



**A strategic management approach Education for the new world of work
in South Africa**

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DECLARATION

I Zelda Manuel declare that this research report entitled 'A strategic management approach Education for the new world of work in South Africa' is my own unaided work. I have acknowledged, attributed, and referenced all ideas sourced elsewhere. I am hereby submitting it in partial fulfilment of the requirements of the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. I have not submitted this report before for any other degree or examination to any other institution.

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Signed at Johannesburg on 30th April
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ABSTRACT

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This research investigates the readiness of the South African education system for the new world of work. The future of work will be different, driven by automation, which place employment at risk. It therefore requires educational outcomes that can prepare individuals with the correct skillset (PWC, 2019). It will demonstrate that the traditional definition of jobs is shifting , a new breed of jobs that require multiple and diverse skills will replace role specification (March & McLennan, 2017).

The study used a quantitative research strategy; the data was collected from participants using a questionnaire as a data collection instrument. Descriptive statistics was used to perform the data analysis. It found that although much work was done in the tertiary education sector to prepare learners for the new world of work, respondents confirmed that they still need to continue their learning journey to remain employable in the future.

An individual's employability is dependent on effective career planning and life-long learning (M Watson, M McMahon, 2009). The research highlights that career management aim to provide a holistic approach where learners choose careers that they are passionate about and not only for employability (Maree J. G., 2009). Career counselling allows for social and economic inclusion and the absence thereof have negative impact for families and the economy (Maree J. G., 2009).

Organizations need to rethink their strategies and embrace new ways of work (Magwentshu "et al", 2019). They have the responsibility to up skill and reskill their workforce in order to adapt in the future and remain profitable (PWC, 2019). South Africa has high levels of unemployment,

29% (Stats, SA, 2020) and is faced with the challenge to accelerate economic growth. A further key challenge is the pace at which local companies are prepared to compete and grow in a digital world (Magwentshu "et al", 2019).

This research will assist academic institutions to prepare learners for the new world of work by identifying skills required for the 21st century workplace that will equip learners for the future. It will aid learners to research future roles prior to registration as future careers are changing and from the research results, it is clear that employability is a key factor in selecting academic courses (Chikoti, 2018).

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DEFINITION OF KEY TERMS AND CONCEPTS

Acronym	Full Description
SPSS	Statistical Package for Social Science
WEF	World Economic Forum
GDP	Gross Domestic Product
ICT	Information and Communications Technology
SAQA	South African Qualifications Authority
STEM	Science, Technology, Engineering and Mathematics
CCR	Centre for Curriculum Redesign
OECD	Education Co-operation and Development
ACET	African Centre for Economic Transformation
SETA	Sector Education and Training Authority
TVET	Technical and Vocational Education and Training
VUCA	Volatility, Uncertainty, Complexity and Ambiguity
DIGITIZATION	The conversion of tasks into digital form to be processed by computers
AI	The process of developing systems to be able to perform task normally requiring human intelligence
AUTOMATION	The means to allow a process or system to operate automatically
ROBOTICS	Design, construction and the application of robots
INNOVATION	The process of innovating
ORGANIZATION	Private and Public Institutions

1.1 Background and context

The South African education system has been in a crisis state for the last few decades and although the government introduced a number of initiatives for improvement, there remains a lot more to be done. It is clear with the high enrolment rates and increasingly poor grade 12 outputs that there is not enough focus on the quality of education (Modisaotsile, 2012). The country is in need of a high-quality education system as this is pivotal for the production of human capital (Legotlo, 2014). In a country where the injustices of the past remain visible, the need for high quality education is needed to give learners life changing skills and knowledge (Legotlo, 2014). An educated population has the ability to boost economic growth and create more jobs as equality in education can level out income inequality. It's been said that there is more to education than preparing learners for work, but learners should be prepared to work as the country will lose the funds for the education system if this is not done (Parker, 2017).

The education system has failed to deliver high quality education for all South Africans; this is with the increased government spending in preparation for the National Development Plan of 2030. In the midst of the education system challenges is the need to prepare students for new jobs that will be introduced while the old jobs are disappearing (Bughin "et al", 2018). Learners should be prepared to work and create a life for themselves in the new world, even though not all skills required are known. The education system should prepare learners with skills and capabilities that will enable them to thrive in a technological and globalised job market therefore move away from a knowledge content syllabus (Parker, 2017).

The challenge thus remains that if the education system failed to deliver high quality education in the past, to prepare learners for known jobs. How

do they prepare them going forward for roles that are technologically advanced and in certain instances not yet known?

Education is a social mechanism that is aimed to prepare the learner for coping successfully in the working environment. An efficient education system has the ability to teach skills that contributes to the overall individual development (Teichler, 2008). This same education now has the responsibility to prepare the workforce for the fourth industrial revolution. The unemployment rate of 29% is testament to the fact that South Africa should focus on creating more jobs (Magwentshu "et al", 2019). Digitization and the new world of work require action from government, businesses and individuals. Government should step up in job creation and mitigate job impact from automation (PWC, 2019). Businesses will have to rethink their strategies and continuously upgrade their workforce while embracing improved ways of work. Learners should be concerned about acquiring skills, formal certification and continuous learning should be embraced and entrepreneurial skills are encouraged (Magwentshu "et al", 2019).

The outlook on 2030 highlights the need for broader educational goals that focus on the learners overall wellbeing. The rapid advancement of science and technology could widen the inequities and exacerbate social fragmentation (Samans, 2017). Education has an important role to play in developing knowledge and skills that can benefit learners for a sustainable future. The education system should prepare learners not only for the new world of work but also equip them with skills they need to become responsible and engaged citizens (Schleicher, 2018). Students that are prepared for the future are change agents, they have positive affects in their communities and in the workplace (Schleicher, 2018).

1.1.1 The effectiveness of the current education system in South Africa

The South African education system is plagued with many challenges, which hinders its effectiveness. Most children are performing significantly below the curriculum and do not acquire the numeracy and literacy skills in their respective grades (Spaull, 2013). The inequalities of the education system are evident in the school's location, language, and province. The pass rate has increased in the last few years, but the actual quality of the education remains questionable. The poor performance in the South African education system reinforces the social inequality and lead to situations where children inherit the social status of their parents, irrespective of their ability and motivation (Spaull, 2013). The ineffectiveness of the education system has a direct impact on the skill shortage in the country.

1.1.2 Strategic management approach as an approach to address educational gaps with the use of technology

The literature highlights strategic scenarios for the South African education system; these are plausible stories that start with scenario thinking. Taking into account internal and external forces that may have a direct impact on the future, with the aim to debate strategic choices (Shay, 2016).The future assumes that the government investment in the education system will bring about the necessary change (Shay, 2016).The end result is an inclusive education system that will provide an opportunity for all learners to be given a chance to quality education that can prepare them for the workplace. Therefore, a well conceptualized strategy for educational change is required in South Africa (Shay, 2016).

Managing remains one of the most important human activities, since the inception of social organizations managing has been essential to ensure the coordination of individual efforts (Olum, 2004). And as society continuously relied on group efforts , as organizations continue to grow managerial theories becomes crucial in the way businesses operate (Olum, 2004). The education system requires a management operating model that will assist in

the effective operating and relevance for businesses and society (Shay, 2016)

Management theories as we know it today is a product of the 20th century , the publication in 1911 of F.W.Taylor's principles of scientific management was management placed on a scientific footing (Du Toit "et al", 2009).

Since then management theories have evolved and progress is attributed to the uneven supplementary disciplines of psychology , sociology and mathematics (Du Toit "et al", 2009). Management theories can be split into two schools of thought , namely the classical and the contemporary approaches (Du Toit "et al", 2009). The education system should align with the evolving theories as individuals should be able to operate and contribute in the different management theories adopted in the workplace (Bughin "et al", 2018).

Management theories provide a business with competitive advantage, as well as highlight and clarify skills and processes for individuals to cohesively work together to achieve a common goal (Brevis "et al", 2014).

1.2 Research conceptualisation

1.2.1 The research problem statement

There is an on-going crisis in the South African education system, (Spaull, 2013) confirmed that this country has an underperforming education system. The data indicates that from 100 students that registered for grade eight , only fifty percent will complete matric. The numbers are alarming as this group will eventually become statistics of the low income unemployed youth of the country (Legotlo, 2014).

This already strained system that is unable to provide quality education for all South Africans is tasked to prepare learners for a digital world that at this stage remains unknown to many. There is need for the education system outputs to be matched with the requirements of the future world of work system (Teichler, 2008). The research indicates that there is a time delay in

the identification of a career and the necessary formal training curriculum development for learners. There's need for the new world of work to be seen as a direct educational requirement to be met by the education system. The future need of learners should be reviewed as mathematical and technological abilities will become crucial skills in the year 2030.

The new world of work embraces technology, artificial intelligence and robotics and will bring about technological disruption. This disruptive technology will allow for increased economic activity in the country (Magwentshu "et al", 2019). It will change the nature and number of jobs available in the country and it will require a workforce with the necessary skills to be able to operate and succeed in such an environment. Technology allows for increased productivity in most major sectors and can increase the country's GDP growth rate. Automation will require highly skilled labour force and competition for high skilled employees will increase (Bughin "et al", 2018). This will create further inequality as many students in the educational system are being educated on a below par education system.

Emphasis is placed on the partnership amongst the tertiary education system and the new world of work. Institutions use graduate employability to determine and indicate the success of their programs (Hay, 2010). The role of universities has come under the spotlight as they have been seen as institutions where prices are high and efficiencies low, and outcomes questionable (Hay, 2010). Thus far it is not clear what type of student the world of work requires in the future, there is questions regarding how the education system prepare and address specialist knowledge of high-demand subjects as microbiology, web design and electrical engineering. Should educational needs only solve African problems or should it be globalized. The entire world of work is changing and requires a workforce that will be able to function in that world with the necessary skills (Magwentshu "et al", 2019).

