



QUALITY MANAGEMENT PRACTICES AND THE EMPLOYABILITY OF
GRADUATES OF TVET SCHOOLS IN LIMPOPO PROVINCE OF SOUTH AFRICA

Dissertation Manuscript

Submitted to Unicaf University in Zambia
in partial fulfillment of the requirements
for the degree of

Doctorate of Business Administration

By Netshisumbewa Ntevheleni

July 2025

Approval of the Thesis

QUALITY MANAGEMENT PRACTICES AND THE EMPLOYABILITY OF GRADUATES OF TVET SCHOOLS IN LIMPOPO PROVINCE OF SOUTH AFRICA

This Thesis by Netshisumbewa Ntevheleni has been approved by the committee members below, who recommend it be accepted by the faculty of Unicaf University in Zambia in partial fulfillment of requirements for the degree of

Doctorate of Business Administration (DBA)

Thesis Committee:

Dr Vusumuzi Sibanda, supervisor

Dr Nathan Musonda, chair

Prof. Vincent Aghaegbunam Onodugo, external examiner

Dr Bashkim Isufi, internal examiner

Abstract

QUALITY MANAGEMENT PRACTICES AND THE EMPLOYABILITY OF GRADUATES OF TVET SCHOOLS IN LIMPOPO PROVINCE OF SOUTH AFRICA

Netshisumbewa Ntevheleni

Unicaf University

Statistics South Africa (2024) reports that the national young unemployment rate exceeds 60%, with a substantial segment of this demographic consisting of graduates from TVET colleges. Tasked with equipping individuals with practical skills and fostering entrepreneurship, TVET schools aim to address the country's economic development and bridge the gap in scarce skills. Unlike universities, TVET institutions are oriented toward hands-on training and closely align with industry demands. Although South Africa is recognized as a middle-income country, inequality, poverty, unemployment, and social injustice remain major challenges (Stats SA, 2021). South Africa possesses one of the highest unemployment rates worldwide, attaining 32.9% in the second quarter of 2023 (Statistics South Africa, 2023). This study sought to evaluate whether TVET schools are adequately equipped to produce graduates who meet the economy's needs and address skills shortages.

Employing a convergent parallel mixed-method design, this research investigated the strategic tools TVET schools utilise to produce employable graduates and the challenges hindering their effectiveness. Quantitative data were collected through self-

administered questionnaires completed by teaching and administrative staff. In contrast, qualitative data were obtained via semi-structured interviews with campus managers, former students, and industry representatives. Stratified and snowball sampling methods were employed to select 270 respondents from three TVET schools in Limpopo Province.

The findings revealed that some TVET schools have implemented strategies to enhance the capacities of students and employees, including wellness initiatives, teaching and student awards, and mentorship programs. However, persistent challenges significantly undermine the quality of education delivered, impeding the production of graduates equipped to alleviate poverty, contribute to national development plans, and address critical skill gaps. This study recommends that policymakers develop targeted strategies and policies to enhance educational quality, ensuring that graduates are effectively transformed into skilled professionals. Further research is suggested to expand this inquiry to TVET schools in other provinces and private institutions, using diverse research designs to explore broader challenges and innovative approaches for producing high-quality, employable graduates.

Keywords: Quality, Technical Vocational, Education and Training, Quality

Management, Department of Higher Education and Training.

Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgment, the work presented is entirely my own.

Copyright Page

I confirm that I retain the intellectual property and copyright of the thesis submitted.

I also allow Unicaf University in Zambia to produce and disseminate the contributions of the thesis in all media forms known or to come as per the Creative Commons BY Licence (CC BY).

AI Acknowledgment

I acknowledge the use of Grammarly (<https://www.grammarly.com>) to edit my work and proofread the whole document installed on my work laptop. This action(s) was/were completed on 18/08/2025.

Dedication

This thesis is dedicated to my late father Mr Netshisumbewa Nkhumeleni Hendrick, my late grandmother Masindi Netshisumbewa and my entire family who supported me throughout this journey. You will forever remain in my thoughts

Acknowledgments

I want to thank God for giving me all the strength, courage and hope that has enabled me to walk on this journey through thick and thin. I would also like to extend my gratitude to the following people and institutions:

- My supervisor, Dr Vusumuzi Sibanda who guided me with constructive criticism and channeled me into the right path.
- My family members, including my siblings, extended family members, my wife Tshinyadzo Tryphina, my son Mulweliwashu, my daughter Rovhavhona, and my son Ulangazwothe, who were all in my thoughts during the entire journey. Thank you very much for understanding that Daddy was on a journey that needed support.
- Unicaf University for giving me the platform and scholarship that has enabled me to showcase my potential
- University of Venda for providing me with financial assistance that has enabled me to complete my studies.
- The leadership of Vhembe TVET Schools, Sekhukhune TVET Schools, and Capricorn TVET Schools who permitted me to collect data from their institutions.
- All the participants who sacrificed their time and never hesitated during data collection.
- My colleagues from the University of Venda for encouragement throughout my studies. Thank you for your unwavering support

May the Almighty God bless you all.

