons were reduced to 23 and were given the categories of traditional, comprehensive or universities of technology.

The traditional universities were the Sefako Makgatho University (previously known as MEDUNSA), the University of Cape Town, the University of Stellenbosch, Rhodes University, the University of the Western Cape, the University of Pretoria, the University of the Witwatersrand, the University of Limpopo, North-West University, the University of KwaZulu-Natal, the University of Fort Hare, and the University of the Free State

The comprehensive universities were the University of Venda, Walter Sisulu, the University of Johannesburg, UNISA, the University of Zululand and the Nelson Mandela Metropolitan University.

The universities of Technology were the Cape Peninsula University of Technology, the Vaal University of Technology, the University of Mpumalanga, the Sol Plaatjie University, the Mangosuthu University of Technology, the Central University of Technology, the Durban University of Technology and the Tshwane University of Technology.

In addition to these, three new universities were established in Gauteng, Mpumalanga, and the Eastern Cape and all institutions were classified/categorised in accordance with their offered programmes (Simkins, 2016).

The main knowledge and the scholastic difference between Technikons and universities before the planned and consolidated merger was based on the fact that the primary functions of the former were to provide and train students with the ability to connect and apply their chosen vocation or career to their learning discipline or chosen subject founded on specific scientific principles within the context of a specific vocation or career.

These realities point to the fact that these institutions' are courses mainly, if not exclusively, concentrated on the application of knowledge and not knowledge in itself. On the other hand, universities before the merger aimed at the provision of education aiming which was directly related to and based on fundamentally scientific disciplines based on scholarship, thus preparing the students for diversified and rich choices within the spectrum of occupations related to upper- and middle-class positions, occupations and professions (Bunting et al. 2010). They described such a reality as a race and class-based educational separation of South Africa's youth.

An initial examination and analysis of the process and outcomes of the merger have outlined the difficulties facing the new institutions and their leaderships during an arduous and urgent restructuring of serious proportions that would lead to the creation of twenty-three universities. The emergence of a new classification system was questioned in a number of quarters but it was a done deal, decided, processed and in the final analysis, accepted. (Hall, 2015).

The processes associated with the transition that followed the mergers were not an easy period for all institutions as the problems and challenges on many occasions multiplied mainly because of the existing differences in the organisation and outlook of the individual entities that merged.

There were structural, functional, human resources, and infrastructural problems and challenges that needed to be ironed out and solved within the parameters of political, financial, intellectual, economic, leadership-related, systemic, organisational, and functional realities in existence that needed to be studied thoroughly in order for the new institutions to build, develop and sustain new foundations of unity, common aims and objectives based on the required fundamentals: excellence in teaching and learning, innovative research and the new production and dissemination of knowledge, as well as a new beginning and expansion of community

engagement. It was initially hoped that all these initiatives and plans would be built on a common understanding of the individual institutions that could be based on the fundamentals of good governance, common transparency and accountability, solid organisational principles rooted in collectively agreed-upon strategies and tactics, united, professional and decisive leadership and human resource unity and expanded common capacity and capability (Cloete & Maassen, 2015).

It was believed that the merger's functional and structural processes and outcomes would ultimately lead to a pioneering, well-thought, planned and implemented, radical and innovative re-structured creation that would be in accordance with the aims and objectives of the needed transformation. It would be the outcome of a thorough policy, ready to address the transformation-driven challenges and problems faced by the key higher education stakeholders, especially academics, students and communities at large. It was felt that the historical challenges were thoroughly and conclusively addressed (Cloete & Maassen, 2015).

Moreover, the massification of student enrolment in South African HEIs increased from 473 000 in 1993 to approximately 799 388 in 2008 (Badat, 2010:5), whereas by the 2013 academic year, the total student headcount enrolment at the 23 established universities in South Africa reached 983 698 which includes both full-time and part-time students for contact and distance studies (DHET 2014/2015:26). The ultimate national aim is to increase the total headcount enrolments to 1.6 million by 2030, as envisaged by the National Development Plan (NDP) and the White Paper for Post-School Education and Training (PSET) in 2013 (DHET, 2014/2015:26).

During the period between 2010 and 2016, there were 159 542 new student enrolments, most of them in public HEIs, with an increase of 82 901, during that same period in private HEIS. However, growth in student enrolment in private HEIs over the period almost doubled as its growth increased by 84.4% (76 641) over a period of seven years. This means that the public HEIs proportion declined to 85.4% from 90.8% during that period, while it increased from 9.2% to 14.6% for private HEIs in the same period.

Overall, 1.1 million new enrolments occurred in both categories of institutions in 2016 and 1.0% (10 823) higher when compared to enrolments in 2015. In 2017 there were 1 222 030 students registered in both categories of HEIs an increase of 6.9% (78 785) in comparison with the 2016 enrolment (1 143 245). The enrolment rates increased in both types of institutions (61 147 in the public ones and 17 638 in the private ones). The figures indicate that more than

three-quarters of new students (84.9% or 1 036 984), were registered in public HEIs, while 15.1% (185 046) were in private institutions. The figures indicate an increasing trend during the seven-year period, a growth of 24.2% (238 327) student enrolment.

In terms of social group identification, almost three-quarters of the enrolled students were in public institutions in 2017, 763 767 (73.7%). They were followed by White students 14.3% (or 148 802), 6.2% (64 772) by Coloured students and 4.8% (or 50 131 Indian students. In terms of gender enrolments, there was a difference regarding the Black African group, where there were 130 138 more female students enrolled in comparison to males. On the other hand, in terms of the Indian group recorded 9 905 more males than females enrolled.

In terms of the trends regarding graduation traits in both public and private HEIs, 210 931 graduated from public HEIs in 2017, a 3.9% (7 855) increase when compared to the 2016 results. Science, Engineering and Technology were the fields with the majority of graduates (61 581 or 29%). It was followed by Management and Business (57 772 or 27.4%) or 57 772 or 27.4%), other Humanities (22.4% or 47 144) and Education (44 434 or 21.1%) fields.

The majority of students completed their studies in undergraduate degrees (96 120 or 45.6%). This was followed by undergraduate diplomas and certificates and diplomas (55 426 or 26.3%) and post-graduate degrees below the Master's level (43 377 or 20.6%).

In 2017, 3057 students graduated with PhD degrees (260 or 9.3%) more than the previous year (2 797). During the period from 2014 to 2017, the total number of PhD graduates from public universities stood at 10 642. 35 922 students graduated in private HEIs in 2017, a 9.5% (3 764) decrease in comparison with the previous year (39 686).11 358 (or 31.6%) students graduated with Bachelor's degrees in private HEIs followed by 10 366 (or 28.9%) who achieved higher certificates (DHET 2017).

The seminal decisions of the country's governing party's 2017 National Conference resolutions on higher education registration of poor and working-class students had a major impact in terms of university student massification.

South Africa, a developing country in the middle of a widely accepted economic and fiscal crisis, is thus facing a completely changed, transformed, and forward-looking higher education future steeped in hope in a terrain of new challenges in a higher education landscape of massification with an extreme student enrolment which has become a global phenomenon

founded on the premises and promises of an advanced knowledge economy, the 4th Industrial Revolution and globalisation. (Mohamedbhai, 2008).

2.4. CHALLENGES FACING TERTIARY HIGHER EDUCATION IN SOUTH AFRICA

The vision of the new democratic government and its relevant ministries envisaged education in general, and tertiary education in particular, as a pillar and symbol of a new society, and the epitome of growth, inclusivity, excellence, transparency, innovation, effectiveness and efficiency.

Given the disparities and inequality of the past, the realities of the mergers and the prevalence of urban institutions at all tertiary levels, one of the key ingredients for the creation and development of universities as centres of excellence combining high-quality teaching and research, social and community engagement, a number of challenges have been faced by tertiary institutions throughout the country.

Such challenges are based on historical, social, educational, political and geographical realities, meaning that traditionally research-based universities face different ones when compared with technical universities. The challenges are related to financial and human resources, infrastructure, relations with government and the public sector and industry, geographical local and surroundings student and academic selection, retention and development and talent management at all levels.

This chapter examines key challenges faced by tertiary institutions in South Africa with an emphasis on technical universities.

2.4.1 SOCIAL AND ECONOMIC INEQUALITY

Higher education in South Africa is a key to individual, community, national, continental and global social and economic development. It is a foundation for building a prosperous, peaceful, non-racial and democratic society, united in its diversity. Twenty-six years after the first democratic elections, the relationships amongst all levels of education are instrumental in the challenges facing the country's higher education at a structural level.

The above reality is directly related to the levels of social and economic inequality evident in the country epitomised by the high levels of poverty amongst the majority of the country's population that together with the serious problems facing the primary and secondary educational levels in South Africa have very negative effects on youth's preparation for

universities. The existing gaps between secondary and higher education call for immediate and appropriate planning and action of the relevant educational Departments, with the universities able, capable and ready to address such issues through bridging programmes.

According to the latest LCS (Living Conditions Survey) released by Statistics South Africa 49.2% of South Africa's adult population live below the UBPL (the upper-bound poverty line).In the period 2014/15, there were 35.1 million adults in South Africa in 2015, 46,1% males and 52,0% females. The latter experienced higher levels of poverty when compared to the male population. Limpopo (67,5%) had the highest population living in poverty, followed by the Eastern Cape (67,3%), KwaZulu-Natal (60.7%) and North West (59,6%). Western Cape (33.2%) and Gauteng (29.3%) had the lowest proportion of adults living in poverty.

The distance away from the poverty line (the poverty gap) and severity of poverty were higher for female-headed households in comparison to male-headed households. Statistically, the number of females living below the UBPL was 16.9% higher when compared to those of male households (49.9% and 33.0%). 59.3% of male-led households were living under the UBPL when compared to 74.8% headed by females.

The statistics indicated that poor children were twice as likely to have no access to safe play areas. 53.7% of non-poor children lived in neighbourhoods with safe play areas as opposed to 25.7% of poor children who lived in dangerous areas. It was reported that female-headed poor households had better access to electricity and housing, but not sanitation, water, and refuse removal services. Approximately 91.4% of poor male-headed households had access to electricity, while 95.2% of poor female-headed households had access to electricity. 69.6% of poor female-headed households had full access to water, while 71.7% of poor male-headed households had full access to water (Statistics South Africa 2019)

HIV Aids had throughout the years a devastating impact on all social groups and communities throughout the world, Africa, and South Africa. It has very serious negative consequences on the lives of many middle-and working-class strata including reducing their supply of the qualified teachers. Such a reality has led to the continuous disruption of schooling for millions of learners and children and has resulted in delays in social and economic development.

As the intellectual and knowledge-building of a child begins in the early years of life, such situations and circumstances have a direct and indirect negative effect on the development that begins with pre-school, followed by primary, secondary and tertiary education.

The situation regarding the serious effects of HIV on South Africa's primary and secondary levels of education has been described as extremely serious (Zuma et al. 2016)

2.4.2 INFRASTRUCTURE

Simultaneously, South African schools throughout the years have been deprived of facilities, resources and qualified teachers, meaning that the required excellence in teaching and learning suffers as such circumstances lead to a perpetual lack of effectiveness, efficiency and quality in terms of organisation and appropriate service delivery.

The existing situation, thus, calls for immediate and well-planned and developed infrastructure, resources and advanced human capital development from primary to higher education.

It can be said that the creation of appropriate tertiary education infrastructure is a key element of success, especially amongst the urban-based previously black institutions, including the Mangosuthu University of Technology, the only university in the country built and operating in a predominantly Black African area.

For every university aspiring to succeed and excel in the field of knowledge development, the existence of spacious laboratories, libraries, lecture halls, student accommodation/residences, technological establishments, sufficient communication instruments and new buildings. The success of the academic mission of the university is founded on a wide variety of factors, and physical and infrastructure planning, designing and implementation ought to be comprehensive at all levels in terms of environmental health, spaces and facilities that create and develop opportunities for excellence (OECD 2011; Compagnuccia & Spigarelli, 2020).

Such initiatives are planned and implemented aiming at integration between the institution and the surrounding communities as well as creating an environment that will allow the sharing of existing spaces between students, staff and surrounding communities, ideas, opportunities and common activities.

One of the key issues facing most tertiary institutions in South Africa in both urban and rural areas, is the lack of in-house residences, mainly occupied by students residing far away from them. This reality has necessitated several alternatives, such as seeking alternative solutions, including private accommodation, the hiring of living spaces far away from the institutions and students challenging the accommodation on many occasions because of their bad conditions of living such as lack of toilets, hygienic conditions and the like. Such situations have also led to an increasing number of student protests throughout the country. (Mail and Guardian 2016;

Times Live 2020; Voanews no date). A lack of adequate infrastructure is a serious impediment to the realisation of student's potential, as well as on many occasions, the development of their cultural, scholastic intellectual and academic success, promoting students' intellectual, cultural and social development, and improving retention and academic success.

The lack of infrastructure on many occasions creates an atmosphere amongst the students, especially that is inimical to belonging and a sense of a united community of equals that live together in a student community within an environment that is conducive to collaboration with other students and academics from all disciplines and study (World Bank 2017).

It has been widely acknowledged that there has been an effort on the part of the Department of Higher Education and Training to support financially the infrastructural expansion in most South African universities through the development of a wide variety of building in terms of student accommodation, laboratories, technological hubs, lecture venues, and support amenities.

These developments have been instrumental in creating strong structures that elevate a mixture of new academic spaces comprising of multi-purpose buildings that include residences, teaching venues and student support services. (DHET 2016; DHET 2018) .

The initiatives leading to an expanded, well planned and implemented infrastructure development is instrumental in enhancing the process of inclusiveness both within the campus but also the integration with the surrounding as the university is obligated to fulfil its developmental role through community engagement and social cohesion important for all stakeholders and role players involved in the relationship (International Development in Focus 2017).

This relationship is of importance as universities' aims and objectives in a developing society such as South Africa are not limited to excellence in teaching, learning and innovative research but also actively to contribute to the social, economic and cultural developments of their surrounding communities. This means that university campuses are a hub of activity towards this objective in terms of building social cohesion in the surrounding communities and providing opportunities for local entrepreneurs, schools and community members at large.

2.4.3. STAKEHOLDER RELATIONSHIPS

It is known that universities are state and social institutions that do not exist in isolation and are directly and indirectly related to a number of stakeholders and role players: their staff, the

state, the communities they serve, the industry and free markets as well as civil society at large. Industry and the state, not necessarily in that order are the main employment social and societal actors that employ university graduates in a wide variety of disciplines.

It is the state that provides the legislation, rules and regulations with the hope that a conducive environment is created that offers excellence in teaching, learning, research and the production of new knowledge, as well as community engagement. The state is mainly responsible for the funding of education at all levels and its organs are obligated and encouraged to convince all institutions, especially the tertiary sector, to be enabled in order to attract and develop new talent through a number of appropriate incentives and rewards (Bangeni & Kapp, 2017).

There have been debates regarding the existing tertiary education environment that are covered later in the thesis, with a general feeling that the situation and circumstances facing both academic and administrative university staff are challenging in more ways than one. These include a lack of resources, infrastructure, financial benefits, poor working conditions, migration to the private sector and others. It is acknowledged that the remuneration level in academia has not kept pace with other sectors of society.

It is widely acknowledged that academics, administrators, researchers and institutions need to reclaim their status in the state and society alike as individuals and groups that are striving for excellence, esteem and talent development at all operational and institutional levels. Much of such efforts depend on both leadership and management who are able to realise that the whole spectrum of university personnel is the foundation of institutional success alongside the students, communities, the private sector, civil society and the state. All sectors of the university are responsible for the success of students who deserve to pass and graduate, given the fact that in most of the country's universities the pass and graduation rates are low especially in the first year of study (CHE 2015b).

2.4.4. STUDENT MASSIFICATION

Universities internationally, in Africa and South Africa face challenges in terms of knowledge production, teaching and learning at a number of levels institutionally, organisationally, academically and professionally. As shown earlier the number of new students in South Africa has increased substantially, while the demand for the increase in research output has multiplied over the years.

As the statistics of the Association of African Universities have shown university enrolments have more than doubled in the last few years, but the perpetuation of racial inequalities in historically Black African universities still dents the substantial efforts of the DHET at all levels. Such inequalities are widely acknowledged and exist despite the existing legislation, rules and regulations designed to remedy the inequalities of the past.

These realities pinpoint the government and its relevant authorities' desire to increase the relevance and quality of teaching, learning and research that require additional funding and resources at all levels and have not really achieved its constitutional aims and objectives. All universities in the country are challenged to adopt, plan and implement the legislative and regulatory dictates and mechanisms that lead to excellence, an institutional challenge that is assessed, monitored and evaluated yearly through audits.

Such realities are directly associated with increasing demands on all individual academics and researchers at all levels who are obligated to fulfil a number of interrelated tasks at the core of their service and profession, such as teaching, research, leadership, supervision, research, development and community work, publishing in accredited journals and books, administrative work, community engagement and public discourse, participation in national and international conferences and external service on occasion (**Adetiba 2019)**

Student massification has throughout the world significant implications on academic staff with regard to their developmental and balancing roles, both in terms of learning, teaching, research and the professional development of their academic roles. This is despite the acknowledged fact of the interaction between research and teaching, the two sides of the same coin.

This has become evident in empirical work on the relationship of knowledge production and knowledge transmission and their interaction that utilised the framework and empirical guidelines of the seminal contribution of Trow (1974 quoted in Trow 2000) who showed that increased student enrolment that inevitably meant a visibly heterogeneous student body implied another relationship between academics and students and a more structured curriculum. Massification leads to an increase in the staff/students ratio accompanied by higher teaching loads as well as administrative tasks that lead to significantly less and, correspondingly, less research time. Such a situation leads to professional, intellectual and financial challenges for the affected academics as research is, in most cases, especially in South Africa, more rewarding when compared to teaching because a significant number of South African universities provide financial and promotion incentives for academics excelling in

research publications and new knowledge production. Despite the forward steps in terms of infrastructure development mentioned above, the fact that massification has serious negative effects on teaching, learning and research cannot be denied (Ka Ho Mok 2016).

The situation on the African continent and in South Africa is grave. The continuous mass student enrolment results in over-populated lecture rooms, laboratories and libraries and study and other materials are not available and/or are insufficient.

The continuous increase in the teacher/student ratio results in the absence of individual or small group attention and such circumstances are exacerbated by the lack of appropriate infrastructure. Overcrowded classes become both the norm and the burden of tens of thousands of students, as both teaching, learning and serious attention to students tend to become a rarity. Such realities lead to high failure rates, especially among first- and second-year students. (Lee, 2016).

The Working Group on Higher Education, an important empirical study of African higher education in 2004, indicated that the importance of the issue of equal access at all universities, although an urgent continental necessity, will create serious challenges unless it is accompanied at all levels by solid, transparent and accountable leadership and solid governance, well-looked after and steady student life, international standards related to the university curricula, academic and administrative excellence and continuous development, proper and ever-developing infrastructure and facilities (Working Group on Higher Education WGHE, 2004).Empirical research has indicated that in almost all cases massification's most important characteristic are large classes and overcrowding, situations that lead to negative effects on the teaching and learning terrain and put a strain on the relations between academics and students. Such an environment is considered not conducive to good relations between academics and students and amongst students themselves and it dents the realities of teaching and learning. In most cases the possibilities of high dropout cases increase under such circumstances (Roberts, Ajai-Ajagbe, 2013).

Mohamedbhai's (2003) analysis was confirmed by the findings of Marginson (2017) when their findings indicated that massification leading to overcrowding of infrastructures such as lecture venues, laboratories and technological facilities inevitably leads to structural and functional difficulties in student attendance, supervision and continuous performance assessment in terms of teaching and learning and inevitably failures. Such circumstances also have a direct and indirect negative effect on academic and administrative staff who deal with

students who perpetually seek job opportunities elsewhere. In such cases, it is the most qualified and successful staff members who seek alternative employment as they have the best opportunities to join a highly competitive market.

In most cases, such a decision is based on the fact that there is a general feeling that over-crowding because of massification has a serious negative effect on teaching as well as knowledge production through research (Hornsby & Osman, 2014). Such findings strongly confirm the findings of the African Union (2014) and Marginson (2017), who emphasised that academics whose research obligations to their employers became extremely difficult because of the extra lessons and tutorials to very large numbers of students, the undertaking of administrative duties and responsibilities, organise large numbers of comprehensive assessment reports and examinations were on many occasions neglected.

Such potential negative realities associated with tertiary institutions' student massification are exacerbated significantly in the second decade of the new millennium due to the present and forthcoming evidence and demands of the 4th Industrial Revolution and its influence on universities, especially universities of technology worldwide, especially in Africa and South Africa, where these are the places of hope for a better future amongst large numbers of the sons and daughters of the lower middle class, the poor and the marginalised (Songkaeo and Yeong, 2016).

According to researchers one of the key disadvantages facing the development and growth of the tertiary education sector in the developing world has been the fact that while the private sector and market forces in the developed world have over decades supported universities financially in a collaborative effort, the same has never occurred in the developing world, especially on the African Continent. This reality, according to Hornsby and Osman (2014), has had a negative effect on the continent's universities, which continues until today.

It has been has shown that the reality of massification forces universities without enough financial resources to seek alternative financial assistance in order to fulfil their obligations to students and all staff layers, otherwise the possibility of a continuous financial crisis is a strong possibility. Once the university faces such a crisis, the intensification of a number of initiatives becomes an urgent necessity that can be a major step in safeguarding a better future through an effort to structure and activate a 'third stream' of revenue generation through the intensification

of research and/or the development of training courses either through technology or accredited programmes such as one- or two-year diplomas for personnel in the private or public sectors (Working Group on Higher Education WGHE, 2004).

2.4.5. STAFF RETENTION AND DEVELOPMENT

It has been suggested officially that the improvement of the image of universities is to be founded on the creation and sustainability of open lines of communication at all institutional levels and in society at large as instruments of developing relationships that will enhance the staff, stakeholders and role players' morale. Within this context, it has been said that it is imperative for tertiary educational institutions to begin and complete development plans aimed at elevating the existing levels of teaching and learning as well as research that will ultimately lead to the creation of a new generation of academics and researchers. This plan and its careful implementation are the foundations of an appropriate succession plan that will increase the number of young academics and researchers who are the future of higher education and training (Conversation 2019).

If or when such badly needed initiatives are undertaken, quality in education development could be transformed to reality so that the country can be enriched with new cohorts of highly educated and professional individuals who are prepared and eager to contribute to society and the country in positive ways and therefore directly impact positively on the economy.

HEIs have the most "professional" personnel who need to be remunerated accordingly, as salaries are the largest portion of the budget. All resources need to be upgraded within a specified timespan as technology improves for departments to perform their functions effectively. The funding of HEIs needs to be investigated, as well as the provision of an acceptable environment in which work can be accomplished productively. Universities are generally judged both by their teaching strategies and achievements, as well as by their research output on issues facing the country as research production. Both these fields of endeavour have been successful over the years increasing financial resources for universities. The funding formula being used to calculate government subsidies poses a dilemma for institutions . Costs are escalating but the subsidies are reducing, thus pressuring institutions to reduce costs wherever possible (CHE 2015a).

2.4.6. WORKLOAD

Academic workload throughout the world denotes all assignments undertaken and completed within a specified time. Such assignments, duties and responsibilities are associated with teaching and instruction, contact, managing scholarly activities, research, administration, community involvement, marking, supervision and invigilating examinations. The allocation of workload is prepared, planned and implemented by the university and faculty leadership and, in most cases internationally, these leaders are responsible for the appropriate implementation of the planned guidelines. Workload has over the decades become a serious point of discussion amongst social scientists in almost all disciplines because of the significance and wide variety of duties and responsibilities that reality presents throughout all organisational and institutional levels of both public and private universities (Kenny & Fluck 2014).

At such times, duties and responsibilities as well as the attitudes, ideas, actions and behaviour of all university levels could be generally classified as ‘flexible’ or ‘inflexible’/‘permanent’. The first one has been described as a strategy and/or tactic of university leadership to develop and cement the strengths, commitment, and interests of its academic and research staff at all faculty levels. The second one is different on a number of levels. as the academic staff is permanently obligated to expand their academic role not only in their teaching duties specifically but also be directly and perpetually involved in administrative and other bureaucratic sections that become a chronic part of their everyday duties (Kenny 2018)

Inevitably, there is a wide acceptance over the years that there will be a wide array of variations in terms of planning, designing and implementation in terms of distribution and allocation of academic workload. This is because such a process becomes a functional reality with the ultimate intention of creating and developing stability at the institution, its academic research and community engagement activities through the introduction and continuation of planned hours of lecturing, student/lecturer communication, research planning and implementation, creative endeavours, scholarships, as well as public and private sector and community communication channels (Dennison, 2012).

However, historically and at present, the reality of workload and its complicated nature has become a ‘contested terrain’ that was even evident even before the beginning of the millennium, as Sloane (2018) has shown that most universities under their investigation showed conclusively that part-time and full-time staff below the professorial levels always had

much higher workloads in teaching, administration, supervision and other duties. The professorial category concentrated predominantly on research. This empirical reality has over the years created a serious imbalance in terms of academic workloads in many universities throughout the world, including South Africa. The fact that professors have the tendency to teach higher-level classes led to the reality that the bulk of the workload fell into the hands of lower-level academic staff, temporary staff and teaching assistants.

Hull (2006) and Sloane (2018) have shown that university leaderships throughout the world have struggled on many occasions in planning and implementing appropriate and widely accepted academic workload allocations because of the everlasting changes that take place within the universities themselves, such as student massification and its direct and indirect repercussions, problematic quality assurance, the increase in highly specialised tasks and disciplines, as well as human and financial resource challenges and problems. Inevitably, the main determinants of decisions regarding the division of labour and allocations are not only the senior leadership of the institutions but the policies, strategies and plans of individual faculties' leadership and management.

As a result of the potential for mismatches in the subject specialisations of faculty members in highly specialised institutions, such as technical universities in South Africa and elsewhere, it is highly likely that the senior leadership group will decide how workloads will be distributed and allocated (Nnadozie 2015).

Interesting research on the role of gender and the workload issue has shown that tertiary institutions led by females have implemented equity in terms of workloads between female and male teaching staff, mainly because of existing transparency and cooperation at all university levels in respect of the allocation and distribution systems in existence. The collaboration of leaders with the academic staff led to the planning, designing and implementation of more flexible systems in terms of workload amongst female and male employees. These realities were also based on mutual trust and confidence in the existing relationship among the parties and were against discrimination and favouritism (Dopson et al. 2018).

On the other hand, empirical evidence has shown that female academic staff spend more time in student tutorials and advisory activities and teaching as compared to male staffers who spend more time in research and academic publishing activities .Evidently, such differences are a result of international research and experience based on comparative studies undertaken in different countries and continents, but a generally acceptable wider point of view is that

allocation of academic workload should be balanced among colleagues in the same disciplines, faculties and positions. It is believed that such a balanced initiative will be beneficial to individuals, faculties, and the institutions at large. This is despite empirical findings that have led to the suggestion that satisfaction amongst academics has been widespread when workload schedules are based on pre-determined formulas. Such findings were perceived as strong evidence that academic staff accepted such a reality as fair in terms of such workload distribution schemes (Teater and Mendoza, 2018).

A healthy debate has over the years revolved around the relationship between academic workload and its influence on research and teaching, despite the widely acknowledged direct and indirect relationship between the two. This debate has been influenced and, on many occasions, revolved around the seminal contribution of Burgess et al. (2003) whose empirical research led him to the belief that justifiable workloads could be successful only when they are based on principles associated with transparency, accountability, equity, comprehensiveness feasibility, in their efforts to confront the challenges faced by all universities because of high workloads.

Thus, findings by Gopaul et al. (2016) have shown that academics at universities in developed countries prefer to be more involved in research as they feel it provides them with more autonomy in their intellectual and professional pursuits. This means that they prefer to concentrate less on teaching, student guidance and administrative duties and responsibilities in the distribution and allocation of academic workloads than on procedures followed by heads of institutions in the allotment of teaching and other academic workloads.

Such an attitude has been followed by many universities internationally and in South Africa because of the financial incentives and rewards attached to excellence in research, despite the fact that as Kandiuk and Sonne de Torrens (2018) have shown, additions to scholarly research can prove to be a major challenge to university leadership given the continuous massification of student populations throughout the world and in South Africa. University leadership was shown to deal with challenges regarding teaching, learning and research head-on.

On many occasions, however, such findings could be thought to be outdated as universities, especially in developed countries have established specialist procedures regarding the distribution of what has been termed equitable workloads amongst the academic staff. They utilise the usage of algorithms in the management of the planned workload throughout the

faculties taking into account the existing circumstances and realities among various faculty members (Graham 2015). This is despite empirical findings that have led to the suggestion that satisfaction amongst academics has been widespread when workload schedules are based on pre-determined formulas. Such findings were perceived as strong evidence that academic staff accepted such a reality as fair in terms of such workload distribution schemes (Watanabe, 2011; Grunberg et al. 2018). Gopaul et al. (2016) realised that faculty members in universities perceive more autonomy in research-related work assignments and they concentrate less on procedures followed by heads of institutions in the allotment of teaching and other academic workloads.

Although there is a paucity of literature on the issue in terms of universities in Africa, there is a dearth of literature on workloads in African universities, as some recent South African research has paved the way forward. Botha and Swanepoel's (2015) statistical analysis was entitled 'Allocation of Academic Workloads in a South African Human and Social Sciences Faculty' and it was based on a scientific calculation of the weekly working hours of academics with special emphasis on the existing performance management, workload allocation model, academic functions, equality and accountability. It was based on a number of analytical quantifications and comparisons of academics' workloads. The findings showed that statistically there were no significant differences in terms of the total working hours per week in terms of positions, gender, school and academic qualifications. Significant differences existed, however, in the working hours dedicated to a number of academic activities such as research and postgraduate supervision, management and administrative duties, teaching and learning, administration and management, and community engagement, as well as services to the scholarly community.

The final results pinpointed serious inequalities in the allocation and distribution of academic employees' workloads. Hence, a number of staff members over worked, while others were underutilised.

Portnoi's (2015) empirical research on the working environment of South African academics began with a contextual analysis of a number of realities on the ground, as well as the expectations of all stakeholders and role players on the university terrain, the global and local trends and developments instrumental in shaping existing and future developments. Utilising the qualitative method and the phenomenological approach he explored what he calls the 'lived experiences' of 20 South African academics working at a university used as a case study. His

evidence points to a number of ‘pull’ factors pointing to positive aspects of the working environment of the university, and six ‘push’ factors, including working with students not prepared for university, issues of power and race, heavy workload, lack of training and induction, challenges facing female academics, and frustrations towards slow institutional change. Connecting the research to existing research, the suggestion for an ‘imperative’ for South African universities is to improve the academics’ working environment. That could lead to real transformation, leading to equity and global competition possibilities.

Qwabe’s (2016) empirical research concentrated on the increase in the undertaking of administrative duties and responsibilities as in the administrative component of an academic’s workload, and the role of their in helping them with these duties and responsibilities at a South African-based university of technology.

The research concentrated on the empirical analysis of the workload imposed on academics besides their research, teaching, and community engagement as additional demands were made on them in respect of additional responsibilities such as research and knowledge production, developing and maintaining contacts with industry and Work Integrated Learning.

The study that used the mixed method route and consisted of three questionnaires that were administered to academics, their secretaries, and senior management. Semi-structured interviews conducted with several senior academics, indicated that a great majority of academics faced a heavy administrative workload, which they did not expect to be within the parameters of their job performance. Their secretaries, on the other hand, were better informed in terms of their expected duties and responsibilities, but many of them believed that they were required to do more than they expected. Both groups had a strong belief that there was a serious lack of equity and transparency between the different workloads that were performed by different individuals.

Over 90% of the members of the two groups believed a workload model was a necessity that would guarantee a fairer balance with regard to the relationship between the work performed.

In addition, it was believed that consultations with the relevant human resources leadership should be undertaken in order to agree on the challenges of the situation and to resolve them. A common agreement based on flexibility, continuous improvement and the creation of a new model acceptable by all parties could overcome the difficulties caused by workload realities.

The findings pinpointed the feeling of common uncertainty of the groups regarding the very existence of a common model relating to workload and relevant software among the existing six faculties.

2.4.7. REPERCUSSIONS OF WORKLOAD AND MASSIFICATION AS CHALLENGES FOR ACADEMICS

2.4.7.1. LACK OF TECHNOLOGY

As a number of researchers have shown, the digital technology revolution has major direct and indirect effects on people's lives through the multiplicity of its daily utilisation in common and uncommon tasks/The beginning of the computers continued with the Internet, mobile devices and the emergence of the popular smartphones, Facebook, Twitter and Instagram, mostly to users in developing countries, including South Africa .Most developed industries and private sector enterprises have used the opportunities offered for operational and service digitisation, while others have over the years struggled to keep up with such developments, including the public sectors of developing countries, health care and education at most levels (Gandhi et al. 2016). Globally, universities have attempted throughout the years to integrate technology into teaching, learning and research and have met the challenges in different ways, depending on location, environment, resources and capabilities. The utilisation of technological innovations in a university environment when successful or affordable makes significant positive changes in the process of replacing or transforming traditional delivery methods (Schindler et al., 2017)

Inevitably, different conditions under which universities operate are directly and indirectly related to the levels and ways that integration of technology at these institutions becomes a tangible reality. Research has indicated that technologies utilised by the administrative sections could be competing with those used in the academic faculty. International research has pointed to the fact that there are still large numbers of academics who lack technical/technological knowledge, which makes them sceptical and hesitant to use technology in teaching and learning processes (Ashrafzadeh and Savadian 2015).

International research literature has shown that when universities throughout the world face constrained financial resources and organisational barriers in improving their adoption of technology, they face serious problems at a number of levels, especially in the terrains of teaching, learning and research.

Such challenges and weaknesses on the university's side, if it exists, become problematic especially on the students' side, as empirical international research has shown that two-thirds of students use technologically based devices, which they feel can be instrumental in improving the learning outcomes that they deem instrumental in securing a better professional or technical future in a society already facing the realities of the 4th Industrial Revolution. (Chen et al. 2015).

It has been shown empirically that universities despite their efforts to advance technologically, fail to integrate technology into the lives and learning experiences of academic staff, and students miss opportunities to elevate student and academic/administrative outcomes. Given the fact that the technical university in the present study has concentrated its strategic plans on excellence in teaching, learning and research, it is important to analyse the influence of technology on both students and staff and their engagement. The emphasis will be on student engagement in which both technology and academics are essential in the university settings. University settings throughout the world, including South Africa utilise computer-based technologies that are rooted in the utilisation of a wide variety of software, hardware and micro-processing features of mobile devices and/or computers that are utilised for teaching and learning processes (Westera, 2015).

The utilisation of technology accompanied by both student and academic engagement as well as appropriate lecturing methods have been shown as instrumental in the production of positive outcomes (Kahu, 2013) .Student engagement and, ultimately, academic success are directly and indirectly related to both student academic and university realities, situations and characteristics. This means that such engagement is rooted not only in the integration and utilisation of technology but also in student, academic and university leadership commitment to excellence, the culture of the institution, teaching practices and the existing curriculum. These realities are instrumental in a common agreement between students and academic staff in terms of perpetual interaction, interest in teaching and learning, achievement, success and personal growth (Owusu-Agyeman & Moroeroe, 2021).

A key issue for universities throughout the world, including Africa and South Africa, is how technology can be integrated within the teaching and learning process become an integral ingredient for successful outcomes and enhance the existing engagement of students and academic staff. For the integration of technology to be a success in teaching, learning and success the availability of financial and human resources is important as is a perpetual effort of the university for the optimisation of students' and academics' learning and research

experience to be enhanced, their outcomes to be elevated, their overall performance to be developed and the reputation of the institution as a whole to be strengthened within the university community (Trowler, 2010: 2).

It is the integration of technology, commitment of the academics the effort and time students and academics put into their studies, teaching and research in connection with the university's deployment of its existing resources and organisation of the curriculum and all other learning and research opportunities that will become instrumental in both students and academic staff commitment and dedication to excellence at all levels. (Center for Postsecondary Research, 2017:1).

In South Africa, the DHET's White *Paper for Post-School Education and Training – building an expanded, effective and integrated post-school system* (DHET 2013), includes a section on open learning through diverse modes of provision' including technology and deals directly with equitable access to appropriate technology for all universities in the country.

The Department has undertaken to produce a concrete development plan for the period up to 2030 (DHET 2013:7) and in its direct and quality-driven efforts in regard to expanded technology including the one used for distance provision. To supplement such initiatives, the *Distance Higher Education Programmes in a Digital Era: Good Practice Guide* was published and very widely distributed (CHE 2014).

Despite the fact that the empirical research on the issue in question is extremely scarce, if non-existent, the TLSG (Teaching and Learning Strategy Group), a specialist group of the Universities South Africa, is the representative body of all Vice-Chancellors of public universities in South Africa.

The Teaching and Learning Strategy Group (TLSG) group emphasised and supported the focus on the major contribution of technology to the quality of teaching and learning enhancing the positive impact on students' experiences and ultimate success. The group instituted a group of experts to research university realities and write positions paving the way forward to innovations and developments that Vice-Chancellors could utilise in terms of upgrading the existing circumstances of technology at the institutions in terms of academic, administrative and student development through the comprehensive analysis of existing international trends in the field and their contextualisation in South Africa (Kilfoil, 2015: 1). The fundamental aim and objective of the exercise were primarily to clarify that learning through technology with technology should not in any way be confused with 'learning technology'. The academics in

this relationship with students approach teaching as an integral part of technology, utilising technology to enhance the pedagogical and knowledge acquisition focus, enhancement and alignment with meaningful learning outcomes and enhance students' capacities and competencies.

The utilisation of up-to date-technologies, then, is directly related to advanced teaching strategies that take into serious account the students' knowledge strengths and weaknesses at all levels. The relationship of teaching methods with technology can lead to meaningful learning when the academics and technology relations are based on the fundamentals following learning with enhanced pedagogical questions, the interrogation of the curriculum and its significance, the teaching strategies and the final evaluation of the relationship's success or failure. Technology then is a tool for enhancing well-planned and implemented teaching and learning activities as students focus on the main task and much less on the 'helping hand' (technology) (Kilfoil 2015: 2).

2.4.7.2. ADMINISTRATIVE WORKLOAD

One of the universal truths widely accepted by all university stakeholders, role players and the world at large is that effective and efficient functions, overall sustainability and success are influenced to a very large extent by the quality, work, commitment, dedication and excellence of its academic staff. After all, it is the above characteristics that are the foundations of excellence in teaching, learning and community engagement. The Exlibris Group (2019) research findings of a survey, as well as interviews with 300 active university academics and researchers, and a number of interviews with senior managers of research offices in Australia, the United Kingdom and the United States showed that the academics and researchers have been facing over the last few years a very serious challenge in finding enough time for all the academic activities necessary to both conduct and manage their research.

There was a feeling of tension not only at the professional level in terms of the expected teaching, research and ever-increasing administrative duties and responsibilities but also in the efforts to maintain a balance between their professional and everyday life balance. The report that 45% of their jobs concentrated on pure administrative duties was described as a definite destabilising factor in their lives with burn-out symptoms.

OCDE research (OECD 2014) have shown empirically the nature of the complexity of the university academic profession, which has to be performed within an ever-increasing competitive and demanding environment. The article outlines the strong belief emanating from

the clear understanding and the empirical findings of researchers in a multiplicity of disciplines that shows conclusively that historically and at present, academic staff duties and responsibilities have three fundamental aims and objectives, namely teaching, research, and community engagement and service. The authors believed that teaching and research are the terrains of priority, while administrative duties do not play a positive role in the lives academics as it adds heavily to their workload.

In their pioneering research on inequality in the treatment of female academics in Sweden, Dobele et al. (2011:456-457) have shown that academics in higher education colleges and universities, in general, spend much less time with the students because their institutions have planned and implemented very significant increases in terms of administrative duties and responsibilities. This has been described as a reality that is a serious impediment to the core functions of universities and has serious professional and personal implications for academics.

An empirical study by Peterson also related to the increase of women in Swedish higher education institutional management (Peterson, 2014:39-40) showed that the ever-increasing administrative workload amongst academics had a very serious negative repercussion on their teaching, research and management roles.

In the African terrain, Mohamedbhai's original empirical work in Tanzanian universities (Mohamedbhai 2011:170-178) has shown that a heavy workload for academics, which included heavy administrative workloads that complemented their academic teaching, advising, tutoring and research had negative effects on the overall performance of both academics and students. Their research productivity also suffered significantly.

Pienaar and Bester (2006) in a study conducted amongst early-career academics and their retention possibilities showed that despite the fact that the competition amongst South African universities in their efforts to increase their research productivity outputs put undue pressure on newly appointed academics and researchers, despite the fact that they faced what has been described as a myriad of administrative tasks and obligations without the assistance of the administrative relevant sections of the institution. Such added workloads were a major burden on their academic and research aspirations and careers.

Barkhuizen et al.'s (2008) study of occupational stress of academic staff in South African universities attempted to identify key indicators of the realities of the issue in relation to institutional commitment through a comparison of the different 'demographic groups' of academics.

They used a cross-sectional survey amongst 595 sampled academics; a substantial majority reported that their higher levels of stress were related to overload, including heavy administrative duties pay and benefits. Overload and work-life balance were considered to have contributed very significantly to the health of academics. In addition, overload, as well as, communication and resources, job control, resources and job characteristics were major contributors to the academics' commitment to the employer.

Bezuidenhout and Cilliers (2010) research on work engagement, burnout and sense of coherence in South African universities, the female academics began their article by identifying increasing job demands that include administrative duties and ever-increasing class sizes and what they call the 'role conflict inherent in the female role' as contributing extensively to the manifestation of burnout and stress amongst them.