The challenge is how do we prepare such a workforce, in a country where higher education is still unaffordable to many and where government funding has limitations? (Samans, 2017) The country has seen the highest

unemployed rate in 2019; with the youth, being severely affected (Stats, SA, 2020). How do we ensure that educators and institutions remain relevant and can join forces with private companies to ensure learning reaches the young people of the country? The youth must be educated, without an education their chances of employment and ability to contribute positively to society are reduced drastically (Samans, 2017). It limits thus the ability of future young people without formal higher education livelihood.

In stating the above the research problem explores the effectiveness of the tertiary education system in preparing learners for the new world of work. It aims to explore the skills required for individuals to not only be employed in the new world of work, but also understand the critical skills required (PWC, 2019).

The education system has a direct impact on employability, businesses are dependent on the education system for future employees (ryan Hancock , Kate Lazaroff-Puck , Scott Rutherford, 2020). Its therefore important for the education system to identify the future world of work skills and adjust the curriculum accordingly to be aligned with future educational needs (Chikoti, 2018)

1.2.2 The research purpose (aim and objectives) statement

The purpose of this study is identifying the shortcomings in the education system, i.e. readiness levels for the new world of work. The aim of this research is to find flaws in the educational system's preparation levels for the modern world of work.

The study sought to determine and clarify where the gaps are and source remedial action for correction. This quantitative study is thus an attempt to provide detailed evidence in order to provide recommendations for the education system to prepare learners for the new world of work. The research will explore the education system readiness to determine a curriculum for skills required for the future. Exploration of the effectiveness of the current education and the progress made to meet the targets set out

in the National Development Plan for 2030 are key developmental milestones.

The research will consider the mixed method strategy design which incorporates theoretical frameworks and philosophical assumptions. This will allow for the disadvantages of a research design to be eliminated (Creswell, 2014). Quantitative research design examines the relationship between variable test objective theories (Creswell, 2014) and will allow for the ability to justify measurable results in quantitative data.

1.2.3 Research questions and the accompanying research hypotheses

The empirical studies around education and strategic management gave insight into key assumptions that form part of this research. There are three questions in this research. The research literature questions will guide the research.

1.2.3.1 Question 1: Is the current education system equipped to educate for the future

Null hypothesis, the current education system is not equipped to prepare learners for the new world of work.

Future careers can be unbundled into tasks that can be offshored, automated and augmented (PWC, 2019). It is therefore important that the education prepare learners for a digital and innovative future (PWC, 2019). The current education system continues to fail on delivering quality education to South Africans. This amidst the new digital age where there is need to up skill learners on advanced technologies and artificial intelligence. The research will explore whether the curriculum prepared learners for their current roles and to what extent they have been prepared to successfully participate in their current roles. It will investigate if the education system is preparing learners for a digital future

1.2.3.2 Question 3: The effectiveness of career management for the new world of work

Null hypothesis, if we increase the effectiveness of career counselling for the future world of work then we will have learners that are better prepared for the workplace.

Career counselling will prepare individuals for continuous learning that is required for the future workplace. Career counselling is the proactive steps individuals embark on to manage their career progression. It is the effective planning of an individual's career where new skills are constantly required (Maree J. G., 2009).

1.2.3.3 Question 4: Is private institutions actively preparing their workforce for the new world of work?

Null hypothesis, if private institutions actively up- skill their workers then they will stay employable in the new world of work.

The skill set required for employability is ever changing and requires continuous learning. Private institutions are in some instances prepared to assist in the process of skills development, there is just concerns around costs and the availability of this service to the public (PWC, 2019). There is need for collaboration between the government and the private sector to join forces in the skills development of the country. The research will investigate if private institutions are equipping their workforce to remain employable and skilled to reinvent them as their roles are changing in an automation era (PWC, 2019).

1.3 Delimitations and assumptions of the research study

The literature search focused on the education system's current state and the transition to democracy. The study sought to unpack the constant crisis in the system and how it continues to fail the youth of the country. There remain concerns around the learner's ability to function at adequate academic standards (Carl B Frey, Michael Osborne, 2013). The outcomes achieved remains below par an indication that the education system is not able to deliver on its current mandate even with all the government-spending year on year into this sector (Daniels, 2007). The constant curriculum changes and the removal of the compulsory mathematics and science subject could have long lasting effects on the future skill developments of the country. The research found that analytical skills are an absolute requirement that will be required in the future to solve complex problems in the workplace (Legotlo, 2014). There is need for collaboration between the government and the private sector to join forces in the skills development of the country. The research will investigate if private institutions are equipping their workforce to remain employable and skilled to reinvent them as their roles are changing in an automation era.

The future world of work is digital and has many complexities, it will require higher learning and specialised learning to operate therein. Artificial intelligence and robotics need advance learning and cognitive abilities that should be taught at an early age. The education system must be geared to prepare learners for those new age digital skills.

The limitation of the study is the skills mismatch in South Africa, the research focused on skills required for the new world of work but have not researched the complex skill mismatch currently experienced in the labour market.

The South African education system is tasked to develop quality workers for a future that is not known. The skills required for the fourth industrial revolution should not only be relevant and meaningful. It should ensure that

the future vision is to ensure that a person entering the workforce on 2030 is prepared to reboot their career six times (Chikoti, 2018).

The next generation digital learning environment should nurture learning and engagement in a scalable and sustainable way. Innovation and openness for lifelong learning is encouraged as the future workplace will continue to change (PWC, 2019). An assumption is that private organizations play an active role in society to up skill their workforce.

The research will investigate the career counseling learners received in academic institutions in deciding courses for tertiary education. A limitation can be that the regardless of the career counseling the learner rather opted for a course more aligned to their passion then their actual abilities.

An individual changes their career on average six times and depending on where they find themselves during the survey, they may not find their current roles meaningful.

Private institutions offer in house training on skillsets required for current roles, this could be seen by employees as non-beneficial as in most instances this learning is not accredited the South African Qualifications Authority.

1.4 Significance of the research study

In all countries ensuring employability is at the core of all learning institutions, and it is one of the greatest influencing factors for students in deciding courses for study (Hay, 2010). The skills required for the new world of work must become more visible in institutions in order for students to understand the various options they have when deciding on study courses. The growing population is increasing the demand for education and training. The education system must be relevant and equip the future workforce to be able to operate in a digital fast pace environment (PWC, 2019)

South Africa has seen the highest unemployment rate in the year 2019, with the youth aged between 18 and 24 being affected the most (Stats, SA, 2020). Funding and the school completion rate remain key challenges of the education system. This challenge is further perpetuated with the low university acceptance rate leaving many youths without an opportunity to obtain formal education (Legotlo, 2014).

This will lead to higher unemployment in the future, as the future career trends indicate that it would be nearly impossible to find employment without higher education qualifications (Bughin "et al", 2018). It is therefore vital that the current education system deliver on its basic requirements in order to build on future skills development in order to give South Africans an opportunity for a better life and society.

The research will assist academic institutions and individuals , the generation of the 21st century will have six different careers which makes re-educating a prerequisite (Fisk, 2017). Innovation will continuously demand new skills and knowledge to keep up its pace. The education system should prepare a workforce where man and machine will align to create endless possibilities (Fisk, 2017). Career counseling will assist with the lifelong learning individuals will have to embark on to remain employable in an ever-changing economy (Maree J. G., 2009). Career management is a proactive approach to manage an individual's career. The research will further assist organizations to be active in society; unemployment is not only a concern for the government. Private institutions should collaborate with public institutions in an attempt to reduce the negative impacts of digitization on the economy (PWC, 2019).

Chapter 1 provided context on the research study formulation; it introduced the research problem that will guide the research. It introduced the proposed research methodology that will enable the research into the education system for the new world of work. This chapter will focus on the research problem analysis and the identification of the knowledge gap; thereafter a framework will be developed to interpret the research findings. The chapter further includes supportive literature that will be used to highlight the areas identified for future research and challenges of the current shortcomings going forward. The framework used to interpret the research finding is the quantitative framework

2.1 Research problem analysis

The world of work is constantly changing, and the education system is not able to quickly adjust and prepare learners fast enough. The system struggles to meet its primary objectives and is therefore not able to make an impact into training for the new world of work (Wolhuter, 2014). This is a concern as only 20% of the employed population in South Africa holds a tertiary qualification; a growing economy needs qualified workers (Rocco TS & Plakhotnik MS, 2009).

There has been a clear shift in the education and skills required for the last few years, organizations are looking for tech savvy leaders and employees (Stubbings C "et al", 2019). At every level in the organization, people are needed that can harness innovative thinking , from systematic thinking to systems and tools and best fit for the business needs (Stubbings C "et al", 2019). Organizations are concerned on how the lack of the required skills impacts business performance, CEO's focus on reskilling and workforce rebalancing. Today's jobs are unbundled into tasks that can be automated as reskilling remains a complex task (Stubbings C "et al", 2019). Upskilling should not only focus on classroom training for technical skill but

should look at changing behaviors and encouraging people to innovate and be creative in their problem solving abilities (Stubbings C "et al", 2019)

Technologies bring opportunity for business improvements and efficiencies, yet organizations have skills shortages as their workforce in many instances lack the necessary education and skill to effectively manage business operations (Stubbings C "et al", 2019). The education system should keep up with the accelerating pace of technological disruption that is currently transforming industries and business models. This will result in a shorter shelf life of employees with the skill sets in the process (Bughin "et al", 2018).

The education system in South Africa shows that there are two sets of schools in the public sector that operate on different levels based on the suburb that the school is in (Spaull, 2013). The questions therefore remain that if both public schools in the same province yield different results, then what is the root cause of thereof (Spaull, 2013).