Table of Contents

Abstract.....	iii
Declaration	v
Copyright Page	vi
AI Acknowledgment	vii
Dedication.....	viii
Acknowledgments	ix
List of Abbreviations	xxii
List of Tables.....	xxiii
List of Figures	xxv
CHAPTER 1: INTRODUCTION	1
1.1. INTRODUCTION.....	1
1.2. Statement of the Problem	3
1.3. Purpose of the Study	6
1.4. Research aims.....	8
1.5. Research objectives	9
1.6. Nature and Significance of the Study.....	11
1.7. Significance of the study	12
1.8. Research Questions and Research Hypotheses	14
1.8.1 Research questions	14
1.8.2. Hypotheses	16
1.9. Chapter Summary	16
CHAPTER 2: LITERATURE REVIEW	18

2.1. Introduction.....	18
2.2. Theoretical Framework.....	19
2.2.1 Stakeholder theory	19
2.2.2. Human capital theory	21
2.2.2.1. Justification of human capital theory	22
2.2.2.2 Alignment with TVET’s Core Purpose.....	22
2.2.2.3. Focus on Educational Quality and Economic Outcomes.....	23
2.2.2.4. Understanding the Return on Investment (ROI) in Education.....	23
2.2.2.5. Addressing Skills Mismatch and Labour Market Needs	24
2.3.4.5. Supporting Continuous Improvement in Quality Management.....	24
2.3.4.6. Policy Relevance and Educational Planning.....	24
2.2.3. Legitimacy theory	25
2.2.4. Systems theory.....	26
2.3. Systemic Methodology for Educational Excellence	34
2.4. Conceptual framework.....	35
2.5. What is Quality?	38
2.5.1. Quality in Higher Education.....	39
2.5.2. Quality in teaching and education	40
2.5.3. Quality in Technical and Vocational Education and Training (TVET) instruction and learning	41
2.5.3. Multi-Dimensional Understanding of Quality	43
2.6. International Perspective on Vocational Education and Training	43
2.6.1. Dual System Model (Germany and Switzerland).....	44

2.6.2. Competency-Based Training in Australia.....	44
2.6.3. Initiatives for Skill Development in Singapore	44
2.6.4. Apprenticeship Programs in the United Kingdom	45
2.6.5. Models of Inclusive Vocational Education and Training in the Nordic Countries..	45
2.6.6. Vocational Education and Training Enhanced by Technology (China)	46
2.7. Perceptions of Technical and Vocational Education and Training Schools.....	46
2.7.1. Perception from Germany and the United States	47
2.8. TVET institutions and sustainable development	49
2.9. Education system in South Africa	50
2.10. Higher education and training industry	53
2.11. Role of TVET schools in South African National Development Plan: Vision 2030	54
2.12. Constitution of the Republic of South Africa & TVET schools	56
2.13. Legislative framework for Technical and Vocational Education and Training institutions.....	57
2.14. Higher Education Act (Act No. 101 of 1997).....	58
2.15. TVET Schools Act 16	59
2.16. 2013 White Paper on Post-School Education and Training	60
2.17. Governance of TVET schools	61
2.18. Management arrangements of TVET schools.....	63
2.18.1. Governance and Leadership in Technical and Vocational Education and Training Schools	63
2.18.2. Regulatory Frameworks.....	64
2.18.3. The Function of Schools Councils and Senior Administration.....	65

2.19.1. Quality management in higher education	66
2.19.2. Quality management in South African higher education	68
2.20. Quality management components.....	69
2.20.1. Quality Planning	69
2.20.2. Quality Control	70
2.20.3. Quality assurance	73
2.20.5. Harvey and Green's (1993) Quality Framework.....	76
2.21. Factors affecting quality in higher education	77
2.21.1. Quality of Academic staff	78
2.21.2. Quality of support/administrative staff	80
2.21.3. Higher education facilities	81
2.21.4. Quality of offered programs.....	82
2.21.5. Higher education institution geographical area	83
2.21.6. The role of Leadership in TVET schools.....	85
2.22. Factors Affecting Student Engagement in Technical and Vocational Education and Training	86
2.22.1. Perception of Vocational Education.....	87
2.22.2. Influence of Parents and Guardians	88
2.22.3. Academic Environment and Counselling	89
2.23.4. Demand in the Labour Market and Economic Factors	90
2.23.5. Career Goals and Skill Development	91
2.23.6. Peer Influence and Social Networks.....	92
2.24. Integration and retention of students	93