It was a quantitative study utilising a psychometric instrument aimed at all the female academics permanently employed at the University of South Africa (UNISA) and Tshwane University of Technology (TUT). It was structured to measure their burnout levels and work engagement and SOC. The completed questionnaires were statistically analysed. The burnout systems were at average levels but were increasing and they were just above-average work engagement scores. The above underlines the fact that since the advent of democracy in the country in 1994, the transformation in all sectors of society has become a reality, despite the existing structural, political, functional and social challenges facing South Africa. The change in the tertiary education terrain has been a turbulent terrain of successes, challenges, demands, tasks and problems that have throughout the years brought about many new challenges, demands and stresses that may have hindered the role and work performance of academics and researchers throughout the country.

The demands have expanded and have become issues such as expansive workloads including occasionally intense administrative duties and responsibilities, especially at technical universities. The issues have been of equal importance as change management, psychological safety, student unrest including FEESMUSTFALL, leadership and management changes, decolonisation and online teaching and learning. The existing structural changes, then, have had a number of serious impacts on academics' performance as well as their professional and personal lives as they have created an assortment of dilemmas associated with leadership and management problems, levels of dissatisfaction, even breaking of employee-employer relationships and a decline in institutional commitment. Increased workload, including

intensive and perpetual administrative duties and responsibilities, is one of the main factors (Theron & Dodd, 2011: Botha, 2015).

2.4.7.3. RESEARCH VERSUS TEACHING AND THE MASSIFICATION REALITIES

There has been a debate for many years regarding the realities and contradictions of the relationship between teaching and research as the most important and even fundamental academic activities within a tertiary institution environment. The majority of theoretical and empirical writings on the issue agree that they are the most important 'parts' of the academic system and profession, characterised by independence and synergy, as well as a foundation of intellectual and personal career advancement. (Blatchford et al. 2016.).

research whose findings are taught to the students.

Brew and Cahir (2014) have strengthened the belief in the 'absolute synergy' of these fundamental academic activities as a necessity that could be understood as the direct 'link' between the institution and the students who are the direct participants and users of both teaching and research, which are the two sides of the same coin. This means that the results of new and innovative research are transferred into the dual process of teaching and learning and, at a later stage, become the guidance for active and well-researched community engagement. A similar position has been advanced by Grey (2012:41) and Altmann and Kröll (2018), who have shown the inseparable nature of teaching and research at universities as the foundation of a tertiary educational institution is the production and dissemination of knowledge that is the result of scientific research whose findings are taught to the students.

However, there is a school of thought in international academia, especially in the developed countries, that advocates the opinion that teaching, and research are or are becoming independent because of existing realities in the tertiary education terrain.

Teichler (2009) thus indicates that current works regarding changes in the higher education field have included beliefs and discussions pointing to the fact revolving around the ever-increasing tendency of many universities to turn their attention to 'strong research orientation'. This, the researcher believes, has led to a reality where teaching activities have been pushed to the background to the detriment of the students as universities move and attend to upgrade their research achievements internationally.

Taylor (2010) and Badat (2015) described the continuous escalation of the perpetual orientation of the universities in the USA and the neglect of teaching and learning as a serious concern

with negative repercussions for the students. It is a known reality that in a transformed society such as South Africa, one of the key roles expected by all academics and their institutions at large is the fact that community engagement is as important as duty and responsibility, as is teaching and research.

This is an international theme in academia that has been at the centre of intellectual discussions regarding the roles of academics as integral parts of society's social, intellectual and economic development, a discussion generated by Boyer's exposition and analysis of what he called the 'scholarship of service' (Boyer, 1990), and later the 'scholarship of engagement' (Boyer, 1996). In his contributions, the main theme was the advanced, active and much wider contribution of universities and their academics and researchers to society at large. This advanced position is founded on a change of approach and everyday traditional patterns of realities in the lives of academic teachers and researchers with the aim of achieving strong integration, cooperation and synergy between them and the communities around them in an effort to engage them at all life levels with the academic and research activities directly related to their needs, problems and challenges.

Altmann and Kröll (2018). supported this position strongly through the widening of the debate on the issue and expanded the debate regarding the role of university teachers and researchers in the context of active public participation in communities. Macfarlene (2007) wrote that the ideal acidic teacher and researcher is an ideal citizen of society, who should operate through three fundamental components of his/her profession, moral and social responsibility, political literacy and community engagement.

The above context describes positions that have been transformed clearly into realities because there are a few academics or researchers who will seriously dispute that the relationship between teaching and research is the most fundamental academic activity within a tertiary institution environment and even fewer who will disagree with the fact that more and more universities internationally as well as on the African Continent have become or aspire to become research universities, thus prioritising research over teaching.

The transformation of South Africa's universities, outlined in considerable detail in other sections of the thesis, as well as the dictates of the country's National Development Plan has led to a situation where all of the country's universities (including the technical ones) should improve their research outputs, expand and strengthen their PhD programmes, and through the efforts of the relevant government departments, as well as organisations such as the Human

Sciences Research Council, the National Research Foundation, boost the country's research contribution to social and economic development.

For the country's universities, however, to build strong research bases, as well as solid teaching and learning and community engagement, a number of fundamentals should be in place. Otherwise, there is a strong possibility that the institutions' desire for research productivity and knowledge production could lead to the weakening of teaching and learning efforts and vice versa. Any university's effort to improve and elevate research productivity amongst its university staff needs to be accompanied by several fundamentals such as work and financial incentives, less massification, adequate teacher/student ratio, good infrastructure and facilities, staff commitment and capacity, appropriate staff workloads, budgetary planning, quality and performance management systems, assessment, monitoring, evaluation and feedback, and an improved working environment.

Thus, universities in South Africa, especially the technical ones, are in a serious conundrum. They aspire to become active in the research and knowledge production terrain, they have been offered funds for assistance such as research and retired professors, national and provincial seminars and workshops and have undertaken a series of monetary and promotion initiatives to build, retain and develop new academic and research talent.

However, the question arises whether this desire to increase their research outputs has become a serious challenge to teaching and learning excellence. Research has shown conclusively that the existing tension between research and teaching amongst academics, especially the young ones, has a serious negative impact in Africa and South Africa despite the reality it is their 'dual function'. This tension takes place at both institutional and individual levels and leads inevitably to contradictions, even conflict situations and has a serious negative impact on the research and academic careers of young professionals. Despite the difficulties faced in their everyday reality, lecturers and senior lecturers are required to produce quantifiable research outputs that are extremely difficult to achieve (Ligami, 2019).

Whether it is undertaken by academic staff members pursuing a PhD degree or not, serious research requires funding, which means that lack of it, including that for equipment for pure science research, is one of the most basic challenges, accompanied by problems with time management and mentoring, in general. A thoroughly researched book by senior academics and researchers, both international and African, that was completed in three years (2015 to

2018) focussed on the investigation of the key factors that influence career development and its relation to the research performance of young scientists in Africa.

Its methodology and research design were based on a multi-designed approach that was constituted from the elements of biblio-metric analysis of research data, a thorough web-based survey of African scientists and more than 250 qualitative interviews with selected young scientists in Africa.

Besides the biblio-metric analyses, a mixed method was utilised that included a web-based survey and qualitative individual interviews. A structured, self-administered, structured questionnaire adapted from a number of successful and highly tested academic surveys of the same nature. Before it was sent, it was field-tested and was partially tested in a number of countries such as Thailand, Indonesia, Singapore and Malaysia and was based on an African context and the gaps found in the existing literature. The web survey of 120 000 questionnaires yielded 7 513 completed ones, a very substantial sample by any standard.

This path-breaking research on the key issue in Africa and South Africa has shown that "power differentials" in the higher education sector have a negative influence on young academics and researchers, meaning that senior academics such as professors or deans are not approachable and this creates serious problems for other academics, especially the young ones.

The burden of large classes, student supervision and consultation at all levels, coupled with administrative demands such as the setting of examination papers, marking assignments and tests, having moderation meetings, meetings with the tutors, invigilating the examinations of many classes and the actual lectures is a heavy burden. On top of that, it was said, lecturers at all levels must produce research papers for accredited journals and chapters in books (Beaudry et al., 2018).

Overall, the pioneering study pinpointed the empirical reality that, even though there has been an improvement regarding the conditions that allow productive scientific research to increase in African universities, the existing structural constraints still exist. Therefore, both positive and negative signs warrant immediate and serious attention.

The constraints begin with the reliance of funding on international organisations and partners despite the repercussions of brain drain, the lack of systematic mentorship and institutional and state support and existing structures.

The serious individual, intellectual, academic, teaching, learning and research challenges and problems faced as have been described above are not isolated from their universities; they are key issues that need to be debated, agreed upon and solved. They are challenges that need to be addressed urgently.

The existing challenges facing South African universities are multi-dimensional and multi-faceted. Although there have been efforts and outcomes regarding these challenges, it is important to increase empirical research at all levels and disciplines in order to firstly examine the successes and failures of the state's efforts to transform the country's tertiary institutions into pioneers of teaching, learning and research and secondly, the key reasons behind the existing realities facing universities. This is because there have been expectations that higher education institutions would and should be instrumental in the success or failure of the SDGs and the National Development Plan (Semantic Scholar, 2011).

Such research should examine key issues such as solid and honest governance, talent retention and development, succession planning, financial and environmental resources, performance management issues and challenges, innovative research and curriculum updating and relevance, amongst others.

Above all, the most important aspects of these realities and challenges are the leadership foundations in terms of accountability, transparency, innovation, commitment and dedication of all stakeholders and role players in an institution and its organisational structures and processes at all levels. (Bangeni and Kapp, 2017).

2.5 TOMORROW'S UNIVERSITY AND UNIVERSITIES OF TECHNOLOGY: LABORATORY FOR INNOVATION AND DEVELOPMENT

The different forms of transformations and realities of universities internationally and in South Africa have been tackled in the thesis, but it is felt that several thoughts regarding tomorrow's universities, especially universities of technology in South Africa, are important and directly related to the aims and objectives of the study. This section is directly related to an earlier one dealing with the university's 'new identity' associated with existing realities and challenges internationally and in South Africa.

Tomorrow's university denotes a transition from one state to another following calculated processes leading to changes of institutional nature, structures, policies, planning and

implementation. Complexity and leadership are fundamental to its success as there are the outcomes and inputs of external and internal forces. There is no debate on the issue that the most important step forward to the future is the realisation of wider access for black African students and new forward-looking transformation plans and their implementation. This is because, as shown in the thesis, the country's higher education faces historically-based entrenched inequalities despite notable progress (SACHR, 2018).

The key issues dominating the realities of tomorrow's university are basically rooted in a wide array of new technologies combining the digital, biological and physical worlds with new technologies impacting all academic disciplines, economies and societies at all levels (World Economic Forum, 2018). Inevitably, all sectors of society are or will embrace existing and future technologies and adapt to them if or when they are able to do so.

During the new period, the university's key mission of creating 'prepared minds' able to develop the new technological, scientific, economic and social terrains for human development demands the creation of new programmes, the advanced production of new knowledge, and advanced methods of teaching and learning and community engagement.

In an era of a destructive pandemic and looking at the university of tomorrow, there are realities that have been described as the future path forward that is based on expanding access, enabling learning, researching and working from anywhere; basing processes on imagination and innovation; learning processes entailing more innovative, hands-on, and richer real-world experiences through advanced learning pedagogies; enabling group engagement and behaviour and collective performance monitoring; improving the intellectual and work ethics of academics; thus preparing to cope with the changing student types and powering the digital existence by integrating technological devices into the learning processes at all levels in meaningful ways. When these trends are implemented, the first steps to a 4IR reality towards university transformation have been achieved (Barakabitze et al. 2019).

Universities of technology in South Africa have been established mainly to offer career-focused and vocational or undergraduate diplomas and B.Tech. that basically serves as a capping qualification for diploma graduates. There have been a few UoTs that offer a limited number of Master's and doctoral programmes. One of the important realities of such universities that is evident is that they are faced with limited resources, a reality that makes the implementation of processes and structures associated with the 4th Industrial Revolution and transformation a difficult task (Mtshali & Sooryamoorthy 2018).

The future hope for the achievement of adopting steps associated with the Fourth Industrial Revolution for universities of technology depends on a carefully planned roadmap forward in need of careful planning and implementation that can lead to university transformation. This can only be realised through a careful understanding and dissection of the existing challenges facing MUT and most other UoTs at all levels of complexity and leadership. The realities facing these institutions cannot be overturned towards transformation without their leaders, management and all stakeholders and role players focusing on the existing opportunities and the existing challenges facing their institutions head-on and decisively.

The existence of inequalities facing UoTs in comparison to comprehensive and research universities in terms of workloads, infrastructure, new knowledge production, student poverty, and limited access to technological and digital facilities, among others, are challenges that are faced head-on by MUT academics at all levels. MUT leadership, like all other universities in South Africa, has accepted the realities, analysis and recommendations of the SAHRC (South African Human Rights Commission) report on transforming public universities (SAHRC , 2016) and a transformation agenda and final plan are in the pipeline. The plan is the cornerstone of the implementation plan for the transformation agenda and includes concrete projects including institutional leadership, management and governance; student and staff redress and equity; inclusivity, diversity, racism and discrimination; institutional climate and culture; curriculum transformation; qualification and programme mix; language policy matters; teaching and learning; student learning support; staff support and development; research and development; community engagement. (Interviewee 6).

The planning and implementation of such principles will be instrumental in strengthening progressive learning approaches through cultural transformation; increasing the possibilities of bolstering student employability and staff workplace development; more equal access to technology, and mobile and blended learning enabling the support of practices of the future and lifelong learning.

2.6. SUMMARY AND CONCLUSIONS

The arrival of democracy in 1994 brought with it one of the key priorities of the new government, the revitalisation, re-building and transformation of important state institutions in a planned process aimed at addressing the existing challenges of economic development and growth, poverty and inequality, and in these efforts, higher education was one of the key priorities.

This is because the belief of the new government was and still is that higher education institutions are one of the most important foundations of social and economic renewal development and growth, modernisation and transformation.

In short, tertiary education institutions are fundamental in the creation and development of a more caring, productive, forward-looking, healthy society which will allow both academics and students to participate actively in the political, economic, and social life of the country through their thinking, planning and activation. The understanding that the above-mentioned social groups are instrumental in shaping, in many ways, the future of the country is undeniable because they are 'free agents' in democratic societies such as South Africa.

The chapter attempted to paint a clear picture of the country's university landscape and the variety of the problems and challenges facing their leadership, management, administration, as well as their teaching and research staff at all levels. The universities as systems face a number of multi-faceted, serious and challenging problems at all levels and it is up to all stakeholders and role players to collectively think, research, plan, reflect and act. It is known that not all universities face the same challenges given the historical, social, financial and economic realities of their existence and actions. This reality demands that an innovative research project cannot be complete without a stocktaking effort of the higher education terrain in the country that enables the identification of its shortcomings, achievements, transformation, internal and external contradictions, their aims, objectives, purposes and roles as well the past, the present and glimpses of the potential future.

CHAPTER 3 SYSTEMS THINKING AS A THEORETICAL FRAMEWORK

3.1. INTRODUCTION

The chapter aspires to examine and dissect how universities around the world cope with the contemporary tertiary education environment, their aspirations, realities and objectives, efforts to achieve the realisations of their fundamental aims and objectives, and their difference and realities at all levels. Such realities differ because of the diversity and substantial differences in the political, social, and economic environments that surround them.

The theoretical framework presented in the chapter is a summary of theories and concepts instrumental as a basis of a theory supporting the present research study, the analysis of data and their meaning and interpretation. It is a summary and synthesis of the thoughts of a wide variety of theorists and researchers that were instrumental in the foundations and development of systems thinking. It combines both their theoretical bases and development of their thoughts in all disciplines, as well as their empirical manifestations in all spheres of knowledge. These are directly related to the research undertaken and their significance as one of the fundamental bases built by the work of field leaders; their writings, thoughts and experiences; their investigation paths and proposals; their thoughts and guidance, and their suggestions and interpretations.

Systems theory and thinking, as presented in this chapter through its first steps and subsequent progress until today, is instrumental in the development of the research process and provides a specialised lens as a key in examining the realities of the data, their analysis and interpretation. The theoretical framework is a foundation and reflection of research, academic and intellectual skills and rigour as it is a data mining lens guided by knowledge produced through a deep study of this particular field.

3.2. SYSTEMS THEORY AND THINKING

The ancient philosophy of Aristotle and his disciples was based on the fundamental belief that knowledge is always based on ‘the deep understanding of the whole and not that of the single parts’. His theory is known as the ‘theory of holism’. The wisdom has serious resonance with problems that researchers and intellectuals throughout the years have faced with the parts and the systems of the whole, because all of them have content and dynamics. This led to the first

steps and the foundation of what is today called ‘systems theory’ (Bertalanffy, 1976; Meadows, 2008).The contemporary definition of ‘systems theory’ is rooted in the writings of Anatol Rapoport, William Ross Ashby and Kenneth E. Boulding, who worked in the widely diversified fields such as biology, psychology, mathematics, psychology, and social network analysis, and its name originates from Bertalanffy's general systems theory (GST).

It is principally a theory founded on an interdisciplinary systems’ study. The system is a conglomeration of inter-dependent and inter-related parts, natural or human-made, influenced by surrounding environments, defined by purpose and structure and expressed through their functions and functionality. It deals with almost every system in nature, life, environment and society as well as a multiplicity of scientific domains and has been very widely utilised as a scientific framework with which we can investigate phenomena from a holistic approach through the shifting of attention from the part to the whole (Jackson, 2003). This occurs through the consideration of reality as an interacting and integrated unification of phenomena where the relationships between the parts themselves and the events they produce through their interaction become of importance in a rational connection of the system elements (Barile, 2011)

Systems theory has been developed and is to be found in the research and theoretical writings of a wide variety of senior academics and practitioners in an expanded spectrum of disciplines such as renowned sociologist, Talcott Parsons, environmentalists/ecologists Howard and Eugene Odum, linguist Béla H. Bánáthy, biologist Ludwig von Bertalanffy, Fritjof Capra in organisational theory and Peter Senge in management, amongst others.

It is based on the idea of establishing and developing concepts and principles that are broadly applicable-the antithesis of principles and concepts that are specific to a knowledge terrain. In this, the difference between active and/or dynamic systems and passive and/or static systems is of importance. This is because active and adaptive systems components and structures interact continuously in terms of behaviours, actions and processes. When one part of the system changes, there is a strong possibility the other parts of the system will also change and the possibility arises or exists that changes in behavioural patterns can be predicted.

According to Checkland (1999), systems thinking was introduced to sociology in the 19th century, meaning that the social sciences played a key role in the development of the theory, spearheaded by Talcott Parsons and Nikla Luhmann. The worldview associated with systems thinking is based on systems inquiry, with ‘systems’ as the key element associated with parts joined and connected through a multiplicity of relationships. The interdisciplinary nature of the

theory leads to the negation of fragmented knowledge and the adoption of a holistic perspective, leading to the analysis of alternatives found in the sociological work of Emile Durkheim and Max Weber and the management science pioneering writings of Frederick Taylor. They all utilised holistic methods through the development of systems concepts that could integrate with a wide variety of areas (Luhmann, 2013).

Systems thinking is based on a number of fundamental ideas. The basic one is that all phenomena are rooted in a complicated web of relationships among elements that comprise a system. Social, biological, psychological or electrical elements are founded on the commonality of patterns, properties and behaviours that the research can analyse and use to develop a wider insight into the behaviour of complex phenomena. This will lead to a movement closer to a unity of the sciences.

This understanding and analysis began to dominate following the publication of Von Bertalanffy's book titled, "*General Systems Theory: Foundations, Development, Applications*", first published in 1968 (Bertalanffy, 1976).Himself a practising biologist, Von Bertalanffy's efforts concentrated on expanding his observations into wider fields of the scientific terrain through a deeper analysis of laws, principles and models of generalised systems and their sub-classes, irrespective in all fields through the reality and nature of their component elements, and deeper and/or hidden relationships or "forces" in existence. His systemic approach and wider perspectives were based on the principle that a phenomenon could not be fully comprehended by being broken up into elementary parts in order to be reformed. What is needed is the application of a global vision to underline its functioning. A simple or comprehensive analysis of the elementary components of a phenomenon means that the only way the phenomenon can be comprehended in its entirety is the observation guided by the holistic perspective, a higher level of understanding of phenomena (von Bertalanffy, 1976).

Sterman (2000) is considered one of the most influential thinkers of systems thinking and his key starting point was that systems thinking is a basis that provides a theorist and/or a researcher with the theoretical and conceptual tools in the effort to understand the process in motion and the structural dynamics of complex systems. This, he wrote, could be done through the utilisation of a comprehensive and thoroughly developed modelling method that enables the creation of a thorough scientific analysis and understanding of complex systems. Once the process is complete, inevitably, more planning, designing and implementation of efficient and effective decisions and policies become a real possibility.

Barton and Haslett (2007: 144-146), both Sterman's followers have shown in their analysis of his fundamental and initial writings that his beginnings in the exposition of the theory and its empirical dimensions were rooted in a complicated/complexity-driven analytical model related to change and this was the main reason for the utilisation of computer-based equations, simulations and models.

Sterman's first major exercise in the empirical field in his effort to build the belief in the unity of theory and praxis was his research on a highly disputed historical reality in the United States, the attempt of the then government to use the 'partial de-regulation' of the electricity sector in the State of California. The political thinking of the government at the time was based on the belief that such an act would ultimately, but not immediately, lower the electricity price, which was considered to be high for the poorer and especially the middle-class strata in the country. The empirical research indicated that such an initiative would have exactly the opposite outcomes than those expected as the experiment led to continuous blackouts and substantial increases for the above-mentioned social strata. It was a financial and political mistake of serious proportions (Sterman, 2000: 9).

What Sterman himself called feedback showed almost conclusively that such political, economic and financial decisions could, against all odds and predictions, result in side effects and non-linear results. Within such a theoretical framework, it can be gauged that the understanding and analysis of existing systems and realities can pave the way for any university, including universities of technology, to dissect and absorb the possibilities and probabilities that can be enabled by the state or private sector, aiming at making the institution capable of contributing to social and community development in a number of ways, even when they face challenges and problems at different levels, as MUT's case has shown. These possibilities, in various ways, are reflected in the different structural and functional internal organisational realities but also the diversified visions of universities' roles and the place of societal contributions outlined in its aims, objectives, plans and implementation levels (Enders & de Boer, 2009).

Inevitably a university of technology such as MUT is not in a position to aspire to the realisation of institutional goals similar to the traditional, research-based or even some comprehensive universities for reasons that have become evident in the present study. The university, the only one in the country located in a traditionally African township, reflects a very diverse political,

social and economic environment. During its period of existence, the institution periodically faced leadership problems that had negative effects because of the historical circumstances determined by material practices, rules and values that were antithetical to appropriate, efficient, effective and clean operational modes that shaped institutional performance negatively.

In such a process, university systems were shaped by leadership that shaped the institutional approach that created questionable conditions within the wider institutional context. The mutually interdependent systems and their continuous interplay determined and still determine the constraints and institutional outcomes and provide a lens for exploring universities' limited engagement with social innovation. Within the general context of the above, the reality of the centralisation of universities around their top leadership and management has become a reality despite their respective missions and visions, aims and objectives. All these are primarily but not exclusively determined by the legislation, rules and regulations of the state, but the plans, designs and implementation are in the hands of the leaders who strategically and tactically manage the systems (Van den Broek et al., 2018).

The leadership priorities have strategic, tactical and operational repercussions on the institutional systems at all levels and are the key actors in all decisions, relationships and engagements leading to either heterogeneity or reflections of material differences in the academic and administrative communities' everyday practices such as teaching and learning, research and knowledge production and public engagement. However, different forms of actions and behaviour of all sections of the university community at all levels of operations also determine outcomes and outputs associated with the institutional systems. Behaviour reflects disciplinary heterogeneity such as epistemological scientific traditions and external engagement (Pinheiro et al. 2015:236-237).

University systems then determine all significant practices, actions and institutional logic that are directly and indirectly associated with approaches, beliefs, values, and rules that are instrumental in productivity at all levels, professionalism, and individual and group-based substantive contributions to the elevation of the institution in the eyes of their co-workers, society, community and stakeholders, especially the students and their families. One of the key elements of success within a tertiary institution is the lack of competing logic amongst the key role players in respect of the organisational field. In case the key actors have a different

understanding, logic and actions in respect of intellectual, organisational and institutional aims, objectives, plans and actions, the perpetration of strong separate identities can become systemic turbulence. On the other hand, continuous engagement and collaboration lead to mutually desirable outcomes, thus sustaining the co-existing logics in terms of the systems' realities of strong interaction that shapes positive institutional and organisational performance (Goddard et al. 2016).

Systems thinking provides the theoretical foundation in the analysis of a university's reality and approach and an understanding of the conditions under universities can become instrumental in contributing to effective and efficient processes in teaching and learning, new knowledge production and community engagement. This is because the theory provides the tools and perspectives associated with individual, group and leadership beliefs, morals, norms, values, and interests, which shape and are shaped by the wider institutional context. Individual and group ways of thinking and activities are shaped by ideas, thoughts, intentions, and decisions that are also instrumental in shaping institutional realities (Thornton &Ocasio 208) 2008).

xisting relations and realities evident within the university's systems, structures and processes shape individuals in terms of their own roles and expectations associated with their development, retention prospects or research excellence that on most occasions are related to excellence achievement and status, competitive advance and even prestige, and competitive advantage. All these realities are directly and indirectly related to autonomy or synergy and collaboration, personal and institutional contests, conflicts and mediation. After all universities like most institutions and organisations are terrains of contradictions and conflicts. The systemic analysis enables the dissection of mutual interplay and interdependence of all relevant organisational elements and their interplay, the foundation of actions and constraints which determine all institutional outcomes and the lens instrumental in exploring universities' strengths, weaknesses, limitations and prospects for present and future (Brundenius et al., 2017)

Universities as learning and research institutions have the responsibility, not only to produce a highly educated labour force of the future but also to be a key to community elevation through active engagement and collaboration, a societally useful institution (Goddard et al. 2016). For a university of technology such as MUT the effort to increase research and research production

is an important and achievable mission. However, external engagement with communities that can take a number of angles is equally important. Simultaneously the efforts to increase university engagement to elevate collaboration with the private sector and industry should intensify.

In order to understand key issues associated with institutional realities and logics instrumental in shaping the engagement of all sections of an institution, the introduction and utilisation of systems approaches are of key importance. This is because, universities in their totality, are like other public institutions' social and educational collectives of relations, ideas, actions, connections and alienations of groups and individuals, each with their own professional and knowledge needs as well as systems of belief. The university's actors' decisions and actions are shaped by and shape the institutions on many occasions, but not always. Such realities are also key in framing the ways university systems and groups face and respond to personal, institutional and social dilemmas, with or without the blessing or denial of their university's leadership. Systems are the foundations of a university's contribution to a wide variety of specific social and economic needs. Hence, the urgent need to defend against the multiplicity of needs and constraints that are imposed and strengthened by an institution's mechanisms, systems and dynamics cannot be over-emphasised (Benneworth & Fitjar, 2019:334-335).

In the process of analysing and dissecting a university's system complexity, the effort is based on the principle that such a study is equipped with both the theoretical, conceptual and research frame that paves the way to the provision of well-researched and convincing explanations of the ways that a specific university can operate systematically, efficiently and effectively in the process of building solid relationships with much wider provincial, national and local coalitions with state institutions, the private sector, industry and surrounding communities (Benneworth & Cunha, 2015:511-512). Such an initiative can be seen as a path instrumental in delivering the necessary intellectual, economic, financial and societal transitions demanded by the 21st century's challenges, even within the major challenges imposed by the COVID-19 pandemic internationally and in South Africa.

Within this systemic and institutional logic, all university sections, especially its academics, need to be encouraged to expand their contribution to students in the process of teaching and learning; research for increasing knowledge production and elevating the university's name and reputation, collaborate efficiently with industry and the private sector. Such actions and

initiatives are more or less dependent on the university's systems, infrastructure, processes and structures that are instrumental in developing and shaping a dynamic and efficient academic identity. Systematic and systemic processes associated with collaborative practices and applications, honest and transparent organisational processes, and internal allocative models are of crucial importance. These are foundation stones in building and developing forward-looking academic identities, overall legitimacy of plans and their implementation and urgency in building and completing the way forward (Sormani et al. 2021).

The building of stable academic identities is the responsibility of a university's leadership and is directly and indirectly supported by university systems and processes that pave the way forward. For the way forward to become a reality, the existence of resources, facilities, infrastructure and operating systems are necessities and priorities in order to develop and grow a stable and forward-looking academic identity. For these to become a reality, the relevant state institutions and entities are obligated to channel resources and recognition to solid teaching and learning, forward-looking and productive research achievements and efficient and active community and social engagement (Avelino et al. 2017:197-198).

The university to be researched in the present effort can be defined as a system because, as an institution, it is an assemblage of objects that is obligated to operate under a wide range of aims, objectives and plans to achieve common goals united under policies, rules and regulations through interdependence and interaction at all institutional and organisational levels. It has been shown that the university's elements can be described as a system with a wide variety of components that face their own challenges. These are academics, researchers and administrative staff who are obligated to face policies, rules and regulations that determine the implementation of plans based on aims and objectives through structures, processes and products. Hence, all the components' attributes, attitudes and actions are based on the planned or anticipated behaviour concerning the processes, inputs and outputs which are rooted in existing relationships and interactions at all levels of the institution. The key unit of analysis is the university, which for all intents and purposes is a system which is operational through a wide variety of parts and structures based on policies, laws, rules and regulations that determine its overall functions. Hence, the university as a system has a direct and indirect relationship with sub-systems and supra-systems that determine existing human relations and behaviour through interaction and participation at all systemic/organisational levels (Barile 2011a).

In order for the university as a system to become well-functioning and successful as it is obligated to offer higher level learning and research, there is a need to adjust to the existing realities, problems and challenges of the existing situations and circumstances and adopt its structures, processes function and actions in accordance with its ability, commitment and dedication in the process of identifying and managing existing structures, processes, functions and relationships. This can be achieved through a number of well-planned and implemented channels of communication, innovative information flows, and harmonisation and rationalisation of its development with external and internal components (Sterman, 2000).

Such initiatives, which are the foundations of good, accountable and transparent governance, are fundamental in organisational viability, as they are key in the processes of addressing and paving the way for the system in achieving the decisive goal leading to the transformation of weak structural and systemic relationships to collective interactions with its components as well as other external viable systems. In such a process, an equilibrium of thinking, debating and acting leads to an organisational ability leading to solid relationships and uniting common expectations for the future (Nonaka & Takeuchi 1995).

For the university as a system, it is imperative to consider seriously the compatibility between consonance (systemic actors) and to behave in such a way as to achieve a substantial improvement in the relationship that will ultimately lead to resonance (in other words, the efficient, effective, and transparent interaction between them that leads to harmonic relationships). Consonance is deeply rooted in the reality of existing relations; a static vision basically representing a harmonic relation. On the other hand, resonance is related to the dynamic aspect, the interaction between entities.

As an educational state entity, the university is obligated to become viable at all institutional and organisational levels through its leadership's efforts to preserve its stability and viability. This can be achieved through the creation of an innovative and effective internal terrain able to create and sustain viability through immediate and well-planned responses to all existing problems, challenges and stimuli. This means that the university, organisationally and institutionally, can be thought to be viable as a system when it is able to survive within a specific context through the adaption and adaptation of continuous dynamic, effective, efficient and well-planned and implemented processes based on a wide variety of internal changes (Sterman, 1994).

A university as a network system consists of three key parameters as described in detail by Kim and Burchill (1992) variety, the possibility of variance that a phenomenon presents to the observer; variability (a variety that is the reality that is observed over time), and indeterminacy, the ability to understand existing phenomena fully. For the researcher, beginning with such distinctions, the possibility arises for him/her to comprehensibly analyse the relative existence of complexity. Such a step could lead to a careful and comprehensive interpretation of service systems, as these constitute adaptive complex systems**.** Their complexity lies in the fact that they are diverse as they comprise interconnected multiple network elements and are adaptive because of the fact that they have the capacity to learn and change from the experience. As a system, the university is an entity that is founded on a number of visions and missions, aims and objectives policies, rules and regulations cementing and developing further the institution in a highly competitive environment. Within this institutional context, this system that aims at developing a solid teaching and learning terrain and a research-based innovation platform. All these are founded on innovative leadership and a rich learning and research atmosphere comprising of a combination of hard and soft skills systems and an abundance of competences at all institutional levels that lead to the production of solid production of new knowledge (Kim & Burchill 1992:312-313)

Senge's pioneering work (Senge, 1990) has analysed how the application of systems thinking enables organisations to utilise shared vision, mental models, team learning, systems thinking and personal mastery as the foundation of success in the efforts to foster aspiration, develop a conversation that is reflective and create value generation to understand complexity. Such an approach points to the consideration that the organisation is a holistic system, founded on a high level of integration between the existing realities that have an intervention in the process of value creation**.**

The creation of value in an organisation such as a university is, directly and indirectly, related to both the sub-system (through effective and efficient leadership, research and development activities, quality management, risk management, internal auditing, feedback, daily research, etc.) as well as the supra-system that includes asset improvement, cooperation, logic and cognitive, technical, adaptive and relational development) (Mele & Polese 2010).

Systems thinking cannot be separated from TQM (total quality management) as one of its most prominent exponents have shown (Sterman, 1990). He has have shown TQM is instrumental in the production and development of new learning terrains and skills for individuals, groups,

teams, organisations and institutions. In the case of a university, TQM is fundamental in pinpointing the existing relationships of the parts and their key role for the institutional aims, objectives and goals to be achieved (Sterman, 1990)

As a tertiary institution of learning, the university is an integral part of a much wider environment at the macro level, rooted in human actions and relationships that shape the present and future of the institution. It can be understood, then that the types and shapes of such relationships are fundamental in shaping their institutional path as they exist within the terrain of a set of intra- and inter-organisational relationships with a wide variety of stakeholders and role players such as students, parents, staff, the state authorities, the communities and civil society at large. This means that the university is inextricably connected with and operates within a wide texture of the network's approach, which argues that companies are 'connected and that they operate within a multiplicity of interdependencies' (Jackson, 2003).

Since its beginning, the foundation of systems was its direct and indirect connection with complexity, even in the historical eras that had no resemblance to today's realities such as high technology, globalisation, superpowers' competition and a multiplicity of wars, climate change, refugees and religious fanaticism.

All these realities, together with what has been here or expected in the 4th Industrial Revolution are operational or stagnant at a number of levels as they take a wide variety of forms**.** Every day, these visible realities affect virtually every sector of society. In addition, we are surrounded by an environment that is affected directly or indirectly by social, economic, political, and other problems in urgent need of sustainable solutions. The systems thinking and its multitude of exponents that have been over the years' serious producers of knowledge achieved through scientific utilisation of the theory and its methods are at the centre of such discussions, uplifted of its theoretical bases and its empirical research outcomes. It has been a widely acknowledged, relevant and significant contribution to knowledge at all levels of academic life. (Stowell & Welch, 2012).

The complex realities associated with systems thinking are not static or stagnant, they are the outcome of plans, designs, decisions and their implementations**,** and it can be understood that they affect institutions such as universities that are an important element of the future of youth and humanity at large**.** This is because universities and their success at present and in the future depend not only on well-educated, active, efficient and effective leadership, management, and highly skilled academic and administrative staff, but also on an effective university council,

good relationship with state institutions and a capable cohort of students. In addition, as the fiscal, economic, social and political situation in the country changes in leaps and bounds, the complexities become intensified at all levels, both institutional and organisational especially in terms of the various levels of its everyday and future existence (Albert et al. 2015:212).

Complexity is rooted strongly in a wide variety of disciplines that have its foundations on the strong steps of systems thinking and is to be found in both human and natural sciences and disciplines, based on the principles and applications of 'uncertainty' and the negation of linearity. Its core is founded on the interactions and analysis of the ever-changing systems that exist .Complexity theory, exactly like systems thinking, is an intellectual tool for understanding a wide array of organisational and institutional leadership behaviour and action and a tool for analysis of human realities and relations, strategic and tactical orientation of existing or future imperatives that could be utilised as a tool of understating for a higher educational institution globally. (Allen. 2006).

Besides such a specific application of the theory, it has been instrumental in the analysis of a wide variety of social and human phenomena providing a path-breaking understanding of the past and present dynamics of institutional and organisational realities associated with politics, education at all operational levels, psychology, communication trends, as well as technology (Albert et al. 2015:211). University complexity is the root of challenges and problems faced by the institutions as the demand for highly educated, capable and highly skilled and committed human resources have become the negation of linear theoretical and empirical attempts (Albert et al. 2015:211).

Systems complexity as an integral part of systems thinking dealing with institutions such as a university is the analysis of human and professional relations, policies rules and regulations, relevant legislation, leadership and management at all levels, structures, processes, organisational guidelines, aims, objectives and goals, culture, conflict, teaching and research, existing and future resources, channels of communication, administrative, research and academic human resources, behaviour, commitment, governance, effectiveness, efficiency, planning, assessment, monitoring and evaluation systems, mentorship, integrity, development, infrastructure, training, support, succession planning and technology levels psychology, politics, talent recruitment, selection training and development, resilience, performance levels, safety, dissent, labour relations, identity, burnout, mentorship, students and hierarchy (Grobman, 2005:129-130).

This theory has been one of the important tools in the study and understanding of human and social realities analysis. It is especially relevant in management, institutional and organisational studies seeking exploration and understanding of the wide variety of leadership traits, types and behaviours, as well as the functionality of existing conditions, especially during challenging and uncertain conditions. In this process, its utilisation of analysis related to existing adaptations within a work environment is of crucial importance.

This is because universities throughout the world are facing the problems and challenges outlined above at almost all operational and institutional levels. Such an existing situation is exacerbated by the complexity of processes and structures consisting of a multiplicity of systemic networks of interactions based on the fundamentals of frequently complicated planning, designing and implementation processes and dynamics at all operational and organisational levels. The existing human capital of such institutions, irrespective of their existing position, faces a wide range of issues of complexity that determines, in most cases, their planning, actions and behaviour, which are directly and indirectly involved in shaping the key processes of adaptability and integration patterns (Beautement & Broenner, 2010).

The complex system within a university is rooted in a 'sub-set of all systems' that is the root of existing and future dynamics, interactions and feedbacks of the existing components that in most, but not all cases, are heterogeneous (Arlon and Wade, 2015) proposed analysis, which was named a 'systems test', was introduced as a new instrument that dealt directly and indirectly with elements and inter-connections as key elements leading to the understanding of the existing system both in theory and its empirical manifestations. It was founded on a more or less comparative literature review and analysis of existing 'definitions' provided by a number of important theorists and analysts of systems thinking, which were shown to be failures according to the new proposed test.

It was shown in the analysis, however, that these definitions had provided 'common roots, themes and actions', leading to analyses of existing behaviour, interaction, synergy and inter-connections on the part of the components, meaning that the systems' structure is indeed the foundation of behaviour. This means that the most important conclusion regarding the theory is the analysis, synthesis and commonality of theory and practice. Despite such debates and a wide array of disagreements on the issue of systems thinking, the common understanding amongst its exponents has been, over the years, the agreement on the existence of key differences between the theory and linear thinking**.** This is because systems thinking is founded

principally on the existing relationships among the system's components in a holistic, integrated process that is against dissection (Hovmand, 2013).

This theoretical basis is rooted in the fundamental belief that behaviour is based on a clear understanding of the historical past, the present and the future, a reality pointing to the fact that systems are dynamic and are subject to existing feedback mechanisms instrumental in cementing an understanding of the system's behaviour through an analysis of the variables that drive it diachronically .The examination and analysis of organised complexity is the foundation of systems thinking; it is the exact opposite of organised simplicity and unorganised complexity at all levels**.** This means that in terms of a scientific analysis of a university as an institution, facing a wide variety of problems and challenges that are by their nature multi-dimensional, systems thinking can be described as appropriate in understanding both the historical and future realities as it is a combination of a variety of scientific disciplines. providing an innovative approach in researching, analysing and solving problems in a unified, holistic and inter-connected way (Capra &Luisi, 2014).

This is because universities throughout the world operate within a systemic and complex environment facing a multitude of challenges founded on competition, governance, expected outputs and outcomes, resources, programmes and plans in accordance with the state's and the relevant department's dictates. Hence, the utilisation of the system's theory as the foundation of an analysis of the challenges of a university, based on techniques and tools of analysis utilising applied methods at all levels of an institution's organisation, leadership and management, is an appropriate tool. It has been used by large numbers of researchers and academics throughout the world who have researched and analysed a wide variety of social and other challenges and, in the end, utilised the theory and the findings to face the challenges head-on and provide solutions for the problems (Capra &Luisi., 2014).

Systems thinking is based on the principle that scientific truth can only be achieved through a long-term systemic analysis of phenomena and organisations in all spheres of life and society, such as human and organisational, relationships, work and priorities, through their inter-connections at all levels of existence. Such 'inter-connections' and relationships are analysed through concrete frameworks of systematic and meticulous synthesis, devoid of reductionism. This is because such complex systems that consist of a wide variety of functions, objectives, ideas, attitudes and activities do not operate in isolation. The system operates successfully because the operational parts function through synergy leading to dynamic solutions. The

system is holistic as an entity attempting to be successful within an environment facing an abundance of complex situations, replete with problems and challenges that seek satisfactory solutions (Billinger, 2004).

According to Bellinger's analysis of systems thinking, it is a disciplined approach to creating new models, which is fundamental to creating deep understandings of multiple underlying structures, enabling the researcher to understand and analyse a wide variety of existing patterns of behaviour and action. Bellinger believed that such a process of thinking and practice should include thorough and well-developed steps founded on a carefully studied definition of the given situation to be researched, a fundamental analysis and understanding of the development of patterns of behaviour, a well-thought and serious utilisation of systems thinking, careful identification of leverage points, the existing dynamics and realities of underlying structures, the simulation and development of an adoption approach, and an alternative structure (Bellinger, no date).