Academic outcomes must be achieved as this is the vehicle through which societies reproduce themselves, the inputs and outputs in the education system could be no more than the set of ideas on how a society is structured and should be structured for the future (Modisaotsile, 2012). The government cannot bring about the change required in the education system alone, it needs society and the private institutions to do their part in ensuring the education system delivers on its basic mandate in order for it to move beyond quality education and to education for the future (Modisaotsile, 2012).

The South African education system seeks to improve the overall matric and undergraduate completion rates in the country (Shay, 2016). The chances of successful completion of higher education should not be determined by the student's background. The learner's background should not interfere with their chances of success. Education is a tool that enables transformation,

meaning all learners should be granted equal opportunity to education (Shay, 2016).

The unemployment rate for African individuals with a tertiary qualification continues to increase from 2002; this has also seen the unemployable number increase drastically. The unskilled workers that have little to no education will probably never get a job while those who are older with low levels of education are also less likely to obtain a job in their lifetime (Bhorat, 2004). The unemployed also includes better-educated young participants whose skills do not match the labour supply characteristics.

The participant's current labour supply characteristics do not match with the labour demand needs of the economy. This led to the creation of the SETA's whose brief is to ensure that the supply characteristics of workers is upgraded through the process of education and training, in a manner that meets with firms' labour demand needs (Bhorat, 2004)

The South African working age population is set to increase drastically in the year 2030, this is amidst the 41% of all work that can be automated in South Africa (Samans, 2017). Companies have already identified inadequate skilled workforce as one of the major business constraints, this pattern is said to be on the increase in the future (Samans, 2017). The skills instability is as a result of jobs becoming more intense in the use of digital technologies. The ICT jobs in South Africa increased by over 26% in the last decade. The World Economic Forum have found that the educational skills gap in subsharan africa system need to close the skill gap as technological market disruptions are likely to take over jobs from skilled workers (Samans, 2017). The fourth industrial revolution will result in major disruptions in the labour market, the country thus face the challenge on where to invest and in which skillset base.

The education system is continuously faced with questions on how they should respond to changing careers. Moreover, while the specific scenarios change the basic themes remain the same. This includes the

curriculum and its structure by the various disciplines or by professional areas (Teichler, 2008). It's the higher education's institutions core deliverable to ensure learners are prepared with the necessary skills for the future workplace, this goes beyond technical skills as it also includes behavioral and mind set change skills (Teichler, 2008).

The concern is widened by concerns that African countries are not developing as fast as their international counterparts are, this could result in a large-scale emigration of highly skilled human capital (Condy, 2015). There is dysfunction across the education value chain, the interdependence of the tertiary, secondary and primary education remains one of the largest challenges facing the country (Condy, 2015). The high dropout rate and the graduation rate of less than 22% for a three year generic Bachelor's degree was one of the lowest in the world in 2010 (Condy, 2015).

The education system should pave the way for graduates to contribute to economic development (Moloi, 2007). (Magwentshu "et al", 2019) indicate that digitization could result in a net gain of more than one million jobs by 2030. Tech-enabled jobs will require higher skills , resulting for an additional 1.7 million graduates (Magwentshu "et al", 2019).

The research seeks to investigate solutions for learners to gain access to career counseling that will equip them with knowledge on how to plan a career and at the same time understand that the workplace is ever changing (M Watson, M McMahon, 2009). Future jobs will require formal education and in order to stay employable an education system is required that will fully prepare learners to contribute positively to the economy.

2.2 Research knowledge gap analysis

The education system, innovation and training are key to the long-term development of South Africa's development. Education does not solve the problems in a society, but it is a solution to provide skills to solve problems

eliminate poverty and reduce inequality (NDP, 2011). The higher education system remains a main driver of knowledge and information. Universities train and educate people with skills required for employment for the public and private sector. They are required to encourage innovation and technological shifts that are required for solving present day challenges. This research focus on identifying the skills required for the future employee and with the means of a strategic management process start implementing that change. The country should improve its investment in the education system (Magwentshu "et al", 2019).

Previous research indicated that quality workers is a massive prerequisite for economic transformation (Boateng, 2015). A predefined curriculum needs to diminish and focus should be on the importance of creativity and open dialogue to prepare learners for an unpredictable environment. The challenge to overcome in the education sector is the removal of the narrow focus on examination instead of practical orientation and problem solving (Boateng, 2015).

Resources have been pumped to modernise education systems, reformers should realise that it is not the education system that needs fixing but the education that it provides (Chikoti, 2018). The Centre for Curriculum Redesign layed down the competencies needed for the 21st century , and confirm that it's a joint effort between educators , policymakers and learners (Fadel, 2015). The Economic Co-operation and Development (OECD) stated that training and education cannot be directly correlated with the acquiring of particular skills by the labour market. Universities focus on theoretical preparation instead of practical , therefor with the increased access to higher education there is an increasing number of under-employed (Schleicher, 2018).

The Finland education system (Habib, 2016) ranks high in competitiveness and the human development metrics because of the differentiated metrics and responsibilities of each institution. In their independence they are still connected and can respond nationally and globally (Habib, 2016). The statistics according to the African Centre for Economic Transformation

(ACET) in 2009 indicated , Germany had 53,2% enrolment in TVET colleges , Finland had 55,1% , Ethiopia 59,5% , Ghana 13,2% and South Africa 9,7% (Essel, 2014). (Fadel, 2015) describes the future as volatile , uncertain , complex and ambiguous (VUCA). The trends and risks continue to shift in ways that's difficult to predict , yet learners continue to study the same curriculum (Fadel, 2015).

The South African population is growing rapidly and failure to tackle the educational and skills development could lead to political and social unrest , thus the need to look at an incentive for reskilling that will enhance productivity and promote innovative-driven growth (Boateng, 2015). Previous research indicated that over 25% of adults surveyed by OECD revealed a mismatch between current skills and their job specification (Schleicher, 2018). The education system should change as the workplace changes , the educational solutions for the third industrial revolution are still in place in the fourth industrial revolution (Fadel, 2015). The research seeks to provide guidance to learners and academic institutions on how to educate for the future.

The research by (Psacharopoulos, 2011) indicated that countries that sustained high growth for long periods put substantial effort into schooling learners and deepening its human capital. The employment trends indicate limitless opportunities for new emerging job categories and categories that will improve the overall productivity for individuals (Schwab, 2016). Although there is strong diverse views on this , ultimately the actions of today will determine if the change will result in displacement of workers or new opportunities (Schwab, 2016). Urgent targeted action is required to build a workforce with futureproof skills , else government will have to manage with increased unemployment and inequality (Schwab, 2016). In a country where the youth unemployment is already high , government must introduce policy suggestion to address education challenges (Spaull, 2013). The low-level equilibrium that the country finds itself in has its roots in the apartheid regime of institutionalised inequality , this does not absolve the current administration from the responsibility of providing quality education to all South Africans. The

substandard education reinforce social inequalities and denies individuals from dignified employment (Spaull, 2013).

The education systems rapid expansion over the last 50 years has been characterised as a shift from elite to the massified , and the assumption is that as the system expands it becomes more accesible to previously excluded groups (Shay, 2016).The student protests of 2015/16 from #RhodesMustFall to #FeesMustFall explores the feasilbilty of fee-free higher education and training , which brings the sector at a crossroad as the funding thereof remain a challenge (Shay, 2016).

A further challenge identified as a 21st century skill is the role of mathematics education for the society for the future.Mathematics education should be considered within the context of STEM education (Koeno G "et al", 2017).Mathematics affects computerization and vice versa , and it is also done by machines.It will have an impact on future job requirements and on mathematics that individuals should understand for a digital world (Koeno G "et al", 2017).The research indicates that in the new world of work , work will be less about “using” technology and more about “interacting” with technology (March & McLennan, 2017). Individuals should not only have the specific technical skill for a role but also the capacity for adaptability , commercial accumen in order to identify innovative application opportunities (March & McLennan, 2017).

The world is changing , this in itself brings challenges e.g. environmental as the climate change and the depletion of natural sources require urgent action and adaption (Schleicher, 2018).The global trends are affecting individual lives and unless steered with purpose the advancement of science and technology may widen ineqaulities (Schleicher, 2018). South Africa need to strenghten the research excellence through performance based grants , financial assistance to individuals to further educate themselves is made available by the government (Schleicher, 2018). Individuals should be given an opportunity to contribute positively to the growth of the economy (Boateng, 2015).

The research indicates that counselling approaches in academic institutions in South Africa can meet challenges posed by an evolving global world if fairly distributed (Maree J. G., 2009). Career counsellors have an important integrating role in the effective planning of a learner's career in an environment where new skills sets are constantly required (Maree J. G., 2009). Counsellors should move away from the use of psychometric tests only, individuals' social and historic background should be assessed.

The reality with career counselling is that negotiating and obtaining life-long agreements with one employer is becoming a rarity for many. Work security and stable work-related structures are disappearing and the focus is moving from finding work to lifelong learning and becoming employable (Maree J. G., 2009). Organizations need flexible individuals who can effectively manage change and adapt to new organizational goals, this is career self-management (Neault, 2002). This is an ongoing process that continues in the workplace as it benefits the organization when personal career goals are linked to the needs of the employers (Neault, 2002).

The field of career counselling in the 21st century has witnessed an awareness of the use of western and individualistic theories and models, and have called for models that are culturally sensitive (M Watson, M McMahon, 2009). Enhanced career development for tertiary students is recognised as a core function of student counselling services and is related to issues such as increased access and retention of students (M Watson, M McMahon, 2009). Counselling approaches should be holistic, culturally sensitive and contextualised. Tertiary learners should be encouraged to focus on their personal strengths, systematic barriers and linking their life stories to their career choices (M Watson, M McMahon, 2009).

Career counselling empowers individuals to take an active approach towards their career development, access should not be restricted as it is not a privilege but rather a necessity for the future world of work (Pillay, 2020). The fallout of poor career decision making does not only affect the individual it has economic impact for families and the nation (Pillay, 2020). One cannot

see the impact of the future , career counselling at an early age leads to individuals reaching their full potential and fulfill their career goals (Mutneja, 2021).