2.25. Determinants of talent acquisition and retention in TVET institutions	94
2.25.1. Professional Setting.....	95
2.25.2. Professional Advancement Opportunities.....	96
2.25.3. Compensation and incentives.....	97
2.25.4. Institutional Governance	98
2.25.5. Organisational Culture	98
2.25.6. Employment Stability.....	99
2.25.7. Extrinsic Factors.....	100
2.26. Quality practices in higher education	101
2.26.1. Top management support	101
2.26.2. Information and analysis	102
2.26.3. Strategic planning	103
2.26.4. Customer focus.....	104
2.26.5. Program design.....	105
2.26.6. People management	106
2.26.7. Process management	107
2.26.8. Organisational innovation and technical innovation	109
2.27. Involvement of higher education stakeholders	109
2.27.1. Students and parents	111
2.27.2. Government and accreditors	112
2.27.3. Alumnus	112
2.27.4. Partnership with employers and industries.....	113
2.27.5. Benefits of stakeholder involvement.....	114

2.28.	Benefits of an Integrated Curriculum in Higher Education	114
2.28.1.	Enhanced Analytical Reasoning and Solution Development Skills	115
2.28.2.	Augmented Engagement and Motivation	116
2.28.3.	Workforce Preparedness	117
2.28.4.	Enhancement of Lifelong Learning Skills	118
2.28.5.	Improved Collaboration and Teamwork.....	120
2.28.6.	Pragmatic Application of Knowledge.....	121
2.29.	Entrepreneurial Education and Skill Development	122
2.29.1.	Fostering Entrepreneurial Traits and Skills.....	122
2.29.2.	Advancing Entrepreneurial Initiatives.....	124
2.29.3.	Skill Development for Future Employment.....	125
2.29.4.	Addressing Unemployment Challenges	126
2.29.5.	Promoting a Sustainable Economy	128
2.30.	Administering resources of TVET schools	129
2.31.	Rate of completion in higher education in South Africa.....	131
2.31.1.	Socioeconomic Context	133
2.31.2.	Student Readiness.....	134
2.31.3.	Institutional Assistance and Involvement	134
2.31.4.	Monetary Assistance and Economic Viability	135
2.31.5.	Relevance of Curriculum and Instructional Strategies	135
2.32.	Psycho-Social support.....	136
2.32.1.	Enhancing Student Retention and Academic Achievement	137
2.32.2.	Workplace Efficiency and Employee Welfare	138

2.33. Employability of schools graduates	139
2.33.1. Acquired skills and knowledge.....	141
2.33.2. Practical experience	142
2.33.3. Higher education institution's reputation	143
2.33.4. Connectivity and networking	144
2.33.5. Adaptive skills.....	145
2.33.6. Emotional intelligence (EI).....	146
2.34. The function of TVET institutions in facilitating employment for young people	148
2.35. Statistical significance between student selection and admission, as well as teaching and learning processes	151
2.35.1. Selection and Admission Procedures.....	151
2.35.2. Educational Processes	152
2.35.2. Statistical Significance of the Correlation	152
2.35.4. Influence on Educational Results.....	153
2.35.5. Admission Adaptability and Varied Educational Requirements.....	153
2.36.2. Management of Curriculum	155
2.36.4. Curriculum Management as an Indicator of Teaching Efficacy	156
2.36.5. Statistical Significance of the Correlation	157
2.37. Statistical significance between teaching methods and the employability of graduates.....	158
2.37.1. The Influence of Educational Methods on Employability.....	158
2.37.2. Skills for Employability and Instructional Approaches	159

2.37.5.	Statistical Models and Employment Outcomes	159
2.37.6.	Instructional Methods and Industry Integration	160
2.37.7.	Development of Soft Skills and Technical Skills	161
2.38.	Statistical significance between educational methods and educational resources	
	162	
2.38.1.	Influence of Educational Facilities on Instructional Methods	162
2.38.2.	Accessibility of Educational Materials and Instructional Efficacy	163
2.38.5.	Infrastructure and Learner-Centric Pedagogical Methods.....	163
2.38.6.	Statistical Models and Educational Resources	164
2.38.7.	Technologically Augmented Educational Settings.....	165
2.40.	Challenges facing TVET schools in South Africa.....	166
2.40.1.	Funding.....	166
2.40.2.	Skills Mismatch.....	167
2.40.3.	Quality of Education	168
2.40.4.	Perception and Stigma.....	168
2.40.5.	Administrative and Governance Issues.....	169
2.40.6.	High Dropout and Low Graduation Rates	169
2.40.7.	Workplace Integration and Internships.....	170
2.41.	Challenges in the management of educational resources	170
2.41.1.	Acquisition procedure.....	170
2.41.2.	Insufficient availability and underutilisation of educational resources	171
2.41.3.	Insufficient financial resources.....	172
2.41.4.	Resource maintenance	172