3.3 SUMMARY AND CONCLUSIONS

Throughout the years, the theoretical framework of systems thinking presented above has had its roots and development on the belief that all systems are dynamic and complex entities determined by mechanisms instrumental in cementing an understanding of the system's behaviour through an analysis of existing variables that drive it at all levels. This means that an empirical effort attempting to understand, research and analyse scientifically the realities of the challenges facing a university in a developing country with high aspirations like South Africa needs to utilise the framework provided by systems thinking in order to systematically analyse the complex and multi-dimensional challenges facing the institution throughout its history and present. The theory combines the strengths of an historical and present unity of purpose of a number of academic disciplines that have over the years provided a thought-provoking international debate in both the theoretical and empirical terrains.

The theory is appropriate for the present empirical effort because universities internationally and in South Africa are complex systemic entities with a wide variety of challenges, such as financial and human resources, the demands of the 4th Industrial Revolution, the challenges of teaching research and community engagement, and the relationship with the public and private spheres of society and country.

Systems thinking, as the above text indicates, paves the way forward to the application of empirical methods helped by an analysis of the challenges of a university founded on a systemic understanding of organisational, technical, managerial and leadership problems and challenges facing the existing university systems at all levels of their existence and the attempted opening of the road to success. The way paved by the pioneers of systems thinking and their followers has widened the scope of the present effort to enrich knowledge production.

CHAPTER 4: THE CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

4.1. INTRODUCTION

The widely understood acknowledgement that institutional life for all universities internationally is highly complex cannot be denied. This implies that universities develop unique cultures as the process of complex responsivity occurs. Systems thinking methodologies provide frameworks for conducting research in such complex environments. The purpose of the study is to research, analyse and dissect the conflicting practices in higher education. It is based on the research of a researcher who has, over the years of service, been committed to honest educational praxis and the production of new knowledge that can lead to a new understanding of existing present realities. It is both expected and sincerely hoped that the evidence-based methods undertaken by the researcher, the analysis, dissection, and presentation of the findings could be utilised in the best ways available in the efforts to move forward at all institutional levels.

It is important to confirm that the present research has been undertaken with the belief that its findings will be the basis of the production of new knowledge and, at different levels of understanding, they could be reviews and/or improvements on existing findings and realities. It is strongly believed that the research and its findings will be a source of information for teaching and learning in a multiplicity of academic disciplines and realities. A systemic approach is utilised in this project as a methodological foundation for dissecting a problematic social and academic reality. In addition, my action research is grounded in living theory to understand and improve my practice.

It is believed strongly that careful utilisation of the above empirical tools will lead to recommendations pinpointing the possibilities of uncovering new research areas in the existing paths of ‘new knowledge’ given the multiplicity of the complexities evident in institutions of higher learning that have their roots in continuous and complex laws, rules and regulations, and practices of the relevant state and government institutions.

The purpose of the present research undertaking is to compare the emergent characteristics of a deficiency model with an innovation model. The utilisation of qualitative questioning around the issues seen as most challenging at MUT to identify emergent thinking that reflects both a dependency culture and an innovation culture. The reality on which an educational institution

is based is founded in the perpetual effort for the creation and dissemination of knowledge through teaching, learning and research that is expanded in all communities. Every university employee, then, has the duty and responsibility not only to be committed to their designated professional and intellectual responsibilities but also to collectively work toward the common effort to achieve the best outcomes despite the existing challenges. It is their duty, then, not only to treat their service as a life routine based on their own beliefs but also to collectively and collaboratively become instrumental in actively shaping university life, as well as assessing, monitoring, evaluating and attempting to face existing challenges head-on. This process is related to the expected outcomes of their actions taking place at all institutional levels in terms of learning, behaviour, research, teaching and administrative duties that determine all their actions.

In the present research undertaking these realities are analysed, dissected and interpreted in an effort to be instrumental in the production of new knowledge through a critical overview of personal and collective experiences within a common environment.

A conceptual framework denotes the scientific orientation of the thinking, plans, strategies, structures and implementation of a research undertaking and is based on a wide variety of thoughts that shape the identity of the topic under investigation, the main challenges and problems to be faced, key questions, the shape, depth and nature of the literature to be reviewed the theories to be used and applied, the research design and methodology to be utilised, the procedures, methods and instruments, the strategies to be implemented in the analysis and interpretation of data as well as the conclusions and recommendations.

In unfolding such a framework, the researcher expresses the reasons why a specific topic is chosen and identifies the importance of such a step forward in the understanding of the challenges facing a university of technology and the specified objectives to be pursued and the scope of the project. For these to be achieved, the researcher utilises knowledge and experience in the planning of the way forward by thinking and planning an appropriate methodology and methods, the future participants in the study, and the strategies, tactics and techniques to be used in all these necessary steps, including the paradigms to be followed and the analysis and interpretation of the collected data.

Such a framework conceptualises the present research undertaking, a reflective operationalisation of the project in its totality.

4.2. CONCEPTUAL FRAMEWORK

A conceptual framework is a system of assumptions, concepts, beliefs, theories and expectations that informs and supports research (Ravitch, 2012). Conceptual frameworks have been described as a written or visual product that explains, in the narrative, written or graphic form, the main issues and realities that are the subjects of the study, including variables, concepts or factors and the existing relationships amongst them**.** The key issue regarding the conceptual framework is that it is basically a model of the realities facing the key issues and relationships in the context of the study and the reasons thereof in many ways a tentative theory of the issues under investigation. The theory's function is instrumental in informing the researcher of the design, in terms of the refinement of the goals, the development of important questions, the roots of relevant research questions, the selection of the correct methods, and the identification of possible validity threats (Shields & Whetsell, 2017:76),

A conceptual framework is a theoretical construct, and a research problem is an integral part of it. Formulating of the research problem is an important ingredient in the design of a study. (Swanson, 2013). The conceptual framework is the tool that guides and orientates a researcher's ways of thinking, plans, structures and practices of a research endeavour. This means that it is the foundation upon which the identification of a specific research topic is based, the problem under investigation, the questions and hypotheses connections, the fundamentals of the literature review, the theories that will be applied, the broad methodologies to be utilised, and the specific methods, the instruments and required procedures, the analysis of the collected data, the interpretation of findings, as well as the recommendations and conclusions (Ravitch & Riggan, 2017).

In other words, the conceptual framework is the epitome of the logical conceptualisation of a research project, which identifies it as an operational and reflective element of the research process. It is the logical master plan upon which the entire research project is founded, as it encompasses all the concepts and ideas upon which the research plan and implementation of the research project are based. The conceptual framework is the product of the researcher's own thinking regarding a specific research study, while on the other hand, the theoretical framework comprises other people's theoretical perspectives that are interpreted as relevant to a specific research study, which is fundamental in the data analysis and interpretation. It is an all-inclusive element of a research study, whose constituent parts include sections that need to be addressed in the research process (Johnson & Christensen, 2017).

Research on education, including universities, in most, if not all, cases is based on a wide range of disciplines including sociology, philosophy, history, psychology, economics, management, public administration and leadership. It combines theory that is associated with existing circumstances, conditions and environment and above all human and organisational relationships. All these play fundamental roles in shaping the existing terrain of activities and such social formations.

Within this context, the need for a conceptual framework is guided by the fundamentals of existing university realities and challenges in practice, based on an analysis of meanings, educational relationships, action-reflection cycles, educational influences in teaching and learning, existing policies and practices, and the possibility of the creation of new educational knowledge based on success and higher standards at all levels.

Thus, one can look at the conceptual framework as the 'mental master plan' of a research project planned scientifically from a to z in a planned and implemented project where the theoretical framework can be seen and described as an important, but nevertheless a sub-set of the conceptual framework (Schad et al. 2021:188-189)

In more ways than one, a conceptual framework is a link connecting all the ideas and concepts and occupying the researcher's mind in the perpetual process of planning, designing, implementing and concluding a research project from a to z (Swanson, 2013).

The researcher utilises existing knowledge and understanding of situations and circumstances to build a conceptual framework that will be utilised in the research process, while the theoretical framework is the outcome of other theorists' writings and perspectives that have been deemed necessary for empirical research. They can be used in relevant parts of a researcher's work, such as the literature review for the analysis and interpretation of the collected data (Johnson & Christensen, 2017).

Paucar-Caceres and Jerardino-Wiesenborn (2019:2-3) in their phenomenological onto-epistemological analysis empirically showed the conceptual theory underpinning the Soft Systems Methodology (SSM) interpretivist epistemology as the foundation in the effort to understand and improve existing, real, challenging and problematic situations in organisations and people's everyday lives. Systems thinking as a conceptual framework is fundamental in analysing and dissecting the importance of individual academic sense-making. The Soft

Systems Methodology (SSM) is a methodology instrumental in transforming conceptual models into human activity systems and has been chosen because its key stages, aim, objectives and foundations are suitable for a complex organisation such as the university of technology for the following reasons:

- It is instrumental in analysing the existing situation of the tertiary institution that goes through a seriously challenging period as experienced by its academic staff. As a key element of the university in terms of teaching and learning, research and additional work challenges, the academics are key actors in the research effort of collecting information on the existing challenges facing the university and the possibilities, planning and implementation of solutions.
- The system is key in the effort of the researcher to utilise the appropriate tools in the effort to be successful in the process of capturing the multiplicity of problems, challenges and dilemmas of the existing conditions, relationships and circumstances evident at the university. Within such a process, the system allows the researcher to construct the complete picture of the institutions, their strengths, weaknesses and disparities. The acquisition of such knowledge can shape the opinion of the way forward, the role of leadership and management, the sources of future inspiration and the possibilities, hopes and plans towards the path to excellence.
- SSM leads the researcher on a new path of knowledge and understanding of existing realities after utilising the outcomes of the empirical exercise and then expands the understanding of such established facts through a serious comparison of such realities with those existing in other universities of technology. When or if such an exercise is achieved, existing gaps in leadership, management, academic, research and administrative challenges can be identified, re-planned, and faced head-on for positive change.
- Bearing in mind the position above, it can be understood that the university is an institution with finite resources at all operational levels, meaning that positive changes are determined by priorities, financial resources and future timescales towards the assessment of academic needs, realities and future paths forward. Such processes are difficult as challenging and conflicting views are inevitable because of the specific realities of individual academics, their culture and everyday experiences. Existing differences amongst university academics, then, are rooted in professional, human, financial, cultural and family aspects and realities. These undeniable facts cannot be denied.

- Finally, the actions undertaken in the efforts to improve the existing situation and circumstances are the final steps associated with the identification of the desirable, possible and deliverable efforts for an implementable way forward are the final product of the process and analysis (Checkland, 1999; Wilson, 2001)

Having briefly examined the fundamental elements and characteristics, let us turn to the living theory chosen as the framework for the present project.

4.3. LIVING THEORY AND COMPLEXITY

The living theory has been chosen because it is felt that it is the appropriate framework in the dissection and analysis of realities within a complex institution such as the university, and because of the conceptualisation of living theory as a search for authentic professional identity that incorporates the researcher's and the participants' moral and ethical concerns.

The realities of the university terrain internationally and in South Africa have shown conclusively that tertiary institutions are complex organisations for a number of reasons, several of which have been tackled in the present research effort. In South Africa, this truth has been a historical and present reality not only because of the history-making campus protests of 2015–2020 with the combination of the demand for free education for all, decolonisation and continuous bureaucratisation, but also because of a wide variety of challenges and problems dealt with in this research effort. Within this context, the complexity theory of universities is inevitably an integral component of the effort both at leadership and institutional/organisation realities and relations as well as the dynamic interactions between academics, students, leadership and management at all levels. Such relations are the foundations of the existing and future university conditions and path forward, outcomes, ambiguity, success or failure. A critical understanding and appreciation of institutional complexity in a university environment dominated, in most cases, by bureaucratic assumptions can only be rooted in a solid application of living theory. (Walters, 2020a).

The fact that all universities in South Africa are dynamic and complex organisations that need to adjust and adapt to ever-changing and perpetually challenging material situations makes it different for leadership, management and the existing human resources, especially in a period where the uncertainty of the COVID-19 lockdowns in South Africa has negatively affected all institutions, especially the universities of technology (Walters, 2020b). A complex system, such as a university, is completely different from a complicated system and this distinction is important. The fundamental difference between the two is that complicated problems have their

roots in causes that under certain circumstances can be distinguished individually and addressed through a careful analysis of their sections/pieces followed by a careful and well-planned input to the system with the expectation of the correct output. In such a system and output, the systems can be controlled and the existing problems can be solved through permanent solutions.

Complex problems and systems, on the other hand, as found at universities, result from a multiplicity of networks and interacting causes which, because of their complex realities, cannot be distinguished individually. The only way forward is the holistic and collective attempt to address the systems in their entirety because separate and small inputs could lead to disproportionate effects. This is because the problems they face are so complex that they cannot be solved in their entirety; hence, the solution is systematic leadership and management planning, designing and implementing the appropriate interventions (Poli, 2013: 142).

Complexity theory at universities is related to all types of realities, challenges, relations, problems, achievements, dilemmas and the connection with the past, present and future of the institution in an environment where bureaucratic assumptions often underpin management operations. These are the fundamentals of existing, living circumstances that need to be researched in a living, interactive, dynamic empirical function through which adaptive outcomes can become a tangible reality. This means that in the case of MUT, the existing systems, realities and processes researched are roots of complexities associated with learning support, ambiguities, crises, connections and inter-connections, successes and failures, certainty and uncertainty, centralisation or decentralisation of decision-making, and collective, individual or group wisdom, planning, designing and implementing (Mason, 2013: 36-37; Pinheiro & Young, 2017: 121-122;).

One of the most important theoretical and empirical sociologists of our time, Manuel Castells was the intellectual who internationally exposed the most important challenges facing universities in terms of their roles, failures and successes. He was the same intellectual who dissected the fundamentals and details of the 2008 financial crisis and the volatility of the global financial markets that have for years dominated national and international economies (Castells, 2012). It was also Castells who analysed with detail the continuous acceleration of the technological revolution with direct effects on the terrains of bio-technologies, information technology, biology and biotechnologies, and communication and its direct effects on knowledge production and management. The latter analysis was also a direct and indirect

analysis leading to the reality of the key role of universities in human development at all levels, with an emphasis on 'research universities' (Castells, 2001; Castells, 2010)

One of Castells' major contributions to the understanding and challenges facing South African and African universities, in general, has been outlined in detail in a book tracing the intellectual's history of visits to South Africa over the past 20 years. It is rooted in the intellectual influence of his work as well as a number of his followers in highlighting his most important contributions related to the functions of universities in the context of African and South African realities (Muller, Cloete & van Schalkwyk, 2017).

The uniqueness of the book is founded firstly on the documentation of Castells' contribution to the history and development of universities in Africa and internationally as presented in his three public lectures in South Africa. These public lectures and their messages based on pioneering research and writings accepted and followed internationally had an influence on the country's policy makers in terms of their understanding and positions vis a vis tertiary institutions. The book includes several chapters researched and authored by a number of African and South African intellectuals and academics who have been influenced to a large degree by Castells' conceptual and theoretical bases in their efforts to investigate, understand, analyse and dissect the challenges faced by African universities and their important role in knowledge production.

One of the key contributions of the book in understanding important realities in the developmental challenges of universities is the analysis of HERANA (the Higher Education Research and Advocacy Network in Africa), which was set up in order to investigate the relationship between higher education and economic and social development, focussing almost exclusively on the emergence and continuous processes of 'research universities' strengthening in the eight participating countries. Through the utilisation of Castells' framework on the issue, the local and continental researchers attempted to investigate the evolution of universities in Sub-Saharan Africa, utilising four perspectives that can be described adequately as 'occasionally complementary, and occasionally contradictory':

- 'the university as an ancillary' (a narrow focus on training civil servants and professionals),
- 'the university as a self-governing institution',
- 'the university as an instrument of the development agenda' and,
- 'the university as an engine of development'.

It can be understood that within such frameworks, a university of technology in South Africa or elsewhere on the continent can be described and function as any of the four if the state provides the necessities needed in terms of infrastructure, facilities, resources, academic developmental programmes and initiatives.

Throughout the years the Department of Higher Education and Training and institutions such as the National Research Foundation and SATN (the South African Technology Network) have been helpful and eager to support universities of technology, but the reality of the situation is that the systems and structures evident in a number of them need extra attention.

This reality facing MUT and possibly other universities of technology has been empirically confirmed by the research produced by Muller et al. (2017), who showed that most, if not all, of the leading universities in most countries in Africa have found it difficult to escape from their 'traditional' undergraduate teaching and learning functions and build up their research capacity. The University of Cape Town was the exception to the rule. Despite the fact that things in a number of traditional South African universities have changed in this respect, such findings have generally but not completely confirmed Castells' observation that African universities have basically focused their attention and functions on elite formation instead of increasing their efforts in an attempt to sustain a continuous contribution to knowledge production. In addition, a number of chapters in the book examine and analyse the science and technology policies in the majority of Sub-Saharan African countries, as well as the lack of a serious connection and undertaking of responsibilities on the part of official state declarations and initiatives in terms of funding allocations to universities. This means that governments' attitudes and behaviour have not recognised or accepted the importance of higher education, hence the lack of funding allocations, especially to research-based or flagship universities, which can make a positive difference to knowledge production. The researchers have also pinpointed the importance of the need 'for increased institutional differentiation' and the role of the ever-increasing influence of international donor agencies and their offerings in terms of the relation to capacity-building efforts in the African university sector and their repercussions.

Flood (2010) in a seminal article investigated the relationship of systems thinking to action research by reviewing the main developments in systems thinking and its relationship to action planning, a vital component of living theory. In the analysis Flood presented two related lines of thought in systems thinking lead to completely different conceptions in relation to action research. Systems thinking per se advocates thinking related to real social systems that exist in

the world. Systemic thinking is based on the belief or understanding that the social construction of the world is systemic, hence greater emphasis is placed on the latter thinking which is considered more important to contemporary action research.

This is one of the key elements of the living theory and its main elements and characteristics in regard to empirical research and its dynamics at all levels of societal life and challenges.

In this particular methodology section, systems thinking is the foundation of the conceptual framework chosen to research, analyse and dissect the importance of individual academic sense-making.

The living theory is the conceptual theory that will be used in this project, a social movement with international recognition, the product of one of the most renowned educational researchers and practitioners of the contemporary era.

The living theory shows how important it is for the individual to make sense of their profession and their involvement in it. This is especially relevant for university academics for several very important reasons.

This is because the foundation of living theory lies in the reality that the participation of an academic researcher in action research is a 'lived experience' in the process of investigating systems, processes, structures, and practices that are directly related to their own professional and human lives. They are not only an integral part of a profession but also of their everyday lives and experiences. This means that the researcher, through the lived practice of living theory-rooted research, investigates not only a certain profession but also his/her own life, achievements, weaknesses, strengths, challenges and problems and human and intellectual developments. Of course, there is a clear understanding that such research cannot be separated from the existing systems, structures, processes, aims and objectives and the history of the institution under analysis.

The realities of a university are directly and indirectly related to societal education-based developments as institutional responsibilities ought to be rooted in care, commitment, synergy, efficient leadership, appropriate values, agency and aspirations for educational achievements at all intellectual and knowledge production strategies, tactics and achievements.

It is therefore important for the researcher to utilise the insights of the processes and findings of the empirical research to improve not only his/her knowledge of human and systemic realities at the institution, but also his/her awareness and understanding of personal and group

realities and the way forward. Through the challenges associated with the research processes, a number of fresh and unique ways of absorbing new knowledge have been created through a self-chosen research focus and modus operandi. These realities have been the outcome of an intrinsic motivation that was significant in improving the knowledge and subsequent effectiveness and effectiveness of the engagement, tactics, strategies and purpose of research.

The production of living theory and living theory methodology has over the years been utilised and influenced by the works of intellectuals and researchers who provided many insights and innovating thinking and praxis, directly and indirectly, related to action research and critical theory including the pioneering work of Whitehead who identified the importance of raising awareness of the economic, political, and cultural influences in what a group or an individual can do. Through Whitehead's empirical and theoretical exploration of both living theory and research, a global social movement was established that has over the years provided an international platform for both debate and innovation in both theory and research (Whitehead, 2008a; 2008b; 2008c; 2008d; 2009).

In this sense, a clear distinction needs to be made between living theory research and living-educational-theories. The latter is the explanation aimed at providing explanations to the variety of educational influences in an individual's learning and the influences of one's environment, material realities and social formation that have a direct or indirect influence on behaviour, practice or understanding of situations.

A living theory approach, in contrast, provides opportunities for researchers, leaders, and educational practitioners to locate their efforts through the use of this framework within this research approach (Coombs et al. 2014).

The conceptual framework underlying the real focus on the impact of perceived conflicting practices in higher education institutions on academic staff due to the everyday realities of the environment dominated by existing national and institutional policies that are contradictory on occasion, demand increasing volumes of graduate quantitative output and differing demands on efficiency and quality is important because it generates unique explanations, beliefs, attitudes and actions.

Living theory research, as outlined in Whitehead's seminal 1989 paper and perpetually updated, dealt directly with questions of improvement in higher education, the significance of professional practice, the existing educational and research context, professional teaching and

research practices and programmes, personal and professional boundaries as well as geographical, local and international boundaries The theory guides the understanding of practice improvement and existence as a living contradiction of values The theory thus ceases to be a conceptual abstraction, which dissects the influence of existing power relationships that influence the realities of academic legitimacy.

The history of social sciences abounds with conceptual and theoretical ideas and creations that have been developed over many years helping researchers in their efforts to ensure honest and non-contaminated results to be applied to situations. Research outcomes, behavioural understanding, explanations and analysis supplemented by dissection create or re-create theories associated directly or indirectly with human nature and relations, power and contradictions, human environment, behaviour and action. By analysing current conditions, realities, challenges, and problems, societal leaders, including those in higher education, can set the stage for a future that is destined to learn from the past and the present (Whitehead, 2005).

Within this general context, living theory research considers the new technological advantages, including those associated with the 4th Industrial Revolution economics, as well as the outcomes and outputs of a wide spectrum of researchers and theories utilising different paradigms and methodologies in their educational research throughout the international and continental terrains. Such comparisons are very important despite the fact that many of them are not necessarily multi-cultural (Charles, 2007; Murray, 2007).

The theory has been enriched by the epistemological advances of Ilyenkos's dialectics and their emphasis on contradictions (Ilyenkov, 1977) and Ferguson's understanding and application of Eastern, African, and a number of other indigenous ways of knowledge (Ferguson, et al. 2008).

Teaching and learning as well as research are at the heart of every university and its staff at all organisational levels are obligated to perform duties assigned to them through the honest performance of their duties bestowed on them. In this process, they are also obligated to elevate their knowledge and skills and enhance their commitment as their tasks, aims and objectives are directly related to the elevation of the students as well as their knowledge and skills. These objectives cannot be fulfilled without two fundamentals: personal responsibility and the material and intellectual environment of the institution, its values, resources and practice. This means that the institution that is committed to serving its staff, students and communities has the legal, financial and ethical responsibility to enhance its capabilities and capacities at all

operational and organisational levels. Within this context, it becomes an inevitable reality that every single university employee attempts to reach his/her goals, aims and objectives firstly through a self-examination not as a mere spectator of the existing realities and challenges, but as an active researcher of systems, structures, process and contractions at the centre of the challenges.

It is this understanding that is the root of living theory research as it calls for the investigation of the surrounding environment, individual and collective practices through observations, descriptions, research and analysis, as well as the reasons and foundations of educational success or failure. This means that educational practitioners utilise their own experiences and those of their own colleagues in order to study, research and investigate deeply their own experiences, challenges and practices at all levels and observe thoroughly problems, failures and successes not only in their everyday life but also the lives of their leadership, management and students at all levels (Mills, 2003).

Observation of everyday experiences rooted and analysed in action research leads to observations, analysis and explanations that lead to a new understanding of the existing conditions and possible and tangible solutions, ideas, plans and ways forward. Action research, in fact, can be described as a continuous process of "learning by doing" because the researcher of the present project, in the effort to research, analyse and offer solutions to a number of challenges, utilises the contributions of a group of people working in the same environment has identified the existing challenges and aspires to contribute positively to the solutions of the existing problems and challenges in a collaborative manner and lead it towards a desirable direction. It is a living education action research process of co-learning (Whitehead, 2005).

This research type is rooted in a systematic study of the challenge through a refinement of the methodological tools suitable for the exigencies of the situation and on carefully thought out planned and implemented collection, analysis and presentation of data on a cyclical ongoing basis. Action research has its primary focus on the common involvement of the main researcher with his/her research collaborators at all levels. The empirical research that takes place occurs in a 'real world situation', and its main objective is to tackle existing challenges and solve real problems (Slavin, 2002:17-18).

Such research based on everyday experiences and realities paves new ways of understanding, learning and action. The researcher and the participants' communication channels opened to them through their action research become instrumental in the creation of common actions,

responses and collaborative efforts at all levels of the organisational and institutional terrain. The living theory concept and reality are rooted in the belief that it is the responsibility of all researchers, especially educational researchers, to become active in the empirical field so they are able to produce evidence-based conclusions and knowledge, including theories that can be ultimately important for decisions by a country's policy makers.

This type of research and knowledge production follows the original path paved by Carr and Kemmis (1986: 134-135) whose critical social science analysis was one of the most crucial criticisms of the positivist school of thought advocating the unity of social and natural sciences and pinpointed the significance of political and economic relations in in both organisational and institutional education field and terrain.

Their work has been fundamental in the expansion of both living theory and action research in terms of generating, producing, and testing new research and theories in the educational field. Such work finds its realisation in the ideas, opinions, attitudes, intimate knowledge and narrative of key components and elements of a university, such as members of the academic, research and administrative staff who are prepared to thus communicate key aspects and realities of their everyday lives, experiences, interactions and contradictions within an environment of higher learning, an institution committed to excellence in teaching, learning, research and community engagement at all levels (McNiff & Whitehead, 2006).

It is also the researcher himself/herself who lives, teaches, does research and communicates with the surrounding communities who live, experience and observe everyday realities, events and activities at the institution, analyses them and makes conclusions about them. Through these experiences, one or more hypotheses can be the first step leading from the 'particular to the general' through the hypotheses testing, evidence generation, induction and deduction processes and possible generalisations. Such processes can lead to the creation of a theory based on inter-connected realities and propositions that are open to new tests, reflections debates, criticism, new experiences and through replications (Goustavsen, 2008).

In this sense, living theory and action research are founded on the belief of qualitative and systematic research that is replicable to identical circumstances and their results could be generalized to other similar situations, that can inform practices and policies for the future. This method has over the years become a highly credible and respected research terrain, a tried and tested method of empirical evidence as the basis for practice, leading to innovative changes. The unity of theory and practice is a core issue in educational research hence its

significance in living theory and action research, where the foundation lies in the capturing of data scientifically to generate evidence on the issues under the research microscope (Prasad, 2005).

The present research topic deals with realities and conditions in higher learning institutions dealing with the challenges of one of the fundamental producers of learning, teaching and research, focusing on the actions, influences, dynamics, realities, and problems of the learning, teaching and research environments and their monitoring. The evaluation of the educators facing the same challenges within a similar environment is important in the analysis and further understanding of existing living realities and the need to monitor and evaluate their responses is important as the researcher needs to incorporate and integrate his/her own ideas into their own through the exercise of their critical judgement .This particular aspect of data collection is of crucial importance because the positions, experiences, attitudes and beliefs expressed by the participants are to be related and compared at all levels with those of the researcher's everyday experience, values and principles. This is because their experiences and their interpretations of situations are the results of their own understanding and learning processes that lead to actions. Hence, the monitoring of their actions and responses is important as there could be a number of new angles in terms of existing realities that have escaped the attention of the researcher (Whitehead, 2004).

As rooted in a holistic approach and not a single method for collecting and analysing data, action research utilises a wide variety of research tools and methods in the tradition of the qualitative research paradigm, which in most cases include a daily research diary and journal, collection of minutes and documents of all relevant academic and administrative departments and bodies, participant observation including recordings, questionnaire surveys, structured and unstructured interviews and case studies. As the lead researcher amongst equals, the role of the head of the project empirically examining the challenges facing academics in the institution under investigation, he/she is the 'primary planner' of the project paving the way forward after performing the simultaneous role of 'facilitator' and 'designer' who is transformed into a 'listener' and an 'observer' (Biedenbach & Jacobsson, 2016).

When the process is considered completed by all participants the key researcher becomes the 'synthesiser', the 'analyst' and the 'reporter'. He/she ensures that while the last mentioned processes have begun and are in process, dialogue is facilitated with the participants so that reflective analysis takes place and periodic reports are produced for debate. When the final

report is complete, the researcher ensures that the analysis, findings and solutions are in accordance with the findings based on the collective effort (Dean, 2018)

The reality of this process related to action research based on direct communication and real-world circumstances where a number of people are involved means there are several important ethical rules and principles and are agreed upon by all active participants who undertake to debate all issues honestly, transparently, openly and with respect for all the principles guiding the work are accepted in advance by all. Those who do not wish to participate must be respected; the debates must be open and honest and open to suggestion; relevant documentation presented by participants must be studied and debated by all; work development needs to remain visible and open to suggestions from all. The description of work of non-participants needs to be negotiated with those concerned before being debated; all participants need to accept responsibility guaranteeing confidentiality; decisions regarding the direction of the research and the probable and possible outcomes are collective; researchers are open and explicit in regard of the nature of the research process from the beginning to the end, including all personal and professional interests and biases and there is the principle that all participants have equal access to all information generated throughout the process (McNiff & Whitehead, 2005).

Given the fact that living theory shows how important it is for the individual to make sense of their profession and their involvement in it, a brief on its ontology, epistemology, and axiology is important. Interdisciplinary research such as the present one can only be enriched through the utilisation of the importance of values and knowledge in research. Interdisciplinary researchers consider ontology epistemology and axiology as key in the process of enriching philosophical inquiry into human (and professional) understanding. Ontology is, directly and indirectly, related to the nature of reality and of what really exists, epistemology is the relationship between the one with the knowledge and what is known and the axiology of what we value. In the case of a project such as the present one, the justification, strategy and tactics in the process of construction of a specific type of knowledge (methodology), as linked to individual methods and techniques as found in living theory are appropriate. This is because living theory incorporates ethics, morality and truth and in this process, the response to the question ‘what are the processes turning a good lecturer into a good researcher’ could take a number of a qualitative and/or a quantitative nature (accredited publications, international conferences attendance, more relations with the private sector, etc.) (Dean, 2018).

In such circumstances, the realities and importance of the four elements are of extreme importance within the parameters of the living theory because they are instrumental in shaping the context of the research in terms of the paradigm choice, the roots of the inquiry, as well as the focus of research and the suggestions to the leadership of the specific entity/organisation (Biedenbach & Jacobsson, 2016).

The living theory is a synthesis of ontology, epistemology, axiology and methodology because its methods do not control the research process with tight and implicit, normative commitments. This is one of the key fundamentals of the living theory because it is based on the belief that the diversity of phenomena involved makes the application of normative commitments seriously problematic. Ontological commitments in living theory are , therefore, directly and indirectly, related to the nature of the existing reality, which is connected to human experience and nature. According to the research tradition paradigm within which the present project is located, the axiology, ontology and epistemology utilised ought to be consistent (Patterson & Williams, 1998).

4.4. THE RESEARCH DESIGN

The research design of a project is the plan that outlines the key elements of research and their connective relationships, an overall framework that includes the research questions, the data needed to answer the question, the appropriate methods to be utilised in the processes of the relevant data collection, and the analysis-based techniques to be used in answering the questions (Gunn, 2017: 242-243).

The key aim of the present study was to gain a deep understanding of the complexities faced by an HEI through the use of the systems approach and its objectives were to investigate and analyse the challenges facing academics at a particular institution to obtain a deeper understanding of the complexities of the higher education praxis and to identify possible interventions that can develop a personal theory of practice. The key questions to be answered were related to what different complexities are faced by academics in their praxis at higher education institutions, what challenges faced and are the possible interventions that can be developed for the personal theory of practice.

According to Aguado (2009:252-253), the research design is an outline, a blueprint for the successful undertaking of the study, with very crucial controls instrumental in not allowing possible interference of factors that can distort the validity of the expected outcomes. As stated earlier, the study is based on the qualitative research methodology that provides the practical

ways through which new knowledge regarding social, institutional, or organisational phenomena is empirically investigated and analysed. This type of methodology was chosen as the primary method of data collection because it is the epitome of in-depth investigation in the search for knowledge (Aguado, 2009:254).

As one of the key proponents of qualitative research Punch (2013) and Bryman (2004) have pointed out that as a research strategy it emphasises the significance of words rather than quantification in the process of the collection and analysis of data. What this means is that in the process of living theory and action research, the most important ingredient of the discourse is the deep understanding of the systems and processes as well as the historical, social, educational and cultural contexts that shape actions and behaviours. Through such a process, the possibility of the emergence of a coherent, collective story experienced and shaped by key actors in the university environment can be built through the understanding and representation of their experiences, actions, and/or inactions within a specific environment (Levitt et al. 2017: 4-5).

This method is relevant to the study because it allowed the researcher to generate a wealth of descriptive, honest, collegial and true data in an effort to understand the nature of the unfolding phenomena .The qualitative method enhanced the possibilities for the participants in the empirical effort as collaborators to openly express and elaborate on their experiences, feelings, ideas and ways forward about the challenges they faced in a collective, active way.The questions ‘who’ ‘how’, ‘why’, and ‘what’ have become almost synonymous with living theory, action research and qualitative methods because they are incremental elements that are researched and need answers (Flick, 2014).

It is the qualitative method that is instrumental in digging into the everyday experiences of academics and others in order for the researcher and collaborators to research and analyse the particularities of the existing system and its complexities and challenges at all levels, especially those associated with the higher education practice and its ramifications at all levels.

Living theory action research is based on the belief that the primary objective of qualitative research interviews is to make the interviewees an integral part of the process and its outcome through their ideas, perspectives, knowledge and interpretations of the environments in which they work. This means that the participants’ understanding, and knowledge of the organisation are a guide to possible solutions. Action theory-based qualitative studies are interpretive, allowing open debate and deductions to be made from the feelings, thoughts and experiences

of the participants. The data is arranged into themes that are analysed through an interpretivist paradigm and process used to scientifically analyse and connect the meanings, understanding and interpretations. The strategy behind an accurate qualitative research path needs serious planning, occasionally collective based on an iterative process that needs construction and reconstruction in the checks and assessment of the linkages that exist within the different parts of the design and the mutual impacts (Strauss & Corbin, 2008).

Rahman (2017:102) described qualitative studies as structures and processes producing qualitative information that is based on narratives, thoughts, words, and sentences, and the process is more focused upon the content and discourse as reflections of underlying phenomena. He described qualitative designs as basically emergent rather than fixed techniques that are fundamental in the interpretation of the phenomenon as they translate its deep meanings. The reliability and validity of the exchanges and information circulating amongst participants depend on a number of factors, especially the commitment, dedication, knowledge, skills and rigour of the key researcher and the collaborating participants. These factors allow the researcher and the participants to delve deeper into the collected data through a common agreement on the ways and means of utilising a wide variety of analytical levels and techniques. This process relies on the agreed utilisation of the categorisation of data and the variety of concepts. The researchers then categorise debates, questions, answers, conversations and observations, and interpret them according to their understanding of the realities and context (Hancock et. al., 2009). Such an approach holds the promise of more detail, opinion exchange, richness, exploration, diversification, authenticity, and trustworthiness.

4.4.1. THE SAMPLING TECHNIQUE

As a result of discussions and consultations with prospective participants, it was decided that the purposive sampling method would be the best method for serving the conceptual nature and principles of the living theory of action research, as well as its application to research.

Purposive sampling is fundamentally a ‘focused choice’ based on where, how and why research is conducted and how and under what conditions the sample is tied to the researcher’s objectives. This means that the sampling technique is based on and relies on the researcher’s own judgement, knowledge and understanding of the environment within which the research will take place when choosing members of the population who will be participants in the study (Strauss & Corbin 1990).Purposive sampling takes place when the researcher uses his/her knowledge, understanding and judgement to select the sample, which is representative,

knowledgeable, prepared to be truthful and collaborative at all levels of the research process. Such a process can be successful when the main researcher utilises knowledge of the past and present of the working environment and his/her choices of participants cannot only be utilised as primary data sources as per the nature of research design and aims and objectives, but also as co-researchers in a collaborative exercise **(**Saunders, Lewis & Thornhill, 2012).

The purposive sampling technique was used at the chosen university, which was the focus of the research and the identified group of 15 academic staff members from different departments within the faculty was selected following consultations with both academic and administrative staff at the institution.

Such a chosen number of respondents within the same faculty does not denote a researcher's tendency towards sample "quantification". The study was rooted in the interpretative living theory perspective and the researcher has a deep knowledge of different academics with highly diversified duties, responsibilities, involvement, relationships, years of employment, and experiences. Their most important common characteristic is that, as key intellectuals, academics, researchers and potential researchers, they are crucial university stakeholders with direct involvement in the institution's present and future endeavours. The total number of staff members interviewed is in line with the widely utilised empirical writings of Dworkin (2012: 1319) and Marshall et al. (2013), who have shown concretely that a smaller number of interviewees in qualitative research is the best research strategy for qualitatively based research projects. In accordance with the above realities, research participants belonged to the entire hierarchy of the faculty and consisted of staff in the higher, middle and lower echelons and levels of employment.

4.4.2. THE INTERVIEWS

Interviews are considered the most commonly employed method for the collection of information for a project of this nature. They have been described as an effective method in the process of the researcher understanding peoples' beliefs, ways of thinking, attitudes, and thoughts on a wide variety of issues. Interviews can take several variations; they can be one-on-one or involve a larger number of individuals or a group in an interacting situation with a specific purpose in mind .A semi-structured interview was utilised in this study, with the most weight concentrated on the qualitative nature of the questions and answers. A semi-structured interview is where pre-determined questions are put to the research participants in a pre-

determined order and the responses are recorded electronically or note-taking that can be performed in a number of ways(Adams, 2015).

Given the choice of qualitative paradigm as the basis for the collection and analysis of data, semi-structured interviews played key role in the study due to their ability to lead to wide-ranging debates resulting from the researcher's ability to iron out differences of opinion with immediate effect .The semi-structured interview is extremely useful because it combines a set of pre-determined questions structured in such a way as to enable the interviewer to explore particular themes and responses further, enlarge the participation and exchange of ideas and prepositions, expand the debate as it consists of a clear-cut set of issues to be addressed and questions to be answered (Russel &Ryan 2009).

This method has been extremely useful for the project as it has prompted all the participants to become engaged in deep conversations and debates. It has been stated that the most important disadvantage of a semi-structured interview is that it is time-consuming, and the time allocated for the interview can be longer than one expects.

However, in the case of the present project, the semi-structured interview was appropriate because it allowed all participants to be an integral part of an open and free dialogue on an equal basis and thus it provided a unique opportunity for the researcher to learn and share ideas, beliefs and attitudes shaping the challenges of academics at the institution under the microscope. The participants in this study paved the way for an open conversation and exchange of realities, perceptions and ideas regarding challenges facing academics at the Mangosuthu University of Technology. The exchanges of ideas and debates were open-ended and served to delve into issues as responses were collected, noted and assessed, thus keeping in line with the tradition of qualitative research.

The semi-structured interview with the participants started with a set of questions and in its progression, participants were given a much greater degree of flexibility for everyone to add additional questions based on all responses. Such an approach facilitated an active-laden discussion and exchange of ideas and beliefs among the participants.

The interview schedule was principally used with a set of inter-related questions asked in the same order to all respondents. The questions were asked in a set order, which brought about specificity and focus to the study.

The questions aimed to acquire data, and notes were taken, mostly verbatim, that were utilised as a common strategy and key element for data management. Verbatim transcriptions are considered in research as an integral part of analysing and interpreting verbal data (Neuman, 2006). A verbatim transcription was key in this study since it enabled the researcher and all the participants to fully capture the entire debate processes and conversations.

Face-to-face and digitally-based unstructured interviews were the key data collection techniques. They took place before and during the COVID-19 pandemic, and the interviewees shared their everyday, first-hand experiences of the challenges, problems and realities facing academics, students and the university as a complex institution committed to teaching and learning, new knowledge production and community engagement. The recorded interviews were carefully transcribed verbatim followed by the use of the NVivo Version 10 software that facilitated the organisation and analysis of data. In such a process, the qualitative inquiry led to the retrieval and codification of data as well as the integration of the qualitative linking with shaping, modelling, coding, and categorising the data (Saldaña, 2013).

Based on the project's objectives and aims, primary and secondary sources were used, along with interviews as the primary source. The researcher strongly believed that original materials are crucial as a key foundation for research, especially in the process of implementing living theory. This decision was based on the researcher’s strong belief that original materials are crucial for the research process.

Following the transcription of the interviews, the researcher presented them to all interviewees for confirmation. Their anonymity and confidentiality were guaranteed.

4.4.3. THE CONTEXTUAL DOCUMENTARY ANALYSIS

A secondary data analysis was conducted using all relevant material available from the institution, knowing that this data source provides detailed information on all aspects and angles, duties and responsibilities of all stakeholders and role players, their duties and responsibilities. The study of documents included existing and future plans, models and planning processes, training and development, infrastructure strengths and weaknesses, insights into the existing and planned human resources systems, structures, approaches and processes, documentation on institutional long-term and annual operating plans, state and department reports and audits, as well as archival records and existing organograms, is a key element of understanding and analysis at all levels (Schreier, 2012).

The amount of collected data that was analysed in the process was determined by the nature of the study together with the research aims and objectives.

These documents were a very good supplement to the rapport between the researcher and his collaborators whose knowledge and understanding of the university environment enhanced the significance of the data collection method and the reliability of the most appropriate method selected. All conversations and debates that took place were meticulously recorded, transcribed and categorised and coded together with the related field notes before they were scrutinised through a process of analysis that followed variant content analysis techniques (Mayring, 2014).