The National Development Plan's vision for the country is to help people develop their skills as this is part of a sustainable strategy to eradicate poverty , training , education and innovations are central to this (NDP, 2011).The research has shown that highly educated and trained individuals have better chances in the labour market and can participate in the knowledge-driven economy of the future (NDP, 2011).

Organizations have a role in society , they can make investments in educational initiatives in their communities.Although there is isolated examples on the topic of reskilling we need broader engagement and collaboration between private and public sectors (PWC, 2019). Jobs are the cornertstone of our economic and social lives , they give people meaning and a chance to make contributions in society.The new world of work requires individuals , educators , business and policy makers to respond appropriately (Hasan Bakhshi "et al", 2017).

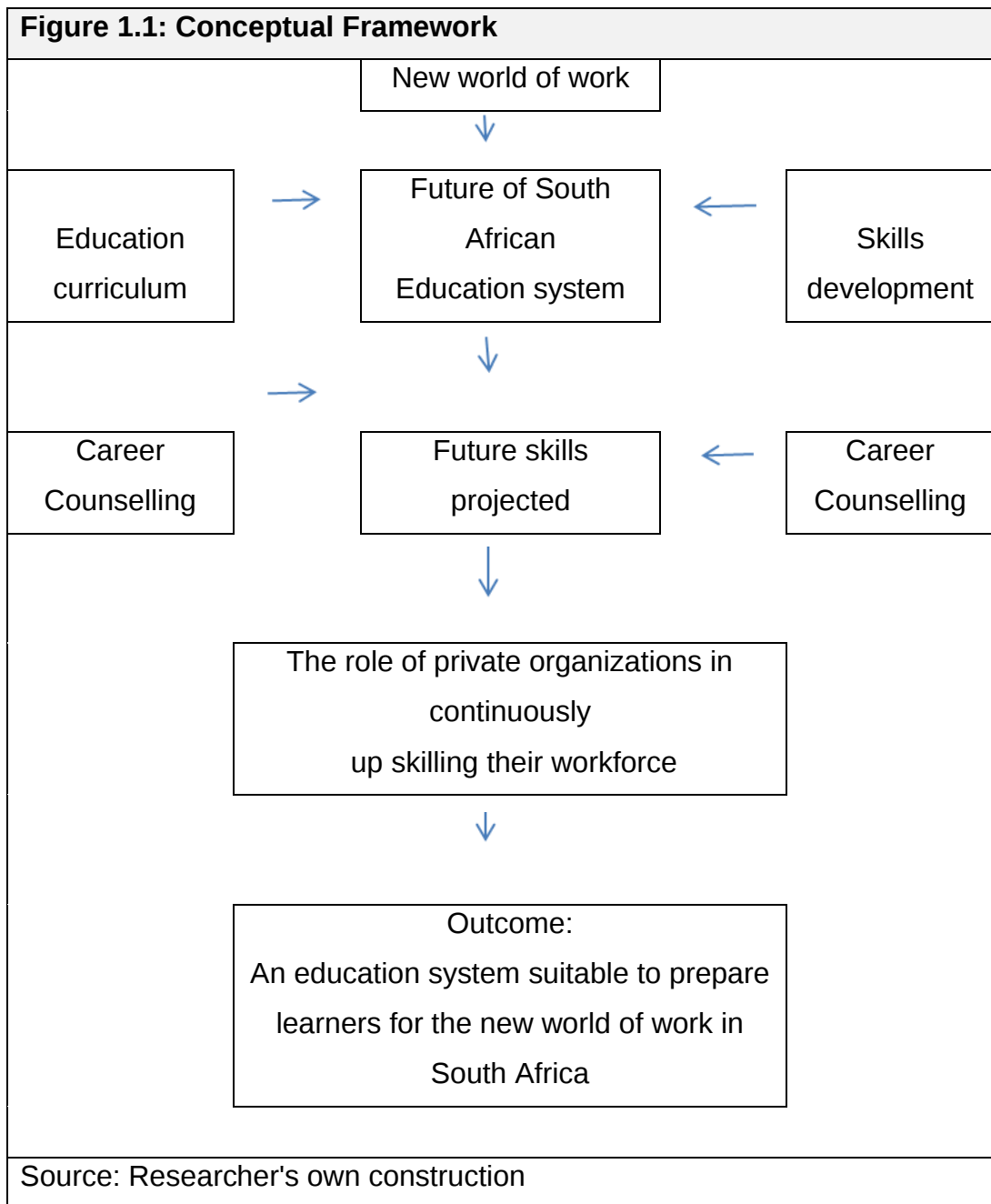
2.3 Qualitative attributes or quantitative variables key to the research

This research explores the need for the future world of work skills requirements and whether the South African education system is prepared to educate learners on future work skills. There are multiple scholarly literatures on the education system that highlights its challenges and poor performance in comparison with international education systems. The sub-standard quality of the education provided to the youth of South Africa has severe economic consequences for those impacted. To the point that the economic prospects of the youth appear to be deteriorating over time (Spaull, 2013). The unemployment rate being 29.1% in 2019 (SA, 2020), during a period that is seeing digitization and increased automation raises concern about the skills required for the future and the skill set of the unemployed youth in the country.

Automation will continue to accelerate, and the research indicates strongest growth for the technological skills. This surge will affect the demand for basic digital skills as well as advanced technological skills such as programming (Bughin "et al", 2018) The demand for emotional and social skills such as managing others well will continue to rise , and will include the demand for higher cognitive skills which includes creativity (Bughin "et al", 2018). The basic cognitive skills will be less in demand, such as data capturing. This will result in increased competition for high skilled workers while the low skill workers continue a trend of income inequality and reduces middle- wage jobs. Companies will need to collaborate with educators and reshape learning in order to ensure the necessary skill sets are available (Bughin "et al", 2018)

2.4 Framework(s) for interpreting research findings

The literature review done will develop a conceptual framework for the research topic. The literature review will connect the multiple frameworks to support the research findings (Rocco TS & Plakhotnik MS, 2009).The literature review and both the conceptual and theoretical frameworks will be used to explore the following functions , to build a foundation for the research , to demonstrate how the research advances knowledge , the conceptualise the research , to assess the research design and instrumentation and to reference point for interpreting the research findings (Merriam & Simpson, 2000). The literature review will connect the problem to the purpose of this respective topic.



The variables in determining the preparedness of the education system is the tertiary curriculum, the research will test if robotics and machine learning formed part of the curriculum for the new world of work. It will investigate if a mismatch exists between the formal education and the present job specification.

It will further investigate the career counselling received to determine if this was motivated by employability, future careers or personal preferences.

The research will investigate and discuss the training offered internally by employers to determine the employability of an individual and their individual needs to study further.

2.5 Summary and conclusion

2.5.1 Summary of literature reviewed

The research findings seek to address the skills required for the future world of work. South Africa's unemployment rate is on the increase, and many graduates are faced with the harsh reality of not finding employment (Spaull, 2013). Educational outcomes are not only about employability but also about the process equipping an individual to solve problems in society and have the ability to navigate and survive during challenging times (Magwentshu "et al", 2019).

Scarce skills remain a concern for top CEO's as their businesses advance they need top talent to assist them in moving their organizations further (Stubbings C "et al", 2019). The government SETA programs should be more accessible to the public in developing specific skill. In a country with high unemployment, this is testament of the general lack of skills in the current work force (Schleicher, 2018).

Education core outcomes should equip learners to be employable and entrepreneurial in the future (Daniels, 2007). Future careers require new and logical thinking, which require a school curriculum review that enforces mathematical abilities (Spaull, 2013). The challenges of the future will require this ability in order to solve problems (Magwentshu "et al", 2019).

Strategic management in the corporate environment has seen many companies progress from closing doors to being highly profitable (Shay, 2016). This process can assist by bringing the changes required in the education system needed for the future world of work.

2.5.2 Proposed research strategy, design, procedure and methods arising from the literature reviewed

The conceptual and theoretical frameworks will be used to unpack the research design and will look at the current state of the education system with a focus on exploring what is required to move the education system from not delivering on its mandate of delivering quality education. The education system should move towards education for the future and providing an education to the future world of work candidate.

Previous research by (Chikoti, 2018) for the skills development for South Africa paper used the mixed methods approach. This approach allows for contradictions between quantitative results and qualitative findings, this paper will use the quantitative approach as it allows for a higher sample size and the information is anonymous which has the benefit of reliability. The quantitative research approach further allows for providing data that is descriptive which will be useful in the research.

In the previous chapter, the literature review had developed an interpretative as well as conceptual framework that will guide the choices of techniques used in this research proposal. The research followed a conceptual and quantitative approach, which was determined by the aim of the research and the use of the findings (Kumar, 2011). The quantitative approach follows the structured data collection process (Kumar, 2011). Chapter 3 will consist of 5 main sections, section 3.1 will discuss the chosen strategy, section 3.2 will discuss the chosen research design, and section 3.3 will discuss the procedure and methods used. Section 3.4 will focus on the ethic components and lastly section 3.5 will discuss the administrative and technical shortcomings.

3.1 Research strategy

Research strategy is the general orientation to the conduct of the social research, it is an overall plan used to conduct a research study and is employed with both quantitative and qualitative research methods (Bryman, 2012). Quantitative and qualitative research differ with respect to their epistemological foundations, quantitative research use the ordinal scale and applications of statistical procedures while qualitative use the responses from individual that cannot generally be measured in statistical terms (Kumar, 2011). The mixed method research uses combined qualitative and quantitative methods (Bryman, 2012). This research proposal makes use of the quantitative research method as it aims to measure a wide variety of concepts and can bring about meanings in research. Quantitative research plays a significant role in determining relations and constructing a stance (Bryman, 2012). Quantitative research aims in certain occasions to engage with an interpretivist stance. The use of the quantitative research method further is the defined and established structures and methods of data collection, the concepts of validity and reliability and the methods to determine them are well developed (Kumar,

2011).The research report is thus committed to the quantitative research strategy.