2.41.5. Suboptimal management approaches.....	173
2.42. Insufficiency of qualifications among TVET instructors.....	173
2.43. Empirical literature	174
2.44. Research gaps	176
2.45. Summary.....	179
CHAPTER 3: RESEARCH METHOD	181
3.2. Research Approach and Design.....	181
3.3. Population and Sample of the Research Study.....	190
3.5. Research Tools.....	205
3.5.1. Types of data	206
3.5.1.1. Primary data	206
3.5.1.2. Secondary data	208
3.5.2.2. Research interviews	212
3.5.5.1. Pretesting the interview questions	221
3.6. Reliability and validity	223
3.7. Variables of the study.	225
3.8. Study Procedures and Ethical Assurance	240
3.8.1. Permission to conduct the research.....	240
3.8.2. Informed Consent.....	241
3.8.3. Voluntary participation and harmlessness.	242
3.8.4. Anonymity and confidentiality.	243
3.8.5. Disclosure.....	244
3.8.6. Avoiding deceiving participants	244

3.8.7. Role of the Researcher	246
3.9. Data Collection and Analysis.....	246
3.9.1 Study procedure	246
3.9.1.1. Quantitative data collection procedure	247
3.9.2. Data analysis.....	249
3.9.2.8. REGRESSION ANALYSIS.....	253
3.10. Chapter Summary	260
CHAPTER 4: FINDINGS.....	263
4.1. Chapter Introduction	263
4.2. Trustworthiness of Data	265
4.2.1. Credibility	265
4.2.2. Confirmability	269
4.2.3. Transferability	271
4.3. Reliability and validity of quantitative data.....	272
4.4. Results.....	274
4.4.1. Quantitative data	274
4.4.1.2. Part B: Responses related to quality management strategies.....	278
4.4.1.3. Correlating data.....	290
4.4.1.4. Testing the hypothesis from Key Observations.....	295
4.4.1.5. Model from Correlation.....	296
4.4.1.6. General linear model (Tests of Between-Subjects Effects).....	298
4.4.1.7. Interpretation of Individual Predictors	299
Key Implications.....	299

4.4.1.8.	Descriptive Statistics for all variables.....	300
4.4.1.9.	How These Factors Influence TeachLearnQuality.....	306
4.4.1.10.	Key Observations Across Models.....	311
4.4.1.11.	How These Factors Influence TeachLearnQuality.....	311
4.4.1.13.	Conclusion on the Hypothesis.....	316
4.4.2.	Qualitative data findings.....	317
4.5.	Merged Results.....	344
4.5.1.	Staff remuneration and retention	349
4.5.2.	Availability of facilities for teaching and learning.....	350
4.5.3.	Maintenance of facilities in response to changing environment.....	351
4.5.4.	Production of high-quality grades.....	352
4.5.5.	Acceptance of feedback from employers and overall relationship with external stakeholders.....	353
4.5.6.	High-quality programs and curriculum	354
4.6.	Evaluation of Findings	355
4.7.	Chapter Summary	365
CHAPTER 5: IMPLICATIONS.....		367
5.1.	Introduction.....	367
5.2.	Implications of the study	368
5.3.	Contribution of the study to the body of knowledge.....	377
CHAPTER 6: RECOMMENDATIONS AND CONCLUSION		379
6.1.	Introduction.....	379
6.2.	Recommendations for application	379

6.3. Recommendations for future research.....	382
6.4. Conclusions.....	383
7. REFERENCES	385
APPENDICES.....	429
Appendix A: <i>Unicaf University Research Ethics Committee Decision</i>	429
Appendix B: Gatekeeper letter	430
Appendix C: Approval letters.....	431
APPENDIX D: Informed Consent.....	451
APPENDIX E: Questionnaire	453
Appendix F: Semi-structured Qualitative Interview Schedule.....	463

List of Abbreviations

DHET	Department of Higher Education and Training
EFQM	European Foundation for Quality Management
NDP	National Development Plan
SPSS	Statistical Package for Social Sciences
TQM	Total Quality Management
TVET	Technical Vocational Education and Training
UNESCO	United Nations, Scientific Education and Training
UNESCO-UNEVOC	International Centre for Technical and Vocational Education and Training