4.4.4 THE RESEARCH ETHICS

Ethics has, over the years, been one of the real foundations of every study, especially one that aspires to make an original contribution to knowledge. The research ethics project is fundamental for universities in South Africa and internationally. Hence, the researcher's first steps were to comply with the requirements from the study institution, the Durban University of Technology, and the institution under investigation, Mangosuthu University of Technology. The applications for ethical clearance from both institutions were submitted timeously to both universities and the ethical approvals for the research study were received. Confirmation letters permitting the researcher to conduct the study were received from the Mangosuthu University of Technology relevant committees and the processes confirmed that the research was undertaken in complete accordance with all requirements of the universities' Ethics and Research Committees.

Following these steps, the researcher ensured that every aspect directly or indirectly related to all anticipated implications and ethical procedures of the project was considered, as the first and foremost priority was the well-being of participants at every single step undertaken during the duration of the project, from the first preparatory day to the completion of the mission (Panter & Sterba, 2011). It was ensured that the psychological, social and physical well-being was upheld during the research.

Confidentiality of all participants is key to the commitment and success of the project and it was upheld throughout the research process and data collection (Israel & Hay, 2006). The interviews and debates were conducted by the researcher and it was ensured that the whole process took place in a professional and collegial manner. The participation and exchange of knowledge, ideas, attitudes and beliefs regarding each aspect under investigation and

discussion was enriched by all participants' un-coerced, well-thought and well-informed contributions that ultimately ensured the collection of authentic data (Guillemin & Gillam 2004 :263).

The first and initial priority of the researcher was to ensure the informed verbal consent of participants, as it is considered the founding principle that underpins the ethical requirements of the study (Guillemin& Gillam 2004:263).

Following the first step and in support of the principles, aims, objectives and outcomes of the present project, a consent form and information page were handed out to all participants before any engagement related directly or indirectly to data collection. The consent form and information page were left with all participants, who were given the undertaking that could withdraw or refuse to take part in the research if they wished at any point during its procedure (Silver, 2017:100-101).

The information page in the document clearly identified all key core issues of the research undertaking through clear identification of the aims and objectives of the study, all particulars of the researcher, all university and other documents related to the ethical clearance numbers and details of the two institutions involved. The voluntary participation of all was confirmed as was the clear indication that the participation was voluntary (ALLEA- All European Academics, 2017).

Such initiatives, both official and unofficial, were supplemented with the researcher's verbal and written confirmation of the aims, objectives, and implications of the research project. All these undertakings were the foundations of collegial and true collaboration and well-coordinated synergy rooted in the principles of voluntary participation. The complete confidentiality and anonymity of respondents were upheld.

This means that following the processes and completion of the analysis, the report of all the results does not carry the identities or particulars of the participants as all of them have been protected and their rights to privacy, anonymity and confidentiality have been respected.

4. 5. CONCLUSION

This chapter attempted to extend existing knowledge related to the research purpose and was based on existing international and South African literature on key challenges facing academics in the university context and realities as well as the complexities associated with tertiary educational institutions. The first section presented the wider context within which the

empirical study unfolded, describing the historical, institutional and policy-led structural and functional changes, legislative measures and policies, rules and regulations defining the structures and functions of the South African tertiary education terrain.

The next section covered the social, economic and structural problems and challenges facing society at large and the prospective students, such as HIV/AIDS, poverty and poor quality schooling, all of which are multi-dimensional challenges, directly and indirectly, related to the problems facing university leadership and academics. It was followed by the exposition and analysis of systems thinking and its relationship with complexity as the theoretical framework underlining the project.

The review dealt with the historical and current contribution of the theory and its relevance to the present topic through analysis and dissection of the theory's pioneering exponents, their ideas and their contribution to theoretical and empirical realities. The analysis and exposition of systems theories dealt with issues relating to higher education institutions and their inter-connections with their complexities were explored.

This was followed by the conceptual framework, the theoretical construct and the mode guiding ways of thinking upon which the empirical work is based. The living theory was chosen to guide the empirical effort in the research and analysis of the academic challenges at the university. A historical and current periodisation of the development of theory regarding tertiary education has been undertaken as it is directly related to the present empirical undertaking.

The sections that followed dealt with the literature, analysing contemporary empirical research efforts by academics and researchers throughout the world and South Africa that are evident in the everyday realities of universities throughout the world and are relevant to the researcher's university and topic under investigation. The research design within the parameters of the qualitative paradigm is followed by the steps undertaken in terms of the sampling procedures, the interview processes as an integral part of living theory action research, the parameters of contextual documentary analysis, and the dynamics and realities of the research ethics upon which this empirical effort is based. These are all related to the key challenges facing academics at the institution and are founded, amongst others, on institutional infrastructure, student massification, workload, and their repercussions, namely lack of technology, administrative workload, and research versus teaching. These were the key issues to be mainly studied and analysed empirically.

CHAPTER 5 ANALYSIS OF DATA

5.1. THE FOUNDATION

The present empirical research explores the existential realities, challenges, problems and experiences of university lecturers within a specific university of technology and the only tertiary institution in South Africa situated in a historically African township. It focuses on the realities of the exploration of identity at the interface of work and character, and pays special attention to relationships, realities, interventions, alliances, situations, and circumstances. Within such a complex reality and existence, work is seen as institutional, contractual, communal, constructive, contractual, and contradictory, while on the other hand, character is experienced as values-rich, essential and personal, but also containing its contradictions. This research concentrates on the vortex between the individual and the organisation.

The research approach followed can be described as complex because it is rooted in a number of different research traditions. The organisational interrogation draws on a historic narrative including systems thinking, policy formulation and complexity. Professional identity research draws on living theory, spearheaded by Whitehead, who has throughout many years developed an appropriate paradigmatic framework. The main foundation of the living theory is a strong social ethic that takes into account both the academic content as well as the socio-economic and socio-political realities of the student body served by the institution. This confronts some of the key issues raised by Castells with reference to whom the university serves. Is it the capitalist class, the political elite, the human resource requirements or others? This is dealt with through reflexivity. The researcher sharpens and validates his work through reference to a peer group with whom he interacts in an appropriate methodological manner. A clear picture of the realities, ideas, opinions, attitudes and possible solutions of the life experiences of academics within the work environment of their institution, concentrating on their challenges, is fundamental to the success of the institution and the existence of the complex issues and realities faced every single hour by academics are the roots of future effort leading to a developmental future. This is because the present project examines the roots of MUT's realities not only as they stand today but as a historical institution, its past and present. Such a process sets the appropriate parameters to research the institution in perspective and explores its establishment and development within the international and national higher education context, with special reference to its emergent identity as a university of technology.

It is within this organisational context that the researcher conducts a reflective exploration of what it means for him to be an academic. He accepts that the notion of academic requires a critical and conscience-driven conscientiousness, which can come into conflict with some aspects of the institutional mandate, essentially because of the conflicted nature of the contemporary university project.

As the university is considered a complex, responsive community that underpins its culture, a wide variety of its aspects and realities are considered through the utilisation of the methodologies of systems thinking, which while having a different theoretical genesis to complexity thinking, provides complexity research with proven methodologies.

Gaining a deep understanding of the complexities and challenges faced by the HEI through the use of the systems approach was the result of a research process shaped directly and indirectly by the knowledge, opinions, attitudes, beliefs and expectations regarding the realities facing academics and their relationships with existing systems, processes and structures that are the foundations of the relations between the institutional leadership and the academic staff. The analysis and dissection of the data led to an understanding of the university's policies and structures and the possibilities of interventions that could be acceptable and implementable for the benefit of all concerned, including the student population.

The following objectives are associated with a deeper understanding of the complexities of higher education praxis to achieve the aim of the study: the investigations and analysis of the challenges facing academics related to infrastructure dysfunction, technological inefficiency, the lack of academic and research development initiatives, heavy workloads that have increased substantially because of the inclusion of new administrative duties, the lack of career guidance, the new knowledge management production challenges, higher research productivity and pursuit of postgraduate degrees' rand student problems and challenges.

The South African higher education terrain is facing major challenges that have been exacerbated by the pandemic realities of COVID-19. The biggest challenges were especially evident in the ones with fewer financial resources, such as MUT. In terms of complexity and the need for further empirical studies, the present systematic and well-planned effort is undertaken with the aspiration of making a new original contribution to knowledge, mostly because of the reality that most, if not all, universities of technology face similar complexities and challenges.

Within these parameters, there is a belief that the thesis provides a number of serious contributions to the understanding of the complexities and realities of the University of Technology sector. The planning, methodology, and empirical research-based analysis and dissection of the collected data can provide a basis for further research on the sector. The possibility of a careful 'replication' and/or utilisation of similar theoretical, conceptual and methodological tools in the paths opened by Castells in Africa and the pioneers of living theory. Within this context, honest, powerful and knowledgeable responses, thoughts and suggestions can provide the foundations of new, fresher and more forward-looking knowledge-producing projects.

It is believed that the final product emanating from the effort carries the living praxis of the university's academics, an experience of a lifetime leading its potential future leaders to a clear understanding of concrete, complex environments and lives within an organisational environment that needs honest, transparent, accountable and transparent transformation of teaching and learning, development of new knowledge production and strategic and tactical community engagement.

Such a study cannot be an original contribution to knowledge without concrete proposals and recommendations, deemed necessary not only for the academics but for all sections and levels of the institution. An additional contribution to knowledge is the scientific treatment of the concepts and realities of complexity and leadership and the methodological innovations that pave the way forward for researchers aspiring to tackle similar complex institutional challenges and the role of leadership in the future success of specific structures, functions, processes, inputs, outputs and outcomes at all institutional and operational levels.

5.2. AIM AND OBJECTIVES OF THE STUDY

The aim of this study was to gain a deep understanding of the complexities faced by HEI through the use of the systems approach. The research process was related directly and indirectly to the knowledge, opinions, attitudes and beliefs of expectations regarding the realities facing academics and their relationships with existing systems, processes and structures that are the foundations of the relations between the institutional leadership and the academic staff. The analysis and dissection of the data led to an understanding of the university's policies and structures and the possibilities of interventions that could be acceptable and implementable for the benefit of all concerned, including the student population.

To achieve the aim of the study, the following objectives were derived:

- To obtain a deeper understanding of the complexities of Higher Education Praxis).
- To investigate and analyse the challenges facing academics (such as infrastructure-related challenges, lack of technology advancement, professional, academic and research development, heavy workload including added administrative duties, career guidance new knowledge management production challenges, higher research productivity and pursuit of postgraduate degrees' rand student problems and challenges).
- To identify possible interventions that can develop a personal theory of practice.

5.3. THE CONTEXT

All universities around the world are still looking forward to a future, hopefully without pandemics and welcoming the 4th Industrial Revolution. Tertiary institutions throughout the world are facing and will continue to face major challenges at all levels in the future; organisational, scientific, teaching and learning, research, resource consolidation, financial instabilities and future leadership question marks. South African society, government, the people, especially the youth, academia and the wide range of its stakeholders and role players are obligated to plan thoroughly, comprehensively, ethically and transparently the major steps forward, leading to a relentless path of redressing historical imbalances through a thorough and universally agreed transformation of all tertiary education levels, structures, functions and processes. These priorities are rooted not in the minds and thoughts of dreamy revolutionaries but in the challenging imperatives of the *Transformation in Higher Education Discussion Paper* (CHE, 2015).

The next section will commence with a brief outline of MUT as an institution of higher learning.

5.4. MANGOSUTHU UNIVERSITY OF TECHNOLOGY: 41 YEARS OF STRUGGLES

Being an integral part of the above brief context and parameters, Mangosuthu University of Technology (MUT) which was born as a 'Technikon' in 1979 in Umlazi township, Durban, was transformed into a technical university in 2007, a step that was described as a decisive move towards the new vision of transformation that has led many commentators to describe the step as a decisive move towards new progressive future achievements. The new vision of transformation in response to the country's and province's forward paths has led the institution's student population to increase from 9901 in 2003 to 11375 in 2013 (MUT 2015).

To many people such an increase might not mean much numerically but given the structural and infrastructure problems and challenges at all levels facing the university over the 41 years of its existence, the increase is substantial. Such a reality becomes more evident when it is realised that the ratio of students to staff stood at 40:1, while the highest institutional average set by the relevant Departments was 28:1. This means that the MUT student: staff ratio was by far the highest in the tertiary education landscape (DHET. SSAUF 2015:8).

Given these realities, there have been many debates regarding the fact that, despite the reality that other universities of technology offer post-graduate degrees such as masters and doctorates, this is not the case with MUT. These debates, however, seem not to take into account a number of historical and present realities such as leadership and management plans, actions and implementation, financial and human resources organisational weaknesses, strengths and challenges, systems and processes, sources and student and staff social and educational backgrounds. It is known globally that for a university to be stable and successful, the most important elements are ethical and innovative leadership, thorough and strategic management and peaceful and mature relationships amongst the stakeholder and role players that could lead to financial stability and prosperity. Throughout the years, MUT has been one of the tertiary institutions that, since its beginnings, has faced with a wide range of actions and inactions that have led to instability over considerable periods of time, actions that were characterised by dysfunctions of key operational systems and processes, incompetent external auditors and administrators, and the university council and senior administrative disagreements and perpetual in-fighting. Such events had serious repercussions for a fully peaceful and functional university (CHET 2009:2-3; 20).

The instabilities continued for a number of years, with the Department of Higher Education's MUT audits indicating a number of serious problems and challenges in terms of high teaching loads (CHE 2012: 35), the lack of postgraduate programmes and infrastructure expansion at all levels had a serious negative influence on the culture of teaching, learning and research, considered to be the result of a lack of careful planning, and implementation of the institution's mission vision and objectives (CHE 2012: 37-38). All these were generally acknowledged as the existing realities at the time, while the serious resource restraints were identified as the key burden to expansion at all levels, despite the 'developmental approach' of the institutional leadership. However, these challenges were recognised by the institution leaders themselves, who acknowledged the organisational and administrative gaps and weaknesses that affected good governance negatively at all levels, especially infrastructure problems, teaching and

learning, resource weaknesses, research and community engagement. The realities of that historic period led to the 2012 strike with its serious consequences: the loss of experienced and valuable staff and low staff morale at all operational levels. These have been acknowledged publicly by the university's leadership (MUT 2011: 21).

On the other hand, despite the existing negativity in certain sections of the 2011 university's audit, including the labelling of MUT leadership's actions as 'diminished governance' and 'deinstitutionalisation', the state authorities recognised what was described as the commitment of the university's leadership to decisively increase the efforts to improve their commitment to serious and innovative teaching and learning upgrades and applied research, which was an integral part of MUT's vision and mission. In such positions mentioned in MUT's official documents, it was believed that recognition of these initiatives would need the active assistance of the Department of Higher Education and all stakeholders and role players (CHE 2012: 23-24).

Such initiatives underpinned the common belief that the change of title and name of Technikon to university of technology could be a sign of the changing times in the South African tertiary education terrain, or/and a path of emulation of international footpaths in terms of a wide array of possibilities and/or probabilities of future achievements at many, if not all levels. The possibilities of the newly named universities of technology to offer a new range of post-diploma qualifications have increased and, at present, most of them are offering Master's and PhD qualifications. Thus, these new avenues have increased opportunities not only for academic and intellectual/research culture to flourish but also to increase their financial resources through short courses in person or electronically. All these possibilities and probabilities are directly and indirectly related to high-quality teaching and learning, research productivity, financial stability and high-research profile (Du Per, 2010: 5).

Within this perpetually competitive environment, MUT has gone through a number of turbulent, yet fruitful experiences at almost all levels: operational, organisational, leadership, academic and research all in the efforts to pursue a higher quality of teaching and learning and an increase in research-based knowledge production. The focus on teaching and learning has over the years moved forward despite a number of problems and challenges that are presented in this empirical effort, while research has become one of the urgent priorities of the new leadership of the institution that has so far made steps forward. The institution introduced postgraduate and advanced qualifications that replaced the B.Tech. programmes that were

accompanied by the introduction of new courses on research methodology. In addition, following, the forward steps on the part of the institution's leadership, a good number of academics have pursued Master's and Doctorates. Such initiatives of upgrading the existing qualifications amongst academic staff members was based on the institution's Strategy 2020 that all its academic staff should possess a Master's degree by 2020 while 30% should be in possession of a PhD. The institutional leadership expected that academic staff without master's degrees should complete and graduate by 2017 (MUT 2015).

It is important to note that one of the foundations of the institution's 2015 key documents (MUT 2015) mentioned the university's lack of infrastructure at all levels as a major impediment for all staff and students, teaching, learning and research (MUT 2016: 8). It was at the time of the inauguration of the new and very promising university document planning the institutional path forward that the institution faced another crisis of note when six senior administrators' resignations (including that of the then Vice Chancellor) following a Commission of Inquiry related to a wide range of governance issues at the university.

It was a period of challenge and uncertainty that led to serious issues of a 'delegation of authority policy', a fact that led to a widely acknowledged difficult period. Despite the challenges and problems related to infrastructure development, a number of initiatives to deal with the issue decisively continued. This proved to be the outcome of the negotiations, while there was strong evidence of complicated discrepancies and activities throughout the human resources systems from top to bottom, described as a wide array of bottlenecks at almost all operational levels (Parliamentary Monitoring Group 2017: 1-3).

The 2020-2025 Strategic Plan of the institution is considered a path-breaking document that deals with a variety of crucial issues at the institution pointing a way forward through a wide spectrum of ideas that are being implemented at a number of levels. This was an effort to advance not missions and visions alone but also achievable realities as epitomised in a document that has introduced not only ideas but also s detailed analysis of planning, leading to new avenues of functionality, structural changes and the creation, development, planning and implementations of a forward-looking institution of higher learning (MUT 2019). The planning of such a painstaking process has put on the agenda a very wide array of issues, such as the renewal of the curriculum at all levels founded on empirical research of the highest calibre that becomes the basic ingredient of the teaching and learning process at all levels. There is a strong belief evident in the document that the envisaged vision, including higher research effort and

outputs, attracting, and retaining the highest quality of academics and researchers and convincing the private business sector to partner and assist the institution's important initiatives, cannot be realised without facility upgrades and infrastructure expansions at all levels, from student residences to advanced and spacious lecture rooms. Those steps should be supplemented by major technological advances and a complete overhaul of communication between leaders and staff at all levels (MUT 2019: 5).

All these forward-looking plans took a major step forward in 2018 when an Independent Assessor's Report following its scientific undertaking pinpointed the facts that have opened new doors towards a road to a structural and factional reconstruction of the institution through the revitalisation of a number of institutional functions and processes associated with teaching and learning, monitoring, assessing and monitoring systems, the setting up of a research unit, and the creation of the Teaching and Learning Development Centre. Soon after these developments, the DHET accepted these steps forward as the expressed commitment of MUT towards a new, innovative step forward (Government Gazette 2018: 14). The above-mentioned official research document was also open regarding several issues of importance for the institution that were considered 'solved' but were not, mostly in the teaching and learning and research landscapes as well as other operational matters that were described as unresolved by the University Council and the leadership of the institution, realities that made new and innovative policy formulation and good governance things of the past (Government Gazette 2018:15). The policy gaps that were outlined in the audit clearly pinpointed the lack of good governance accountability, transparency and ethics at a number of operational levels while it was also clear through existing evidence showing the institutional leadership's inaction in the process of such activities and behaviour (Government Gazette 2018: 27-28)

5.4.1. THE STUDENTS

MUT's students in first year are between 18 and 22 years of age, 100% black Africans, and come directly from a wide variety of predominantly, if not exclusively, poor township schools. Large numbers have lived all their lives in rural areas and have serious problems with the English language. The gender distribution is more or less equal in numbers and more than 80% depend on the NSFAS (National Student Financial Aid Scheme) funding to begin and complete their studies. The majority live at home, a good number at residences and the rest rent rooms in Umlazi where the university is situated or other townships. Large numbers of students spend hours travelling to and from the university every day and night.

Like most of the South African students who start university for the first time, MUT first years face a very wide range of challenges that are both academic and non-academic, This is because a large number of them have their fees paid but face perpetual financial problems and constraints, as they live far away from home, having difficulties in facing new and difficult circumstances that on many occasions lead to social and psychological dilemmas and challenges that become a serious impediment in their studies.

The new radical ideas that have their basis on the FEESMUSTFALL movement and the 'decolonisation platform' have in the last few years gained a certain influence amongst sections of the student population, and there is a feeling amongst many academics at the institution that the new existing conditions have led to ongoing changes in the thinking of the young students in their efforts to re-evaluate their way to the future. This feeling has strengthened considerably during the coronavirus pandemic as the debates for the introduction of the new curricula dominated by the spirit of decolonisation have been replaced by the hope of a healthy and successful career ahead, a highly reflective different mindset to that of the FEESMUSTFALL leaders. It seems to be a re-evaluation of life, death, and the future, as well as the role of the university and its every day present and future. The past is forgotten.

This is because students have realised that they are obligated to traverse completely different epochs and realities waiting for them after graduation, new life and work transitions, completely different from their lecture room and home environments, and much tougher.

5.4.2. CHALLENGES OF ACADEMICS

The key facing challenges of academics at the institution are associated with a number of fundamental issues faced by their students but under different circumstances. These have their roots and origins in historical and present realities that include the 'teaching and learning beginnings' that can be equated to academic literacy. These are related to fundamentals such as the assistance to students in developing a real sense of critical academic reading, writing and communicating with their colleagues, academic and administrative staff and building abilities and the skills needed for their chosen subjects. Student knowledge of the key academic practices and discourses in their chosen field is the responsibility of the academic staff (Ashwin, 2017).

In accountancy, mathematics and engineering students are introduced to and advance their knowledge through the utilisation and understanding of quantitative data, while every single student is introduced to information from a to z in the appropriate and later advanced usage of

the library and its utilities and the technological advances associated with the Internet and its more advanced categories. The use of writing and reading techniques as well as all the technicalities of teaching and learning is the foundation of building a student ready to excel (Cadman, 2013). Psychological work in uplifting all students, especially those from rural areas, is crucial as they build individual and collective confidence in the ability to operate new technologies and their work, as well as the wide variety of new software programmes that can be instrumental in advancing individual and collective knowledge at all levels and different subjects and disciplines. Psychological work on students is important as it provides them with building understanding, resilience and understanding of existing skills for study and mental absorption. The creation of the appropriate atmosphere inside and outside the lecture room provides the impetus for the creation of an enabling environment that encourages students to get deep inside the core of their subjects and disciplines and become the real centre of their own learning that is assisted, guided, facilitated, assessed and monitored by the relevant academics. The more comprehensive the assistance, the more student advancement occurs, as well as the building of an independent mind and a responsible learning culture (Lea & Street, 2006:369-370).

One-on-one and group meetings could be instrumental in building strong relations based on collegiality and knowledge (after the end of the pandemic). The key issue in creating an appropriate learning culture for students, especially those in their first year, is to begin creating skills at several levels, in all disciplines dealing with aspects of management, for example, the emphasis is on probability, numbers and data handling, number skills and calculations, proportions, ratios, percentages, and rates, amongst other issues, techniques and solutions. These learning areas are important, amongst others, because they offer the necessary fundamental quantitative skills that are the basis of both leadership and management decision-making processes, plans and implementation dynamics (Bangeni & Kapp, 2017).

5.5. THE INTERVIEWS: ANALYSIS OF DATA

As mentioned earlier, the qualitative analysis undertaken by the researcher was based on interviews based on a mixed/semi-structured questionnaire distributed to 15 members of the academic world of MUT who were carefully selected through the utilisation of a judgemental sampling frame. The careful selection of academic staff in a wide variety of disciplines, social groups, gender and academic and university seniority was based on the knowledge, experience and understanding of the researcher who has had a career, of ten years at MUT since 2011.

5.5.1 THE DEMOGRAPHICS OF THE CHOSEN SAMPLE

There was an age diversification among the interviewees at all age categories as represented in Table 5.1. Evidently what can be classified as the 'mature group' is the majority.

Age category:				
20 – 25	-		46 – 50	2
26 – 30	1		51 – 55	2
31 – 35	1		56 – 60	
36 – 40	2		61 – 65	2
41 – 45	5		Over 66	

Table 5.1: Age Category of Participants

The sample included five females and nine males. The group consisted of one 'coloured', seven Indians and seven Africans.

There were six interviewees who had been between eight and ten years in the academic world, five between 10 and 20 years, two between 21 and 30 years, one between 30 and 35 and one had a 40-year involvement in the sector.

There were five interviewees with between two and three years in industry, two with eight years, and one with 15 years in a variety of sectors.

In terms of university positions, one respondent was a junior lecturer, six were lecturers, four were senior lecturers, one senior specialist, two Heads of Departments, and one professor. Two of the interviewees had PhDs, 11 had Master's degrees, one had a Higher Diploma (Honours), and one had a BTCMA. Six of the holders of the Master' s degrees were pursuing PhD studies in a wide variety of universities in the country. In terms of professional qualifications, six of the interviewees had Post Graduate Diplomas in Higher Education and one had a Bachelor of Law (LLB) degree. One participant was a very senior member of SAAA (the South African Accounting Academy), five were members of SAIPA (the South African Institute of Professional Accountants), one is a member of SAICA (South African Institute of Charter Accountants), one is a member of CIMA (the global body for management accountants), one belongs to ACCA (Association of Chartered Certified Accountants), two belonged to the

Marketing Association of South Africa, one belonged to the Institute of Certified Book-keepers, and two belonged to HELTASA (the Higher Education Learning and Teaching Association of South Africa).

5.5.2. ANALYSIS OF DATA: THE RESPONSES

5.5.2.1 TEACHING AND LEARNING EXPERIENCES: MASSIFICATION OF CLASSES

The first question '*Do you have large classes?*' was answered with a unanimous 'yes' with one exception. Table 5.2. shows the weekly, day and evening classes and corresponding student numbers

Day	Evening	01-40	41-80	81-120	120+
2	2				4
1				1	
2	2			2	2
1	2	1			2
2	2				4
1	2		1		2
1	2				3
1	3	1	1		2
5			2		3
3	3			2	4
3	3			3	3
2	2		1	1	2
2	2			2	2
1					1
2	2			2	2

Table 5.2. Weekly Day and Evening Class Numbers (Interviewees' Weekly Classes and Student Numbers)

It can be seen that of the selected 56 lecture classes pinpointed by the respondents, 36 were populated by more than 120 students, occasionally reaching 150 or 160 students. It was confirmed that several such lectures took place in venues that could only seat 80 students. It was unanimously agreed that the situation was problematic for both lecturers and students.

The lack of smart boards and what has been described as 'the perpetual mis-function or non-function of microphones' makes it difficult not only for the lectures but also because there is complete lack of mobile microphones that could be a key to questions and answers. There are

also no multi-modal facilities or access to Wi-Fi. These weaknesses, it was said, make teaching and learning a major challenge for both lecturers and students, as a number of the students cannot purchase books because of their financial situation, have serious language challenges, and are seriously unprepared for tertiary education.

The lack of student-lecturer interaction was a major barrier to individual attention within the classroom, leading to the lack of one-on-one or even small group consultation. In fact, a number of interviewees indicated that this reality became worse because of the fact that small numbers of students approach the lecturers for consultation (Respondents 3, 9, 11, 15 and 6).

As a result of the existing structural circumstances, it was almost impossible for the lecturers to provide individual attention to students, which was described as a major intellectual hurdle because the majority of students are from rural areas and had over the years serious problems and challenges in adjusting to the new tertiary institution's scholastic realities. Such situations have been exacerbated by the fact that, besides the fact that venues are large, they are not properly ventilated, meaning that they are extremely hot in summer and very cold in winter (Respondents 2, 3 and 12).

One of the key difficulties and challenges outlined by a number of interviewees was the difficulty of tracking poor performers in the large classes of 120 to 150 students because of the changes from semester-based to annual results (Respondents, 2, 7, 9 and 13).

The small group consultation was a rare phenomenon, and the majority of students approached lecturers mostly during registration or examination times. In addition, the overcrowded lecture hall conditions lead lecturers to fatigue, especially those over 50 years of age (Respondents 3, 7, 8, and 15).

The venue structure and its overcrowding made the situation difficult for the lecturer to work in or with small groups because of the congestion within the lecture hall. What has been described as the 'truth of the matter' is that such lecture halls are not student-centred venues and this makes it very difficult for both students and lecturers. It was stated that the introduction of tutors and tutorials has become a useful functional mechanism, but it has become evident that important issues and challenges concerning lecturing infrastructure can only be solved by decisive future action on the part of the institution's leadership (Respondents 5, 7, and 12).

Three interviewees indicated that in their subjects there was visible poor attendance, especially in respect of second- and third-year students and there was an observation that the lack of

proper and well-equipped lecture venues led to a number of students feeling shy and/or intimidated and were afraid of interaction (Respondents 8, 11 and 13).

The reality of challenges in terms of class sizes was based on the undisputed fact that there were very few large venues, and this, together with the limited support facilities, which were restricted for tutors, and the reality that many students arrived late to the class because of financial or transport problems, created serious disruption in the teaching and learning processes (Respondents 4 and 5).

A different position to the majority as explored and addressed above indicates that the truth of the matter is and has been for years that the venue set-up is the root of the main point. This means that the lack of proper infrastructure does not allow the lecturer to 'get to the students' to communicate with them through a 'two-way process' where there are strong communication patterns between them. Such a reality, however, pointed to the undisputed truth that it was up to the lecturer to 'adapt' to such a situation and try to find the best way out of the existing problems. The assessment of the students was described as a major challenge for both key stakeholders in the teaching and learning landscape, namely lecturers and students. One of the major challenges of the assessment process, it was said, is that it is very time-consuming. Hence, a split into blocks/groups of students was decided upon by the lecturer and the student leadership, but it has not been put in action because of the coronavirus. There was also an agreement between the lecturer and the students for them to become self-assessors of their work during the lockdown period. This agreed proposal was based on the expected utilisation of electronic devices. Another alternative proposed was the sharing of marking amongst peers in the academic terrain; the proposal is still under discussion (Respondent 14).

International research has shown that a lecture amphitheatre size and lecturers' workload are instrumental in students' success or failure. Such research literature has indicated that smaller classes are beneficial for both students and lecturers, as students on such occasions, perform better in both tests and assignments when compared to those in large classes. Such empirical findings have been confirmed for all educational levels, from primary to higher educational landscapes (Bezuidenhout, 2015:3-4) Of course, there are differences in terms of these mainly generic findings, depending on a number of social, economic, and political realities to be found in different regions of the planet.

One of the most important benefits of smaller classes is related to both student and lecturer engagement in the process of teaching and learning and the latter's direct and indirect role in

good or improved academic performance. This is because students have more opportunities to talk, express opinions for discussion and generally participate in dialogue, while the lecturers have more opportunities to be interactive, answer all forthcoming questions, create better relationships with the students, and continuously upgrade their evaluation and teaching methods at all levels. It is much easier for both students and teachers to have an unwritten agreement regarding their individual and group behaviours in smaller classes than in bigger classes because they can reach unwritten agreements on student learning patterns according to student needs and engage in discussions regarding students' needs in the education terrain (Bruhwiler & Blatchford, 201:97-981).

Given the fact that internationally and in all academic disciplines the quality of lecturers has been acknowledged as the most crucial element in the success of the teaching and learning process. Their conditions and circumstances in the workplace is instrumental in their decisions of both recruitment and retention. This means that working conditions, one of which is smaller and more manageable lecture classes is crucial in such decisions. Lecturers are aware that overall academic performance is their duty and responsibility, and the university leadership globally, in most cases, are very aware of the benefits of small and manageable class sizes because of their importance as well as the retention of capable lecturers. On many occasions, however, the realities of universities with infrastructural and financial problems find such infrastructure problems are very difficult to solve because of the existing circumstances. Research indicates, however, that instead of rewarding effective teachers by decreasing their class size, administrators often increase the class sizes of the most effective teachers in order to ensure better student test scores (Guarino et al. 2006: 175-176)

The pioneering research by Shen and Constantopoulos (2019) utilised quantitative research methods in their effort to compare the levels of effectiveness The effectiveness of class size on student performance, which they have described as a reality and a problem of great interest in education as well as policy at all levels globally, both in terms of state responsibilities as well as institutions of learning. Their thorough investigation over the years has shown that the existing evidence on the issue has been 'largely inconclusive'. This statement is related by the researchers to what they describe as a 'potential' bias that has arisen because of the non-existence of a non-random placement of teachers and students in lecture rooms of different sizes. This study applied instrumental variable (IV) methods and used a regression discontinuity design (RDD) to conduct analyses of TIMSS data in 2003, 2007 and 2011.

TIMMS (Trends in International Mathematics and Science Study 2019) **is** an advanced qualitative analysis method that provides reliable data related to the science and mathematics achievement of American students over a number of years from a comparative perspective.

The purpose of the study was to investigate quantitatively the effects of class size on eighth-grade students' non-cognitive and cognitive outcomes in respect of five science and mathematics subjects in four European countries (Lithuania, Romania, Hungary, and Slovenia). In advanced statistics, econometrics and related disciplines, the instrumental variable (IV) method of analysis has been widely used to measure and analyse causal relationships when there are no possibilities for the utilisation of controlled experiments. IVs are utilised when an explanatory variable of interest is directly or indirectly correlated with the error term in statistics (Wooldridge, 2018).

The IV estimates indicated that in 2003, smaller classes in Romania showed evidence of important and positive effects at all levels of academic scores in physics, earth sciences, mathematics and chemistry. In 2007, the findings showed conclusively that small classes had very high results in response to enjoyment in learning mathematics. Similarly, in 2011, small classes in Lithuania had achieved positive and significant effects in terms of enjoyment in the process of learning chemistry well and biology. The overall conclusions indicated that the significant class size effects were very substantial.

Despite the positions expressed by the interviewees earlier, however, the majority expressed satisfaction with the university in terms of the serious positive development at the institution's library and its upgraded facilities for both staff and students. It was acknowledged that one of the infrastructure achievements of the university has been the continuous improvement of its library facilities, which have over the years advanced not only in terms of spatial expansion but also in terms of enriching its operations and structures and its educational innovations and resources. These advances became noticeable as student numbers increased considerably in the last few years.

These developments have resulted in the creation, enrichment and expansion of a very wide range of databases operating through IP authentication, including global educational sources such as the Academic Edition of the Britannica Online which is an educational source that promotes knowledge and learning of the highest standards; Ebsco-host a pioneer in information management and access that provides knowledge production through more than 150 databases

and thousands of journals; First-Search the home of thousands of electronic resources and reference resources; World-Cat, a massive database of bibliographic information; Article-First, and First-Search provide a database of masses of citations in all academic disciplines; LexisNexis is a world-wide legal service provider of first-hand, original information and solutions for the legal fraternity, public institutions, the private sector, anti-corruption organisations, tax authorities, universities and risk management practitioners; Newspaper Direct is a media-based platform covering more than 2 200 publications in 43 languages and 95 countries, including more than 45 South African publications, and has the advantage of allowing users to view and interact with all covered publications while online; Sabinet is a wide-ranging and comprehensive database covering very expansive international and local databases covering, amongst others, engineering, news, articles, books and tenders, as well as possibly the most searchable and comprehensive collection of a vast array of African electronic journals; the Elsevier produced Science Direct is an extremely wide and advanced online collection of scientific research published in the world with more than 8.5 million articles from more 2500 journals that include the crème of the crop in all academic disciplines as well as over 6,000 e-books, handbooks and reference works, and handbooks, as well as the World Cat Local, a continuously upgraded solution of web-scale discovery, which delivers direct access to more than 1.138 billion items and library collections throughout the world. There is also a wide variety of titles available on CDs and DVDs for all subject areas.

Other innovations in terms of organisational processes are related to the appointments of subject librarians for every faculty at the university who have been trained successfully in the provision of systematic guidance and advice to students related to the preparation, planning and implementation of the work associated with academic work assignments and projects, preparing and consulting the relevant materials through series of literacy and information training sessions according to faculties and disciplines. These are related directly and indirectly to the ways of searching for the appropriate material to be studied. In addition, more than 120 computers are operating at the campus internet laboratory, which is open to all students for one hour while further time can be requested. There are also two discussion rooms that could be utilised for more than an hour depending on the issue at the table.

The second learning and teaching challenge was related to the utilisation of technology in the lecture venues. The question *'Do you use technology in your classes?'* was answered with four negative and 10 positive responses. Given the infrastructure realities of the institution, the response can be considered very encouraging for all stakeholders and role players involved.

In response to the question, *'Do you feel that using technology in class is important?'* 14 strongly agreed and one 'somewhat agreed'.

In describing the existing situation in the lecture halls in relation to the existence and quality levels of technology, there was a unanimous agreement amongst the interviewees that the demands of both the 4th Industrial Revolution and the coronavirus are the signals of the absolute adaptation and adoption of technological advances everywhere, especially in the lecture hall, including even those with over 150 students in the establishment. These initiatives, it was thought, would enhance the capacities, capabilities and knowledge levels of the students while, at the same time, making life easier and more productive for the lecturers. There was a unanimous decision that technology makes things easier at all levels, including knowledge, research, communication patterns, and participation in educational meetings, discussions and decision-making.

Although the first unanimous reactions and responses were encouraging in their overall understanding of the situation, there was a completely different picture emerging in the responses related to the realities of the situation in regard to the existing lecture venues at the institution. It was unanimously agreed that connecting with electricity was a major daily problem

This reality alone made the situation difficult for the lecturers, especially as there have been cases where students accused them of being responsible for such technical and infrastructure weaknesses that are perpetuated. Such realities create serious problems because technology provides the opportunity for the lecturer to communicate and cope with the large numbers of students that lack data and connectivity.

It has been established that the majority of lecturing venues are not properly equipped, with very few having smartboards and projectors, and no Wi-Fi connectivity. On occasion, it became evident that both students and lecturers ended up utilising services, such as WhatsApp and e-mail when they had data available.

Lecture venue technology has a positive impact on student learning at all levels, especially the categories of students who constitute the majority of those registered at MUT; those from the poor townships and rural schools, thirsty for knowledge and a better future, prepared and committed to working hard although they survive on limited resources. Despite the fact that their financial situations do not allow such students to buy plentiful megabytes, it is up to the university leadership and their lecturers to connect them with existing knowledge through the

utilisation of technology through apps, tools and digital devices in their lecture venues, ready to increase student/lecturer common understanding, encouragement, engagement, collaboration, and continuous enhancement of their learning. It needs to be said that this relationship can only survive through the existence of three elements: good lecture venues and technology infrastructure, students thirsty for knowledge, and lecturers believing in the best path to effective teaching and learning methods and being prepared to guide the young students with purpose (Nicol et al. 2018: 255-256).

These initiatives are successful only through the appropriate effort, tactics and strategies on the part of all involved to integrate everything in order to effectively draw course material that can only lead forward. Honest and knowledgeable intention is the foundation that can transform technology into an effective teaching and learning tool of value for all. (Hartman et al. 2019: 238-239).

Proper technology infrastructure in a lecture venue where students and lecturers have access can be useful even after hours, especially in an environment such as MUT, as it means access to masses of diversified information and open resources from a wide variety of original research-gates from the best universities throughout the world is available (Global Research and Insights 2018).

Such facilities can also facilitate students' connections with similar digital student communities throughout South Africa, Africa and the world, and the same process can be followed by lecturers who can get new and fresh research and lecture material, new learning management systems or course-specific software and innovations associated with new blended learning styles and organisational patterns (Alenezi, 2017:1798-1799).

The existence and functionality of education-rooted technology in the lecture venue turns learning and teaching into a collaboration-based and interactive structure, function and process, and the more or less collective effort makes both students and lecturers engage more decisively with the existing and future course material. This means that plain memorising is transformed into thinking and doing through face-to-face and technologically enhanced collective discussions in a virtual domain (Genota, 2018).

Interaction is the keyword and that action brings things and people together, but it cannot take place if there is no technology in the lecture venue. Mathematical challenges need interactivity in order to be solved seriously by prospective engineers or accountants and, in this particular case, it is the service provided by the lecturer that will help the student to understand how to

utilise simulation tools or virtual reality in the venue. These are the only ways that will lead students to absorb effective ways to learn complex subject matter (Purdue University 2017).

The lack of technology in the lecture venue means that the students do not access new information during the period of learning that could be ably supplemented by the guidance of the lecturer. The information could be course material appearing through a video-recorded presentation of an innovative expert in a specific discipline that could lead students in the creation of small discussion groups, leading to collaborative work, while lecturers could utilise the existing systems to debate and assess students' understanding of key questions regarding the course material and its content.

In an environment such as MUT, the key difference between the utilisation of technology in the library and a lecture hall is that, because of the existence of only 120 computers and one hour of use per day, the three or four hours available in the lecture venue provides more time and opportunities. It almost creates a feeling for lovers of knowledge that learning has no real boundaries, real or artificial.

Technology in the lecture venue and knowledge of accountancy can widen the horizons and prospects of future professionals through their introduction to SAICA (South African Institute of Charter Accountants) blog study or by organising a video conference with the CFO of the organisation (Hayhurst, 2017).

Given the above circumstances and realities, the next key question to the interviewees was related to the specific technologies used by them and their students during the time they spend fulfilling their roles, duties and responsibilities towards the students, their parents, their communities and the university and society.

The results appear in Table No 5.3

6.	Which of the technologies do you use & how often do you use them?				
	Technologies used	Frequency of use			
		Daily	Weekly	Monthly	
6.1	Projector	4	6		
6.2	Smartboard		2	2	
6.3	Google Classroom	1		x	
6.4	Edmodo	2	x		
6.5	BlackBoard	2	5	1	
6.6	Social media				
	Whatsapp	9	3		
	Facebook			2	
	Twitter			1	
6.7	Other specify				
	E-mails				
	Teams		4		
	Moodle/Sakai		1		

Table 5.3. Lecturer's use of Technology and its Frequency

In response to the question, '*What are your challenges using technology?'* a number of responses made the current situation and realities clear.

- The vast majority of respondents indicated that the most challenging problem identified was the lack of access to Wi-Fi in most, if not all, venues.
- It was reported that the majority of students do not possess smart devices, laptops, and data, a fact becoming exacerbated by the lack of connectivity (Respondents 2, 3, 4, 5, 7, 8, 10, 15).