The research article “The Tertiary Education Institution of the Future Towards 2030: Scenarios for Skills Transformation used the quantitative research strategy. The objective of this research report was to improve the readiness of the tertiary education by understanding the drivers of the change that will lead to alternative future scenarios. The benefit of using this research strategy was the practical outcomes determined by the research and guidance for future decision makers in the education system. This research report will use the quantitative research strategy to build on the shortcomings and future research findings in the previous mentioned article, as the aim is to move closer to practical implementation steps that can assist the education system to start their preparedness for the future world of work.

3.2 Research design

The research design is a framework for the collection and analysis of data (Bryman, 2012).It reflects decisions regarding the priority being given to a wide range of dimensions of the research (Bryman, 2012).There are various methods that can be divided into three sections namely study locations, the questionnaire survey and the focus groups (Bryman, 2012).There are five generic research designs, namely cross-sectional, longitudinal, case study, comparative, and experimental (Bryman, 2012).. The research design committed to be used in this research is the questionnaire survey, as it will allow for anonymous and honest feedback. The article “The Tertiary Education Institution of the Future Towards 2030: Scenarios for Skills Transformation used questionnaire surveys to obtain information from organizations and educational staff and it was successful. This research has used the questionnaire to collect the data to determine the readiness of the education system for the new world of work. To further explore the effectiveness of career management for the new world

of work and to determine if organizations are doing enough to up skill and reskill their employees for the future workplace.

3.3 Research procedure and methods

The research method is required to collect data; analyse it and include the interpretation thereof. This research will use the questionnaire survey to collect data. Good research standard practice is followed and the ethical considerations in this process have been considered (Bryman, 2012). The research procedure and method is aimed at gathering as much data as possible to answer the research question and assist in solving the research problem (Creswell, 2014).

The researcher then had to clean the data; by cleaning the data columns that were blank were assigned a value using a statistical method to avoid blank records. There are different ways in quantitative research strategy to analyze the data; descriptive statistics was used in the research report. The data set was fed into a statistical package for social sciences (SPSS) version 27. The statistical tests used was cronbach alpha to test reliability, principal component factor analysis using Varimax rotation method with Kaiser Normalization to check for validity.

The sample input data file had 70 respondents, after cleaning the data only 67 respondents remained, which are all employed working in both the public and private sector. The respondents received the questionnaire with 27 scale items, the researcher ended up using only 25 scale items to improve the reliability of the model.

The questions were grouped into the variables that were measured namely , did your tertiary education prepare you for the world of work , how effective is career managements in academic institutions and is the private sector preparing employees to operate successfully in the new world of work

3.3.1 Research data and information collection instrument(s)

The observation schedule is a process by which a form is prepared prior to data collection , to ascertain certain structured outcomes (Creswell, 2014).It records how much time is generally spend on activities and includes the frequency (Bryman, 2012).

The research commits to a survey questionnaire and the journal article that use this method was the PWC Talent Trend Up skilling Report (Stubbings C "et al", 2019).The benefit derived from the research was data collected from CEO's in various organizations could give input into the business impact of skill shortage that led to a trend which was addressed (Stubbings C "et al", 2019).

The research results will be measured for internal reliability , Cronbach Alpha at 0.8. To further improve the reliability of the data the questionnaire will ensure that respondents have been employed for at least twelve months at the time of the of completing the survey (Creswell, 2014).

3.3.2 Research target population and selection of respondents

3.3.2.1 Research target population

The research identified a target population of participants to participate in the research data collection process (Creswell, 2014). The target population in this research is participants that are employed in both the private and public sectors and have completed various education levels. They are active participants in the corporate sectors.

The McKinsey and Company has used similar approach in their research the future work of South Africa, Digitization, Productivity and Job creation (Magwentshu "et al", 2019).The research related to the the future work in South Africa and a specific focus was applied to the organizations that require specific skills in their organizations for future careers.It highlighted the role of digitization and the impact it will have an individuals should they not increase their skill level and cognitive abilities in the future. The benefit was

that the result gave clear indication on where the education system should support in the change in curriculum to ensure learners are ready for the new world of work (Magwentshu "et al", 2019)

The benefit for this research will be the target population is active in the environment where the research was done, therefore their expertise will allow for greater insight into the private and public sector.

3.3.2.2 Sampling or selecting respondents from the target population

According to (Kumar, 2011) sampling refers to a few people from a larger group.

The article that used was the research that focused on the The South African Education in Crisis: The quality of education in South Africa (Spaull, 2013).

The research was done with learners in specific primary and secondary schools in poor communities, and it was measured against the outcomes of learners in wealthier suburbs in South Africa. The research indicated that irrespective of the grade chosen most children were performing significantly below the standard curriculum. (Spaull, 2013). The learning deficits that learners acquired in primary school grow over time and the results in evident in subjects like mathematics (Spaull, 2013). The benefit of this sampling method is that it allows for input from affected individuals that can give input in the resolution of this problem. The data collecting method that will be used is the questionnaire survey.

The survey was sent to over one hundred participants and was closed when 70 responses was received.

The sampling strategy was guided by predetermined sample size that was based on a margin of error of 5% and a confidence level of 90%.The suggested statistical sample size is therefore 68.

3.3.3 Ethical considerations when collecting research data

This research will follow the ethical process as stipulated by Wits Business School. The integrity is the responsibility of the researcher. The research report received ethical approval by the Ethics Committee of the Wits Business School.

All participants were assured that no sensitive information will be disclosed, and they will be allocated profile numbers in order to stay anonymous. The responses were stored in a password-protected application and were not shared with anyone. The information they provide will remain confidential.

The information received from participants was not treated in an unethical manner, it was collected for the purpose of the research and the participants remained anonymous. The researcher avoided any biases in the collecting of data in that the participants were selected based on being employed and having a tertiary education.

The researcher was sensitive to the ethical standards that needed to be complied with in the data collecting process as well as in the analyses process. This was to ensure that the research had no unintended consequences other than answer the research problem statement.

The research ethical standard was always adhered too as participants responses was voluntary following their consent to participate in the survey.

3.3.4 Research data and information collection process

Data collection is the process of collecting the actual data from the participants (Kumar, 2011). There are two types of data namely primary and secondary data (Bryman, 2012).Primary data are collected afresh and is in its original state, secondary data have been collected and modified by someone (Bryman, 2012). There are four modes of data collection and

these are participant observation , interviews , focus group discussions and making use of documents.

A questionnaire was created on qualtrics platform and the link was sent to respondents via email. The researcher was able to access answers as qualtrics require a username and password to log in and view all responses. The data was retrieved from the qualtrics platform and exported into a password protected excel sheet for processing.

3.3.5 Research data and information processing and analysis

The next steps after data collection are to process and analyse the data. The data processing process includes the coding, editing, tabulation and classification of the data in order to get it ready to be processed (Kothari, 2004). All responses for statistical reasons were coded into numbers for statistical processing purposes i.e. a number was assigned to all responses. The data set was cleaned i.e. columns that were blank were assigned a value using the appropriate statistical methods to avoid blanks in the research records.

Quantitative research strategy has several ways in which data can be analyzed. Some of the methods that can be used are cluster analysis, regression analysis and content analysis. This research employed the descriptive statistics analysis method. The data was uploaded into Statistical Package for Social Sciences (SPSS) version 27 computer application and several statistics were generated and used for analysis.

3.3.6 Description of the research respondents

The research respondents were all employed in both private and public sector industries; they were all employed for a period of over twelve months. The industries include financial service, education sector etc. For this study, the focus was on respondents that have obtained tertiary education at any level and of any ethnic group, gender and religion. Respondents were all at different levels in their careers i.e. specialists, mid management level and

senior management positions. The respondents received the questionnaire via email and were under no obligation to complete it. The questionnaire was completed on a voluntary basis.

3.4 Research strengthens—reliability and validity measures applied

Reliability is concerned with the issues of consistency of measures and can be tested by doing the test-retest method (Bryman, 2012). The importance of these two functions is to ensure that the responses are reliable in the research (Bryman, 2012). Validity and reliability estimates reduce the error associated with the outcome of using a certain research instrument (Streiner D, & Norman G, 2008). The validity can be measured in a number of ways and there are four types of validity namely measurement validity, ecological validity, internal and external validity (Shuttleworth, 2008).

There are different methods used to test reliability, some of the methods are alternative, split halves and internal consistency (Shuttleworth, 2008). Reliability and validity are important in any research as they inform us that the research results are trustworthy and credible (Onen, 2016). This research used the principal component factor analysis with Varimax rotation method which includes normalization to check for validity. Cronbach alpha was used to check for internal reliability. Cronbach alpha is a coefficient between 0 and 1, a value above 0,7 is acceptable in statistics and confirms the reliability of the scale (Kothari, 2004).

3.5 Research weaknesses—technical and administrative limitations

The inherent weakness of any research methodology is when it's used in isolation, the mixed research methodology is not superior to research that employs a single research strategy but does provide additional information (Bryman, 2012).

This research study had limitations, it focused on various industries and respondents were at different levels in their career paths. Therefore the findings of this research can be generated for organizations in South Africa. The research strategy is quantitative, and respondents do not give

additional information as to why they are making certain choices. The study design looks at data at a specific point in time. There were some respondents that did not answer all the questions in the questionnaire and the quantitative research strategy requires all questions to be answered.

3.6 Conclusion

Chapter 3 has presented the research strategy, design, procedure and methods that are utilised in the next chapter to present the results. The research strategy used for this study is quantitative research methodology. A questionnaire was used as a data collection instrument, the Qualtrics platform was used to gather data and a website link was sent to the respondents to access the questionnaire. The target population for this study were employed individuals from both private and public institutions.