List of Tables

Table 3.1: Constructs under study.....	215
Table 3.2: Variables of the study	227
Table 3.3: Quality management strategies used by TVET schools and the factors that influence the quality of students	255
Table 4.1: Demographics of respondents.....	275
Table 4.2: Staff recruitment and selection	279
Table 4.3: Staff training and development	280
Table 4.4: Incentives and rewards	280
Table 4.5: Staff promotion and development	281
Table 4.6: Staff involvement/participation	281
Table 4.7: Student selection and admission	282
Table 4.8: Program design	283
Table 4.9: Teaching processes	283
Table 4.10: Assessment processes	284
Table 4.11: Curriculum management	285
Table 4.12: Geographical location	286
Table 4.13: Facilities to enhance teaching and learning	286
Table 4.14: Motivation enhancement for students	287
Table 4.15: Student involvement/ participation	288
Table 4.16: Integration of staff and students	288
Table 4.17: Schools adaptation	289
Table 4.18: Teaching and learning quality	290

Table 4.19: Correlation of selected constructs	292
Table 4.20: Correlation of all constructs	294
Table 4.21: Dependent variable: Teaching and learning quality.....	298
Table 4.22: Interpretation of individual results.....	299
Table 4.23: Descriptive statistics results.....	300
Table 4.24: Model Summary	301
Table 4.25: Anova results	304
Table 4.26: Demographic details of participants for qualitative data	308
Table 4.27: Hypotheses on Model Significance and Fit	313
Table 4.28: Themes and subthemes which were identified	314
Table 4.29: Themes and subthemes identified	319
Table 4.30: Merged results	346

List of Figures

Figure 2.1: System theory in the context of higher education and training.....	28
Figure 2.2 : EFQM model (Oakland, 1998)	32
Figure 2.3: Conceptual Framework	36
Figure 2.4: Components of emotional intelligence as adapted from Coetzee and Harry	147
Figure 3.1: South African and Limpopo map	194
Figure 3.2: Steps used in developing questionnaire of the study.....	222

CHAPTER 1: INTRODUCTION

1.1. INTRODUCTION

Unemployment is a global and central issue that creates instability in many countries, if not all, as graduate unemployment rises every year. The world has become global in a way that we no longer talk about a product or service designated for a certain country or area, but for everyone who can have access to the product or service. Statistics South Africa (2024) reports that the national young unemployment rate exceeds 60%, with a substantial segment of this demographic consisting of graduates from TVET colleges. Despite the commendable objectives of TVET colleges, many graduates are inadequately prepared for the job market, resulting in a disjunction between education and employment (DHET, 2020). Vocational study programs at Technical Vocational Education and Training Schools (TVET), which focus on developing job-specific skills and knowledge, rather than a broad academic education, are mostly cited as the solution to youth unemployment (Mahlangu & Mtshali, 2023). Graham and Mlatsheni (2015) posit that due to the demand for the highest-skilled employees, young people are highly affected by unemployment. In the late 20th and early 21st centuries, there was a shift in the South African economy policies that required a high productivity rate, technology-based production intended to stimulate investment in the development of skills and higher remuneration (Banerjee, Galiani, Levinsohn, McLaren, & Woolard, 2008). Industries like agriculture, which require an unskilled labour force, have shifted from being labour-intensive to robotics and machines for higher production. Furthermore,

younger individuals possessing post-secondary education are frequently more adept at seizing new employment chances generated by these technology breakthroughs, hence exacerbating the employment disparity (Autor, Dube, & McGrew, 2023). Nevertheless, TVET schools play an important role in addressing the unemployment problem amongst the youth as they are required to equip the labour force with the proper skills necessary for the labour market. Quality plays a significant role in determining how a product or service sells. As defined by the United Nations (UNESCO-UNEVOC, 2019), education is a significant part of a nation, and quality education can sustain the good development that human beings can undergo. There is a need to move from traditional service and production methods to achieve customer satisfaction and increased revenues. To adapt to the changing business environment, new management models are required, and senior managers must have a far greater understanding of the demands of both clients and rivals.

Education is a crucial service that the government should give priority to. Wealth and security in a country are achieved through education. Afeti (2010) notes that technical and vocational education and training (TVET) schools are widely recognised as significant drivers of technological progress, social growth, and national development. In the context of TVET (Technical and Vocational Education and Training) schools, "schools" refers to an institution that provides vocational and occupational education and training, preparing students for specific trades and careers (DHET, 2024). These schools offer practical skills and knowledge necessary for direct entry into the workforce or further vocational studies, rather than primarily focusing on traditional academic degrees.