- The lack of training on the part of the students, which is described as a key to success, has a very negative effect on the functionality of the system as a whole. It was stated that on-the-job research amongst students has shown that these problems are evident amongst 90% of the first-year students (Interviewee no. 5) which means that most of them have not been inducted into the DUniv system and are not able to use Teams and MUT emails (Respondents 2, 4, 5, 6, 8 and 9).
- The circumstances do not allow individual attention.
- Consultation with students is difficult.
- Instability is created because teaching assistants, especially in Public Finance find employment and better opportunities and resign (Respondent 15).
- It was also mentioned that staff laptops were old and they were awaiting replacements (Respondent 10).
- One of the most comprehensive analyses of the situation, as it exists at present, was presented by one of the participants, who described the fundamental problem as the lack of the introduction of the LMS systems to all students and new staff. LMS (Learning Management System) is a platform leading to digital learning through the creation of a single source of training materials and courses in all disciplines. It is planned and structured in such a well-organised pattern that allows the user to manage the training process effectively (Learning Management Systems 2019). Such a system that is relatively easy to be absorbed makes a positive impact on continuous knowledge and saves valuable time. It is present at all times in terms of communication and connection patterns, tracks new knowledge tools and enhances connectivity and access. The reality remains that students, need to be technologically capacitated without being overwhelmed by choices through the utilisation of such easy-to-learn and implementable systems. In this process e-mails, Teams, Moodle/Sakai, Voxopop – VOIP, Coursesites – free version of Blackboard Canvas – free LMS (Learning Management System), Peergrade.io, creation of assignments and peer assessments, rubrics enabling to grade each other, self-evaluation of peer/s, Doctopus – e-photocopy, template creation, group and individual student tracking, group work and consultation.

The responses to the question, *'Are the lecture venues conducive to learning & teaching?'* were interestingly and comparatively diversified. This is because 4 of the interviewees 'somewhat disagreed' (Respondents 6, 9, 11, and 14), 3 'somewhat agreed' (Respondents 3, 12 and 7, one

‘strongly disagreed’ (Respondent 2) (and Respondent 6 neither agreed nor disagreed (Respondents 1, 4, 5, 8, 10 and 13).

Those who ‘somewhat disagreed’ mentioned the following roots of their response:

- The ‘whole of P block’ where most of the lectures have been taking place throughout the years has poor ventilation, no air-conditioning or fans and on many occasions no chairs which are stolen.
- The coronavirus pandemic caught the university off guard, especially because the infrastructure is not only poor as it is but is only geared for traditional teaching, namely it is not taking social distancing, and the university is still awaiting the relevant authorities to fund it so it can comply with the government directions towards COVID.
- There is no technological equipment, especially in terms of online teaching.
- The existing structures that are dominated by fixed seating, do not allow for student or student/mentor group work.
- Venues are not conducive for group work.
- Air conditioners, when they exist are dysfunctional.
- Lighting is adequate.
- There is a projector that works.
- Broken furniture is not repaired timeously.
- Doors are not operational.

Those who somewhat agreed provided the following reasons for their response:

- There are a number of venues that have Wi-Fi, a few projectors some have smartboards.
- On the other hand, the student conditions in terms of seating are bad because many chairs are damaged and hard.
- The ventilation is non-existent and especially in summer the heat is unbearable and students and staff cannot concentrate.

The interviewees who ‘strongly disagreed’ indicated that their attitudes were based on the fact that the venues were not properly designed, they had no or very poor ventilation, and the existing conditions were not conducive to group work,

Those who neither agreed nor disagreed provided the following reasons for their responses.

- Most of the venues, especially those that accommodate more than 150 students are poorly equipped in terms of seats and lack microphones and speakers.
- Air conditioners are almost always dysfunctional.
- The worst situation is when the class has over 150 students sitting or standing both during winter and summer and to add to these situations, the classes are not cleaned for the evening students.
- On many occasions, electric cables are exposed and students cannot see the writing on the white boards.
- One interviewee indicated that he believed 'there is room for improvement'.

In response to the question, '*What improvements and upgrades do you suggest for lecture venues*?' inevitably almost all concentrated on infrastructure details that seemed to be a key element of dissatisfaction, even a sense of disillusionment. The daily cleaning of the toilets and rest rooms was identified as a priority to be dealt with and upgraded immediately. In addition, the vast majority of interviewees repeated their plea for the continuous maintenance of the air-conditioners; the repairs to the windows, many of which were broken; the updating of the technology through the provision of Wi-Fi and data, smartboards, projector, new equipment for students (tablets, laptops etc.), better ventilation, microphones and speakers, soundproof doors, new furniture to replace the broken one, new whiteboards, accessibility to venues for those with disabilities, and new electrical cables as the existing ones are exposed. It was reported that communiqué have been sent to Operations and the Teaching and Learning Development Centre (TLDC) but no response has been received. This despite the fact that TLDC has set Minimum Standards but no action has been taken.

In response to the question, '*Is the pass rate of students acceptable?'* three interviewees (Respondents 8, 10 and 13) strongly agreed, six (Respondents 1, 3, 6, 9, 11 and 13) somewhat agreed, two (Respondents 2 and 12) strongly disagreed, two (Respondents 4 and 15) somewhat disagreed, and two (Respondents 5 and 7) neither agreed nor disagreed.

The reasons for the above responses were provided as follows:

Those who strongly agreed felt this way for the following reasons:

- The small groups, individual attention, focus groups and tutorials were described as crucial for student success.

- The identification of key problems and the solutions provided as well as the monitoring process were crucial to success.
- The introduction of the weekly submission of work solved many problems.
- Student regular attendance, especially daily presence is the foundation of eventual success. Those students who choose not to attend drop out or fail.
- Such initiatives have led to steady but constant improvement, from 55% to 80% in the Department.

Those who strongly disagreed provided the following reasons:

- The non-existence of small group consultation, lack of individual attention to students due to large numbers, and no realisation of focus groups and tutorials are identifiable problems that need to be introduced.
- Student work needs to be submitted weekly so that progress can be established and monitored.
- Poor school knowledge background is crucial in the acclimatisation to new university realities.
- The majority of students have major gaps in the English language. They find it difficult to grasp.
- Lack of needed resources, laboratories, technology, and Wi-Fi is crucial.
- Strong support in terms of assistance is lacking: 1 tutor for 600 students

Those who somewhat agree provided the following reasons:

- The pass rate is in-line and within the minimum prescribed guidelines as set by the Department of Higher Education and Training.
- The ‘dilemma’ of many academics in the choice between teaching and research plays a role as a large number of academics seek higher research-based degrees such as PhDs.
- Things would be upgraded if infrastructure including neat and clean lecture venues, Wi-Fi and technology availability, microphones and speakers, data projectors, smart boards and tablets for students become available.

Those who somewhat disagreed indicate the following:

- It is important to only quantify the pass rate because the key issue in academia is the quality of students produced.
- Thus, while the students are 'below par' the university has an 80% pass rate.
- This is precisely why there is a very high unemployment rate among graduates.
- Students are unprepared.
- Language problems exist throughout the spectrum, including English, and learning Latin in Law.
- It was stated that the minimum pass rate is too high – required to be 70%, and this does not take into account the weaknesses, problems and challenges facing the students and the level of the subjects, as it is the same for levels 1, 2 and 3. This reality was described as 'absurd'.

Those who neither agreed nor disagreed provided the following reasons:

- The academic year starts late, and this reality creates major challenges and problems in terms of year performance because students stay behind, they are racing for time, study under pressure, register late, late arrival and payments of funds from state institutions**.**
- These are systemic issues that have negative consequences in teaching and learning systems and activities T&L activities, and there is evidence of a lack of support for students to perform better.

In response to the question, *'What do you see as other repercussions or inhibitors to the pass rate?'* these were the main positions expressed:

- The student protests during the first weeks of every year disturb the peace of the vast majority of students and as time passes this can adversely affect the pass rate.
- The majority are underprepared and every year it is known that there is a great lack of books, students do not buy books, mostly because they cannot afford them, even the prescribed books when they are at special prices.
- Language problems and the lack of writing skills are major disadvantages.
- There is no alignment between the input, the output and the outcome.
- MUT is not a resource intense institution like other universities.

- Students tend to strike on many occasions, a fact that take time away from their studies and do not spend enough time on their studies.
- There is an urgent need to have more qualified tutors and better study conditions in terms of hours of tutorials and infrastructure.
- Students need to realise that it takes more time than expected to graduate and it is very costly for them and the institution.
- University's policies despite the strategic plans and many efforts forward throughout the years the policies that exist are outdated and not in tune with the marketplace
- Lack of funding for many is a real problem because not all poor students are funded by the NSFAS, hence both students and the university face funding fees problems and challenges.
- University does not give serious attention to postgraduate students despite its policies and rhetoric.
- There is high student absenteeism, especially for the evening classes that begin at 6.30 pm, the late evening class.
- Lack of financial and material resources is crucial, as the majority of students come from the poor and the lower middle classes.
- There are strong signs of lack of interest on the part of many students, as well as ambition for the future, and these lead to a lack of serious motivation. This is also confirmed by the fact that if they are not accepted in their chosen subject, they end up registering where they get a place.
- Repeating students have a number of clashes but they do not attend the classes, and problems are exacerbated as timetables are packed, hence there is no break in between for students, a serious hindrance.

One of the interviewees (Respondent 8) indicated that MUT leadership had a 'strange culture' because they have over the years tolerated mediocrity. It was believed there is a need on the part of the institutional leadership and academics to ensure that if students do not attend and study, they cannot pass. It is believed that the institution's approach to education leaves a lot to be desired because there is a need to understand and accept the fact that the majority of students are below average.

5.5.2.2 WORKLOAD

As has been noted earlier, heavy workload for both academics and students has serious consequences at a number of levels for these two role players and stakeholders of a tertiary institution. However, the truth is that these consequences are directly and indirectly related to shaping the relationship between the two groups because heavy workloads among academics lead to a number of problems and challenges in their personal and professional lives, including their relationships and attitudes towards students. The same is true for heavy workloads for students, especially at institutions facing a wide variety of challenges at many levels, such as MUT.

Inevitably, the judgemental-based selection of interviewees for the present study means that academics operating in different departments, sections and work environments could have a variety of opinions and beliefs based on their historical and everyday experiences, although the already presented opinions, attitudes, ideas and described realities of the situation bear many similarities. However, different dimensions and realities of everyday experiences dealing with problems and challenges could take different forms when researched.

In response to the question, '*Are you happy with your workload?* two (Respondents 3 and 6) indicated that they neither agree nor disagree, two (Respondents 9 and 11) strongly disagreed, seven (Respondents 2, 4, 7, 8, 10, 13 and 14) somewhat disagreed and four (Respondents 1, 5, 12 and 15) agreed.

The unanimous reasons for those who neither agreed nor disagreed were the following:

- Heavy workload is a core issue as it hinders personal development for academics as it does not allow them to get involved in research, as well as upgrade their qualifications and community engagement as required by the MUT's Strategic Plan 2020-2025.
- Administrative duties have become more complicated, cumbersome and time-consuming. These involve consultation, preparations, marking, capturing results and the like. In fact, at other tertiary institutions, administrative staff capture marks.

Those who somewhat agree indicated that they realised that their key functions were to update themselves with new knowledge so the teaching and learning could be updated, researched and

published. One of those expressing agreement indicated that the job was manageable because her teaching involved one group split into three.

The interviewees who strongly disagreed provided the following reasons for their responses:

- The high student number and the lack of sufficient assistants and tutors not only have a negative impact on the research terrain for those who are really interested but also create strain on academics at a personal and intellectual level because many do not even have time to register a research project because academic preparation, administrative work, preparation for examinations and marking are long processes. Marking is another major problem as the tutors are not suitably qualified to mark.

In terms of weekly working hours during the day there were 3 who worked for 8 hours, 2 for 18 hours, two for 12 hours, two for 3 hours and the rest worked for 4, 4.30, 10 and 15 hours. One head of department was working only in the evenings. In terms of working hours during the evenings 5 worked for 8 hours, 3 for 4 hours and 2 for 12 hours.

Obviously, such differences, on occasions of serious significance are related directly and indirectly to the schedules and priorities and departments, levels of seniority and expertise and student and tutors and tutorial numbers.

In respect of the question '*What do you see as other repercussions or inhibitors of such a workload*?' the respondents pinpointed the following:

- Some problems are perpetuated by the student representative council's demands to significantly raise the numbers and the hours of the final year of the new advanced diplomas in a number of faculties. This means that some Departments will end up with 122 final-year students and these realities demand higher pass rates, quality of tuition, and special tutorials to prepare for final examinations as part of social justice principles.
- The Directorate of Institutional Planning and Research (DIPR) has shown conclusively with their statistics that the MUT's workload is the highest in South Africa as the university has comparatively the highest student/staff ratio.
- The lack of the study and development of a well-planned workload model that could be comparable to other HEIs could be the first decisive step in order for the existing abnormalities to disappear.

- Heavy workload weakens national and international efforts of staff to build and grow network opportunities, such as seminars and national and international conferences, in accordance with the MUT Strategic Plan 20120-2015 and the recent Research Policy Plan. There are no spaces available because of the workload, which is exacerbated by the lack of research assistants and tutors. In fact, on occasions when such helpers are employed, they are not paid on time.
- There has been conclusive evidence of the dissolution of a number of academics at the institution because they see such workload realities as serious impediments to their intellectual and research development and training and the high numbers of students at all levels increase the challenges.
- These challenges have been described by the majority of respondents as problems that have become norms such as attendance at meetings, working perpetually at services and work that should have been done by administrative staff such as student registration and recording of assignments and tests marks, a job that is undertaken on occasions by tutors.
- As one interviewee stated on many occasions family and personal life become victims because of the exhausting workload as 'unlike a factory worker, home time is yours, here we are still working whilst at home'.
- The only interviewee without a workload problem indicated that she was teaching one subject to two different classes instead of teaching different subjects to three classes. An exception to the general rule.

5.5.2.3 OFFICE ACCOMMODATION

Each one of the interviewees answered, 'yes' to the question, '*Do you have your own office?'*. There were, however, five respondents who answered 'no' to the question, *'Is the quality and size of the office sufficient?'*.

The responses above were challenged seriously by the answers to the next question '*What challenges do you have with regards to your office? Provide reasons'*.

Firstly, there was only one person who answered that there were no challenges or problems with the office and expressed satisfaction with the condition of the existing infrastructure and the situation of the place of work. This satisfaction even included the detail of the good quality of the office furniture.

The challenges and problems for the almost absolute majority of academics were described as follows:

- The key problems were related to poor office infrastructure including dysfunctional or even destroyed air conditioning apparatus and lack of security as offices have been robbed and laptops are stolen. The computers, scanners and printers are completely outdated.
- The lack of privacy makes staff unable to consult with confidentiality.
- Most offices are small and claustrophobic.
- They are not technologically compliant.
- Sharing offices with tutors makes the situation more difficult as almost all offices are sufficient for one person only.
- All furniture is old and outdated.
- A staff member used a park-home, old container as an office together with another 6 staff members and tutors.

The recommendations provided for better office space were as follows:

- More offices on the main campus, at least near the students.
- Ensure better structure and facilities in terms of infrastructure, furniture air-conditioning, ventilation, and computers.
- Proper kitchen and toilet facilities.
- More space for storage of important documents and materials.
- Regular cleaning and fumigation.
- Tighter security at access points to the offices – have access control. Deployment of security at strategic points.
- Bigger offices which cater for privacy and confidentiality that can accommodate tutors

Office accommodation for an academic who spends between 8 and 10 and sometimes 12 hours per day there, is directly related to life, work culture, relationships with colleagues, students and visitors, as well as his/her leadership and management. It is not only the physical structure that is instrumental in life, performance and relationships but also the existing professionally based infrastructure. This means that the immediate surroundings and existing facilities in the

work environment are fundamental in the efforts to plan and implement the required duties consciously and successfully.

It is understood that when the office environment and its surroundings are to the satisfaction of the occupier, the work performed is more likely to lead to duties and responsibilities being undertaken according to the rules and regulations of the institutions and the expected results on the part of the leadership and management are achieved. This is because the office physical environment plays a key role in the levels of job satisfaction of the academic, his/her interactions, duties and responsibilities, task performance, and the direct and indirect relationships with the institutional decision-makers. The office environment thus determines, directly and indirectly, productivity, performance and institution-based interpersonal interactions with colleagues, students, tutors, co-researchers and sectoral leaders and management. All these relationships are the foundations of individual scholastic productivity and personal and professional satisfaction levels (HSE 2013).

It can be understood that the responses provided by the MUT interviewees do not fit the office environment criteria as identified by the above descriptions.

5.5.2.4 RESEARCH CHALLENGES FACING ACADEMICS

i. Individual Challenges

This section was based on the responses to questions that were followed up by the seeking of reasons, beliefs, ideas, knowledge, opinions, belief, ideas and behaviour that pinpointed the past and present existing problems and challenges facing the interviewees. In response to the question, '*Are you involved in Research at MUT?'* 10 (Respondents 1, 2, 5, 6, 7, 8, 10, 12, 14, 15) answered in the affirmative while 5 answered 'NO'.

There was a wide variety of answers in relation to the question, '*How would you rate your publications skills?*' characterised by a high level of professional and personal honesty. Two respondents described themselves as 'novices', two as 'limited' one as 'fair', one as 'poor', one as 'terrible', one as '2 on a scale of 10', one as 'below average' one as 'weak' 1 in 'in infancy', one as 'average' and one as 'above average'. In response to the question *"How many publications have you produced?*". In response to the question *"How many publications have you produced?*" 7 had none, 4 had published a single one, three had a 'publication pending' and one had achieved 'between two to three publications per year'.

An interesting response was to be found in relation to the question, *"Have you read the university's research plan?"* as only 6 had read it and 9 had not.

In response to the follow-up question, '*What are your thoughts on the research plan*?' The following positions emerged:

The critics of the research plan exposed ideas, beliefs and attitudes that materially and intellectually are many miles apart. The positive belief that was expressed by three interviewees was that the 'plan looks good on paper, but there is a serious problem with its present and future planning and implementation at all levels, strategic, tactical, technical and resource-driven'. It was felt that even if the planning was good, the problems with implementation have surfaced and will continue to exist because such a strategic process needs the appropriate people to lead it and drive it forward. This line of thinking and belief was based on the thought that the plan in its totality as a document was a very good and 'beautiful' document, but the key question is the existence of enough resources instrumental in the delivery and implementation of the plan.

On the other hand, those who did not agree with the plan indicated their deep disagreement with what has been expressed in this vital document as 'niche areas', because it was thought that such 'open preference' isolates research to those areas alone, meaning that there is no real support for those areas which are not classified as 'niche' are isolated, and do not receive the support they deserve. It was felt that such an attitude was a poor choice and left much to be desired, despite the fact that it has been called ''very fair and ambitious by the institution's senior leadership.

There was a despondent attitude on the part of a number of academics who indicated clearly that, according to their own knowledge and experience, and despite the fact that they had over the years attended workshops, were committed to teaching and learning as well as administrative duties and responsibilities as well as university official engagements and consultations, the general feeling has been over the years that the leadership has not shown a strong commitment in engaging with academics and academic departments. It was felt that consultation processes between senior management and academics were very scarce, and thus, as it was stated 'the academics voices have not been captured yet'. This was a call for the direct and honest engagement of leadership and academics, especially during the period of reviewing the key institutional documents.

On the other hand, a significant number of interviewees pinpointed efforts on the part of the research directorate of the university that have been instrumental in the reality that, for a

number of years, the research professors (the first of whom joined the university in January 2010), the retired professors and the newly appointed post-doctoral candidates have been active in presenting workshops and conferences for all staff members, that were sponsored by the university. This group was adamant about the acceptance of the truth that the financial and other incentives offered by the university to staff in terms of elevating the existing research achievements and standards have been generous over the years when compared to other universities.

One of the respondents described the realities as follows:

'*MUT today is not what it used to be some years ago. The arrival of the first Research Professor was crucial in galvanising a number of us, but not all to start thinking about doing a Masters, even a PhD. Then we started the workshops almost every week. Everything was paid [for] by the university, including lunch. As there was one research professor for the whole university, he was responsible for all Faculties at the time, although he was appointed for the Faculty of Management. Only after a few years, there were research professors appointed for other Faculties. The first experience was a success as I am aware of at least 7 to 9 staff members got Doctorates and Masters degrees. Now things have become better because when there is an accredited publication by a staff member the individual is rewarded, the department and the faculty gain. In this sphere, the university has played its role as it should. It is up to the staff members to play their role in upgrading their knowledge, their qualifications and the name and reputation of the university'* (Respondent 15).

At another level, an interesting comparison of contradictory responses arose as 11 respondents had read the MUT Strategic Plan 2020-2025 while only 4 had not. In response to the question regarding their thoughts in respect of the strategic plan, it was stated that there were gaps and weaknesses, especially in respect of a number of what have been considered for years as of key importance, including the '3rd stream income', that has become nationally a very popular and financially successful landscape of training a wide variety of students, including all layers of public servants as well as private sector employees throughout the various organisational establishments. The development of short courses and programmes has become very popular for a wide spectrum of both employed and unemployed sections of South Africa's population and are available not only in research or comprehensive but also through a number of universities of technology.

The strongest and most vocal critics of this basic document concentrated on its fundamentals as one of the respondents (Respondent 5) indicated that.

'The whole strategic document needs to be re-evaluated, as we have lost the plot. The key issue is the immediate refocus on the MUT's direction, questioning the key issue of why we exist. We were a Tech, we were converted to a University of Technology, not a fully-fledged University, meaning that we don't have the ducks in a row'.

Another respondent (Respondent 13) pinpointed what he called the major weakness of the strategic plan:

"Such *as a strategic document should first of all be the creation of a collective effort. This does not mean that the university management should not employ some expert on university plans, the future and all these things, but if the MUT leadership was very serious on building a good plan for the future. The first thing to be done should be the implementation of servant and transformative leadership and taking into account that knowledge, understanding and ideas of your own staff. If this process had occurred this document that really fails 21st century would be different, more forward-looking, more technological, more pioneering. This is because the strategic plan does not take into account the relevance and priority of technology, there is no understanding of the significance of the 4th Industrial Revolution there*."

Another interesting response surfaced in relation to the question, *"Are you aware of the university's incentives in respect of Postgraduate training, financial incentives for publications?"* as there were 10 interviewees (Respondents 1, 3, 5, 6, 7, 8, 9, 11, 13 and 15) answering in the affirmative and 5 answering 'NO'. The interesting aspect of such a response lies in the fact that the incentives offered by the university in relation to such initiatives have been evident over a period of years and have been instrumental in producing a number of staff numbers who have substantially upgraded their postgraduate qualifications throughout the MUT staff at all levels.

A similar shade of attitudes and responses became evident about the question, '*Does MUT have research workshops, training and presentations with regard to research for Master's and Doctoral studies?*' 6 answered in the affirmative, two answered 'No' and the rest did not know. One of them, in fact, stated that he had heard that such initiatives have started after the retired Professors arrived, but he *'knew that in case they really existed they were very limited'.*

One of the key objectives and aims of each university internationally is the perpetual maximisation of research productivity, a focus instrumental in raising the intellectual reputation of the institution and its academic and research staff. (Haidari, 2018) This is the reason that most universities have throughout the years developed research-based post-graduate programmes that are the foundation upon which research outputs are based. South Africa has not been an exception and the competition amongst the research and comprehensive universities to register and graduate Masters and PhD students as the possibilities exist that future research outcome success will be instrumental in elevating the institution's position higher (Shangai Ranking 2018). The competition amongst universities to select prospective post-graduate students is based on a number of research-based reasons, such as the existence and capabilities of highly skilled and experienced mentors and supervisors, the university's selection criteria, the prevailing research environment, the research-based priority areas of interest, the real and expected intensity of the required empirical research and the carefully planned, designed and implemented outcomes (Royal et al. 2013). Inevitably, such realities install a series of programmatic decision-making processes that put certain amounts of pressure on all sides of the formal and informal agreements amongst all parties participating in these relationships (Belay et al. 2020). Such situations are the result of personal, professional and intellectual agreements amongst the participants in such relations because the completion of the highest degree leads to issues such as the choice of journals and citations importance chosen in terms of articles, publishers in the case of books, impact factor and manuscript realities (Baptista et al. 2015: 57)

Such realities do not exist at MUT at this level, despite the fact that in the last few years, a number of forward steps towards post-graduate diplomas have been achieved. The initiatives undertaken on the part of the institutional leadership have been relatively and gradually successful at a number of levels, and the student excellence reward with scholarships can be proven to be another encouraging step forward in the efforts to elevate research and knowledge production at the institution. Inevitably, such a step will have a positive effect on the core function of teaching and learning at all levels. (World University Rankings 2019).

Once MUT reaches the level of accepting Masters and PhD students, the possibility substantially of increasing the institutional research outcomes will most likely become a reality, as international research on the subject has shown conclusively that postgraduate students with scholarships aided by honest and experienced mentors and supervisors have been able to

achieve, in a number of cases, more than one-third of all university research outputs (Belay et al. 2020).

Within this context and in response to the question, '*Do you feel it is necessary to have a doctorate degree*?' 5 interviewees (Respondents 1, 2, 4, 8, and 9) strongly agreed, 5 (Respondents 5, 6, 10, 12, and 15) 'somewhat agreed', 2 (Respondents 3 and 13) 'somewhat disagreed' 2 (Respondents 7 and 14) 'strongly disagreed' and one 'neither agreed nor disagreed'.

Of those who strongly agreed and agreed, the majority of the respondents justified their responses with a wide spectrum of attitudes and statements that tackled a variety of existing realities in the academic and research landscapes. According to two of the respondents, a doctorate has over the years become a 'minimum requirement' for academics throughout the world. The general feeling was that the central belief of the majority of respondents was the achievement of a PhD degree was accompanied and followed by future achievements in expanded research endeavours that will ultimately lead to publications in accredited journals, increased citation achievements and perpetual consolidation of intellectual and professional development in terms of your positions and future career. Recognition by both fellow staff members and academics in the same discipline and field is another accomplishment that is achieved in the process of career building. One of the key thoughts of one of the interviewees (Respondent 5) was expressed as follows:

'*A PhD makes a positive difference to the life of an academic in many ways, especially someone like me who is over 50. I have done research for my Master's and look at my colleagues who have completed a PhD and now they are busy writing articles, and then I know I can do it in a couple of years if I get a serious supervisor. This is because when I complete my PhD, I will be ready to put things together and publish, make a new contribution to my discipline which is a difficult and scarce one, increase and update my knowledge about something new and interesting expand and* keep *current with knowledge, develop and expand my grounding, and then then I can explore new opportunities in developing new ideas, fresh knowledge especially for our students, for the classroom. These are the new generations that will move South Africa tomorrow we owe them the best, this research and Doctorate will make me a better researcher and academic. For the future of our students'.*

Those who agreed and strongly agreed on the necessity of a PhD felt that both the process, the struggles and the final steps towards the achievement with the reality that opening one's mind

to the challenges was instrumental in success as a wide variety of realities were interrogated, there was a perpetual opening of one's mind, and the happy end was the epitome of success and confidence for the future. It was believed that a PhD achievement was instrumental not only in terms of research and knowledge development but also in academic promotion as well as expertise. Respect and recognition from colleagues and peers were also mentioned.

Those who disagreed and strongly disagreed also presented a wide array of justifications for their position vis-à-vis the necessity of the PhD. It was mentioned that the most important duty and responsibility of a committed and dedicated academic was his/her commitment to their students and their future as educated professionals in their chosen field, and that the most important act for the academic was to give his/hers best to the students, irrespective of the existing qualification. This means that the academic must be 'comfortable in his/her space' and update the discipline taught. This can be done through studying and reading every day and not necessarily through a PhD. However, when time is ripe, in the last few years of one's career, the need for a PhD could arrive. Timing is very crucial in one's life, especially an academic's.

Another position from disagreeing interviewees was based on the belief that although there was a very wide talk and acknowledgement of the fact that Black women are side-lined in career pathing was a key, the truth is that in universities of technology, especially, Black women are side-lined even in the efforts to increase the numbers of academics with PhD degrees. It was also mentioned by another interviewee that PhD degrees are overrated as they are not teaching subjects. It was proposed that Higher Education courses would be much more important for universities of technology academics so they are enabled to understand, absorb and develop their knowledge in the process of perfecting teaching and learning. It was also stated that PhD degrees had no place at MUT, they are overrated, and the institution was not a research or comprehensive university but a university of technology concentrating on teaching, learning and building students' careers for the future. This means that '*a PhD does not have a place at MUT as it is not a research university, it doesn't make us better lecturers, we should concentrate on being the best in us in our fields, trained in pedagogy and technology. There is too much emphasis on paper qualification – many egos are falsely inflated'* (Respondent 3).

The interviewee, who neither agreed nor disagreed with the necessity of a PhD for an academic, believed that the most vital element for an academic's success is to be and feel comfortable in his/her own space and the commitment and knowledge given back to the students. This can only be successful when updating the study discipline is the only priority. Such a position is

based on the interviewee's belief that '*lots of academics with PhD degrees cannot teach'*. This is 'because the most important ingredient in teaching and learning is how an academic facilitates the learning process, meaning that the lecturer does not have to be a sage. Even with limited knowledge, a student will be able to learn.

In response to the question, '*What further studies do you intend to undertake'*, the most popular were in vertical studies 'a PhD degree' with eight respondents supporting the degree **(**Respondents 2, 3, 4, 7, 8, 12, 14 and 15**)**, with one interviewee aspiring to publish accredited articles following the completion of the doctorate, a process that could lead to a full professorship in a few years. In the vertical landscape, another interviewee declared the intention to continue publishing articles in accredited academic and research journals. In the 'horizontal' terrain there was a much wider spectrum of academic and research intentions, with an interviewee wishing to advance their knowledge through intensified BSc Informatics and higher technological studies in the near future. This despite the fact that he is a senior academic in a completely different intellectual terrain. He provided the reasons for the choice:

'*When I talk to my students at the higher diploma level, I feel sad when we exchange ideas because even such advanced young people do not understand the importance of the 4th Industrial Revolution and its present and future contribution to their professional performance because their profession is very closely connected with technological advances. On my side for the last three years, I have decided to put my PhD studies on the side for one year so I can concentrate on Higher Diplomas in advanced technology which I plan to use in my future classes within the spectrum of my teaching and learning. It is a reward for myself and especially my students'.*

In terms of the horizontal terrain, one of the interviewees indicated that his professionalism was a force demanding more publications on his side, while another one aimed to improve his classroom teaching and learning. Another interviewee was keen to increase his knowledge of the law and legal systems through the existing online offers from a significant number of universities throughout the country. His future intentions were shared by another who wished to combine the knowledge produced in online short courses on leadership capacity with a number of additional research skills accompanied by an LLM (Master's in Law).

'MUT have Research workshops, training and presentations with regard to research for Master's and Doctoral studies' six answered in the affirmative, two answered 'No' and the rest did not know. One of them, in fact, stated that he had heard that such initiatives have started

after the retired professors arrived, but he 'knew that in case they really existed they were very limited' (4, 6, 9, 10, 13 and 15) somewhat agreed and three did not respond.

A wide variety of responses to the question, '*What are your challenges in publishing articles?*' became evident in the process of analysis. The existing 'lack of knowledge of processes associated with publications in accredited journals was perpetuated by those who aspired to publish until the time the retired professors arrived and began to work with academics on the campus. Two of the respondents indicated that there was a fear associated with the efforts of mainly younger academics who still struggled to complete their Master's or PhDs and had problems collaborating with colleagues from MUT or elsewhere, mainly because of the existing competition. There were also positions indicating that the 'lack of skills and know-how in terms of operating under the existing circumstances' and the heavy workload have been proven to be serious impediments in attempting to publish in recognised and not predatory journals. There was the reality evident in academic publishing, closely associated with the 'long processes associated with academic journal publishing as the researcher needs to become dedicated, diligent and patient'. As one PhD holder who attempted to publish indicated:

"It *takes a minimum of two years for an accredited journal to publish an article. This [is] for a number of reasons that ought to be known to novice researchers, but they are not. Firstly, the article is sent to two prospective reviewers, a number of who promise to perform the action in the two or months allocated to them, but after three months they claim new responsibilities at work that do not allow them to perform the job. Such situations continue with others. In addition, all established universities including UNISA have been allowed to establish and operate a number of accredited academic journals in all disciplines. The Department of Higher Education and Training rules demand that 75% of the published material has been researched and authored outside the university. This rule is not followed and the 'connections' are too evident. The 'competing groups' rule in all disciplines. The creation of space for publishing especially for new and young researchers is thus almost prohibited through the creation of monopolies and oligopolies. This means that a new and young academic must become a member of a network to publish"* (Respondent 2).

The limited scope of publishing was to the minds of the number of respondents due to the heavy workload and ever-increasing administrative duties that have been described as 'being pushed down on academics' which has led a number of them concentrating on horizontal qualifications. This is despite the fact that they aspire to publish mainly because of the added

academic recognition, as well as the financial incentives associated with it. The key challenges of time limitations as described above, perceived or real guidance, lack of confidence, training and coaching are issues and challenges that can be overcome when common planning and implementation becomes a tangible reality.

In response to the question, '*What interventions will assist to improve your publishing output?'* a wide variety of responses were evident. Mentorship structured in such a way as to promote individual attention was described as a key ingredient of success, especially if it was tailored for a specific academic discipline. This was directly related to the past and recent experiences of a number of interviewees who commented on mentorship and research training meetings, which they described as 'quite generic'. The feeling was that mentorship could only be successful when the 'generalities' are substituted by workshops that are adamant on the significance of academic writing from the first minute of a specific research project to the end and concluding remarks. In general, a mentorship programme to mentor novice researchers is of fundamental importance for the future.

The efforts to 'control workload and administrative duties' were high on the research agenda interventions, with a number of ideas and proposals such as the creation of team teaching or 'sharing teaching' that 'could help colleagues to find time for research and publication attempts' mentioned. A number of possible points for debate were opened with proposals such as: working hard and covering the teaching syllabus during the period of a semester and dedicating the next semester to research and publications only; collaboration with colleagues in the same discipline, the supervisor or future mentor for joint research and publications; the planning and creation of an MUT, DHET accredited journal edited by the retired professors who already play the role of mentors for staff members pursuing Masters' and PhD degrees, and collaboration with other colleagues throughout the country in order to run a collective campaign to transform equitably the existing accredited journals, especially the university-based ones.

Twelve interviewees responded in the affirmative to the question '*Have you presented at a conference or a workshop?*' (Respondents 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 14 and 150 while three (Respondents 3, 10, and 13) had not. Given the overall picture evident in the present project the number can be described as very positive, especially when it is examined under a scrutinised evidence of the overall attitudes of the majority of respondents so far. Such a position is again justified in respect of the opinions expressed in response to the question, '*Do you feel it is*

important to present at a conference or a workshop?'. Ten interviewees (Respondents 2, 3, 5, 7, 8 ,11, 12, 13, 14) agreed, two (Respondents 1 and 6) somewhat agreed, one (Respondent 10) neither agreed nor disagreed and two (Respondents 4 and 15) somewhat disagreed.

In responding to the question, *'Elaborate on why you think it is important to present at conferences and workshops',* it was strongly felt that such experiences were 'building exercises' into research and higher levels in the academic landscape and built new confidence in young academics in the process of building a personal, intellectual and professional development profile. Such feelings were also followed by a common belief that networking with a wide range of South African, other African and international academics and researchers was good for branding the university and opened doors for new networking opportunities with colleagues in a specific field and discipline, a reality that could lead to collaborative research projects. A very important institutionally-related issue was raised by one of the respondents. It was stated that:

'*Participation and paper presentation at national, regional or/and international conferences is founded in its totality on MUT's Strategic Plan 20120-2025 as well as the university's research plan because participation in such conferences confirms two key elements of MUT's policies on internationalisation national and international alliances and partnerships that can open new understanding and knowledge amongst all academics in the institution about collaboration, collegiality without borders and potential for future mentorship by recognised national and international collaborators. Simultaneously, the presenters improve their existing standing as academics and as a university at large while at the same time improving the confidence of the researcher. An additional benefit of conference participation and research paper presentation is related to its positive influence on one's behaviour, especially in relation to developing a serious level of personal and professional discipline that helps very much successful networking that could lead to the identification of possible new and innovative research areas and provide ideas for publications'* (Respondent 6).

It was strongly felt that participation in such initiatives provides the researcher/academic with a newly found confidence to present the findings and analytical elements of new research and thus widely share both work and new knowledge to a much wider audience, especially when the conference was an international event. It was mentioned in the final analysis that there was no point in doing research without making it known at a conference.

When such a step is taken, it not only raises awareness of the research and its findings amongst many colleagues, but it also provides the opportunities to debate its strengths and weaknesses at theoretical, conceptual or empirical levels. For new academics, such experience is crucial at all levels mentioned already and more. Very similar sentiments and findings are very evident in the seminal empirical research of Palin (2017) on how to get the most when attending a conference. The significance of academic conferences at professional, academic, research, personal and intellectual levels has been researched and expanded considerably by the empirical research of Mari (2013), who showed the significance of conferences and conventions in the expansion of research as a foundation of new knowledge production, and Otero-Iglesias (2017), who concretely described the great benefits of attending academic conferences.

Researchers and academics at universities of technology such as MUT, an institution preparing its students for both the private and public sectors, are aware that national and international conferences are not only for academic researchers but are key players in a wide range of research and professional activities attracting a multicity of sectors (Rowe, 2018). Such conferences, thus, attract academic and entrepreneurial participants representing a wide variety of disciplines, themes, trades, professions, companies and associations. National and international conferences have been and will be in the future (when COVID-19 comes to an end), a collective congregation of what has been called in international literature the ASP (Academic, Scientific and Professional) community, a terrain that is, directly and indirectly, related to the aims, objectives, vision and mission of MUT. This is because of its positioning in the market as an institution of research, teaching and learning which provides higher education and training (Kim 2014).

The vast majority of research-based, academic, policy, professional, or/and educational conferences has in most cases a common denominator: the expansion of knowledge coupled with new connections, dissemination of new and fresh knowledge in one or a variety of topics (Kurds-Freudenberg et al. 2017). Higher education conferences are in most cases related to the ASP, which is an integral part of the educational landscape, especially at its higher levels. This is precisely because higher education is the mother of knowledge production through research, the generation of new pure scientific innovations, public, economic, fiscal and health policies, the environmental situation throughout the globe, while scientific conferences are instrumental in building and/or revitalising a scholar's reputation, building and re-building academic careers at all levels of the research settings and realities (Dent et al. 2016).

ii. Mentorship: The context

Mentorship of academics is a process and relationship developed between the leadership of an institution and academics based on the determination to elevate the teaching and research levels of its academic and research employees through continuous development that leads to new higher levels of mutual respect, self-belief, trust, and commitment. In the long run, it is an investment that could strategically and tactically lead not only to individual and collective organisational learning but also to the intellectual as well as administrative capabilities of those who receive the services (Crow, 2018:229-230).

A holistic and well-planned mentorship programme in most cases also covers issues associated with knowledge acquisition that leads to well-developed public accountability, and strategies and tactics that will lead to a better understanding and implementation of successful interaction with students and the community, excellence in the teaching and learning as well as the research processes and university demands (Lunsford, 217: 317-318).

Such mentorship could be instrumental in the process of changing organisational dynamics and increasing faculty mobility through the acquisition of new knowledge associated with the era's technological advances and boosting relationships with national and international professional and academic organisations and associations throughout the world. (Kroeber, 2013).

These are the key reasons that have convinced many universities throughout the world and South Africa to incentivise mentoring through developmental learning within the institutions, thus enhancing the levels of dedication and commitment amongst the parties involved at all levels.

iii. Mentorship: The analysis of data

In terms of the question '*Do you have a mentor*?' there was only one academic who had the privilege, while in respect of the importance of such a function and privilege ('*Do you feel it is important to have a mentor?*') eight (Respondents 1, 2, 6, 7, 8, 11, 13, 15) strongly agreed, two (Respondents 4 and 12) 'somewhat agreed', two (Respondents 4 and 14) neither agreed nor disagreed and one (Respondent 5) somewhat disagreed**.** Two did not answer.

In responding to the question, '*What challenges do you perceive with mentorship?'* a number of answers produced indicated the existence of dilemmas and queries. The first one (Respondent 9) was associated with the lack of knowledge regarding the prospect of acquiring a mentor at present or in the future**.** One of the respondents (Respondent 3) believed that 'there

is no one that can mentor him me who can add value to knowledge while another one (Respondent 8) indicated that a mentor could not 'bounce off ideas', because there was no mentor who is not judgemental. A third one (Respondent 11) stated that looking and examining the calibre of people who would be mentors it was better to be on his own. This meant that there was a complete absence of 'appropriate mentors'.

Evidently, the only respondent (Respondent 12), who at this particular juncture and question content, appreciated the role of the mentor, was the one who found a mentor after searching for him.

Such attitudes and responses could only be the result of the fact that there is no specific policy that leads to the lack of mentors. This is despite the fact and the acknowledgement that the retired professors should, and in fact they do, perform such duties to a substantial number of staff members who are studying towards their Master's and Doctorates. Given these existing realities and the fact that such a service does not exist 'officially' at MUT, there was an agreement that such a service was based on intellectual, personal and collegial decisions of parties involved in such relationships and potential partnerships that would be beneficial for those involved/, as well as the aims and objectives of the university as an institution of higher learning.

The question '*What benefits do you perceive with mentorship?'* provided an almost comprehensive response from an interviewee (Respondent 8), most likely representing the majority of those who strongly agreed with the importance of a mentor to academics at the institution.