The sampling strategy was guided by predetermined sample size that was based on a margin of error of 5% and a confidence level of 90%. The suggested statistical sample size is therefore 68. The survey was closed when 70 responses were received.

A sample of 70 was obtained and that gave a confidence level of between 90% and 95%. Data was imported using Microsoft excel, it was then cleaned and fed to an SPSS computer program to run several statistics tests. Cronbach Alpha was used to test for the questionnaire's internal reliability and Principal component factor analysis using Varimax rotation method with Kaiser Normalization was used to check for validity.

4 PRESENTATION OF RESEARCH RESULTS

The primary objective of this study is to determine the readiness of the education system to prepare learners for the new world of work. The second objective is to determine the effectiveness of career counselling for the future in academic institutions. Lastly, the research will determine if enough is being done in private institutions to ensure their workforce is prepared for the new world of work.

The previous chapters included the research strategy, design methods and procedure that have been used in this study to gather and process the data. This chapter 4 will present the results of the research with the use of statistical tables that will indicate the readiness of the education system and also illustrate the importance of informed career guidance and ultimately the responsibility of private institutions role of ensuring they continue to upskill their workforce. The researcher will make use of descriptive statistics and correlation analysis.

The first research question (Section 4.1) - The preparedness of the education system to educate for the new world of work, this discussion is accompanied by its hypothesis that the education system fail to deliver quality education to all South Africans how will it deliver education for the new world of work. Section 4.2 will discuss the effectiveness of career management in academic institution and lastly Section 4.3 will discuss the role of private institutions in skills development of their workforce to prepare them for the new world of work.

4.1 The readiness of the South Africa's education system to educate learners for the future.

The education system has many flaws and many attempts have been made by the government to improve the quality of education received in South Africa. The country is facing a new challenge, this is the fourth industrial revolution, and how the education system can

deliver education that will equip learners for a new digital world. The variables used were if tertiary institutions prepared learners to function successfully in their current roles, did their curriculum include digitization, robotics and new age technological subjects as well and lastly if their current industries went through automation in the last five years and can they adapt.

4.1.1 Presentation of the empirical research results

This section presents the empirical results to determine the readiness of the education system for the new world of work. The measurement for the effectiveness of career management for the new world of work and the results from the private organizations efforts to up skill and reskill their employees for the new world of work.

The survey was sent to 100 recipients employed in both the private and public sectors. The sample input data file had 70 respondents, after cleaning the data only 67 respondents remained. The respondents received the questionnaire with 27 scale items, the researcher ended up using only 25 scale items to improve the reliability of the model and it yielded a Cronbach alpha of 0.721

4.1.1.1 Descriptive statistics

The questionnaire consisted of 27 scale items, which included biographic information and it requested answers to the research questions. The questionnaire questions used a 5-point Likert scale that ranged from 1 to 5 after coding. The researcher used 25 of the questions to improve the overall consistency of the questionnaire that was distributed. In descriptive statistics Cronbach Alpha is the most commonly used measure of internal consistency of a certain measurement instrument and it ranges between 0 and 1, a result closer to 1 deem the measurement instrument to have high reliability (Merom, D., & John J.R., 2018). The below table show a Cronbach Alpha coefficient of 0,721 was obtained.

Table 4.1.1 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,726	0,721	25

The below mentioned questions forms the basis of the research and as such the variables will be used to test the alignment with hypothesis that aims to determine the readiness of the education sector for the new world of work.

Table 4.1.2 Component Matrix ^a		
	Component	
	1	2
Question 10 - Your academic institution provided courses relevant for the new world of work	0,467	0,476

Question 12 - Did your tertiary education equip you for your current role	0,313	0,777
Question 13 - Was digitization part of your curriculum in your tertiary studies	0,714	- 0,170
Question 14 - Was artificial intelligence and robotics part of your curriculum in your tertiary studies	0,799	- 0,237
Question 15 - Was robotics and machine learning part of your curriculum in your tertiary studies	0,791	- 0,364
Question 16 - Did your curriculum at tertiary level focus on soft skills for the new world of work	0,750	0,178

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

4.1.1.2 Statistical hypotheses testing

The question 12 scored a 0.313, this loading factor is far from 1 therefore cannot be seen as a strong correlation. The results indicate that although

learner curriculum at tertiary level is inclusive of technological subjects the actual preparation to function in their roles in a corporate setting lack.

Table 4.1.3 Correlations			
		Question 12	Question 10
Question 12 - Did your tertiary education equip you for your current role	Pearson Correlation	1	0,185
	Sig. (2- tailed)		0,158
	N	60	60
Question 10 - Your academic institution provided courses relevant for the new world of work	Pearson Correlation	0,185	1
	Sig. (2- tailed)	0,158	
	N	60	60

Table 4.1.4 Levene's Test of Equality of Error Variances^{a,b}					
		Levene Statistic	df1	df2	Sig.
Question 12 - Did your tertiary education equip you	Based on Mean	0,297	2	57	0,744

for your current role	Based on Median	0,231	2	57	0,794
	Based on Median and with adjusted df	0,231	2	55,095	0,794
	Based on trimmed mean	0,315	2	57	0,731

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Question 12

b. Design: Intercept + Q11

Table 4.1.5 Responses on how tertiary education prepared individuals

Response	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Yes	53.73%	61.19%	53.73%	22.38%	16.41%	8.95%	34%
Maybe	26.86%	17.91%	22.38%	2.98%	5.97%	10.44%	20.89%
No	13.43%	8.95%	13.43%	28.35%	37.31%	38.80%	34.32%

Table 4.1.5 shows the percentage responses for the following questions or statements:

- Your academic institution provided you with courses relevant to the new world of work
- Your course curriculum was relevant to the practical way of work in your current industry
- Did your tertiary education equip you for your current role
- Was digitization part of your curriculum in your tertiary studies

- Was artificial intelligence and robotics part of your curriculum in your tertiary studies
- Was robotics and machine learning part of your curriculum in your tertiary studies
- Did your curriculum at tertiary level focus on soft skills for the new world of work

4.2 The effectiveness of career management in academic institutions

4.2.1 Presentation of empirical research

4.2.1.1 Descriptive Statistics

The input data file consisted of a sample of 67 respondents out of a population file of 70; the study was made up of 49.25% males and 50.75% females. 49% were aged between 35 and 44 year olds followed by respondents aged 25 until 34 year olds. The descriptive statistics below provide the variables for the research being done for skills for the new world of work.

Table 4.2.1 Descriptive Statistics		
	Mean	Std. Deviation
Question 9 - Are you familiar with the skills required for the new world of work	1,31	0,595
Question 11 - Your course curriculum was relevant to the practical way of work in your current industry	1,39	0,670
Question 26 - Is leadership development part of the training required for the new world of work	4,41	0,967

Question 27 - Is education for the new world of work a solution for the self-employed in the country	4,20	1,013
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4.2.1.2 Statistical hypotheses testing

4.2.2 Descriptive Statistics		
	Mean	Std. Deviation
Question 6 - Your career guidance was influenced by the new world of work	2,92	1,306
Question 7 - Your choice of studies was influenced by future roles	3,57	1,320
Question 8 - Your choice of studies was influence by employ ability	1,50	0,792
Question 19 - Skills required for the new world of work can only be thought at tertiary institutions	2,17	1,330

Table 4.2.3 Correlations			
		Question 6	Question 7
Question 6 - Your career guidance was influenced by the new world of work	Pearson Correlation	1	.426**
	Sig. (2-tailed)		0,000
	N	65	65

Question 7 - Your choice of studies was influenced by future roles	Pearson Correlation	.426**	1
	Sig. (2-tailed)	0,000	
	N	65	65

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4.2.4 Responses on career counselling

Response	Q6	Q7	Q19
Neither Agree nor Disagree	11.94%	5.97%	10.44%
Somewhat Agree	32.83%	47.76%	4.47%
Somewhat Disagree	20.89%	5.97%	28.35%
Strongly Agree	7.46%	20.89%	10.44%
Strongly Disagree	2.98%	16.41%	35.82%

- Your career guidance was influenced by the new world of
- Your choice of studies was influenced by future roles
- Skills required for the new world of work can only be thought at tertiary institutions

The statement question, your choice of studies was influence by employ ability was answered as per below:

Table 4.2.5 Response on employability

Response	Q8
Yes	68.65%
Maybe	11.94%
No	16.41%

4.3 Private institutions role in up skilling their workforce for the future

4.3.1 Presentation of empirical research

4.3.1.1 Descriptive Statistics

Table 4.3.1 Descriptive Statistics		
	Mean	Std. Deviation
Question 17 - Does your current employer offer training for advance cognitive skills training	1,98	1,033
Question 18 - Are you aware of any new age skills training that your employer is offering internally to staff	2,15	1,022

4.3.1.2 Statistical hypotheses testing

Table 4.3.2 Correlations			
		Question 17	Question 18
Question 17 - Does your current employer offer training for advance cognitive skills training	Pearson Correlation	1	.500**
	Sig. (2-tailed)		0,000
	N	60	60
Question 18 - Are you aware of any new age skills training that your employer is offering internally to staff	Pearson Correlation	.500**	1
	Sig. (2-tailed)	0,000	
	N	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4.3.3 Responses to private institutions role in ups killing their workforce

Response	Q17	Q18
Maybe	13.43%	4.47%
No	28.35%	44.77%
Probably not	5.97%	2.98%
Yes	37.31%	37.31%

- Does your current employer offer training for advance cognitive skills training
- Are you aware of any new age skills training that your employer is offering internally to staff

4.5 Summary and conclusion

The sample input data file had 70 respondents, after cleaning the data only 67 respondents remained, which are all employed working in various industries. The respondents received the questionnaire with 27 scale items, the researcher ended up using only 25 scale items to improve the reliability of the model and it yielded a Cronbach alpha of 0.721.