Technical and Vocational Education and Training (TVET) focuses on obtaining the necessary skills, abilities, and knowledge for employment, according to the UNESCO International Centre for TVET (UNESCO-UNEVOC, 2019). According to Hollander and Mar (2009), the purpose of TVET is to prepare students to be ready for the world of work, self-employment, and innovation in the world of work and to enable them to have a sense of belonging in their respective communities. TVET schools encompass educational and training opportunities, including formal, non-formal, and informal learning. Maintaining excellent education has been a significant issue in South Africa, particularly with the implementation of cost-free education in TVET schools, regardless of a student's familial circumstances. The South African government consistently allocates a substantial amount of funds towards advancing education. Education administrators must guarantee that the education supplied meets high quality standards, as they get an annual subsidy of over 8 billion rands (Treasury, 2024). According to the TVET Schools Act (Act 16 of 2006), schools must establish a quality management system, consisting of procedures designed to ensure a specific degree of excellence. The system (Higher Education Training Manual, 2018) outlines three areas of concentration: management function, core function, and support function. This study examined the difficulties encountered in implementing quality management systems at TVET schools in South Africa based on the abovementioned issues.

1.2. Statement of the Problem

TVET schools in South Africa face many challenges, ranging from inadequate funding, poor management, and inadequate facilities, despite being fundamental in

addressing unemployment, poverty, and economic development through skills development (Buthelezi, 2018; Zulu & Mutereko, 2020). TVET schools have a role in eradicating the unemployment rate, but South Africa still has many unemployed people, and the most affected are the young graduates. The Limpopo province, where the study took place, has a higher youth population than any other province at 33.6% (Stats SA, 2021), and five public TVET schools are also tasked with the provision of hands-on practical training in specific trades or professions by aligning their education with industry needs. Although South Africa is recognized as a middle-income country, inequality, poverty, unemployment, and social injustice remain major challenges (Stats SA, 2021). South Africa possesses one of the highest unemployment rates worldwide, attaining 32.9% in the second quarter of 2023 (Statistics South Africa, 2023). Youth unemployment is particularly concerning, with over 60% of those aged 15-24 unemployed (World Bank, 2023). Elevated unemployment yields extensive repercussions, encompassing heightened poverty, inequality, and social instability.

The economic framework, historical remnants of apartheid, inadequate skills development, and structural discrepancies in the labour market intensify the issue (Leibbrandt et al., 2022). Despite the throughput or graduation rate that different higher education stakeholders are interested in, stakeholders also expect TVET schools to provide quality education to students who are the main stakeholders. According to the South African National Development Plan (NDP), TVET schools are expected to be the hub or the backbone of technical vocational education with young people as their main target. South Africa's National Skills Development Strategy III (NSDIII) expects

workplace learning to be part of all vocational programs for workplace training to be integrated with theoretical learning and for partnerships with education, training institutions, and employers to be considered. McGrath and Akoojee (2016) state that South Africa's problems include poverty, inequality, and unemployment. McGrath and Akoojee (2016) further state that to ensure that all individuals (adults and youth) have access to high-quality technical vocational education, the system of Technical Vocational Education and Training (TVET) schools must be strengthened while keeping in mind the unique relationship that TVET has with the workplace. South Africa is one of the countries with a high unemployment rate, and in the third quarter of 2019, the rate increased from 26% to 29% in 2017 despite the substantial funding to TVET schools from the government (Makgato, 2019).

Statistics South Africa (2024) reports that the national young unemployment rate exceeds 60%, with a substantial segment of this demographic consisting of graduates from TVET schools. Despite the commendable objectives of TVET schools, many graduates are inadequately prepared for the job market, resulting in a disjunction between education and employment (DHET, 2020). Numerous programs remain antiquated, theoretical, and detached from the swiftly changing requirements of the fourth industrial revolution (4IR). Industries increasingly demand digital, analytical, and problem-solving abilities; nevertheless, TVET programs frequently disregard to emphasize these competences (Nkosi & Mavhungu, 2022). TVET schools are very important as they offer courses that ensure the achievement of skills necessary for the economy and bridge the unemployment gap in South Africa. As per the UMALUSI report (2014), most TVET

lecturers were ill-equipped to cope with the academic and social demands of vocational teaching. Since lecturers are the ones who are directly involved with the main customer (students), the questions that may arise might be: are they fully capacitated to produce learners who will respond positively to the needs of the economy or to bridge the gap of scarce skills shortages in South Africa?

The South African government has placed a lot of expectations on TVET Schools towards its 2030 development plan. According to the Finance and Fiscal Commission (2013), nine public TVET schools were put under administration in 2013 due to governance and management problems. This indicates that a setting, strategy, or philosophy needs to be created to introduce a transformational climate that engages different stakeholders in TVET schools for quality purposes so that TVET schools become responsive to the labour market (Arfo, 2015). Research needs to be conducted on how quality management can be implemented effectively, as quality management touches all activities of a business.