"The *role of a mentor for MUT academics will be crucial in its importance because mentors in most cases are seasoned people, leaders in their field of expertise; advisers who are prepared to communicate equally. They are important in the process of staff development because scholars in all disciplines in the faculty need guidance, not necessarily only in teaching and learning methods but mostly in terms of research production and publishing, because such initiatives are key for many of the academics because the institution has new, advanced strategic and other plans that need to be fulfilled. The possibility to co-publish with your mentor is important for skills acquisition because he/she is the guide and a good steward in the staff development at these levels. A good and conscientious mentor can build a pool of mentors'*

It was also felt that a mentor with commitment and knowledge would be capable of 'shifting the MUT academics' experience in the field of knowledge and enriching them sufficiently so they could be recognised by peers' because a mentor would be instrumental in assisting the mentees to learn the processes of adapting to positive changes through dialogue and understanding, sharing confidence in the process of preparing to publish and present newly produced research findings and knowledge, thus boosting one's confidence.

Such beliefs and positions point to the existing realities of the ever-changing landscape in South Africa's higher education, especially in the universities of technology, where the terrain of knowledge production has become more difficult for younger and less experienced academics to find people who are capable, ready and willing to associate themselves and support their intellectual and professional development further. Such coaching and mentoring initiatives are fundamental in the continuous provision of knowledge-based intellectual, social and psychological assistance in the place of work where teaching and learning, research and knowledge production and community engagement are fundamental. Within this context, mentoring becomes fundamental in the process of assisting mentees in their efforts to deal more effectively with the ambiguities and challenges of their roles and profession, a number of times in a perceived uncertain environment (Roofe and Miller 2015:480).

In response to the question, '*What improvements can be made towards mentorship?*' and what benefits were expected from a realisation of such a reality, it was felt strongly that the first step and priority had to be the responsibility of the university to invest in a mentorship programme for staff and follow it up with the development of a review process able to monitor and evaluate it, thus ensuring its success. Such a priority should be founded on an official agreement amongst all parties involved and specific terms of engagement that are agreed upon. Before the mentorship begins, the mentors need to become well acquainted with the fundamental realities, politics and strategic plans of the university.

The utilisation of mentors, it was agreed by the majority, would be beneficial for both staff and the university at large and the processes, directives and functionality of the relationships can be agreed upon and be guided by a commonly accepted and signed mentorship programme. Such initiatives could not really be considered formalities, it was said, and the beginning of such a process with the activities supported by the retired professors could be described as highly successful and a process leading to an induction process, a promising beginning that could be the basis of a mentorship programme setup.

It was felt that the new initiatives undertaken with the support of the Research Office and the Retired Professors, allowed for fresh ideas and actions to appear. They have been encouraging new academics to think and act for themselves and thus allow them to develop their own understanding of the realities of new knowledge horizons and move forward without being stifled. This process has allowed a number of academics to begin developing their own creativity and personal freedom in the process of conceiving fresh ideas, and expanding their desire to test thoughts, challenges and new paths of understanding the complexities of knowledge creation and production at all levels of the academic terrain.

Despite the few negative attitudes and opinions towards mentorship and the importance of mentors, there was a fervent hope that what has been described discretely as the beginning would be transformed into a more permanent reality in the lives of academics at the institution.

iv. Post-graduate supervision: The context

The supervision of a PhD in South Africa and internationally is the highest academic qualification, aspiration and inspiration of students and academics in all disciplines. It has been said and written extensively that the efforts, dynamics and realities faced during the effort for this intellectual and academic achievement are integral parts of a 'transformational process' embedding notions of both academic excellence and great possibilities, if not certainty of employability in the private or public sectors (Fillery-Travis et al. 2017).

Of course, it is well known that despite the common understanding that a PhD is an 'original contribution to knowledge', the new developments worldwide have created a wide array of debates regarding the very nature of newly produced doctorates that would be instrumental in the creation of new knowledge, transfer of knowledge, as well as professional doctorates where the focus is on practice allowing research methods that could be deemed unacceptable by other researchers and practitioners (Armsby, Costley & Cranfield 2017).

Research universities in South Africa have utilised a number of rules and regulations so academics with a Master's degree can be awarded a PhD after the publication of a number of articles in accredited journals. Although South African universities award PhD degrees based on original research and the publication of articles in peer-reviewed journals within specific time periods, on occasion, they have the discretion to allow a PhD candidate with a Bachelor's degree or a qualification recognised as prior learning in the area of the research work to pursue

the highest educational degree. A number of departments, faculties and institutions have specific requirements for a PhD admission, hence prospective students are advised that one should verify certain institutional requirements (National Research Foundation, no date).

The role of the supervisors is crucial in the success of a PhD candidate and a good working relationship with the student is the foundation of a smooth way forward, especially when the communication between the parties is based on an honest, open, accountable and transparent pattern. The fact that most supervisors have a set of plans based on more or less a 'logbook approach' means that they know what is expected of the student; their advice and its intellectual and empirical terrains needs to be followed if the relationship is to be successful. This means that the set-up of goals and activities undertaken in the process of research, writing and re-writing needs to be based on common agreements between the parties as well as accountability and openness (Lategan, 2008:25-30).

Supervision: The research findings

Only one interviewee has been a supervisor of post-graduate students at a number of universities for a number of years (Respondent 6). The sole interviewee who has acted as supervisor of post-graduate students has performed the duties for different institutions including research universities. He has over the years supervised 35 Honours students at the post-graduate level at MUT, over 20 Masters students and two PhD degrees. He has also acted as an external examiner for PhD theses for a number of universities.

Elaborating on the reasons for the lack of supervision on the part of the 14 interviewees, a wide array of realities unfolded, such as the lack of PhD qualifications, most likely the most important, lack of training and supervision skills, the lack of post-graduate degree offerings at MUT, lack of experience and the set-up of an appropriate mentorship programme available. The reality is that at present, the highest diploma offered at MUT is the Advanced Diploma in a number of subjects, while applications have been initiated for a number of postgraduate Diplomas in Accounting and Cost Accounting. Supervision will be required for these programmes in the years ahead.

The question '*What challenges do you perceive with supervision?'* was directed to all respondents who have been supervised in the past or at present in the process of attempting to complete a Master's or PhD degrees during their academic careers. Most of the responses can

be mildly characterised an ‘epitome of disillusionment and bitterness at all levels’. It was mentioned that ‘lack of supervisors is a reality at most universities that offer Masters and PhD degrees’ because ‘many of the academics there do not want or do not know how to supervise’ and this is a major disadvantage for large numbers of academics who need these degrees to upgrade themselves. It was felt that this terrain needed an upgrade at a number of universities because there was a high degree of ‘personal agendas’ amongst academics and most of them were extremely slow in providing feedback to Masters and PhD students from other universities. The usual excuse for such delays that lasted according to interviewees between three to five months was the supervisor’s ‘busy schedules of duties and responsibilities’. This was one of the key reasons provided for the significance of an introduction to the formation of a Professional Mentorship Programme initiative for MUT.
In response to the question, ‘*What improvements can be made to supervision practices?*’ there were a number of statements that evidence and analysis of previous positions show that are affected by personal as well as professional experiences.

It was felt that one of the key problems faced in the relationships between student and supervisor was primarily based on what was phrased as ‘a clear understanding of outputs and timelines and a subsequent agreement on them, a fact that would ultimately lead to an avoidance of misunderstandings between the parties’. It was believed that such an initiative, would be a solution associated with what was described as a ‘supervisor’s ego’ an attitude of supervisors imposing themselves on the student as superiors. Such an attitude, was thought, was a serious impediment to a serious and equal debate or discussion. There was also a feeling that most, if not all supervisors expected both Master’s and PhD candidates to ‘know as much as themselves’ and they were not prepared to assist at a number of levels because of the ‘congestion of their duties and responsibilities’.

Given the forthcoming realities and/or possibilities of postgraduate advanced diplomas and possibly master’s programmes according to MUT, as well as the already expressed and analysed positions, attitudes and opinions of the experiences of academic supervision, the responses in respect of the question ‘What improvements can be made to supervision practices?’ provided not only answers, but possible solutions.

In terms of MUT the institution’s future supervisors being prepared, the solution offered was that the sooner the better the preparation for developmental initiatives in terms of capacitating

supervisors and those with potential should be initiated sooner rather than later, because inevitably, the DHET and relevant state organs would not provide budgets unless such initiatives and preparations were completed. It was also felt that MUT's leadership should engage with other universities, both universities of technology as well as research and comprehensive universities, in such efforts.

Twelve of the interviewees had a supervisor in their efforts to complete a post-graduate degree while working full-time in fulfilment of their academic duties. In response to the question, '*Does your Supervisor provide you with guidance and direction?*'**,** 6 (Respondents 5, 7, 9, 11, 13, 14) strongly agreed, two (Respondents 2 and 4) somewhat agreed, one (Respondent 15) neither agreed nor disagreed and three (Respondents 1, 3 and 6) strongly disagreed.

Responses to the question, *'What are your challenges with your supervisor?*' indicated a wide variety of common problems experienced as well a number of positive signs of a common and coordinated effort most likely to produce the expected positive outcomes in the common effort. There was a common agreement amongst the interviewees that academic writing *per se* is a 'challenging, hard and different experience to novices in the effort, different to that of an undergraduate level and supervisors are hard on this issue'.

Another issue faced by a few of the postgraduate candidates was the fact that their supervisors were operating from outside Durban and KwaZulu Natal. The lack of face-to-face communication has been difficult, especially before the COVID-19 period, because calls and e-mail correspondence are considered not conducive to this kind of intellectual and professional relationship.

Another problem mentioned by a number of respondents was the 'age gap'. Several supervisors are well above retirement age which means that it is 'difficult for them to open up to new ways or ideas because they are steeped in their own ways'. A number of such post-retirement supervisors are also not easily available, and such a reality puts the candidate under pressure. It was stated that situations such as the above mean that solid direction is missing in the relationship and create more confusion for the mentee as the feedback and suggestions for the way forward are vague.

There was also a reported case where a PhD student was assigned to a supervisor whose field of expertise was not his, and communication with their co-supervisor was extremely problematic. Those in the majority who declared their satisfaction with the supervision provided to them emphasised their key strengths as patience, continuous and fruitful communication and understanding, introduction to new ideas, plans and innovations, perseverance, commitment and collective hard work culture on both sides.

Suggestions that could be introduced to improve the relationship between the supervisor and the student included: new and advanced levels of frequent communication; the provision of valuable and constructive feedback that will be instrumental in advancing the way forward; patience and commitment on both sides; possibly better remuneration for supervisors who deliver the goods because of their dedication to students, and quicker response times. One of the despondent PhD candidates indicated that there were problems with a number of MUT PhD registered academics in terms of 'serious supervisors' because the institution was not prepared to 'fly in a supervisor'.

In the last few years, serious attempts on the part of the university's research office and a number of faculties to upgrade the institution led to the introduction and continuous activation of research workshops initiated by the research office and retired professors from 2010 until the present. They have good attendance with the School of Management Sciences being one of the pioneers of such initiatives.

In response to the question, '*Have you attended any research workshops?* 12 interviewees (Respondents 1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 13 and 14) answered 'Yes' with three (Respondents 3, 9 and 15) negative answers. Responding to the question, 'Have the workshops been useful in doing research?' four interviewees strongly agreed, four somewhat agreed, one neither agreed nor disagreed and two somewhat disagreed and four did not comment.

There was a diversity of opinions regarding the question, '*What challenges do you have with research workshops?*' the most interesting one mentioned by three interviewees was 'such initiatives should be linked with a measurable output' which has been related to the position adopted that 'despite the workshops, most academics do not end up publishing'. Such positions, then, lead to the inevitable conclusion that more support is needed for such initiatives on the part of the faculties and departments as well as the leadership of the institution. The key challenges associated with past and present research workshops were thought to be 'continuous repetition', the lack of presentation of the SPSS (Statistical Package for the Social Sciences),

the qualitative programme and paradigm, 'research retreats', lack of funding, and the personal and professional challenges of a number of academics who do not have time available to attend and participate.

The key interventions proposed as an answer to the question, '*What interventions can be implemented to improve research workshops?*' were presentations by experts on 'mixed methods research', SPSS and detailed 'research methods' workshops coupled with the fundamental bases of such workshops, their linkage to an output, regular and well-organised meetings during the year, and 'continuous work on all subjects aiming at a concrete output'. More engagement between the expert's presenters and attendants was advised.

v. Student Issues: The context

International research has shown that student poverty has been a major factor in success or failure at universities and as their numbers increase, so does the failure, a problem that needs to be challenged decisively by university leadership as well as the institution's educators. Both groups need to take decisive steps in the effort to close the existing gap in academic success for students raised in poverty. Students who have been raised in poverty are more likely to face psychological, social, financial and emotional life challenges, leading to academic problems (Cedeño et al. 2016).

Budge and Parrett (2018) have shown that educators' respect, understanding, compassion and the building of a solid relationship with all students leads to increased motivation and efforts on the student part, while efforts to turn lecture venues into an inclusive environment will play a significant role. The infrastructure and spatial realities of MUT make it difficult to achieve such social and educational inclusion very soon.

vi. Student Issues: The research findings

In response to the question, '*Do you feel that your students are under-prepared?*' eight interviewees (Respondents 1, 3, 7, 8, 9, 11, 14 and 15) strongly agreed, **five**(Respondents 4, 5, 6, 10, 12) 'somewhat agreed' and two (Respondents 2, 13) 'somewhat disagreed'.

The response to the question, '*What do you see as reasons for their under-preparedness?*' began with realities associated with issues considered fundamental for success, especially for

first-year students such as computer literacy, the use of Blackboard, difficulties in acclimatising to new realities of teaching and learning, environment, weak educational background, attitudes to learning. On the other hand, the undisputed fact that their secondary school realities made it difficult for the first years to deal successfully with both the first year workload and curricula, because of the lack of technology at township schools, lack of involvement in class discussion, the problems faced with regard to the English language as the medium of instruction is a problem, and the lack of numeracy and academic literacy, which come with weakness every year.

A deep and emotional response went deep into social, psychological and educational realities facing students, academics and institutional leadership (Respondent 7):

"We could say that institutions and intellectual culture have not changed, but our students have changed in many ways while the high school curricula have not changed since colonisation. In most, if not all, cases, Basic Education is not helping students. We have a Communications Module, all in English, but most students cannot speak or understand English, it's their second language. Students don't know why they[are] here. They are basically here because of the NSFAS, and victims of an inferior schooling system. We, on our side, do our best, to examine and mark the work submitted, tests, assignments, and results in assessment. In the matter of teaching and learning the articulation gap is there. It becomes an existential problem because basically we deal with a very different cohort of students who face hunger, no proper accommodation or life affordability. All these things contribute directly to under-preparedness. For most students, especially those from the rural areas, the life is difficult because they cannot manage it within the higher education context".

There was a wide array of responses and ideas related to the question, '*What interventions can be put to assist with underprepared students*?' The most significant proposal outlined by the vast majority of respondents was based on the belief and principle, that as an academic and practitioner, it was the duty and responsibility of each one to be instrumental in the process of preparing all students for the challenges of higher education because, irrespective of the fact that the newest students are unprepared for the journey, their entry must be the beginning of a solid preparation for the road ahead. There is the knowledge that most of them are not prepared, but it is the academics' responsibility to prepare them.

As one senior academic put it (Respondent 8): "*Academics have an upside-down approach, and the experienced lecturers do not want to teach 1st year or undergraduates, but it should be the other way around, because the first years need most support and benefit from the experienced lecturers. The few Professors should also be first year lecturers, there must be initiation and orientation workshops, technical training, and an English course so the students can communicate and increase skills like basic research for assignment writing. There are lecturers and Professors who care for students and they can also develop their own skills in their efforts to help students, update and expand the curricula and textbooks. There could be also expansion in bridging courses and why not, career guidance*".

There were proposals and suggestions for the concrete support of the DHET and the universities at large, including MUT introducing a one-year 'preparation programme' for all prospective university students, either internally or externally, instrumental in accommodating and preparing first-year students. This needs to be a dedicated support and preparation programme, that should be compulsory and not voluntary, and national social intervention is needed. During the interviews, a few of the respondents became highly emotional. The epitome of such an attitude was expressed by one of them who said: '*lecturers attitudes, must change, they must come to the level of the student. When a student fails, I have failed too!*' (Respondent 5).

In response to the question, *'Do students struggle with English in class to communicate?'* eight (Respondents 3, 6, 8, 9, 10, 11, 13 and 15) strongly agreed, three (Respondents 2, 7 and 12) somewhat agreed, two (Respondents 1 and 14) somewhat disagreed and one (Respondent 4) neither agreed nor disagreed. One did not comment.

Responding to the question, '*What interventions can be implemented to assist students to communicate effectively and confidently?*' The idea of more credit-bearing courses towards the current courses was proposed, while there was a strong feeling expressed that students should be fully engaged in intellectual debates, interventions, writing competitions and the like, because such initiatives were thought to be instrumental in shaping up and developing the levels of the English language and linguistic skills and set the foundations for better academic performance.

Fourteen respondents out of fifteen (Respondents 1, 2, 4,5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15) answered 'yes' to the question, *'Have you had a student with socio-economic related problems?*' and when asked to elaborate a number of important issues regarding such realities were unveiled. A small number of the interviewees had bought food for their students and believed that the lack of food and proper accommodation were serious reasons for poor performance. It was established that a significant number of students did not have money for food or books and stationery, and a number of female students in the residences were under the control of 'blessers' (most likely older men who entice younger women with money in exchange for sex). There were stories of students confessing to academics and tutors that they could not concentrate on the lectures because of hunger, and the reason for choosing MUT was precisely that it was affordable. It was called 'the university of the poor' on more than one occasion.

It was also established that many students use the NSFAS support money to feed their families back home in the rural areas while female students spend this money to look after their younger siblings or their small children. There have been many known cases of students with personal problems who are referred to and visit the counselling unit frequently because of hunger, poverty and the inability to cope with the academic workload.

A number of interesting if not innovative responses were received in connection with the question '*What interventions can be introduced to support students with socio-economic problems?* It was felt that 'more vigilance at residences' was most likely addressed to 'blessers' of all kinds, but support for all students, especially the poor was the most prominent position. It was strongly believed that a half- or one-year-well-developed support programme led by committed and well-rounded academics could lead to positive results for the university, the students and the communities around them. It was known to all that MUT had limited resources but they have experts who are committed to weak and poor students. These were senior academics, it was said, that have been aware that most MUT students come from poor backgrounds and cannot buy books, food and computers, and all these realities affect their studies and create existential issues as many of them borrow from the *mashonishas* *(*township money lenders) to come to campus.

All these realities, it was said have, over the years, been instrumental in many students' general and particular academic struggles. Twelve interviewees (Respondents 1, 3, 4, 5, 7, 8, 9,10

11,12,13, 15) answered ‘yes’ to the question, *‘Have you had a student dropping out from the class or the programme?’* and three responded ‘no’. None of the interviewees could recall the number of students dropping out of the class or the programme.

A wide variety of responses were received following the question ‘*Can you establish reasons for dropping out?’* The most common reason was associated socio-economic realities such as, poverty, hunger and lack of proper accommodation. Failing courses, rapes and drugs, family problems, lack of focus, poor academic performance that led to exclusion, lack of class attendance, peer pressure, heavy workload, language challenges, wrong choice of the selected course, loss of interest, and/or family responsibilities were also mentioned.

In response to the question, *‘What are the challenges leading to students dropping out and are there solutions to them?*’ one of the major challenges mentioned for female students was the existence and actions of ‘blessers’ and ‘sugar daddies’ who took advantage of their poverty, the existing difficulties associated with poor nutrition, lack of motivation, taking advantage of work opportunities and dropping out, discovering late that their selection of courses taken are wrongly chosen, and below mediocre academic performance that leads to failure and subsequent drop-out.

A number of tangible solutions were proposed, such as: the introduction of a ‘feeding programme’ that could be sponsored by the private sector, a scheme that could follow the example of the school feeding schemes, which could be supplemented with a ‘ sandwich kitchen’ for breakfast as many students arrive hungry; efforts to utilise the NSFAS for exactly the intended purposes; intensify the efforts to substantially improve the performance, structures and processes of the counselling services; the student representative council must be at the forefront of student-based activities that can improve student life; students must be encouraged to utilise the counselling unit in order to deal with their problems, and skilled and well-trained professionals need to be employed in the unit to deal with such serious problems.

5.6. CONCLUSIONS

As a result of the data analysis, research questions were answered empirically, and a number of challenges faced by academics at a university of technology were highlighted. Through empirical comparisons with existing empirical literature, this study has advanced the understanding and the way forward with the enquiry.

The responses provided a deeper understanding of the complexities of higher education praxis and leadership at all levels. Inevitably, there were differences of opinions on a number of levels and realities, but mostly agreements on key issues that are the fundamentals of a new beginning towards a path of renovation and progress.

There is a clear understanding that the development and expansion of postgraduate initiatives and success cannot be achieved without solid and up-to-date infrastructure and technological and digital advancement at all levels. The fact that the vast majority of academics are aware of the efforts of the university's present leadership to advance their professional, academic and research development despite the very limited financial resources is an encouraging sign in the building of critical educational praxis.

Such a position could be the result of a large number of innovative and continuous steps forward undertaken by the institution's leadership, such as research-driven and career development initiatives such as financial rewards for new knowledge production, higher research productivity, and the pursuit of postgraduate degrees. The development and introduction of postgraduate degrees such as Master's and Doctorates are close to being achieved, as is the creation and sustainability of the 'third stream' initiative of accredited training courses. These are initiatives that move a university and its intellectual and research-producing staff to new levels of not only achievement but also challenge. These are related to the bureaucratisation of the institution, the heavy workload including added administrative duties, career guidance, new knowledge management production challenges, and student problems and challenges.

Possibly the most important element, leading to the belief that they are already integral human and intellectual contributors to the reality of education praxis and its development and growth is their compassion and commitment to the physical, spiritual and intellectual attitudes and actions towards the students.

This attitude, as well as a number of actions leading the way forward, are key identifiers of the nature of interventions enabling the development of a personal theory of practice.

CHAPTER 6: ANALYTICAL DISSECTIONS AND IMPROVEMENT RECOMMENDATIONS

The dissection of the analysis of the key themes obtained from the data based on the knowledge, beliefs, attitudes and opinions of the interviewees is rooted in the research objectives of the thesis. They included a descriptive assessment of the existing realities of a tertiary institution that are associated with systemic, structural and process-based leadership and institutional initiatives that can be described as instrumental in the academics' challenges in terms of learning and teaching challenges; workload including administrative challenges; research and individual challenges including mentorship, supervision and student challenges.

All these have been researched within the historical and present context of a university that throughout the years has tried to face existing challenges in terms of its organisational, institutional, financial and leadership realities in its efforts to move forward in both the teaching and learning as well as knowledge production landscapes.

The brief description of the existing realities of MUT as presented in a section of the previous chapter indicates that the institution has made steps forward in a number of ways, including an increase in student numbers, innovative future plans and steps forward aimed at the elevation of the existing post-graduate levels, re-organising existing human resources and organisational weaknesses and improving the quality of the existing infrastructure at all levels.

The new Department of Higher Education resource initiatives have been instrumental in increasing the belief of a new developmental approach regarding the country's universities of technology, pointing to an irrefutable belief associated with the existence of changing times in the South African tertiary education landscape. The projected path to new avenues with the introduction of Master's and Doctorate degrees and initiatives of well-planned and implemented training programmes undertaken by a number of faculties is to be found in the strategic plans already identified earlier. Such initiatives point to the fact that there is no doubt that MUT can become more competitive in terms of offering higher quality teaching and learning and increase research-based knowledge production.

It is for these reasons that the first decisive steps have been undertaken to date, despite the fact that the university has over the years faced major challenges and problems at most operational and institutional levels. These have been accepted and described in the previous chapter as well as the 2020-2025 strategic plan of the institution that has begun serious and researched

initiatives that can only succeed through the commitment, belief and dedication of all stakeholders, including the active support and partnership of the private sector and the surrounding communities.

Having provided a brief outline of key realities facing both students and academics in the previous chapter, the dissection and interpretation of the data follow.

Theme 1: Learning & Teaching Challenges

Sub-theme 1a: Infrastructure and lecture venues challenges

"Learning and teaching challenges" in a university context could take a very wide variety of forms as they encompass a multiplicity of dynamics, relationships, realities, processes, systems and their interactions at all levels, human, environmental, intellectual, physical, social and psychological. The conditions facing the key players involved, directly or indirectly, in such situations, namely academics, tutors, students and workers, as well as middle and higher management and institutional leadership, are rooted in the same realities and interactions but are not necessarily faced with a similar outlook, vision, mission, planning, designs or/and implementation of ways forward that can lead to a widely acceptable systemic functionality.

Such a presumption or observation can only be confirmed by the fact that the majority of lecture venues with a capacity of 80 to 100 students seated have been, over the years, populated by more than 120 students while on occasion, the numbers reach between 150 to 160 students. Such a harsh reality has been over the years exacerbated by the non-existence of smart boards, the non-function of existing microphones, multi-modal facilities and access to Wi-Fi. These are everyday challenges to both academics and especially students as large numbers of the latter are unable to purchase books and are largely unprepared for the demands of tertiary education. Under such circumstances, student-lecturer interaction has become extremely difficult due to existing circumstances while very few students have been prepared to approach the lecturers for consultation. .The structural and infrastructure limitations are both physical and intellectual/learning impediments for the student's scholastic development since many of them face significant obstacles in their new tertiary institution experience because of their class-based and scholastic realities.

This fact is especially exacerbated by the lack of small group or one on one consultation with academics throughout the year.

Such infrastructure and structural realities have over the years posed problems, challenges and difficulties for the academics of the institution, despite the introduction of tutors a number of years ago. The lack of initiatives on the part of institutional leadership to rectify the existing working conditions have transformed the perceived and/or real challenges into every day, short- and medium-term problems instrumental in creating a real distance and communication gap very difficult to heal. This leads to the creation and perpetration of challenges and problems in the assessment processes, a fact that was exacerbated in 2020 due to the COVID-19 pandemic realities.

The existing infrastructure conundrum is instrumental in limiting student/academic communication and engagement, a fact leading directly and indirectly to negative consequences in academic performance due to the lack of fruitful relationships between two key ingredients of a university. This is because teaching and learning realities and patterns ought to be directly related to the real needs of both learners and teachers. Even the existence of high qualifications in academics and the zest, commitment and dedication of the vast majority of students cannot guarantee success in respect of the teaching and learning process. Once the working conditions change for the better, the possibilities and probabilities of both academic and student performance will increase substantially at all operational and administrative levels. This is the reality that has been acknowledged as one of the main foundations of scholastic success international and a key leadership priority.

Sub-theme 1b: Library facilities

Unlike the previous analysis in terms of infrastructure, the existing library conditions have been unanimously described as one of the major improvements at the university at a number of levels. These include spatial expansions and operational and structural innovations that have resulted in continuous increases the number of students as well as community members utilising the innovations for a number of years. Technological innovations, bibliographical enrichment, and a wide expansion of a multi-disciplinary nature have over the years promoted and expanded the knowledge paths of students, academics and researchers aspiring to begin, continue or complete their post-graduate degrees. The expansion of internationally-acknowledged educational sources widens the spectrum of knowledge, through the utilisation of information associated with up-to-date references and electronic resources and databases in every scientific/educational discipline in the university curricula.

The diversity of media-based platforms, comprehensive, wide-ranging and comprehensive South African, African and international databases in all disciplines as well as a variety of electronic journals, e-books, upgraded references and billion items and library collections throughout the world has been supplemented by well-trained subject librarian appointments in all faculties and the development of the campus internet laboratory with more than 120 computers operating and two discussion rooms that can be utilised for more than an hour depending on the issue at the table.

Sub-theme 1c: Lecture venues technology utilisation

In terms of the theme associated with the utilisation of technology in the lecture venues, the positive response and attitude on the part of the interviewees regarding its significance and necessity for the present and future were both, directly and indirectly, connected with the realities of the COVID-19 pandemic and the 4th Industrial Revolution and the immediate planning and implementation of the latter.

Such positive attitudes were soon overturned due to the existing reality when it became evident that even electricity connections have been a perpetual challenge in the process of communicating with large numbers of students without connectivity and data. This is because most lecture venues lack essential equipment, including projectors and smart boards and Wi-Fi connections throughout the year.

Given the realities of such poor technological conditions, the inevitable outcome has been the absence of teacher/learner interaction, a reality that leads to many, if not most cases of dysfunctional relations, lack of collaboration, synergy and lack of effectiveness accompanied by the separation of new knowledge acquisition, and lack of access to new information, so vital for collective student work and the way forward.

Inevitably, the almost perpetual absence of Wi-Fi in most, if not all venues, the lack of laptops and data amongst the majority of students, as well as sufficient training and consultation, and the lack of the introduction of the Learning, Management System (LMS) systems to all students and new staff, have created an atmosphere of dissolution in both groups. This despite the fact that both groups have over the years their high hopes for continuous upgrading of the existing systems and functionality measures. These high expectations were based on the belief amongst the academics that the newly rubber-stamped strategic plans for teaching and learning as well as research would be thoroughly implemented by the institutional leadership, and that the

yearly promises of the DHET to provide funding for the upgrading of universities of technology at all levels would be materialised.

The diversification of opinions and attitudes amongst academics in respect of the functionality of the lecture venues as centres of teaching and learning was based on a number of concrete infrastructure realities as well as personal and professional feelings associated with everyday experiences, the effects of COVID-19 at all life and learning levels as well as the existing differences facing a number of teaching staff in the process of utilisation of specific venues. This is because there are venues with relatively better ventilation and air-conditioning than others, and a number of them that are more technologically geared because of their positioning. Such strategic and tactical differences are clear and create feelings of dissolution.

These differences at technological and functionality-based levels are a well-known reality to all those who believe strongly that room for improvement exists and will take place soon and will begin with the fixing of broken windows and replacement of chairs, the upgrading of all toilets, the daily provision of projectors, Wi-Fi and data, as well laptops for students and staff that have been promised by the respective leaderships of the DHET and the university itself.

Sub-theme 1d: Acceptability of students' pass rate

The response of the majority of respondents regarding the issue of the acceptability of students' pass rate despite infrastructure and functionality-based problems was based on a number of initiatives already undertaken by the university leadership and the relevant institutional departments, such as tutorials, monitoring functions, compulsory attendance, and weekly delivery of student work.

These acknowledged successes, however, did not hide other realities such as the lack of key resources already mentioned, the poor knowledge of English, students living conditions associated with poverty and the academic and tutor/student ratio, considered the highest in the country's institutional terrain. Despite all these accepted realities, MUT's student pass rate has been in line with the prescribed DHET guidelines. This despite the fact that the minimum pass rate is 70%, a reality that was described as 'absurd'.

Challenges associated with the students' pass rate were the university's determination to increase the institutional research productivity which led a number of academics to a 'dilemma' of choice between research production and concentrating on their teaching and learning duties and responsibilities; the tradition of the university beginning its academic year late; late student

registration; the perpetration of student protests during the first period of the academic year; the lack of preparedness of the majority of students; their lack of funds to purchase the necessary books because of their financial situation; lack of writing skills and language problems; the lack of alignment between input, output and outcome; continuous streams of student strikes during the academic year; the lack of quality of a number of tutors; weak university policies despite the existing strategic plans; the fact that not all poor students are funded by the NSFAS which has led to funding fees problems; the lack of serious attention to postgraduate students; high levels of student absenteeism; lack of serious motivation on the part of students and serious problems with repeating students who do not attend classes, and have packed timetables.

To top it all one individual response described MUT leadership as possessing a 'strange culture of tolerating mediocrity' throughout the years as allowing students to pass the years without attending and studying seriously. This means that there needs to be an acknowledgement and acceptance of the truth on the part of leadership that the majority of students are below average.

Theme 1e: Workload

There is no doubt that workload has been throughout the years one of the most important issues for university academics and students and plays a key role in their relationships as well as those with all tertiary institution stakeholders and role players.

The analysis of the data pinpointed the significance of workload and the potential challenges for academics and students at a number of levels. This is because this reality takes a variety of dimensions within the existing and given work environment that is shaped decisively by a wide variety of policies, rules and regulations that result in diversified activities, behaviour and realities with a wide range of dimensions and experiences. Inevitably, within these processes, existing challenges and problems take different forms and thus, they need to be faced accordingly.

Interestingly, with respect to the question related to happiness in terms of workload, only four respondents expressed satisfaction and those in the majority who felt unhappy, dissatisfied and despondent presented a fairly wide variety of reasons. Amongst them, too much teaching and learning were mentioned as being over the years a barrier for research efforts leading to new knowledge production and community engagement; the complications and disadvantages of additional administrative duties; the lack of sufficient numbers of assistants and tutors; high volumes of marking; too many working hours including evening lectures; the increase in

numbers and hours of the final year in respect of the new advanced diplomas at a number of faculties; the perpetual demands for higher pass rates; the quality of tuition and special tutorials aimed at the preparation for final examinations; the weakening of national and international efforts of staff to build and grow network opportunities, such as seminars, national and international conferences as well as perpetual attendances at meetings and extensive administrative staff work have also, in most cases, negative repercussions on the academic's family and personal life.

Theme 1f Office Accommodation

Although all respondents were accommodated in their own offices, one-third of them believed that their offices' quality and size were insufficient for a number of reasons. These were related to poor and dysfunctional infrastructure, lack of security, outdated technological infrastructure and compliance, lack of privacy, the sharing of office with tutors, old and outdated furniture, and accommodation of six staff members at a park-home, an old container used as an office and lack of space for storage of important documents and materials.

Such tangible realities are directly and indirectly related to the everyday life and performance of an academic not only in terms of the existing physical structure but also its present infrastructure and facilities that are a foundation of one's academic, research and intellectual performance. The existing physical workplace environment is crucial to job satisfaction and performance, with respect to appropriate responsibility and duties' fulfilment.

Theme 2 Research challenges facing academics

Sub-theme 2.1. Individual Challenges

As teaching and learning, coupled with simultaneous research-based new knowledge production, have become key aims and objectives of MUT's leadership, the responses, attitudes, ideas, beliefs and actions of a diversified academic group can be described as important. Hence, when one third of the selected interviewees respond with a negative answer to the question, whether they are involved in research, the rational question arises whether it is their own responsibility to justify such a position and the reasons thereof. One can really understand that such an honest response could be based on a number of realities, facts and dynamics evident in one's life and practice. This is because it could not be based on a belief or attitude isolated from professional, social, psychological, or personal realities. It is most likely

such a response combines one's experience associated with existing problems and challenges at the institution as identified already with individual problems and challenges.

Bearing in mind these realities the fact that only six respondents had read MUT's Research Plan points to a certain degree of indifference not only towards the institution and its leadership but also themselves. This is because such an attitude and practice does not allow them to benefit from the wide array of financial and professional/academic benefits introduced by the university for those who contribute to the institution's research production. Interestingly, even the few who have read the research plan were highly critical of what they described as a 'lack of implementation of forward steps' coupled with what has been described as the 'absence of the appropriate people and financial resources'. It was also believed that the university's 'isolation of areas not classified as niche' was detrimental to committed and productive research throughout the institution as they have not been supported financially.

Such positions expressed could be described as the foundations of the honest responses of the majority of the interviewees in respect of their publication skills. These were described as weak, limited, below average and as 'two out of ten'. These positions were followed by the limited number of publications produced throughout the years of their university service.

It can be said that the contradictions exist despite the acknowledged efforts of the university to empower the research levels and skills of its academics through workshops, seminars and finance. This while on the other hand there is evidence of a general feeling amongst academics who strongly believe that the university leadership has not shown a strong commitment in engaging with them and their departments through consultation processes. Such positions are in contrast to historical events and processes, which have taken place at the university despite the challenges and problems facing it throughout its history, that have been touched upon already.

These began with the appointment of research professors during the initial phases and the retired professors at present, supplemented by the presence and work of the post-doctoral candidates who have been active in presenting workshops and conferences for all staff members. All are sponsored by the university, but such initiatives and realities were recognised by only a small percentage of the interviewees.

On the other hand, the different attitudes and responses regarding the well-planned, implemented and publicised university financial and promotion incentives for those registering for doctorate degrees at a number of universities and publications in academic journals also

raised questions regarding attitudes, beliefs, retention and future plans. The mere fact that one-third of the respondents were not aware of the existence of university financing for post-graduate and publications for a number of years, while nine respondents were not aware of research workshops, training and presentations offered over a number of years to academics aspiring to complete Master's and Doctorate degrees, could also be the outcome of a number of social, individual, or collective problems or challenges.

Comparatively speaking, a larger number of the respondents (more than two-thirds of them) had read the MUT Strategic Plan 2020-2025 with a wide variety of critical comments regarding 'gaps' in the contents of the document. They began with the lack of policies regarding the 'third stream income' associated with the development, accreditation and offering of short courses and programmes that have become a serious source of revenue for established research-based and a number of comprehensive universities in South Africa; the lack of implementation of servant and transformative leadership and a clear understanding of the significance of the 4th Industrial Revolution; maximisation of research productivity combined with the development of new post-graduate programmes, and the lack of programmatic decision-making processes.

It is interesting to note that the majority of real or perceived problems criticised by the very significant majority of the respondents are directly related to the key importance of research, higher education degrees, training and potential research-based incentives that were very scarcely mentioned or acknowledged in the previous sectional questions to the same interviewees.

The same attitude towards research and the necessity of a doctorate degree has prevailed as more than two-thirds indicated the key significance of the highest degree as a step forward to academic achievement and excellence, retention, promotion and continuous intellectual and research-based development. On the other hand, a minority of academics believe that their most important duty and responsibility is their commitment to their students. This commitment it was stated could be enhanced by continuous reading, studying and upgrading existing knowledge. This position was built on the minority belief that a PhD can be achieved when the time is ripe and it is not necessarily a priority and was based on the reality that MUT is a university of technology and not a research university.

Such opinions, beliefs and attitudes were seriously overturned and reversed when the question of the intention for further studies emerged. Thus, more than half of the respondents expressed their desire to complete their doctorates, produce research-based articles in accredited journals

and pursue the highest technological studies in existence soon. Similar attitudes were evident in the response towards the significance of publications in accredited journals with all but three respondents agreeing that it was an important achievement.

Such competing views on key intellectual, didactic, teaching and learning, academic and research-orientated challenges indicate the existence of a very significant reality within an institutional environment and atmosphere that combine a mixture of hope, thirst and commitment for success, desire for higher achievements as well as disillusion, lack of trust and defeatism. It is a combination of individual and group beliefs and attitudes based on a combination of individual and collective life experiences. This has been once again confirmed in relationship to the responsibilities associated with the realities of the challenges associated with the publication of research articles in local and international accredited journals and as chapters in books accredited by the relevant sections of the DHET. The responses point to 'ignorance of processes' associated with academic publications until the arrival of the Retired Professors a year ago, the fear of young and novice researchers and academics to begin efforts to publish before the completion of the doctorate and the lack of institutional and outside collaboration due to real or imagined 'academic competition'

One of the key issues that have been mentioned in considerably detailed and well-documented evidence was the reality of an abundance of DHET-accredited journals owned and operated by predominantly, but not exclusively research-based universities. They have been shown to be extremely slow in publishing articles because of bureaucratic and other reasons unknown to novice researchers. Nepotism in the publishing arena, especially in respect of specific university-owned journals have made the publication for new aspirants even more difficult at a number of levels. Intellectual and institutional 'connections' have been shown to be very important if not dominant in the control of the research and academic publication arena in the South African tertiary education landscape, a reality that does not allow space for new researchers.

The general feeling 'deep inside' amongst the majority of academics interviewed is that the inspiration for a Master's degree or Doctorate is there because such an achievement will most likely lead to publications, retention, more development opportunities, and possible promotion. This is because all these steps forward are official policies of the university outlined clearly in the institution's strategic plans.

Confidence, belief in themselves, calculated and innovative planning as well as mentorship and supervision are key ingredients for the way forward.

Sub-theme 2.2. Mentorship

Mentorship of academics who aspire to increase all aspects of their career, in the teaching and learning and research arenas depends on as number of professional, intellectual, organisational and institutional issues for many reasons. The most important aspect of such relationships is the common understanding and agreement between individual academics and their existing organisations, as well as the university leadership on a number of fundamentals that would be transformed into the foundations of the way to the future. Once the agreement has been realised, the planning and designing of the way forward is in need of common understanding and determination to complete the agreed upon aims and objectives towards a new path of human and academic development leading to new highs in personal and institutional heights at all levels.

There is a general agreement that such developmental steps forward are not rooted only on well-planned and implemented strategic and tactical initiatives in accordance with the existing financial, infrastructure and intellectual resources but also in fresh and continuous mutual confidence, beliefs, and collective spirit, thus creating a newly-established investment. Such a spirit is the first step toward a transformative new reality with positive effect not only for the allies but for all institutional role players and stakeholders, especially the student population.

A mentorship programme in higher education institutions, especially universities of technology in South Africa, can take a number of forms, depending on the discipline and those who are obligated or paid to provide the particularities of the system and its processes. This is because a mentorship programme combines didactic and intellectual processes and developmental systems, but also a wide variety of future attitudes towards both teaching and learning realities and challenges, as well as the realities of new knowledge production. These new challenges' success or failure are to be founded on the academic and researchers' attitudes toward students, parents, communities and society at large.

A successful transition through mentorship founded on commitment, collaboration and collective understanding is the epitome of both individual and institutional transformation because it leads to new paths of national and international collaboration at a number of intellectual levels because new knowledge production is not only a national but also an international achievement.

These empirically verified realities were understood and realised amongst the research participants, especially bearing in mind that there was a single interviewee who indicated that he was professionally mentored, while more than half believed in the importance of such a process. The mere fact that the existence and importance of a mentor was somehow challenged by a good number of interviewees was rooted in a number of beliefs and ideas based on questions and dilemmas associated with a serious lack of knowledge and understanding of a mentor's duties and responsibilities as well as skewed positions regarding them, most likely the results of personal negative experiences.

Within such a context, a negative view is in direct contradiction with the majority opinion that accepted the significant positive acknowledgement of the mentorship emanating from the retired professors in their efforts to mentor academics who are in the process of studying for doctorate and master's degrees. It was clearly understood that such a serious diversity of opinions and attitudes was based on perceptions turned into realities and associated with the 'official position' of the leadership of the university vis-à-vis the role, services and responsibilities of the retired professors.