The questions were grouped into the variables that was measured namely , did your tertiary education prepare you for the world of work , was enough research done to identify skills for the new world of work , how effective is career managements in academic institutions and is the private sector preparing employees to operate successfully in the new world of work.

This chapter presents an interpretation and analysis of the research findings that were presented in Chapter 4. Section 5.1 will provide the background and nature of the nature of the study. This research study has three questions; Section 5.2 will discuss the findings on the readiness of academic institutions to educate learners for the new world of work in South Africa. Section 5.3 will discuss the effectiveness of career management in academic institutions. The researcher will assess if career management can lead to improved career choices for future roles. The last research question will be discussed in Section 5.4, is private institutions doing enough to prepare their workforce for the new world of work. Section 5.5 will conclude this chapter by highlighting the key findings of this research.

5.1 Background of the study

The education system in South Africa is a key element in eliminating poverty and reducing inequality, and it forms the foundation of an equal society (NDP, 2011). It forms the basis of equipping society to be positive contributors to economic growth, as it is an enabler to build societies ability to solve problems (NDP, 2011). Part of the National Development Plan in South Africa is to expand the production of highly skilled professionals and to enhance the innovative capacity of the nation (NDP, 2011). This research will assess the strides that the education system has made thus far in preparing learners for the new world of work.

Thereafter the researcher will discuss career counselling which is an important factor in ensuring learners are granted the opportunity to construct and determine their futures realistically, also ensuring that they are equipped and fully trained for the future (Maree, 2009). According to (Maree, 2009) career counselling is still privileged to learners who can afford the service. Career counselling is important

for an effective labour market, learners who's career paths utilize their potential and meet their goals are likely to be more motivated and productive which in turn enhance national prosperity (Watts, 2008). Lifelong learning places career development at the centre stage and can increase a country's economic competitiveness thereby reinforcing the need for individuals to make quality decisions regarding their careers (Watts, 2008). According to (Manyika, 2017) there are many activities carried out by workers that can be automated. Is this a concern for the economy or opportunity for private institutions to equip their workers for more highly skilled roles? There are concerns that workers are not fully utilised in their roles and a mismatch of skills for high skilled roles in South Africa exists (Manyika, 2017). PWC did a study in 2019 regarding the global CEO's concern over the availability of skills over the last few years. It is therefore the responsibility of every employer to ensure that they equip their workforce to be able to contribute internally in their organizations.

5.2 The readiness of the Education system to equip learners for the new world of work.

In this section, the findings of the study's first research question will be discussed and compared with findings of similar studies that have been done before. This research question asks if the education system is ready to equip learners for the new world of work in South Africa. This is the main research question of this study, 70 respondents across all industries at various levels in their professions participated in this study and the findings of this research questions are listed below.

The question asked if tertiary education prepared learners for their current roles and the results yielded a p-value that is greater than (0.05) it was 0.73. This value is thus not significant statistically significant we therefore do not have enough evidence to reject our null hypothesis that the education system is not fully equipped to prepare learners for the future.

The results from 60% of the respondents confirmed that their tertiary education provided them with courses relevant to the new world of work. This indicates that although great strides have been made in the education sector there are still a number of individuals that were not fully prepared for their roles. This however does not mean that there is no concerns around their readiness for the next five years should their industries change.

The research results indicated that the tertiary curriculum of 10% of individuals included robotics learning, 18% artificial intelligence learning and 35% digitization learning. A further 10% indicated that behavioural skills were included in their tertiary curriculum.

The numbers are concerning as the country has seen a decline in employment in routine intensive occupations (Carl B Frey, Michael Osborne, 2013). Routine jobs are replaced by computerisation and there is an increase for problem solving skills as the pace of technological innovation is still increasing (Carl B Frey, Michael Osborne, 2013). According to (Frank Fossen , Alina Sorger, 2019) the effects that digitization has on occupations is both destructive and transformative. Destructive in low income jobs being automated and transformative to give opportunity for employees to earn higher incomes.

Educators are all on board and in agreement that the curriculum for learners should be updated if they are going to be employable in the future; however, it is not clear where to start. Is it creativity, data science or soft skills? (Editors, 2020). The education system face the challenge that not all future roles are known as well as the rapid pace of technology advances. The education system lacks agility to constantly change and update curriculums as is needed in the 21st century.

The reality for learners is that they will have to continue learning throughout their lifetime , obtaining a tertiary qualification and starting a new role for the next 40 years is most likely not going to happen (Land, 2017). Employees are going to have to continue to adapt and

get new skills , the future world of work requires flexibility and adaptability.Learners need to focus on acquiring skills and not just certification (Magwentshu "et al", 2019).

The need to develop robust national innovation policies for the education sector has been requested by citizens across the world. There is a realization that possessing digital skills improve worker's employability and life prospects (Miho Tahuma et al, 2018)

The research done previously on education for the new world of work is clear that although technological skills is required for the new world of work the purpose should always be the preparation and up skilling of the workforce (Chikoti, 2018)

PWC (2017) postulates that the emotional intelligence, creativity, persuasion and innovation skills is required to become more valuable. Intelligent systems will assume decision-making responsibilities putting the future of unadapting humans at risk (Chikoti, 2018)

Government and private institutions must solve this education and skills challenge. It will not be solved by South African universities mandating the correct mix between diversity and cosmopolitism in their recruitment of students and staff, but a differentiated tertiary education system that produces optimally and qualified professionals (Habib, 2016).Universities alone cannot act on all forces of change , the creation of alternative universities should be explored.The education system should produce professionals , create post graduate students that can undertake high-level research and have a TVET sector that produces graduates with applied and vocational skills (Habib, 2016).

The research indicate that although the education system has progressed over the last few years , there is still more work required to ensure learners are equipped in the new world of work. The research findings presented in chapter 4 is thus consistent with research previously done in this area.

5.3 The effectiveness of career counselling in academic institutions for the new world of work.

This section will discuss the second research question and compare the findings with similar studies done earlier. The research question asks how effective career counselling is in academic institutions for the new world of work. In this research, it was established that most of the respondents received career counselling and that it was focused on future employability. The research findings of the second question are presented below.

Hypothesis H2 posed the question how effective is career counselling in academic institutions for the new world of work? The results presented in chapter 4 showed that we failed to reject the null hypothesis and will not accept the alternative hypothesis. Most of the respondents confirmed that they received career counselling prior to embarking on their tertiary education. The study found that 60% of the respondents received career counselling and admit that they would not have opted for this if not offered at tertiary level. A further 83% responded that they need to further educate themselves to stay employable in the new world of work. Research done by (Maree, 2009) indicated that career counseling using the test and tell approach is not suitable for the 21st century. The average person will change his career at least 5 times in his working career and therefore need to apply a lifelong learning approach to stay employable (Maree, 2009). Career counselling is not available to all South African learners ,a challenge that must be overcome as it only reaches learners that can afford the service. If implemented correctly , career counselling has the potential to promote transformation and bring about social change (Maree, 2009).

The South African society continues to undergo significant socio – economic and socio-political change. Career counsellors should continuously question their discipline against international and national techniques to ensure they stay relevant (M Watson, M McMahon, 2009).

Career counselling should start in the higher education sector as not all learners will move on towards tertiary education. The 21st century labour market should dictate career counselling strategies , the research has shown thus far is that learners should see meaning in their careers. Multi skilling is crucial , learners are encouraged to become critical thinkers and creative problem solvers (M Watson, M McMahon, 2009).

A holistic and inclusive approach is required , in a country faced with a high youth unemployment rate there is an urgency to equip learners with career counselling to assist them in finding employment.

Tertiary institutions should base career-counselling interventions on the following three principles – (a) Access, counselling should be accessible to all and should be offered in at least one indigenous language. (b) Equity, no privilege for specific groups. (c) Redress, historical imbalances to address is still prevalent in South Africa (Maree J. , 2013).

Maree (2013) suggest the development of psychometric testing to be designed for the diverse population of South Africa as cultural relevancy is often not taken into account with western tests.

All interventions should aim at enhancing learner employability and improve career adaptability while they create their career life stories. Feedback should assist in equipping them with critical skills that will increase employability rather than just helping them find employment (Maree J. , 2013)

This study is consistent with the results from the research , it indicates that career counseling is being done in tertiary institutions but not to the extent that life-long learning is encouraged. Respondents realised this only while employed that they will need to continue their learning journey if they are going to stay employable.

5.4 Is private institutions doing enough to prepare their workforce for the new world of work?

In this section the finding of the third research question are discussed and compared with findings of similar studies done earlier. The research question asked if private institutions are doing enough to prepare their workforce for the new world of work. In this study, it was established that only 41, 66% of the respondents indicated that their current employers are preparing them for the future world of work. The research findings of the third research question are prepared below.

Hypothesis H3 stated that a significant number of people indicate that their employers are not preparing them for the new world of work. The results presented in chapter 4 showed that we failed to reject the null hypothesis and will not accept the alternative hypothesis. Most of the respondents are considering furthering their education to remain employable in the future. 88.55% indicated that they would need to continue learning to remain employable. A study done by PWC indicated that leaders are concerned by their employee's lack of skills and have identified this as a threat to growth (Stubbings C "et al", 2019). Tech savvy leaders and employees are in demand as they can harness innovative thinking and apply best strategies and tools that fit business needs (Stubbings C "et al", 2019).

The research further indicated from a survey of over 12000 workers , employees are willing to spend two days per month on training to upgrade their digital skills (Stubbings C "et al", 2019).

Organization's current learning and development programs don't include the full complexity of the tasks. Private institutions should rethink their strategies and upgrade workforce reskilling (Magwentshu "et al", 2019). Individuals should also focus on skills and not just certification. The new technology enabled jobs requires higher skills.

The workplace is changing and employees need to fit in a “smart working” and “agile working” environment (Thomson, 2014).