1.3. Purpose of the Study

The purpose of this research was to examine the relationship between the employability of graduates and quality management practices used by Technical and Vocational Education and Training (TVET) institutions in the Limpopo Province of South Africa. Examining how curriculum relevance, teaching and learning quality, assessment techniques, industry partnerships, and institutional support systems affect graduates' labour market readiness is the goal of the study. By identifying the advantages and

disadvantages of current quality management procedures, the study's aim was to provide evidence-based suggestions that enhance graduate employability, promote socioeconomic growth in the province, and match TVET results with national priorities for skills development.

The study used mixed-method approach to assess and explore quality management issues in Technical Vocational Education and Training (TVET) schools in Limpopo Province, South Africa. The study utilised a convergent parallel mixed-method design, wherein qualitative and quantitative methods were integrated to yield triangulated results through the simultaneous collection of two data types, analysed independently via qualitative and quantitative analytical techniques (Schoonenboom & Johnson, 2017; Shorten & Smith, 2017; Creswell & Plano Clark, 2018). Quantitative data was collected using a questionnaire from the teaching and administrative staff of the three TVET schools that had permitted the researcher to conduct the study, as shown in the appendices. The researcher also used the snowball sampling method to get 15 participants to collect qualitative data through semi-structured interviews, and those participants were five former TVET school students, five managers of campus schools, and five employers who employ TVET school students. A quantitative method was used to determine quality management indicators and the measurement of quality improvement. In contrast, a qualitative method was used to find out how TVET schools' students perform at their workplaces, the challenges faced by TVET schools, and the perceptions of former students towards TVET schools' education.

This study was undertaken to improve the quality of TVET schools for economic sustainability and to reduce unemployment in South Africa. For this study, quality

management is defined as managing all activities and tasks that must be done to maintain a required level of excellence (Erasmus, Rudansky-Kloppers & Strydom, 2019).

1.4. Research aims

The primary aim of this study was to assess the effectiveness of existing quality management practices in Technical and Vocational Education and Training (TVET) schools, focusing on their alignment with national education and training standards. In an educational landscape increasingly focused on accountability and outcomes, understanding the quality management mechanisms within TVET institutions is crucial. This research delved into various dimensions of quality assurance, including the policies and frameworks that guide TVET schools, the specific strategies employed to maintain and enhance educational standards, and the involvement of stakeholders such as faculty, students, and industry partners. By examining these factors, the study aimed to uncover best practices that align with national standards and meet the needs of a dynamic labour market.

Furthermore, the study assessed the effective quality management's tangible and intangible benefits. These include improved student outcomes, graduate employability, enhanced institutional reputation, and greater alignment between education and industry requirements. Additionally, the research considered how quality assurance practices foster a culture of continuous improvement within schools, ultimately leading to more responsive and relevant vocational training programs. Through qualitative and quantitative methodologies, this study gathered insights from various TVET institutions,

aiming to create a comprehensive picture of how quality is perceived, managed, and experienced by different stakeholders. The findings will contribute to the broader discourse on vocational education in South Africa, providing valuable recommendations for policymakers, educators, and institutional leaders seeking to enhance the quality and efficacy of TVET education.

1.5. Research objectives

Research objectives are specific, measurable goals that outline a study's goal. They provide clarity and direction, guiding the research process from formulating research questions to data collection and analysis. According to Creswell and Creswell (2018), well-formulated research objectives help focus the study on its core purpose and ensure that the research remains organized and systematic throughout its development. Research objectives are typically divided into general and specific objectives. The general objective provides a broad statement about the main goal of the research. In contrast, specific objectives break down the general objective into smaller, more focused aims that guide the investigation step by step. For example, general objectives may address overarching goals such as understanding a phenomenon. In contrast, specific objectives focus on quantifiable outcomes, such as identifying trends, measuring impacts, or exploring relationships between variables (Bryman, 2016). Other scholars also emphasize the importance of aligning research objectives with overall research design and methodology. According to Saunders, Lewis, and Thornhill (2019), research objectives are central to determining the research strategy, methods of data collection,

and analytical techniques. For instance, in quantitative research, objectives often focus on testing hypotheses or measuring variables, while in qualitative research, they may aim to explore concepts, behaviours, or experiences in-depth.