The opinion of the slight majority of those who believed that the contribution of mentors could be important because the majority of such academic professionals had both the knowledge and professional experience, helping them to be instrumental in guiding those interested in developing themselves in both teaching and learning as well as the research-based landscapes in accordance with the new official strategic and tactical long-term documents of the institution. Such a reality, then, would be instrumental in expanding significantly collaborative efforts that will in the process strengthen the existing collegiality, continuous dialogue and existing levels of confidence.

There is no doubt that the fairly negative responses of the minority of interviewees at the first stage of interaction with the researcher through the questionnaire were transformed into a 'much milder' attitude as the process developed.

Thus, it was believed by a larger number of respondents who indicated that it was the institution's responsibility to initiate, subsidise, plan, design and implement a mentorship programme for all staff. The process and outcomes need to be professionally monitored and evaluated collectively by all parties, who must also begin the process after a common agreement on the choice of the mentors.

The utilisation of mentors, it was agreed by the majority, would be beneficial for both staff and the university at large, and the processes, directives and functionality of the relationships can be agreed upon and be guided by a commonly accepted and signed mentorship programme. These initiatives could not really be considered formalities, it was said, and the beginning of the process with the activities supported by the retired professors could be described as highly successful and leading to an induction process, a promising beginning that could be the basis of a mentorship programme setup.

The belief of the majority that the university research office and the retired professors are to be instrumental in such a process moving forward was founded on the belief that such a reality could only encourage new academics with clear-cut ideas and strong beliefs in professional development to be instrumental in beginning to mobilise towards such initiatives that could lead to opening their life and professional horizons to new paths of progress. This, it was established, was based on experiences related to them by colleagues at other institutions, whose experiences showed them that appropriate and honest mentorship was key to their creative and research development. This reality was directly related to the absorption of new, fresh and strong creative ideas that led them at many levels to an expansion of their empirical knowledge and real application that transformed theories, concepts and thoughts into new knowledge production and creation.

Such well-established and articulated majority positions were a direct response to the minority negative attitudes with regard to mentorship, and prospective mentors and their present and future contribution to academia and researchers of the institution.

Sub-theme 2.3. Post-graduate supervision

Internationally, PhD supervisors are the guides of aspiring academics and researchers. The quality, commitment, honesty, approach and knowledge of a discipline are the key characteristics of a solid supervisor, because the path to completion of work that aspires to be an ‘original contribution to knowledge’ is not an easy target. In fact, it is considered a major research–based academic and scientific achievement of the highest level.

PhD supervision throughout the years has continuously evolved since no academic discipline remains static and given the fact that the success of the collaboration between ‘mentor and learner’ takes a wide variety of forms, the intellectual innovation and upgrading of a supervisor has almost always a positive effect on the seeker of new knowledge production. Such a two-

way relationship depends on a number of fundamentals, such as collaboration, cooperation, synergy, common understanding and effort towards a common goal shaped by openness and accountability.

The reality is that a large number of South African tertiary institutions, spearheaded by the research universities in the country, have over many years taken advantage of a number of regulations and rules allowing their academics with Master's degrees to receive Doctorates in their fields if they achieve a number of publications in recognised non-predatory journals.

The new developments in international academia and intelligentsia as well as the world's state and private sectors at least find themselves recently in agreement towards a new post-COVID-19 developmental society dominated by the realities of the Fourth Industrial Revolution associated with a wide array of new technologies associated with continuous economic development and international peace.

Such dreams and aspirations, then, demand continuous and elevated knowledge production, elevating existing knowledge in all science and education landscapes. These demands and needs for new societal developments globally cannot be fulfilled only by the existing empirical research of the 'old' and 'existing' masses of academics and researchers but are in need of new generations of researchers and academics who are capable and available to prepare scientifically and intellectually the new and fresh blood of PhD holders. Within such an environment, global and South African intelligentsia and academia are obligated but, on many occasions, reluctant to connect the existing relations between the 'new waves of production and transfer of knowledge' and the real and fundamental questions in the top drawers of the world's political, administrative and financial leaderships, including not only the 4th Industrial Revolution but also the perpetual destruction of nature and the continuous diversified war experiences.

Within this contextual background and given the existing realities at MUT, it is no surprise that only one of the respondents had a fairly broad experience as a supervisor of post-graduate students and external examiner at his own and other universities in South Africa. Evidently, in such a situation, the interviewees were asked questions regarding their own experiences as supervisors of postgraduate students at their own university (only higher education/advanced

diplomas equivalent to an Honours degree) as well as their feelings, attitudes and opinions of themselves as postgraduate students pursuing Masters or Doctorate degrees.

The most obvious response to the lack of such experience concentrated on their own academic and research background, the lack of opportunities coupled with the lack of the highest educational degree, experience and mentorship. It was thus felt that the aspirations of the institution's leadership to upgrade the advanced diploma as the highest post-graduate degree in such a way as to demonstrate to its staff, students and the community that existing and ambitious strategic plans are not just chimeras.

The same despondent opinions were expressed by interviewees regarding the PhD supervision they received in their own post-graduate study attempts, as open feelings,
and attitudes of bitterness, even disillusionment, were expressed and their experiences led them to a strong belief that most of the academics allocated to them as supervisors by their chosen institutions did not have the skills, knowledge, or commitment to provide such a service. The interviewees outlined a range of excuses proffered by the supervisors, including burdensome academic, research and administrative workloads, and responsibilities and duties making the highly debated and agreed upon professional mentorship programme initiative for MUT a key priority.

There was despondence on the part of the interviewees that was based on the belief that the fundamental problem faced by supervised academics was the high degree of disagreement in terms of expectations for the appropriate path forward, founded on a common agreement and understanding in terms of the expected timelines and outputs. In the majority of cases, it was felt that such a belief was founded on an inflated ego on the part of the supervisors and their often expressed belief in their superiority in terms of knowledge and the existing professional and intellectual relationship.

It was felt that such attitudes expressed would be of no assistance to the MUT academics when they would be in the position of supervisors themselves during the existing postgraduate advanced diplomas and the forthcoming Masters programmes. This means that the existing and aspiring future supervisors need to be highly prepared in to develop themselves across a variety of academic, intellectual and research terrains to become the leaders of a new generation of MUT graduates.

These future possibilities and opportunities cannot be realised without the aspirant doctorate holders completing the highest academic degree globally. The response towards the present supervisors' guidance and direction was characterised by the majority's positive responses, while the responses to the existing challenges included the absence of 'close' or 'face-to-face' direct communication with supervisors even before the COVID-19 situation, as well as the 'advanced age' of a number of senior supervisors at most universities offering post-graduate studies. The existence of professors who have passed the retirement age signifies a number of issues associated with a number of universities, including the lack of highly qualified staff in a number of academic disciplines, professional connections and their reputation as pioneers and path-breakers in a field of knowledge. Such realities in existence have not really attracted serious empirical research initiatives able to dissect the key issues surrounding the perpetration of such realities, but there has been a feeling amongst respondents that amongst them there are those who have not been acclimatised to new and innovative development in their field, a serious disadvantage for the aspirant post-graduate candidate as the feeling of despondency arises under such circumstances. Such a feeling could also be accompanied by a real possibility of the loss of direction on the part of the mature student/mentee.

The majority of respondents that indicated satisfaction with the existing supervision received at their chosen institution believed that the relationship began and continued satisfactorily because there was a commitment by both parties to succeed in the process. This reality then was the foundation of the existing collaboration, mutual understanding through frequent communication, exchange and discussion/debates on issues, patience, constructive feedback, and well-planned work processes and systems, collective hard work culture on both sides.

It was common knowledge and almost a general agreement amongst the respondents that, through the moral and functional financial support of the Department of Higher Education and Training and SATN (South African Technology Networks) and the National Research Foundation (NRF), the activities of MUT's Research Office had a positive effect on the expansion of the university's research profile. There was a continuous upgrading of faculty-based research workshops that have been generally well attended, especially in the School of Management, which has been described as one of the key university entities that have utilised the experience of research and retired professors during the periods of their contracts. Such positions and the functions of the professors were instrumental in developing the high

attendance of research workshops, which were attended regularly by 80% of the respondents, most of whom indicated that these workshops were very useful for their research endeavours.

It is interesting to dissect the significance of the belief and proposal of three respondents who indicated that the major challenges of such initiatives were not linked to 'a measurable output', a position based on the opinion that there was no tangible evidence showing conclusively that the majority of those attending such workshops have not been publishing in accredited national and international journals. Such a position is empirically fairly correct but does not take into account that the transformation of new knowledge gained through such initiatives is not immediate for many reasons. This is because a number of academics attending such initiatives frequently also need professional mentorship and guidance to become accustomed to the difficulties and special particularities associated with the functions and structures of accredited journals and similar problems and challenges.

Given the fact that the absolute majority of respondents were members of the Management Sciences the mention of quantitative research method-based and applied statistical package SPSS (Statistical Package for the Social Sciences) was of interest as the majority of the research participants preferred the qualitative paradigm.

The variety of opinions expressed in respect of the interventions needed for the improvement and elevation of the standards of the existing research workshops were basically founded on the individual needs of the respondents as the variety of answers shows. These interventions included examples based on both quantitative and qualitative research paradigms including the variety of mixed methods as well as the SPSS statistical methods and analysis of results. It was proposed that the necessity of aiming concretely and decisively that the workshops should target a 'concrete output' based on the collaboration and perpetual communication between the attendants and the presenters.

Sub-theme 2.4. Student Issues

The poverty of the majority of students within a university environment is one of the most important reasons for their high failure rates, a phenomenon most likely to occur in under-developed and developing countries, as empirical research has shown. Such sad realities are expected to be faced not only by the state, as is the case in South Africa, but also by communities, the private sector and especially, the specific university leadership and academic cohort. There have been international examples showing conclusively that a number of

outcomes associated with poverty, such as hunger, psychological problems and challenges, starvation, homelessness, and perpetual lack of resources, exacerbate the existing problems faced daily.

Such challenging realities pose a number of dilemmas to both the university leadership and academic staff, as the efforts to play key roles in building a solid relationship with the students demand high degrees of compassion, understanding, planning and implementing measures that can be instrumental in alleviating such problems. Once such efforts are undertaken successfully, there is a strong possibility that student efforts through motivation can lead to a way forward through a process of educational, institutional and social inclusion.

Such a context and the necessity of new ways forward in the relationship between the university leadership, academics and students were confirmed when the vast majority of respondents agreed that students are 'unprepared', due to the existence of harsh realities associated with their high school background and their present environment and circumstance. These issues are directly and indirectly related to key fundamentals of university priorities such as the circumstances surrounding the 'new learning responsibilities' such as technology, overcoming the students' weak educational background, attitudes to learning, new and advanced curricula and workload, the English language medium of instruction and the lack of numeracy and academic literacy.

These mostly academically-based circumstances, founded on the realities of the outdated high school curricula and their repercussions, lead to a wide variety of educational, psychological and social realities that are faced and have an effect not only on the student population but also the university leadership and staff as questions have been raised not necessarily about the pass rates, which are high, but on the short and long-term situation regarding the processes of testing and assessing the students throughout the years. The reason for this is that academics and university leaders are confronted with a student population that is hungry and lacking appropriate accommodations.

Within such circumstances, known and felt by academics and practitioners, the vast majority believed that the academic responsibility towards students at all levels dictated that a thoroughly planned programme for all student levels was of key importance for a number of reasons. It was agreed that experienced lecturers and a few professors in the faculty should be

teaching first-years and undergraduates because these have been the groups that need to be supported by these groups. The lectures, it was believed, should be accompanied by well-planned orientation workshops, additional English language teaching and writing, and technical training. It was strongly felt that such initiatives would help, especially new students, communicate and increase skills like basic research for assignment writing and similar initiatives. It was thought that such a new step forward would be beneficial for both students and lecturers because such processes would be instrumental in advancing their experience and developing their own skills. The day-to-day communication and assistance to students, it was felt, would be beneficial for the academics in the process of updating and expanding the textbook and the curricula, as well as the bridge courses and career guidance.

It was within such a context, the introduction of a one-year 'preparation programme' for all prospective university students, proposed by the DHET came to the fore and was widely supported as it would have the form of a programme planned and structured to prepare all students for the university challenges at all levels. It was said and agreed upon that this should take the form of a compulsory national social intervention that has been an urgent necessity. Such a reality was confirmed by the responses regarding possible interventions implemented to assist students in the process of communicating effectively and confidently. This meant that the majority of respondents advocated for the introduction of more credit-bearing courses towards the current courses, and the introduction of the one-year preparatory programme could be instrumental in preparing students to be fully engaged in interventions, advanced thinking patterns, intellectual debates and writing skills, thus setting the foundations for better academic performance.

The overwhelming agreement of respondents relating to the existing socio-economic-related problems of students was supplemented by narratives of compassion and unanswered questions. There was unanimous agreement that the lack of proper accommodation and daily food had very serious negative repercussions on student performance, as many students could not afford food, books, or stationery. This forced a number of female students in the residences and the community to be controlled by men who enticed them with money for sexual favours. Such realities led people to call MUT 'the university of the poor'.

Such a description is confirmed by the fact that a substantial number of students feed their families in the deep rural areas with their NSFAS support while a large number of students

visit the counselling unit due to poverty, hunger and lack of ability to cope with the academic workload.

There were strong opinions regarding ways that could be instrumental in rectifying the existing situation including well-planned and developed support programmes at all levels led by committed and capable academics. It was felt that such initiatives would be instrumental in putting a stop to students dropping out of classes or programmes, a reality confirmed by the vast majority of respondents. Such ways, it was felt, could be important in the perpetual struggle against the negative effects on students such as rape and drugs, family and relationship problems, lack of focus, loss of interest, poor nutrition, wrong subject choices and dropping out.

There were several ideas for what have been considered by the respondents as 'tangible' solutions that could, under normal circumstances, play a key role in alleviating the above-mentioned problems and challenges of the students at all levels. The introduction of a feeding programme sponsored by the private sector can really alleviate the serious problem of malnutrition. In this terrain, it is important that the leadership and the relevant academic and administrative departments of the institution find the appropriate paths of communication with significant sectors, groups, or individuals in the highly active and significant MUT alumni. They are active and successful in both the private and public sectors and have concretely shown in the past that they have strong feelings, attitudes and solidarity towards their 'alma mater'. In another sphere of thinking, it was said that the experiment of a 'sandwich kitchen' for breakfast, as many students arrive hungry, could be supplemented by a similar treatment during the early or late evening. Such an initiative can be sponsored by the trade unions that exist in the institution as well as by the student representative council's annual funds provided by the university. In addition, the student representative council, which ought to be at the forefront of student-based activities that can improve student life, could initiate money collection efforts to sustain such initiatives.

In addition, the realities of the situation have shown conclusively that the university leadership and relevant departments must undertake key initiatives aimed at ensuring that the utilisation of the NSFAS for poor and needy students is performed in order to serve only its intended purposes. Given the existing harsh realities for large numbers of students, all sectors of the university, especially the academics and the Department of Health Services, need to encourage

the students in need to utilise the MUT Counselling Unit, whose well-skilled and trained professionals are able to deal with their serious problems at all levels. It is felt that this specific department needs more suitably qualified professionals to be employed in the unit to deal with such serious problems. Such a movement will be a sign that the university authorities have intensified the institution's efforts to improve the performance, structures and processes of the Counselling Services Department substantially.

6.1 CONCLUSIONS AND SUMMARY

There is no doubt that South Africa's top research and traditional universities are the most advanced on the African Continent in terms of their capacity to nurture and produce senior postgraduate students and academics in almost all disciplines who create for their institutions a wide-ranging international visibility of their research and new knowledge production. One of the main reasons for this reality, is that throughout the years, these institutions have achieved financial resources, enabling them to open up their teaching and learning, didactic duties and responsibilities while simultaneously expanding their postgraduate achievements in terms of producing research capabilities and new knowledge through national and international publications. All these achievements have stabilised or increased these universities' financial resources because of the Department of Higher Education Training (DHET) subsidies that accompany these achievements.

On the other hand, universities of technology such as MUT have to face a wide variety of diversified challenges, all of which have been identified with honesty and detail in the interviews. The diversity of the themes that are the root of challenges facing academics at MUT has been the foundation of the research objectives in the effort to assess the realities evident at the university of technology. These challenges are deeply rooted in the existing system, its structures, dynamics and processes, as well as the existing and institutional initiatives. These are systems and structures that have been shaped by the history and present realities associated with MUT's institutional realities and challenges in a new, more advanced path forward to success. Learning from the lessons of its history can be the first major step forward in the university's efforts to substantially improve its teaching, learning, research, and contribution to new knowledge production.

The chapter was an effort to dissect the challenges facing academics at MUT that are an integral part of their everyday lives and shape, in more ways than one, their professional and personal

existence. Their honest and balanced opinions have pinpointed the difficulties and challenges associated with heavy workloads that are exacerbated by additional administrative duties and responsibilities; the infrastructure weaknesses in terms of lecture venues, technological facilities and office accommodation; the efforts and successes in advancing and developing themselves in the new terrain of knowledge production and achieving higher educational qualifications, including a Doctorate degree, and confronting the difficulties to fill the educational and social challenges of the first-year students and all students in general that include hunger and poor working, studying and living conditions.

On the other hand, there was an almost unanimous acceptance of the reality that the university has moved forward in terms of attempting to move forward in a new developmental direction accompanied not only by a yearly increase in student numbers as dictated by the DHET but also widely accepted steps forward that are based on well-structured plans envisaging a restructuring and upgrading of the existing post-graduate levels, re-organisation of the existing human resources and organisational gaps and weaknesses and improving the quality of the existing infrastructure at all levels. A massive infrastructure initiative that covers the whole campus has been in process for one and a half years.

The new developments at MUT at a number of levels are outcomes of the country's Department of Higher Education and its long-term objective to fulfil the vision and mission of the National Development Plan 2030, which has been instrumental in the planning and implementation of resource initiatives upon which a new developmental approach would be instrumental in elevating the existing structures and functions of the country's universities of technology. The analysis has shown that, in general, the efforts and initiatives of the institution's leadership with respect to the new way forward have encouraged the belief that the introduction of the master's and doctorate degrees is possible and a welcome initiative. This is the outcome of a number of training programmes and workshops organised by the research department and faculties, and they are the outcomes of the implementation of the research plan and the strategic plan of the institution. There is hope as well as doubts about whether such initiatives could pave the way forward to more competitiveness in terms of increasing the standards of teaching and learning, accompanied by new and more advanced production of knowledge in all faculties and disciplines.

Despite the differences of opinions and ideas expressed by the participants in this research, the realities of life at MUT have indicated that, despite the existence of important challenges for

academics that cannot be denied, the undertaking of decisive steps has lifted the employees' hopes that both the 2020-2025 Strategic Plan and the Research Plan of the institution have made a positive change in a number of key initiatives that have begun to open a new way forward supported by the state institutions and agencies, sectors of the private sector and the Umlazi community at large. New initiatives with regard to uplifting teaching and learning, new knowledge production and innovative research and community engagement can only become a reality through the non-negotiable unity of all stakeholders and role-makers.

CHAPTER 7 CONCLUSIONS

7.1 LIVING THEORY: MY TRANSFORMATIONAL JOURNEY IN HIGHER EDUCATION

Introduction

The section concentrates on the realities of my lived experiences in an institutional environment, seeking transformation at all levels. Such an environment of living contradictions has shaped a new, challenging, reflective practice in teaching and learning, research and community engagement that has been an integral part of my being and development.

Within such a context, my worldview and perspective have been shaped and transformed at all levels of existence as a human being, academic and researcher. My empirical work did not only teach me concretely existing relations, realities, and challenges but deeply informed my living theory experience and practice at all levels.

Given the concrete particularities of a tertiary institution aspiring to real transformation, excellence and commitment to all academics, students, administrative staff, and all role players it is believed that my living voice is a contribution to living theory.

Background

My career in academia began in 2004 as a contract lecturer at the Durban University of Technology (DUT). I came to DUT from industry where I performed accounting, auditing and IT functions. Whilst for many people, lecturing is a daunting task, for me, after the initial nervousness and shock of having a class full of learners staring at me, I was able to get to grips with teaching.

Whilst I did not have any formal teaching qualifications, I was able to teach based on the way I was taught and I did undergo the assessor course at DUT. However, I was too overwhelmed with the concept of developing a portfolio with references to the literature. However, I did learn about alternative methods of assessment and measures to deal with large class sizes and learned how to use technology to communicate to students

In order to secure permanent employment, I continued with vertical studies I completed my Master's in Commerce (M.Com). Upon completion of my Masters, I applied for a post at DUT,

CPUT, and UNISA. Surprisingly, I received offers from all three universities. Although I did not want to leave Durban and DUT, the offer from UNISA was too tempting to let an opportunity go by.

At UNISA, I was a senior lecturer in the tax department. It was definitely a change of environment, as UNISA is an Open Distance Learning University. Here I attempted the assessor course and was able to complete a portfolio of evidence. I was selected to attend the Young Academics Programme (YAP), which was an induction programme to accelerate the induction process over a three-month period. The programme covered aspects of teaching and learning, research, academics, citizenship and community engagement. Since I was the first non-white in the department, I felt isolated and did not realise that the others saw me as a threat to their positions, hence I decided to return to Durban.

I was able to secure employment at MANCOSA, which specialised in MBAs. It is a private college, which is run as a corporate business. Here I was exposed to teaching different subjects, which was an enjoyable experience. It also provided me with an opportunity to interact with students who worked in industry.

Three months later, I was offered a post at MUT, which I accepted. I felt at home because I was going to class and interacting with students. MUT is in the south of Durban in a township, called Umlazi. It is a previously disadvantaged higher education institution (HEI) and was not affected by the merger process.

At Mangosuthu University of Technology (MUT), I enrolled for the PG DIP in HE at Rhodes University. It was here that we discussed aspects of learning and teaching, curriculum development, evaluation, and post-graduate supervision. This was a formal qualification in teaching after being in academia for ten years.

The PG DIP in HE had set my mind on finding practical solutions to the challenges that we face at MUT. From my worldview, I have broadly categorised them into parts which make up the system:

1. Lecturer Challenges
2. Administrative Challenges
3. Research Challenges

4. Student Challenges

1. Lecturer Challenges

Here I discussed the challenges which I have further subdivided:

* Large Class Sizes
* Poor and Ailing Infrastructure
* Lack of Technology
* Maintaining High Pass Rates
* Funding Challenges
* Workload and Staff Development
*****Accountancy teaching, learning and new knowledge production realities and challenges.

The dynamics of the existing situation in the educational realities of accountancy as a multi-dimensional educational and professional tool are based primarily but not exclusively on the everyday and long-term relationships of both academics and students. My personal and professional experience and educational living realities as an academic and researcher have led me to think and rethink the relationships between the existing material dynamics of actions and reactions at all government levels. This is because they have direct and indirect repercussions for academics, students and all university stakeholders and role players. All university academics, including those at MUT, are obligated to follow the SAICA (South African Institute of Charter Accountants) competency framework. The document has the identification of a multiplicity of leadership skills that are described as a knowledge foundation for all chartered accountants. The document outlines the fact that every trainee charter accountant and auditor is obligated to acquire and develop the required skills of a professional and academic leader during their university studies and during and after their certification diploma as a chartered accountant.

Nobody can really deny the professionally based demanding initiative of the professional body regarding the issue. However, it must be said that the major challenges that have been researched, analysed, and dissected in the thesis make such a demand much more difficult when compared to comprehensive or other universities of technology with better conditions at most operational and institutional levels. However, despite the existing realities facing academics at MUT that have been described as a temporary barrier, I cannot deny that, based on a thorough

understanding of the truths of the educational living theory, I strongly feel that all academics in the accountancy and law departments at the university have been blessed with honest, highly educated, kind, hard-working and knowledgeable academic leaders and importantly, an academic union with an] strong belief. There is an understanding and agreement throughout the Department that 'teaching and learning processes' need to be rooted in a perpetuation of knowledge and innovation. For this belief to be transformed into living educational theory and reality, the main avenue is associated with a perpetual well-debated, agreed upon, planned and implemented new approach. This must be founded on a thoroughly scrutinised attitude toward the curriculum and the teaching methodologies.

I have been lucky to have had a group of accountancy and law colleagues who have never stopped talking about the first MUT research professor in the Faculty of Management Sciences. Who, even though he only had a master's degree in economics and a doctorate in social sciences, was responsible for a weekly one-and a half-hours class on research methodology almost completely related to the accountancy field. He used SAICA documents and utilised chapters from accountancy books for third-year students who opened new paths through such learning and research initiatives. The colleagues believe that the group visits under his guidance to small and medium township business enterprises opened for them new ideas leading to the beginning of a knowledge-based understanding of accounting realities and challenges. Such groups also had the opportunity to visit large private companies such as Toyota and spend hours debating issues with internal audit and financial management personnel. They consider such experiences as a new intellectual path that has been described as a new knowledge acquisition that, as time passed, led them to the highest levels of understanding of the basics of accountancy and economics in general.

It can be said that such a reality that occurred more than ten years ago can be described as a process-based programme based on both theoretical and empirical research based on serious and honest educational living praxis. This process led a number of students of that period to advance to higher education diplomas and degrees, with some becoming university lecturers and senior auditors in private and public service entities. Such encouraging comments and outcomes have become an integral reality within a university department that has created an internal environment interested in developing advanced and expanded curricula that are seriously debated amongst those interested in developing and forward looking teaching and learning environment. The existence of a general agreement on such initiatives and

undertakings has been described as a ‘collective escape’ from the present realities in the institution. It is such a belief that is common to both academics and students that a well-studied, planned and implemented new curriculum can only be a welcome message of development and innovation. Once the achievement is transformed into a reality, it can be celebrated as an integral part of a new path to solid educational praxis that leads forward towards the advancement of accounting and all its present and future dimension.

Large Class Sizes

With the fall of apartheid and the dawn of democracy, the ANC in its National Development Plan had a vision to provide access to the previously disadvantaged. With access came the challenge of massification. With massification, a new set of unintended consequences leading to multiple complexities was created.

Lecturers were now faced with teaching large classes of students with group sizes of 60, 80 and 120 students. Many times, groups would be combined to deal with timetabling and venue constraints.

The disadvantage is that I am unable to give students individual attention. I am unable to deal with weak and at-risk students. I am unable to track students’ progress or review the tutorial submissions because of the large volume of students.

Poor and Ailing Infrastructure

MUT has old classrooms that can cater for 60, 80, and a maximum of 150 students. The air-conditioners work intermittently, which is a health risk as the venues get very hot. There is no extractor system to channel the heat out. Wi-Fi is available at some venues.

Sometimes the venues are overcrowded, as a result students sit on the floor or bring in chairs from other venues.

Lecturer numbers have increased; however, the number of offices has not increased. I, myself have moved to five different offices in a period of nine years. Likewise, we have a parking problem; there is insufficient parking on the campus. As a result, staff and students park along the roads, which create a safety hazard.

We could move away from classroom-based teaching to an online system, which I will discuss in the next section.

In 2019, a campus-wide project was undertaken to change the roofing. However, the venues do not have adequate ventilation and the air-conditioners do not work. Microphone systems and the lighting are not maintained or replaced on time.

Lack of Technology

Some venues have smart boards, but not all function properly.

The use of Blackboard is available; however, the support and the integration with the IT system are not functioning. Some departments have opted to have their own server and run on the open-source programme called Moodle, which is also used by many South African universities as well as international universities. The advantage of Moodle is in its flexibility, with which you can adapt and customise it for your institutional needs.

We are teaching in an old-fashioned way. If we embrace technology, we could lessen the burden of face-to-face teaching. Lecturers can create videos and share content with students, who could then study in the comfort of their residences or at their own choice.

MUT has failed to harness the power of ICT and cyber infrastructure, which will improve learning and teaching. There is a vast range of open source, open content, open learning and open technologies to bridge the digital divide. Lecturers and students will need to be trained to use technology to improve learning and teaching.

If students are linked to the Massive Open Online Courses (MOOC), the lecturer can track which students have completed watching the video, attempted the tutorial, and submitted the assessment. The system will generate a report of the student's progress and the relevant stakeholders will have the information available in real-time.

Maintaining high pass rates

With the current funding system DHET, pays the subsidy based on throughput. So, the drive for universities to get maximum funding is to get students to pass within the minimum period. Also, if a student takes longer than six years to complete the course, the university does not receive funding for that student.

We, as lecturers, are now in a conundrum. On the one hand, we have large classes, and on the other hand, there is pressure to maintain high pass rates to receive funding.

Further, many students are underprepared for tertiary education and have not met minimum entry criteria. As a result, lecturers have to adopt strategies which involve, inter alia, reducing the subject content, lowering assessment standards, having to prepare students for examinations whereby we have to spell out the scope of the paper. We find ourselves in a 'teach to pass' or a 'pressure to complete' or 'cut the syllabus content.'

Funding Challenges

As discussed in the last section, the funding is based on the throughput rate. Another inhibitor is the fact that while we are in an economic downward spiral, further funding to higher education institutions is increasing. In real terms, it is actually decreasing per student, because the student numbers are increasing.

DHET is delayed in making subsidy payments to MUT, which creates a cash flow problem.

Workload and Staff Development

It has been established that many lecturers have large classes and or combined classes. This puts pressure on a lecturer when it comes to marking of tests and examinations. Whilst we have tutors or teaching assistants it helps with reducing the time spent on marking and calculating totals. However certain types of application questions require marking to be undertaken by the lecturer due to the subjectivity and diversity of the manner in which students answer.

Further, in an attempt to increase access, MUT offers programmes in the evenings to cater for those who are working and want to pursue a tertiary qualification. A lot of time is required for class preparation and consultation which is part of our workload

Staff development

Due to the workload, many lecturers are unable to have a consulting or accounting practice, which will allow them to keep up-to-date with the industry. Similarly, it does not give lecturers time to pursue vertical qualifications, namely Master's and doctoral studies, and professional studies. Also, administrative functions consume a lot of time. As discussed in the next section.

Administrative Challenges

With learning and teaching responsibilities come along a plethora of administrative functions. We have to, amongst other things, attend

faculty board, departmental, university committee meetings and advisory board meetings.

We have to type our tests, examinations, supplementary examinations and special examination papers. These papers then have to be sent for external moderation. We have to mark tests and capture marks. If there are corrections to the marks, then a form needs to be completed and evidence with supporting documentation needs to be submitted to QMD (Quality Management Directorate). These forms create administrative burdens as they need to be submitted with evidence and have to be authorised by the lecturer, HoD and Dean.

Student selections during registration have to be done at the end of the year as well as the beginning of the year. Those students who apply and do not meet entry requirements have to be regretted on the application systems.

In terms of university policy, we are required to conduct subject evaluations. We also take part in programme reviews, which require us to attend meetings and training and present our files.

Research challenges

Entry requirements for academia have been raised; as a result, a lecturer requires a master's or doctoral degree or publication in the case of a senior lecturer. Academics are also expected to do presentations of their research at conferences to expose their research and to network, as well as collaborate with our other researchers in their field.

Currently, the research office and the TLDC have begun offering workshops in academic writing for journals.

Obtaining sabbatical leave requires one to have saved or ring-fenced unused annual leave. The sabbatical will be granted on a one-for-one basis, meaning that for every day of annual leave banked, MUT will contribute one day towards sabbatical leave.

Further, to obtaining sabbatical leave, an academic has to apply for funding for a replacement lecturer. Whilst the NRF has funding in the form of Thutuka and BAAP Grant there are certain criteria with regards to age limit, gender and disability which narrows the chances of getting the funding. The funding model favours black females who are under 45 and have a disability.

The NRF application process is tedious and time-consuming. It requires mandatory fields, which have to be populated, otherwise the application is incomplete and cannot be submitted. More workshops need to be held in order to educate potential applicants on how to prepare and allocate time to do the application so that a better success rate is achieved.

MUT's research office also has limited funding available to staff, for example, R25 000 for master's students and R30 000 for doctoral students.

New and old academics have to make a choice between either improving their horizontal skills like undertaking the Post Graduate Diploma in Higher Education (PG Dip HE) to upskill themselves in the HE environment, or the industry-related CPD, which relates directly to the subject matter content to keep up-to-date with industry and changes or vertical studies by the obtaining a Masters or doctorate degree. Balancing time for studies and workload affects the system loops and creates a delay in one leads to a delay in another.

Publish or perish

Publications have not been a priority in our There has not been a push for department; however, the number of publications has increased from zero, eight years ago, to many in the recent years. The competitiveness among academics has increased now that colleagues are publishing and presenting at conferences. One has a sense of being left behind if one does not publish or present at workshops and conferences.

Coaching, Mentoring and Supervision

As a novice researcher, I required coaching, mentoring and guided supervision to succeed in my studies. To a large extent, I believe that I am an underprepared researcher. However, I applied to attend the SATN PhD capacity development programme 2019/2020 which is a series of structured workshops that deals with the research process, including:

Proposal writing

Literature review

Research methods

Using data analysis software (SPSS and NVivo)

NRF application workshop

Our faculty appointed two retired professors in 2019; as a result, I am able to access them regularly. It gives me an opportunity to present work to them, receive feedback and criticism, as well as guidelines and advice.

The research office offered a practical writing workshop, which has helped me tremendously at the beginning of my PhD. journey .

Student challenges

Students have a myriad of challenges which affect their ability to focus on learning. As a result, it creates an unintended consequence, which affects my ability to teach and progress at an acceptable pace within the allocated time for teaching.

The following challenges experienced by our students:

* Under-preparedness
* Transition to tertiary life
* Language barriers and writing skills
* Poverty
* Attrition or dropout rate
*Fees, NSFAS and student debt
* Peer pressure
* Social Issues
* Gender violence
* Bullying

Under-preparedness

Many students come from rural backgrounds with poor quality schooling and have barely met the entrance requirements for MUT.

Transition to tertiary life

As a result, many students have difficulty transitioning from a school lifestyle to a tertiary culture. The unintended consequence is that I have to mimic the teaching style of a school teacher.

Also, students are underprepared with regard to life skills they have to transition from being children to adults, from having a family structure to being independent. If a student does not attend class, no one will ask why or be concerned about the student's absence.

Language barriers and writing skills

Many students are non-English-speaking. As a result, they experience difficulty in writing and speaking English.

Poverty

Many students rely on the NSFAS grant for their food. Some send a portion of the money back home to feed their families. Hence, student protests at the beginning of the year because of their heavy reliance on the food money for their survival.

There have been many instances in which students have been sleepy or lack focus in class. When I inquired about it, many responded that they had not eaten food as yet.

Many students delay their registration deposit because they can only pay the deposit early in February.

Attrition and the Dropout rate

Due to challenges that students face at home and at university, many drop out to work to provide for their families. Also, they are forced to drop out if they are overwhelmed by their under-preparedness or poverty.

Fees and NSFAS and student debt

Many students come from a poor financial background hence they rely heavily on NSFAS funding for books, meals, transport and accommodation. Those who cannot get NSFAS funding pay the deposit and accumulate debt from unpaid fees over the period of their studies, which is between three to four years.

Peer pressure

There is a lot of peer pressure amongst students. They have to fit into the world of perceived student life.

There is a pressure to belong to a clique of friends, which influences the way they dress, behave and have a partner. Then, in order to fit in, they have to attend parties, which expose them to other distractions and addictions.

Social issues

As a result of peer pressure, many students get distracted from their studies.

Some experiment with drugs and become addicted to illegal substances. Others become pregnant and are too ashamed to inform their families, hence they have an abortion or drop out. I have seen how a good student who, influenced by peer pressure, became pregnant and had an abortion. Subsequently she was depressed and could not focus on her studies.

Gender violence

Recently we have had cases of gender violence at MUT where two female students were murdered.

Bullying

If a student does not belong to a group, then there is a possibility of the student being exposed to bullying. As a result, the student avoids coming to classes.

7.1 1 CONCLUSION

My research experience through scientific guidance taught me how to deal with the intrinsic challenges of such a topic in the process of planning, debating, enhancing collegial relationships, preparing, debating, generating and gathering data, analysing and dissecting and conceptualising them and my colleagues' challenges in relation to all levels of the profession, such as teaching and learning and researching realities.

Within this context, the realities of a number of key issues and relationships were established, such as the existing common understanding of relations and the prevailing environment, the existing diversified positions, and the common understanding of problems and challenges.

The closeness of this lived experience connected thoughts and feelings regarding the present and the future, combining memory with plans and hopes of a substantive critical and creative

co-existence leading to collegial and professional interaction, dialogue, and solid human and professional relationships.

The research and its collegial, open-minded structure and processes strengthened my living experience and the foundation of a new, better, more advanced and progressive environment for our university, its students, leaders, and management, as well as all stakeholders and role players.

My living experience now has shared my pedagogic, intellectual and research priorities through consistent cooperation, synergy and coordination through collegial communication channels, self-awareness and relentless efforts to move forward at all levels.

My living experience shaped by my research has taught me that enhancing trustworthiness, collegiality and continuous effort for improvement and looking forward are key elements in shaping a better future for Mangosuthu University of Technology.

A series of seminal events in the country over the last two decades left tertiary education in South Africa in a precarious state that has worsened since the onset of the COVID-19 pandemic. This major series of events opened new dimensions, debates and actions in all sections, processes, structures, and human resource realities of universities throughout the country.

Of course, the historical process and struggles associated with the FEES MUST FALL student protests throughout the country could be considered the major foundation of the unexpected decisions of the country's ruling party's national conference to open the doors of learning and knowledge production to the children of the poorest of the poor and sections of the middle class. Such a generous paving to a new, wide open road to possibly millions of new students has also been an extremely powerful reminder of one of the many inequalities evident in the country's historical, present, economic and social landscape: the unique and wide-ranging inequalities evident in the comparisons amongst the most advanced universities in South Africa and the African Continent, namely the research/traditional universities and the others, including the universities of technology.

A university is a social system founded on policies, structures and processes that inevitably face a wide variety of clashes of functions and personal or/and group interests and factions as the experiences in many African universities have conclusively shown **(Muller et al. 2017).** The above researchers' and intellectuals' pioneering research have pinpointed the historically based and prominent, even today, contradictory functions associated with the social interests underlying higher education policies. There is no doubt, then, that South African and African universities, in general, are social systems that have been historically produced institutions.

MUT is a relatively new institution that began as an institution visualised by a Zulu traditional leader, *Inkosi* (Chief) Mangosuthu Buthelezi and financially subsidised by a White South African multi-millionaire business person (Harry Oppenheimer). It was the first university campus to have its lone building in the African urban township of Umlazi, in the City of Durban.

Its 'historical legacy' ended after its transformation or revitalisation into a new legal and institutional reality committed to planning and implementing its aims and objectives according to the new path of economic and social development to be found in the country's National Development Plan. In this process, the general feeling of the community, the leadership, the students, and their families was that the new transformed university identity was synonymous with Whitehead would call an 'engine of development'.

It was such a forward-looking expectation and vision that has been instrumental in convincing the present leaderships of the institution that new and advanced research, teaching and planning and post-graduate structures development, including Masters and Doctorate aspirations and planning, can be realised in the near future. Such plans and future missions have been, after all, the vision of the relevant higher education department, and its entities, a changing policy, planning and implementation environmental regime in the making.

Facing these challenges throughout the years and hoping, even visualising a better future the MUT leadership introduced two strategic plans that have been widely debated, accepted and rubber-stamped by the wider university community.

A new path forward had opened, creating new hopes and expectations. Academics at all levels of the institution are an important element of the system whose leadership has visualised success. Such success will be based on a number of issues. One of them is the present and future effort to deal decisively, accountably, efficiently and effectively with the burning challenges facing the institution's academics.

7.2. THE CHALLENGES

The challenges facing academics at the institution under investigation could be described as common to universities of technology or even comprehensive universities for a number of reasons, such as lack of resources, diversification and differences in its aims and objectives, amongst others. MUT, however, can be described, and indeed is, a 'special case' for a number of important reasons that make it a unique institution, such as the lack of post-graduate studies despite the efforts, and the continuous leadership challenges throughout the reign of a number of senior administrators. The most important challenges faced by academics cannot be analysed and dissected according to a prioritisation list accompanied by proposed solutions for a better way forward because all of them are the foundations of the present and the success of all initiatives to rectify weaknesses, problems and challenges can only lead to a better future for academics, the institutional leaders and, above all, the students, their families and communities.

Given the fact that the majority of these challenges are directly and indirectly related to financial and infrastructure-related issues, the recommendations and planning ahead and achievement in solving the problems and challenges are left in the hands, brains, negotiations and agreements between the state, relevant authorities and the institution's leadership, management and stakeholders. On the other hand; however, a number of key, even burning, issues will be tackled and possible ways of thinking forward in terms of plans, behaviour, actions, and new players' roles leading to solutions in terms of structures, functions and processes will be proposed.

7.3. THE INFRASTRUCTURAL CHALLENGES AND PAVING THE WAY FORWARD

The existing infrastructure at MUT is poor, especially for a university of technology, despite the efforts of the country's government to equip all universities with the necessary infrastructure.

7.3.1. POOR INFRASTRUCTURE, LARGE CLASS SIZES AND TECHNOLOGICAL WEAKNESSES

The challenge of massification of tertiary education institutions is a key vision for the educational future of millions of new-generation South Africans whose future has been encompassed in the pages of the National Development Plan 2030. In the present interim period, academics at universities throughout the country and MUT are faced with the reality of

teaching large classes of 80, 100, 120 or more students accommodated in much smaller lecture rooms**.** At MUT, the majority of old classrooms cater for 60, 80, and a maximum of 150 students, with occasional dysfunctional air conditioners and no extractor systems to channel out the heat. On occasion, the overcrowded venues turn worse because students sit on the floor or carry extra chairs from other venues to accommodate themselves. Such conditions that, on many occasions, lead to serious overcrowding situations do not allow academics to provide individual attention to students so that weak students do not receive the extra attention they deserve. Academics are unable to follow and monitor students' progress or review the tutorial submissions. Such conditions have been perpetuated despite the increase in the number of academics employed by the university.