Private institutions should focus on a continuous transformation of the workforce and this includes the following three phases. Scout, quantify their digital aspirations and assess future talent gaps and organizational readiness. Shape, design future roles and create an infrastructure that allows them to up skill and reskill employees. Shift, scale up work changes and develop new skills whilst they scale up employee transitions (Bryan Hancock , Kate Lazaroff-Puck , Scott Rutherford, 2020). Organization learning and development engines will have to expand as employees embark on upskilling journeys. They will have to critically measure their return on investment by evaluating how much was saved on opportunity cost of hiring in a highly competitive market versus giving employees new skills internally (Bryan Hancock , Kate Lazaroff-Puck , Scott Rutherford, 2020).

5.5 Conclusion

Chapter 5 discussed the findings of the three research questions in this study. The first research question asked if the education is ready to educate learners for the new world of work, the second question asked if career management was effective in the current education system and lastly if private organizations are doing enough to up skill and reskill their workers for the future world of work.

The world of work is changing causing considerable anxiety, and this is with good reason. The rising unemployment rate amongst the youth of the country and the effects of digitization and automation is of great concern in South Africa (Manyika, 2017). The labour markets is under strain, as many employers cannot find the rights skills, the lack of skill has a direct impact of the revenue stream of an organization.

6 SUMMARY, CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

Chapter 5 presented the research findings of this study; this was compared to findings of similar research. The literature discussed in the earlier chapters has shown that the education system has done great work in ensuring that they are preparing learners for the new world of work but there is still work ahead. Section 6.1 will summarise the entire research paper , section 6.2 will present conclusions , highlighting the key points from each chapter, section 6.3 will present the limitations of this study , as all studies will have limitations and lastly , section 6.4 will present recommendations which will give direction to future studies in this widely studied topic of education for the new world of work.

6.1 Summary

The education system has received much attention over the last few years and the South African government has made funding available for the development and improvement of the system in every financial year. Yet despite all the spending and efforts it received at a tertiary level, there is still growing concern around not only unemployment but also its effectiveness to prepare learners for the future world of work (Daniels, 2007). The researches indicate that graduates and employees will need to be trained on Science, Technology, Engineering and Mathematics skills as well as soft skills. Formal education is not enough to ensure individuals will remain employable in the future (Jacques Bughin "et al", 2018).

Organizations financial performance will suffer should their employees not upgrade fast enough and their ability to expand into new markets will be limited (Jacques Bughin "et al", 2018). There is an expectation from organizations that the tertiary education sector prepare learners for the new world and that they produce the correct level of skill that is required in the different industries. Organizations are prepared to hire someone with more skill then less education , even though employee productivity is not directly linked to education levels (Rosa Dias , & Dorrit Posel, 2007).The

relationship between tertiary education and the world work is closely linked. The purpose for tertiary education is to prepare individuals for roles that did not exist whilst they were studying (Teichler U. , 2008). It is a challenge for the education system to prepare professionals for all work tasks that they will need to do in the careers. The research therefore suggest that instead of focusing on exact technical trades the focus be on skills that will be required in the future namely , problem solving skills , achievement orientation , adaption and working under pressure without clear instructions (Teichler U. , 2008).

There is a dependency on career management to prepare individuals for future professions. It is a process of managing learning; training and work throughout the life span (Neault, 2002). Career management should be active and purposeful to bring about the desired results. As important as this service is , in South Africa it still only accessed by a selected group of individuals that can afford it , leaving many without the ability to align their aspirations with organizational objectives and capabilities (Hartzenberg, 2002). There is uncertainty on the level of control an individual has over their careers which is magnified with the unknown careers. Successful career management entails a combination of specific personal attributes and strategies (Neault, 2002). The findings from the research indicated that a low percentage of respondents received career counselling and that it was not directly aimed at future jobs. They also confirmed that they have to continue their learning if they want to remain employable, this indicates that career management is an ongoing process that includes continuous learning.

6.2 Conclusion

The fourth industrial revolution is going to change the future world of work; the technological era will bring about disruptive changes in all industries. Digitization could provide a major economic boost and could result in a net gain of more than one million jobs by 2030 (Magwentshu "et al", 2019).

Previous research (Moloi, 2007) indicates that strategic management in the education system with the acquisition of Section 21 status (South African Schools Act 1996) a process that gives more autonomy had greater potential for strategic approaches to emerge. The education system focused on short term tasks and planning instead of adopting a strategic management approach that can bring about necessary changes.

6.3 Limitations

This research focused on both the private and public sectors therefore the findings cannot be generalised across all industries as industry impact can differ across the various industries. The reliability of the model was problematic, the overall responses yielded an acceptable Cronbach alpha when the variables were split the results were lower than the acceptable level of over 0.70. The quantitative research method was applied and this methodology does not allow reasons on why respondents would chose to select the options that they did. There were also instances where respondents did not answer all the questions and this could have influenced the overall findings of the research. The respondents were notified that the questionnaire was anonymous but there could have been individuals that were sceptical and selected certain responses based on this.

6.4 Recommendations

To avoid the generalisation of results, future researches can do the study using specific industries to get a clearer indication of what remedial action is required for the different industries. Technological advances in the new world of work is going to change how people work and the post Covid-19 way of work should be researched further as it will have a direct impact of the future world of work. Researchers can use a longitudinal design for future studies as this study applied a cross-sectional design. Researchers can also use a mixture of quantitative and qualitative research methodologies to gain more insights.

The advancement of any economy is linked to their education system, its therefore that the South Africa education system will always be the focus point where unemployment is concerned. The youth unemployment that continues to increase is a growing concern and future researchers should explore how tertiary education can solve for unemployment. The future is digital, and the education system should advance to prepare learners.

Future research should investigate entrepreneurial education as a solution for individuals to actively participate in the economy. The education system not only prepare learners for employment but can also facilitate the birth of entrepreneurs that can solve the unemployment challenges with the government.

The graduate unemployment rate itself is a standalone research topic, future researchers must focus on why the educated young people of the country remain unemployed whilst they are skilled and qualified.

Nelson Mandela said, "Education is the most powerful weapon which you can use to change the world". Future researchers should use this statement as a starting point to explore how education can solve the challenges of poverty in South Africa.

Appendix 1.1: Data collection instrument(s)

Informed consent letter

Dear Sir / Madam,

My name is Zelda Manuel and I am a Masters student in Business Administration at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating a strategic management approach of Education for the new world of work in South Africa under the supervision of Mr. George James. The aim of this research project is to find out how equipped the current education system is to train learners for the new world of work.

As part of this project, I would like to invite you to take part in answering a questionnaire. This activity will involve multiple-choice questions that will take around 10 minutes to complete.

Yours sincerely,

Zelda Manuel, 1768400@student.wits.ac.za, 083 982 8263

Supervisor:

Mr George James, 934478@students.wits.ac.za , 062 152 1497

Biographical Data

1. Gender

Male	
Female	
Non-binary / third gender	
Prefer not to say	

2. Age

18-25	
25-34	
35-44	
45 and above	

3. Highest level of education

Grade 12 and below	
Diploma and Certificate	
Undergraduate	
Postgraduate	

4. Position of your current role

Entry level	
Specialist	
Mid Management	
Senior Management	
Executive Management	

Question No	Statement	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Q6	Your career guidance was influenced by the new world of work					
Q7	Your choice of studies was influenced by future roles					
Q19	Skills required for the new world of work can only be thought at tertiary institutions					
Q20	Part of your daily core functions can be automated by machine learning					
Q21	Your current industry has changed over the last five years, i.e. automation and digitization					
Q22	Your current role will not be the same five years from now					
Q23	Educational courses can assist you with upskilling yourself to ensure you are employable in the future					
Q24	world of work					
Q25	You need to further educate yourself to be employable in the new world of work					
		Yes	Maybe	No		
Q8	Your choice of studies was influenced by employability					
Q9	Are you familiar with the skills required for the new world of work					
Q10	Your academic institution provided courses relevant for the new world of work					
Q11	Your course curriculum was relevant to the practical way of work in your current industry					
Q12	Did your tertiary education equip you for your current role					
Q13	Was digitization part of your curriculum in your tertiary studies					
Q14	Was artificial intelligence and robotics part of your curriculum in your tertiary studies					
Q15	Was robotics and machine learning part of your curriculum in your tertiary studies					
Q16	Did your curriculum at tertiary level focus on soft skills for the new world of work					
Q17	Does your current employer offer training for advanced cognitive skills training					
Q18	Are you aware of any new age skills training that your employer is offering internally to staff					

Appendix 2.1: One-page bio of the researcher including declaration of interest in the research and funders, if any

The author of this paper declares that there were no funders or conflict of interest in conducting this study. This research was done for academic purposes in fulfilment of a Master of Business Administration degree.

Appendix 2.2: Ethic documentation



SCHOOL OF GRADUATE SCHOOL OF BUSINESS ADMINISTRATION ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: WBS/BA1768400/313

PROJECT TITLE

A strategic management approach Education for the new world of work in South Africa.

INVESTIGATOR

Mrs Zelda Manuel

SCHOOL/DEPARTMENT OF INVESTIGATOR

MBA (Research Article)

DATE CONSIDERED

24 November 2020

DECISION OF THE COMMITTEE

Approved unconditionally

RISK LEVEL

MINIMAL RISK

EXPIRY DATE

30 JUNE 2021

ISSUE DATE OF CERTIFICATE 7 December 2020

CHAIRPERSON _____

A handwritten signature in black ink, appearing to read "MDJ Matshabaphala".

(Dr MDJ Matshabaphala)

cc: Supervisor: Mr James

DECLARATION OF INVESTIGATOR

To be completed in duplicate and ONE COPY returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Zelda Manuel

Signature _____

Date

31 March 2021

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Appendix 2.1: One-page bio of the researcher including declaration of interest in the research and funders, if any

The author of this research report declares that there were no conflicts of interests in conducting this neither research nor funders. The research was completed a part of the fulfilment requirements of a Master of Business Administration degree.