Despite the fact that a limited number of lecture venues have smart boards, a substantial number of them are dysfunctional, while the same applies to the utilisation of Blackboard. The latter facility is available, but the integration and support with the existing IT system is completely dysfunctional. This reality has led to a number of departments having their own servers that are operational via the 'Moodle' open-source programme. This programme is popular and is utilised by a number of the country's universities as well as many international tertiary institutions. Its popularity has its roots in its advantages in terms of flexibility that can be easily adapted and customised to existing and operational IT institutional needs.

The above realities pinpoint challenges associated with the new, advanced and high-technology-based academic teaching and learning reality embracing the advantages of technology. The 'opportunity' associated with the COVID-19 pandemic could lead to new, advanced sharing teaching, learning and examination content to students who studied at home. The efforts of the leadership of the institution and its committed academic and administrative staff could be described as successful despite major challenges and problems associated with the above issues, as well as social, financial, and spatial realities that played a significant role at all levels and in all groups involved.

Such past and present experiences and realities point to the fact that the future of MUT leadership, academics and students is inextricably related to the power and dominance of an ICT and cyber rooted infrastructure, instrumental in opening new paths of knowledge, understanding, learning and teaching as well as new knowledge production. It is not an easy way forward because of the infrastructure, financial and spatial realities, but the opportunities that exist can be utilised as such steps forward provide an extremely wide range of open

sources, open learning and open technologies able to bridge the digital divide. These realities point to the belief and conclusion that academics, administrators and students need to be trained in using technologies to improve learning, teaching and research.

The existence of free Wi-Fi at MUT will allow academics and students to link directly with the Massive Open Online Courses (MOOCs), free online courses that are open to all, providing a flexible path to improve knowledge and skills in a number of academic disciplines. When students are connected to a MOOC, academics can assess, monitor and evaluate the tutorials and assessments. In such a process, the system generates a report of student progress.

7.3.2. WORKLOAD AND POSSIBLE WAYS FORWARD

It is evident that the majority of academics in the institution are obligated to teach hundreds of students because of continuous massification in all disciplines and faculties. The reality that followed the ruling party's decision in 2017 that led to hundreds of thousands of new entries at the country's universities was a very encouraging initiative that will in the years to come have impactful outcomes and outputs for South Africa and its future. At present, however the realities have resulted in the serious increase of pressure on the academic staff, despite the introduction of tutors/assistants in the faculties. The university's genuine effort to increase access to the institution and the introduction of a multiplicity of evening programmes and classes able to accommodate working people with a zest for further knowledge has exacerbated the existing heavy workload situation for academics. Such realities are creating pressure in terms of preparation, one-on-one student consultations, test and examination invigilation, as well as the marking of tests and examinations. Despite the existence of tutors, a large number of application questions require the academic's marking because of the subjectivity and diversity of the manner in which students answer.

Over a period of years, a large number of administrative functions have been introduced before and after the first COVID-19 lockdown that began on 27 March 2020. Thus, all academics are obligated to attend all faculty, department, advisory board, and university committee meetings and undertake the typing of all tests and examination papers, including the special and supplementary examinations**.** The marking of all tests and examinations is the academic's responsibility. The final results are submitted to the Quality Management Directorate (QMD).

It is a key function of academics to be active participants in the student selections during the period of registration, and university policy requires every academic to conduct subject evaluations and participate actively in programme reviews that require physical attention at

training meetings and the presentation of their files. These were the requirements before the COVID-19 pandemic.

Fundamentally, there is no doubt that different learning and teaching realities, research and knowledge production priorities as well as additional administrative responsibilities for academic staff members are responsible for different workloads that on most occasions, affect both the personal and professional lives of academics. At MUT, like most universities in South Africa, the debates on the issue are indeed unstoppable. The decision that could ultimately lead to an ideal situation is a distant dream, at least for now.

What follows is the result of personal and collective thoughts and a deep understanding of the existing circumstances at many South African universities, based on conversations with senior and other academics and high-ranking and middle-range managers at trade union meetings and local, continental and international conferences. It is looking at two different positions that could easily be amalgamated when existing circumstances demand unity of opinions and proposals.

This is a South African, African and global dilemma and challenge, seeking an ideal solution that does not exist. What exists, however, are the key concepts that are the root of a possible and/or probable solution: honesty, accountability, trust, truth, equity, transparency, collegiality, leadership and consultation.

They are the roots of the building of a neutral, expanded, broad, feasible framework led by institutional leadership at executive, faculty and school levels. A collective leadership of this type needs to thoroughly examine a number of key operational factors, such as the existing teaching delivery methods and the existing realities and systems at work. Such a process will inform the features and variables of the allocation process through which the appropriate framework can be established that will connect and integrate the individual and departmental duties and responsibilities fairly and squarely.

In such a process, the workload model itself will be understood and absorbed as an integral part of a flexible process and not as a ‘fixed feature’, as the relevant academic staff will be an active and integral part of the process because their own professional and intellectual responsibilities are to be determined, hence their active engagement.

Such an agreement of all groups and entities responsible for a collective decision will most likely allow incremental improvements. This is because the active participation of academics

in the debates is realised and their engagement and decisions reduce negative thoughts on managerial interventions. The possibilities for a collective agreement increase substantially.

Following the participation of the academic staff views, the process of implementation begins with the involvement of Heads of Departments and most likely trade union representatives to debate and negotiate the balances and the processes to follow in terms of 'fine-tuning' the individual allocation according to the needs and official policies of the university. The attention of the whole department should be empowered by every member's duty and responsibility to participate actively with feedbacks throughout such processes.

Inevitably, fair, honest and transformational leadership is important in driving the university's policy on such important issues, enabling the production and wide acceptance of a general framework model setting the agreed workload allocation criteria. The consultative process leads to the acceptance of a general framework model able to fit departments and schools as well as all academics because work areas are integrated within the workload allocation models, which include research, teaching and learning, community engagement, as well as added administrative responsibilities assigned to academic staff.

Given the reality that pressures associated with academic workload have negative effects for both academics and students at all educational levels, and that there have been cases identified by respondents as unmanageable, a second approach is proposed. This is because such realities demand institutional interventions that could lead to solutions in terms of staff allocation that demand a different perspective and action.

Initiatives should be focused on the effort to research and analyse the best solutions towards the utilisation of academics' time in accordance with the responsibilities attached to the position.

The relevant university and faculty boards that would debate and accept the findings of this research need to focus on the processes, practices, realities and timing that are associated with academics' allocation of workloads.

It is important for the university, faculty or school's leadership to have policy-linked guidelines that determine the criteria associated with workload allocation practices and circulate them amongst all academics. Advice on equity and transparency is key to the success of such an initiative and all schools or faculties can decide and determine their approach agreed upon by

all staff members. Such initiatives should take into account the existing or forthcoming administrative duties of staff members.

In the event that the majority or all staff of a department or school decides that the head of department or Dean should be trusted to collect his/her own information and consult all staff members before he/she arrives at a final decision, this could also be a significant consensus-based solution.

It is upon the majority of staff in a division or the school to make yearly decisions regarding approaches based on hourly inputs and outputs in terms of teaching and learning as well as research-dominated or administrative duties and responsibilities aspects and realities. The latter two cases are more difficult to calculate properly, especially in terms of hours dedicated to the production of new knowledge. In such situations problems could become a reality with negative effects on collegiality levels.

What has been described above as the workload allocation model needs to be linked to other university systems, such as the creation of channels facilitating academics' feedback directly to the university leadership associated with policy and processes; departmental heads perform their duties diligently in relation to the monitoring of the model to fit individual staff members after receiving training in the processes supporting such systems; teaching allocations should be refined at all levels of operations, such as continuous management of peak hours and periods and effects on existing and balanced duties and responsibilities and academics need to be encouraged to think seriously about their role and satisfaction in terms of the existing circumstances and balance of their own activities.

A number of universities have dealt with a number of such realities, but inevitably, universities such as MUT need to act decisively on such issues in order to rectify the existing situation. This needs planned action to be achieved because equitable workloads can and should be achieved because of the necessity of uniting organisational needs and staff interests. Once this unity is achieved, relationships will be improved and synergic plans and activities, amongst other performance management systems, can be facilitated and ultimately reach new heights. This could lead to the achievement of a strategic alignment of university systems at all levels and improve their capabilities. Overall, there have been sections of the academic world that have publicly indicated that workload allocation can be described as a low-level operational university reality. However, such positions have not realised the importance of the situation because the academic body is a key factor in building a successful tertiary institution. This

means that settling workload allocation honestly, efficiently and effectively with the participation of all stakeholders is a very important, even indispensable, tactical and strategic process. Once the legal frameworks, rules and regulation of the state and the university are handled transparently, with integrity and common understanding of all parties a fair, well-negotiated and widely accepted academic and general workload embodying the real vision and mission of the university, paves the road forward.

7.3.3. ROLE OF TUTORS IN THE EFFORT OF BUILDING UP FIRST YEAR STUDENT DEVELOPMENT AND EASING ACADEMIC HEAVY WORKLOAD

The utilisation of academic tutors began at MUT a few years ago with the prospect of playing a role in preparing first-year university entrances to the new institutional environment and assisting academics in administrative work that, as the present study has shown, has created a number of serious problems in the teaching and learning as well as the new knowledge production efforts.

The preparation of the new part-time MUT staff members is undertaken by the TLDC (Teaching and Learning Development Centre) that provides institutional training, generic over a number of days, a programme that is followed up by motivation seminars, mentorship midway through the year and active learning training. Participating actively in these initiatives, the individual departments provide ongoing training lessons to tutors through weekly meetings and facilitate the continuous academic mentorship amongst lecturers who mentor tutors in all aspects of their duties and responsibilities.

Although the key understanding between the leadership and management of the university and the academic staff is that it is important to attract good quality and highly qualified tutors, there is the assumption of the TLDC management that tutoring is not a job, but simply a developmental phase or a senior student experience. Such a position is the outcome of the reality that, at present, the general belief is that because MUT does not have high postgraduate programmes such as Masters and Doctorates, it cannot have a pool of well-qualified tutors like the traditional and comprehensive universities. According to the existing information, in such universities generally, the tutors are holders of at least a Master’s degree, those with a B.Tech. (Bachelor in Technology) are teaching assistants and those with diplomas are teaching aides.

Once the possibility of well-planned and implemented continuous training for tutors throughout the year by both senior academics and retired professors becomes a reality, despite the existing challenges, and their monthly training is satisfactory, and in time the way forward

has been on the right track. This is despite the fact that over the last few years there have been hurdles such as the tutors' relationships with the TLDC and its overall perspective on their role in the system that leads to a lack of motivation and different treatments from the leadership of the various university faculties and departments.

These conditions need study and a serious effort to rectify issues related to terms of remuneration, training and development, skills upgrading, high levels of support, the combination of administrative and part-time teaching obligations and service. For these challenges to be faced head on, the solutions are to be found in a well-synchronised cooperation and synergy between TLDC and the relevant departments, which share the training development and monitoring of tutors. These are challenging duties and responsibilities that need to be operated through a well-planned operational model. Such a model will be based on the fundamentals of the duties and responsibilities of all parties, retention possibilities and probabilities, relations with the DHET and future plans for successful tutors. Such plans could possibly include tutors as co-researchers in community-based research projects and engagement.

Such initiatives, when undertaken, will definitely have a positive effect on all interested university stakeholders and role players, especially first-year students, fresh from high school, as well as academic staff in terms of both teaching and learning as well as their heavy workload and extra administrative duties. In these learning and administrative cycle realities, it is believed that students' and tutors' motivation and interest in learning processes will improve through workshops, lectures and seminars, while academics' workload and administrative problems will be eased considerably.

7.4. STUDENT CHALLENGES: A HOLISTIC APPROACH WITH DETAILS

Students at the university have faced over the years a wide variety of problems and challenges as young people hungry for knowledge and success, and dreams for a better future for themselves, their families, communities and the country. At MUT, the existing challenges also have major effects on the lives of the institutional leadership and all academics, affecting their ability to focus on learning and a better future. The everyday existence of such a tangible reality has a direct and/or indirect, mostly negative effect on an academic's ability to follow all university instructions relating to teaching and learning processes and progress, paving the way forward.

The key challenges evident in research and understanding of existing realities are related to *high levels of student poverty* that lead many young students, even those who rely on the NSFAS subsistence money for their food to still feel hungry because they send portions of the money to their families living predominantly in rural or semi-rural areas to survive starvation. Amongst academics, there have been many cases of students falling asleep and lacking focus and attention in classes because they had no food.

Under-preparedness of a large majority of the first year students is based on a number of realities such as the widely recognised and accepted inefficiencies of high school education and career guidance, especially located in traditionally African townships as well as rural and semi-rural areas. This creates serious difficulties in the process of the transition from a high school lifestyle and learning realities to a tertiary education teaching and learning culture. The above realities are accompanied by *language barriers and writing skills* as many new students are non-English-speaking and they themselves consider English as a second language to them, hence the difficulties they face, at least initially. On many occasions, these serious challenges are combined with a number of others and the dropout rates increase as they prefer to seek work in order to help themselves and their families financially.

Peer pressure and its variations amongst newcomers have been described by those already in the institutions for a number of years as the process of 'fitting into the environment of student life and making a difference'. Such an expression means that the 'newcomers' have to 'belong' to groups of friends, student political organisations, and amalgamate in a student life that attempts to combine the learning processes with parties, partners, specific or alternative dressing modes, or a variety of addictions or distractions. On many occasions, the 'fitting-in process' variations of such behaviour lead newcomers to be associated with 'falling into peer pressure' leading many students to be distracted from their studies and possibly drop out. A number of them are due to drug experimentation and addiction to substance abuse. Young women fall pregnant and are forced to have abortions. Gender violence cases have also occurred, as have bullying incidents, but not very often. A number of students exposed to bullying avoid attending classes.

7.5. STUDENT POVERTY AND HUNGER: POSSIBLE WAYS FORWARD AND THE ROLE OF ACADEMICS

The research has shown conclusively that hunger and poverty amongst the majority of the student population of the university is a major challenge for the leadership and all sectors of

the institution. It is a reality that, unfortunately, has not received serious attention by state institutions and entities despite empirical studies demonstrating a lack of access by students to enough nutritious and affordable food at South African universities.

Such realities are not only evidence of the ever-increasing economic and social inequalities amongst the country's population and South Africa's social divisions, but also the extreme difficulties facing even bright and hard-working students to perform as well as they could or should. Thus, as research has shown, the alarming picture of food insecurity reaching 64.5% of students at the University of Free State, while at the University of KwaZulu-Natal, between 55 and 65% of poor students are food insecure (Wegerif & Adeniyi, 2019; Mafolo, 2020; Sabi et al. 2020).

As became evident in the present research project, one of the key reasons for such a situation is that a substantial number of students receiving state subsidies for their studies, which are limited, send the money to their destitute families in order to support them**.** In the process, such realities lead the majority of these students to hunger or obesity, which are the foundations of poor health that result in poor academic performance and ultimately increased drop-out rates.

Such situations affect vast numbers of students, especially black Africans (the vast majority of MUT students). These poorest students are the main hope of their families and communities for a better life as they have been lucky enough to be in tertiary education due to the existing state support. Simultaneously, however, they are the same students who, because of hunger and poverty, miss the opportunity to benefit from the existing opportunities as their everyday hunger leads to an outright denial of a great opportunity on the road to achieving their intellectual and learning potential.

The question then has arisen that the existing reality is that NSFAS (the National Students Financial Aid Scheme) does not allocate to the poor, deserving students money for their everyday needs in respect of food security. The structure of the allocated financial aid is primarily for accommodation, tuition, books and other study materials.

Within these realities, it has been evident throughout the years that student hunger needs to be taken very seriously as it affects their physical and mental health, as well as their academic success. Inevitably, the situation was exacerbated following the COVID-19 first lockdown in March 2020, when tens of thousands of students moved back to their homes and were obligated to continue their studies through on line learning. Under such circumstances, in most cases,

students and their families faced food insecurities and hunger, leading to negative physiological responses.

There have been efforts on the part of non-governmental and other organisations to bring this situation to an end. One of the key efforts was initiated by the Dullah Omar Institute operating from the University of the Western Cape, which petitioned the South African Human Rights Commission demanding the setting up of a nationwide inquiry as a matter of urgency in order to establish the realities of food and nutrition security in fulfilment of the constitutional right to food to students at tertiary institutions. The Dullah Omar Institute was supported by the DST-NRF Centre of Excellence in Food Security. They canvassed extensively under the banner of the Access to Food for Students Project and had very strong support from a wide variety of stakeholders, such as university leaders, academics, students, and many representatives from civil society (Wegerif & Adeniyi 2019).

Inevitably, when such an inquiry takes place, the findings would be reported to the South African Parliament with policy recommendations on the state institutions' ways of addressing the issues and planning and implementing a way forward to fulfil the constitutional rights of students.

Expert researchers have indicated that such an inquiry and the processes that follow its findings and recommendations would most likely be completed between 12 and 18 months. During such a long period, student hunger will persist at the institutions of their homes (Mafolo, 2020).

As Wegerif and Adeniyi (2019) have written, the (constitutional) right to food needs to be evident in state policies and it is crucial to include students at both public and private institutions, from universities to training centres. This means, they wrote, that the whole higher education sector needs regulations, programmes of action and legislation, and budgets to deal with this situation.

Of course, such initiatives at the legal and state levels are of key importance regarding middle-to-long term solutions that are deemed necessary, while there are other suggestions that could play an important role immediately. For example, it has been shown that food policies based on macroeconomics can be instrumental in the control of food price, while a number of innovative ways have been proposed in the effort to access food through well-studied and implemented subsidised online food procurement systems and food preparation with nourishment. This could be supplanted by a fixed-priced nutritious, food basket for tertiary institution students (Mafolo, 2020).

The responses to this existing reality at MUT indicated that the existing student bodies at the institution, including the student representative council (SRC), have not been at the forefront of conversations regarding food insecurity and student hunger, a reality that needs to change. This can be described as a priority because the realities of COVID-19 and poverty have exacerbated the problems for students and their families given the substantial increases in accommodation, transport, food prices, books, and other badly needed materials.

It is important for university leadership to introduce food schemes and banks and possible experiments with vegetable gardens. It is difficult to assess the success or failures of existing programmes such as those at the universities of the Free State, Witwatersrand, or Johannesburg. However, these initiatives that are yet to be institutionalised. A farmers' market began at the University of Witwatersrand to offer fresh produce to students, while it was also useful to local farmers. Such an initiative could be useful for a university, such as MUT, given the fact that there are a significant number of local farmers in the Umlazi vicinity. At the University of Johannesburg, approximately 7000 meals a week are available to poor students under the auspices of the 'Stop Hunger Now' scheme, while at the University of the Free State, the 'No Student Hungry Programme' offers a balanced meal a day and allowances to poor students (Wegerif & Adeniyi, 2019; Sabi et al. 2020).

All these realities, and especially the responses associated with the present project, pinpoint the reality that a large majority of the country's students are a substantially vulnerable group and deserve to have daily food security. This priority first demands the constitutional right of all students to food. This means that there is an urgent need for policies, regulations and rules that guarantee that the food needs of students at all tertiary institutions, public and private, and the appropriate budgets will be fulfilled**.**

It is important, not only for the sake of education but for South Africa as a whole, that universities at all levels play an urgent, rigorous and research-based active role in the continuous process of rejuvenating and strengthening sustainable food systems in all communities and society in the country. This process can be achieved through the integration of new knowledge production and innovative teaching and learning initiatives that develop and expand a clear understanding and development of food and food systems through programmes in food studies. All institutions need to guarantee that all students and learners have access to healthy and nutritious food on campus.

Students' assistance in terms of providing healthy food to those in hunger should be structurally and functionally initiated through sustainable undertakings such as operational food gardens, well-structured food assistance and creating facilities for well-organised small-scale food vendors.

7.6. ACADEMICS' ROLE IN PREPARING NEW STUDENT: A CHALLENGE OF TIME AND COMMITMENT

The major challenges facing academics in their duties and responsibilities towards new students are a reality in all South African universities, especially universities of technology, because of the prevailing circumstances, most of which have been identified in the present project.

A recent national research study by a respected professional company showed that less than 50 percent of the 2500 students interviewed at higher education institutions in the country felt prepared for the transition from school to higher education institutions. The 2017 study conducted by Portland's Public Schools (PPS) entitled 'Student Confidence Index' surveyed fourth-year and above students registered in medicine, law, engineering and accounting.

The lack of preparation of the new students was also fundamental to the reality that, at the time, 47.9 percent of the students had completed their degrees, as determined in the latest report by the DHET (PPS 2017).

The transition from high school to university, especially at universities such as MUT, is complicated, combining emotional and existing knowledge realities that play a key role in success or failure because they are related to confidence and beliefs; as well as the reality of the struggle of new students to replace the knowledge acquired at township high school standards with university level study. On the other hand, universities in South Africa accept students who, while having achieved Matriculation Bachelor's entrance to higher education institutions, are aware of the fact that they are not ready for tertiary education due to a struggling high school system**.** It is up to the universities themselves then to establish and perpetuate a number of assistance programmes to assist such existing situations.

Inevitably, the emotional challenges and stress that accompany the above realities are phenomena evident in the process students face adjusting to the academic and social side of university life, realities that could lead to psychological problems leading to drop-outs.

A recent empirical study by Dlamini et al. (2020) attempting to research and analyse the understanding and insight in terms of experiences of adjustment of first-year students at a previously disadvantaged university in South Africa utilised a qualitative method using four focus groups consisting of 18 first-year participants from different departments. The key results of the project indicated that first-year students felt that their new lives were very different, mainly because all past relationships had disintegrated**.** This feeling is much more evident at universities such as MUT, where the majority of students are from rural and semi-rural areas of KwaZulu Natal.

On the other hand, the research showed that there were strong elements of resilience and independence amongst the participants prepared to adapt to the radical change ahead**.** These encouraging feelings that led to experiences of positive adjustment and mechanisms instrumental in coping with existing circumstances were rooted in direct interaction with lecturing staff, hard work, and attending churches, mosques, and other religious events and gatherings. The negative feelings were associated with alcohol consumption and smoking dagga (marijuana). The findings of this empirical research could be a guide to all academics at MUT, for a number of reasons; the most important one being that they work at an institution whose description ('previously disadvantaged university') fits their employer's. This means that the immediate orientation under the guidance of the relevant institutions and the academic staff of the institution is crucial in students' future successes, especially when such a process incorporates a series of programmes instrumental in demonstrating to first-year students the realities of the challenges in the years to come (Dlamini et al. 2020).

7.7. HIGH PASS RATES, NEW KNOWLEDGE PRODUCTION AND STAFF DEVELOPMENT CHALLENGES

Throughput student rates are of key importance for South African universities as they are the foundation of the current funding system of DHET-based subsidies. Inevitably, all university leaders concentrate on efforts leading to the highest pass rates possible in order to guarantee the funds due to them. This reality has also become a serious challenge for academics facing, on the one hand, student massification, serious problems in poor infrastructure and technology, large classes, as well as the extra pressure in the efforts to maintain high pass rates in order for the university to secure the funding.

Within this context, the reality that large numbers of students are underprepared for tertiary education and have met the minimum entry criteria has resulted in a situation where academics

are forced to adopt strategies that involve, amongst other things, the reduction of the subject content, the lowering of standards in terms of their assessments, and having to teach and prepare the students for the examinations in less rigorous ways and methods in a number of subjects. Such realities directly and indirectly facing the country now facing new waves of the COVID-19 pandemic that has exacerbated the South African economy's downward spiral. In such a situation, whilst further funding to higher education institutions is increasing, in real terms it is actually decreasing per student because of the continuous increases in student enrolment. Adding to the challenges is the fact that DHET has been delayed in making subsidy payments to MUT, a reality that creates a cash flow problem for the institution.

Inevitably, all the realities mentioned above have a direct effect on academic productivity in the effort to become active and successful in research and new knowledge production. This creates a serious problem for a number of academics without Master's or Doctorate degrees, which are presently requirements for entering academia**.** The present circumstances, existing at MUT and all other universities, with the exception of the traditional ones, demand a PhD and a number of accredited publications for the position of a senior lecturer. All universities, including MUT, also expect their academics to demonstrate their production of new knowledge in the context of national and/or international conferences in their fields, even during the challenging period of the COVID-19 pandemic.

MUT's leadership and relevant departments and sections such as the research office and the Teaching and Learning Development Centre (TLDC) have been instrumental in the uplifting of both academic staff and tutors through workshops that have been considered successful. There has been a wide variety of workshops as well as guidance on how to deal with academic writing and research presented in academic and research journals for all academics who are registered for postgraduate degrees.

Within this process of upgrading academics' qualifications, old and new academics can choose either an improvement their horizontal skills, such as undertaking the Post Graduate Diploma in Higher Education (PG Dip HE) or vertical studies in order to upskill themselves in the HE environment**.** The university in the last few years, has encouraged academic staff members to pursue doctorate degrees and use sabbatical leave to complete the highest academic qualification. Staff sabbatical leave requires the academic to have saved or ring-fenced annual leave that has not been utilised for this to become a reality. This means that the sabbatical can be granted on a one-for-one basis. Before such leave is officially approved, the academic needs

to also apply for funding for a replacement. The MUT Research Office has in the last few years made available limited funding to staff to pursue and succeed in their postgraduate efforts. In 2020, R25 000 was made available for Master's degree students, while Doctoral students received R30 000.

Industry-related CPD (Continuous Professional Development CPD) programmes, which are directly related and accredited by state organs and entities in respect of their subject matter, with updated content, can also be used. However, inevitably, the vertical studies leading to a Master's or Doctorate degree are preferable for academic advancement. A number of MUT's applicants for Thuthuka and the Black Academic Advancement Programme (BAAP) have been unsuccessful for a number of reasons, including that while the 'mother body' (the National Research Foundation-NRF) has been open to all sections of previously disadvantaged black groups, a number of criteria that have been described as 'tough', such as those regarding age limits, gender and disability, basically narrow chances for a wide range of previously disadvantaged groups to receive the funding. It is strongly believed that the funding model favours black females who are under 45 and have a disability. It is also believed that the NRF application process has over the years been tedious and time-consuming as it requires mandatory fields to be populated, otherwise the application is incomplete and cannot be submitted**.** These realities demand that the leadership and relevant departments and sections of the university need to introduce specialised workshops and seminars, most likely led by NRF-rated researchers, aiming at the expansive education on these key issues held for the benefit of future potential applicants aspiring to be successful in such educational endeavours.

The tangible initiatives for upgrading the academic sector's contribution to the improvement of MUT at a number of levels and despite the existing challenges that have been described above have been an illustration of the institution's leadership visualising, planning and implementing the vision, mission, aims and objectives of MUT's strategic plans.

Such initiatives have resulted in a number of departments and schools having increased their publishing records from zero 10 years ago to a substantial amount, even competing well with faculties that previously were the only ones achieving such aims and objectives. An increasing number of academics in all disciplines and fields have been presenting at national and international conferences and the competitiveness among academics has increased.

These encouraging realities for both leadership and academics can improve if the real challenges that face academics and have been the topic of the present project are confronted by

the leadership, management, academics and all stakeholders and role players head on and decisively, including better infrastructure, fewer administrative responsibilities for academics, upgrading the functionality and responsibilities of the tutors, and increasing the levels of mentoring, coaching and guided supervision for all aspiring academics and new knowledge producers. This could be achieved through a carefully well-planned capacity building programmes undertaken by NRF accredited researchers in all academic disciplines in proposal and accredited journal submission initiatives associated with all steps of proposal writing, including instruments such as data analysis software (SPSS, NVivo and all those utilised in the pure and applied sciences such as engineering).

In many ways, MUT's Management Sciences and Engineering appointed a number of retired professors in 2019 who had provided aspiring academics at all levels to seek advice at a number of levels regarding proposals, advanced research methodologies and the art of researching and writing for accredited journals. All these were offered with dialogue, presentations, free access, generous advice, guidelines, feedback and criticism. In addition, the research office has offered practical writing workshops on a wide variety of research issues, both theoretical and empirical.

7.8. STRATEGIC LEADERSHIP FOR MUT AND WAY FORWARD

It has to be said that in all spheres of life and society, leadership has never been an easy position, role, or proposition, both historically and at present. Tertiary institutions are no exception to the rule.

The more society and the world change, the more problems, challenges and dilemmas appear, implying that all sectors of societal existence are in need of leadership that becomes alert of realities and creates new strategic imperatives to face successfully the present or impending storms (Stigter & Cooper, 2015).

Inevitably, the wider problems and challenges of society become instantly or periodically the problems and challenges of existing and future organisations, institutions, entities and all humanity. Universities throughout the world, including South Africa, cannot escape these realities and challenges associated with internationalisation, increased technological and resource demands, decisions on direction, organisational infrastructure, good governance, alignments and employee commitment.

Castells in one of his seminal contribution to social sciences in his deep analysis of the evolution of the four key functions performed by universities he begun with the ideological reality that deeply reflects the transmission process of the values instrumental in the realisation of the existing political, ideological, economic and social order. His analysis continued with the description of the second role associated with the selection of the elites and the formation of networks attempting to ensure levels of social cohesion; the 'training of the labour force' performed by tertiary institutions in their efforts to 'support the state bureaucracy' and the needs of the economy at all professional levels (what at South African universities is called 'teaching and learning') and knowledge generation, production and dissemination (research) (Castells 2001 quoted in Muller, Cloete & Badat (eds) 2017: 206-207).

In respect of these realities and expectations, MUT's strategic plan and the Research Plan look forward to filling a number of a seminal analysis of university archetypes in terms of universities' engagement with wider society. Uyarra (2010) outlined five archetypes of university societal engagement: the distinguishing knowledge factories (focused on technology knowledge for industry), relational universities (working interactively with industry), entrepreneurial universities (exploiting their knowledge via patents and spin-offs), systemic universities (building collective innovation assets) and engaged universities (improving regional policy frameworks). According to these archetypes, MUT can fit at least three of them: a relational university, a reality that already exists today; as a systemic university; and as an engaged university, a reality in existence.

There is no doubt that each university's archetype and orientation have the potential to allow social innovation in the process of a different, diversified institutional freedom. This means that engaged and entrepreneurial university approaches are potentially supportive of social innovation (at least not indifferent to it), whilst the other models frame university knowledge in ways that potentially make social innovation invisible. Uyarra's typology reflects institutional autonomy to determine regional mission, but this implies that universities' regional missions are, in turn, shaped by the role played by regional partners in their regional knowledge activities. Throughout the years and despite the challenges and problems that MUT has faced, there is little doubt that a number of the above missions, visions, aims and objectives have serious foundations on the path moving forward. This is a position that has been supported by a number of the respondents participating in the present project.

There has been an overwhelming agreement that competition has become stronger at a number of levels and all spheres of leadership at the institution and that followers feel obligated to increase value, collective behaviour, success, voluminous research and knowledge production, innovative business models and further penetration to the existing market**.** This is an important step forward, especially in a competitive terrain, as the one facing South African tertiary institutions, a position that has been explained and supported by (Cumberland et al. 2016: 302).

These realities pinpoint the fundamental necessity of strategic, honest, accountable and transparent leadership at the university. In this challenging era, the development of strategic leadership at a university is not an idealistic dream, but a tangible reality based on a plan supported by all stakeholders and role players of the institution. It is a reality related to a number of initiatives, programmes and developmental steps that lead to efficient and perpetual talent management, such as development and retention; financial and resource sustainability and expansion; innovative teaching, learning and knowledge production; succession planning; rewards and recognition strategies and staff satisfaction; expansive infrastructure at all levels; further development; coaching and mentoring and paving the way forward to the terrain of the Fourth Industrial Revolution and its opportunities and challenges.

Leadership is a concept that has been in both everyday as well as scientific life and vocabulary for hundreds, if not thousands, of years. It has been an extremely popular subject in both theoretical and empirical life and in all spheres of science. It is a theme that has been covered by a very wide variety of viewpoints and is the central theme in a number of scientific fields. A multiplicity of theorists and researchers have attempted to write, research, understand and analyse the types, visions, influences, behaviour, actions and traits of leaders throughout the centuries and millennia.

There are significant differences in leadership theories rooted in empirical research internationally, but one of the most important agreements on this issue is that different types of leadership are necessary in diverse situations that call for different leadership styles. Leaders who understand and analyse the realities of the entity they lead possess the capability to convince its management and followers that they are integral elements within a sphere led by common visions, mission, aims and objectives and thus create the environment of success through good governance, integrity, accountability, effectiveness and efficiency (Chin, 2015: 200-201).

The discussions, research and opinions expressed on leadership over the first 20 years of the new millennium have revolved around several of the most debated types, including the strategic leadership that has been chosen for the present research project, one that is considered important, especially in terms of existing organisational settings and realities.

Its theoretical and empirical directions have led to agreements and disagreements amongst a wide variety of representatives in the social sciences and management fields regarding its roots, dimensions and present and future directions (Fairholm, 2009:102-103).

Strategic leadership is expected to lead organisations or institutions to success through a combination of strategies and tactics rooted in the building and development of a thorough consultation process. Such an initiative will lead to a widely accepted 'strategic vision' that will be followed by internal processes of the planning and implementation of aims and objectives that are based on collective decisions with the key agreement being the long-term viability of the institution and its success at all operational and institutional levels. It has been widely accepted that such processes cannot be successful without the leader showing high degrees of honesty, accountability, innovation, flexibility, commitment, and anticipation in the efforts to empower employees at all operational levels (Terra & Passador, 2016:236-237).

These characteristics are extremely significant for South African universities given the challenges of financial priorities, problematic resource realities, transformational complexities that cannot be faced successfully without a well-planned and implemented strategic leadership that can be in the forefront of management and staff commitment and dedication at all levels (Muswaba, & Worku, 2012:148-149).

These priorities have been outlined in the Strategic Framework 2015-2019 produced by Universities South Africa in October 2014 (USAf 2014) that sets the parameters of strategic leadership at all levels of higher education institutions, covering adequately the existing expectations of the universities' stakeholders and role players. All these are set and dissected in terms of the existing challenges in terms of resources; infrastructure; student realities and demands; organisational governance; the levels of efficiency and effectiveness and the paths forward. Issues related to high quality research and new knowledge production, the expansion and development of new academic leadership cohorts and the enhancement of transformation were high on the future agendas.

These realities have been followed by the majority of the country's tertiary institutions and are integrally incorporated within MUT's strategic documents outlined in the present project,

which are based on the fundamentals of the existing legislation, policies, rules and regulations. This is because these fundamentals are key steps that need to be taken in order to cement and enlarge the foundations of a well-functioning and efficient university. Such steps can only become a reality under strategic leadership and have been empirically tested successfully in a multiplicity of academic disciplines internationally and continentally (Hough & Neuland, 2014:256-257). These processes mean that these steps are directly and indirectly related to targets that are associated with a variety of realities evident in almost all societal systems and their complexities, tangible realities that need changes in order to become stable and successful (Mayfield et al. 2015:98-99).

These changes are related to communication amongst individuals, groups, systems and processes as the first step. The second step being the efforts in the building and cementing of alliances at all organisational levels, which is one of the foundations of a full understanding and acceptance of the organisational mission and vision, aims, objectives and goals (Terra & Passador, 2016: 236-237).

Whenever there is acceptance at all levels and from all participants, such a collective agreement spreads into the field of organisational planning and growth collectively shared and agreed upon by leadership, management and followers at all levels. These processes are continued through attendance and collective focus on the efforts that lead to the achievement of clear-cut and carefully aligned goals through individual and collective contributions. It has been shown concretely and empirically that Organisational success is rooted in strategic and tactical implementation of the above processes and followed by serious efforts leading to continuous awareness and training in terms of careful implementation, assessment, monitoring and evaluation progress (Kouzes & Posner, 2009; Phipps & Burbach, 2010).

At present, the most important element and characteristic of strategic leadership is that the leader of an institution will be judged in accordance with the achievements of his/her tenure and what is left behind before the departure (Guerras-Martin et al. 2014: 70-71). While examining and **t**hinking about these current realities, no one can challenge the belief that the major requirement in the fight of a university to be enabled to move forward and deal decisively with serious problems and challenges is serious, honest, accountable, innovative and outstanding strategic leadership.

Universities throughout the world, including South Africa, are institutions that do not operate in a vacuum. They are supported but also pressured by both the private and public sectors to

produce excellence in teaching, as well as knowledge production and dissemination as an integral part of the scientific research process and project (Jeong et al. 2016: 286-287).

Universities, including universities of technology in South Africa, are pressured to produce research dealing with crucial national, continental and global problems such as climate change, economic and social pressures, health challenges, food security, increasing inequalities, technological hacking use and abuse of data. The realities of the situation in South Africa tell us clearly that universities of technology, including MUT, do not have the finances, infrastructure, facilities, human and financial resources and technology to compete with traditional and comprehensive universities. Despite the above realities. Evidently, no one disagrees with the reality that the most important ingredient for a successful way forward is forward-looking and critical and analytical thinking (Denning, 2015: 12-13).

Such thinking leads to a careful utilisation of the opportunities to be found in the external environment and engagement through a number of ways, such as the development of a third stream financial advancement through the utilisation of new technologies. Such initiatives lead to budgetary growth and diversity that have been elevated to very important opportunities, aims and objectives, becoming integral components of strategic plans at all levels (Herd, 2016: 28-29). However, despite the fact that MUT's strategic plans with regard to developmental steps elevating postgraduate Higher Diplomas to Masters and Doctorate degrees. as well as third stream training course initiatives have been both well-detailed, their advancement and transformation into functional education realities have been slow. This is despite the fact that the university's Research Department/Directorate has been activating and re-energising the relevant actions and initiatives at all institutional levels.

Strategic management is key to the planning and implementation of a transformative vision and mission, structures and strategies and utilises their knowledge and understanding of the sector and their institutions to plan and activate new approaches and practices. These are supplemented by policies, frameworks, policies and incentives key to elevating support and rewarding excellence. These initiatives are evident with the presence of a strategic leader who is always aware of the focus areas, problems and challenges facing the institution at all levels and plans the appropriate engagements accordingly (Albert & Grzeda, 2015: 653-654). In these processes, the fundamentals of building better forms of engagement become a necessity, as managerial and staff competence and excellence are the basis of progress and paving the path forward. New and fresh ideas, plans and practices are instrumental in assisting the development

and implementation of emerging strategies and rejuvenation of existing organisational processes and structures (Ding, 2014: 95-96).

7.9. THE PROJECT'S CONTRIBUTION TO KNOWLEDGE

It is felt strongly that the key aims, and objectives of this study related to the empirical effort of the researcher to gain a deep understanding of the complexities faced by HEI academics through the utilisation of the systems thinking approach and living theory have been successfully completed and fulfilled.

The process based on the utilisation of these theoretical and conceptual frameworks led to research living realities related directly and indirectly to the past and present knowledge, attitudes, opinions, beliefs and expectations associated with the existing realities facing academics at the university under investigation. It concentrated on their relationships with the structures, systems, processes and experiences that are the foundations of the relations between the institutional leadership and the academic staff of the institution. The analysis and dissection of the data led to an understanding of the university's realities, systems, policies and structures and the possibilities of interventions that could be acceptable and implementable for the benefit of all concerned, especially the most important element of a university, the student population.

In order for the researcher to achieve the aims and objectives of the study the key elements under scrutiny and thorough investigation that were identified as fundamental in obtaining a deeper understanding of the complexities facing academics within the confines of the higher education praxis were related to the most important challenges facing academics at MUT: professional, academic and research development; career guidance; infrastructure and related challenges; lack of technology advancement; heavy workload including added administrative duties; new knowledge management production challenges; higher research productivity and pursuit of postgraduate degrees' and student problems and challenges.

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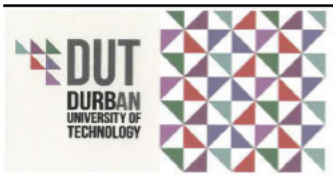
APPENDICES

APPENDIX A: GATE KEEPERS DUT



Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lavinash@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

24 July 2019

Mr A K Patel
P O Box 4277
Durban
4000

Dear Mr Patel

Conflicting practices in Higher Education: A practitioner's perspectives at a University of Technology
Ethical Clearance number IREC 077/19

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely

Professor J K Adam
Chairperson: IREC

APPENDIX B: GATE KEEPERS MUT

Mangosuthu
University of Technology
UMLAZI - KWAZULU NATAL
P.O. Box 12363 Jacobs 4026 Durban Tel: 031 907 7111 Fax: 031 907 2892

18 July 2019

Dear Mr A.K Patel

It is my pleasure to inform you that permission to conduct project titled: "Conflicting practices in Higher Education: A practitioner's perspectives at a University of Technology" has been granted.

Permission to conduct the project is granted on the condition that any changes to the project must be brought to the attention of the MUT Research Ethics Committee as soon as possible.

Good luck with your research.

Yours faithfully,

Dr A Mienie

Director: Research

031 9077354/7450

anette@mut.ac.za

APPENDIX C: TURN IT IN REPORT

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APPENDIX D: EDITORS CERTIFICATE

Sury Bisetty Academic Editing Services

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The pen is mightier than the sword

To whom it may concern

I edited the thesis titled Conflicting Practices in Higher Education: A Practitioner's Perspective by AK Patel, student number 20620254, submitted in fulfilment of the requirements for doctoral degree in Philosophy – Leadership studies at the Department of CCPE Faculty of Management Sciences.

Sury Bisetty
Professional Language and Technical Editor
03 November 2022

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Disclaimer: Please note, I provided language and technical editing as per discussion with the client. The **content and structure** of the paper were not amended in any way. The edited work described here may not be identical to that submitted. The author, at his/her sole discretion, has the prerogative to accept, delete, or change amendments/suggestions made by the editor before submission.

- NB – an additional 30 pages were added to the thesis after editing.
- NB – in keeping with POPIA regulations all work related to this thesis will be deleted 3 months after completion.