Research objectives must also be SMART, i.e., specific, measurable, achievable, relevant, and time-bound. This framework ensures that objectives are realistic and can be effectively addressed within the constraints of the study, including time and resource limitations. Clark and Ivankova (2016) suggest that clear and attainable research objectives contribute to the feasibility of the study, enabling the researcher to stay focused and ensure the objectives are met. Other scholars highlighted the iterative nature of research objectives, particularly in exploratory or qualitative research. Maxwell (2018) argues that, in some cases, research objectives may evolve as new insights are gained, allowing researchers to adjust their focus based on the data collected. This flexibility ensures that the research remains relevant and responsive to emerging trends or findings. The following objectives guided this study:

1. To assess the statistical significance between the quality management strategies used by TVET schools and the quality of students produced
2. To examine quality management strategies employed by TVET schools in South Africa aimed at producing quality students
3. To determine the challenges faced by TVET schools that hinder the provision of quality education

4. To examine the role of different stakeholders in quality management in TVET schools in South Africa
5. To determine the important skills necessary for the employability of TVET schools' graduates

1.6. Nature and Significance of the Study

This study employed a mixed-method research approach due to its triangulation capabilities. Triangulation uses more than one method of investigation and multiple sources of data. Using triangulation, findings can be cross-checked, which is a reliable way of understanding complex social realities (Kumar, 2018). The researcher employed a convergent parallel design, which has two phases and allows the theoretical perspective of the researcher to guide the study and determine the order of data collection (Bell et al., 2018). While the population of this study was four South African TVET schools, the researcher only drew the sample from three schools in the Limpopo Province due to accessibility, manageability, and willingness to participate. For the schools's community to be well represented, stratified sampling was used for quantitative data respondents, and the population of the schools was divided into two subgroups (lecturers, and admin staff members). Iliashu and Etikan (2021) define stratified random sampling as selecting a subset of objects from a population based on shared criteria such as age, gender, race, income level, and education level. The Raosoft sample calculator (with a margin of error set at 5% and a confidence level set at 95%) was used to get the right sample size in both subgroups. A minimum of 260 respondents, but not limited to, were targeted to get quantitative data. The researcher used a stratified sampling strategy to allow relevant

stakeholders to be part of the study so that the researcher gets the input and output part of the quality management (Frey, 2018). The questionnaire had two parts (Part A for capturing biographical details and Part B for quality management strategies), and both parts were to be completed by both sets of participants. The snowball sampling method was employed to identify other participants (Campus heads, former students, and industrial representatives) to gather qualitative data. A five-point Likert scale questionnaire was designed to measure respondents' opinions towards quality management, guided by the literature reviewed and the objectives of this research. According to Iliashu and Etikan (2021), a Likert scale is more straightforward to construct than other scales and is more reliable because respondents answer statements included in the instrument. Interview questions were also guided by the research objectives and literature reviewed. After the researcher had gathered the data, it was organized, coded, and analysed sequentially, starting with quantitative data and proceeding to qualitative data. Using descriptive analysis, qualitative data was analysed statistically using graphs, tables, and charts from the SPSS program. Qualitative data was analysed using thematic data analysis, which searches across data sets to identify, analyze, and report repeated patterns (Flick, 2015).

1.7. Significance of the study

The significance of this study lies in its potential to drive meaningful improvements in the quality management practices within South African TVET (Technical and Vocational Education and Training) schools. Rather than criticizing existing quality management systems, the research sought to highlight areas for

enhancement, ensuring that TVET institutions deliver education that meets national standards and the needs of the labour market. Quality management is a multi-dimensional process involving various aspects such as customer focus (students and stakeholders), organisational leadership, employee involvement, and commitment to continuous improvement. By focusing on these key areas, this study offers valuable insights into how TVET schools can adopt a more comprehensive approach to quality management. Effective quality management within TVET institutions is critical for ensuring students receive relevant and high-standard education and aligning these institutions with broader societal and economic goals. This is particularly important given the significant role that TVET schools play in addressing the skills gap in South Africa and contributing to reducing unemployment.

Moreover, this study serves as a vital reference for policymakers, providing actionable recommendations on strengthening the education and training landscape within TVET schools. Policymakers may use the findings to reform and refine existing policies, to create an environment where students benefit from a curriculum that is responsive to societal needs, industry demands, and the evolving technological landscape. By enhancing the quality management framework in TVET schools, students will be better equipped to confront societal challenges, such as unemployment and poverty, and contribute positively to economic growth and sustainable development. This research might also provide a much-needed framework or model for implementing effective quality management in higher education institutions, specifically focusing on TVET and FET (Further Education and Training) schools. The proposed framework can

be adapted to local contexts, offering a practical guide for institutions aiming to enhance their internal processes and improve outcomes for students and staff alike. By integrating principles such as continuous improvement, student engagement, and industry collaboration into the quality management process, this study will help ensure that TVET schools can produce skilled graduates ready to contribute to the economy.

Additionally, this study might help bridge the gap between theoretical knowledge of quality management and its practical implementation within the education sector. It will serve as a valuable tool for TVET schools to assess their current quality management strategies and identify areas for improvement. The long-term impact of improving quality management in TVET institutions could lead to better student retention, enhanced employability, and stronger institutional performance, ultimately contributing to the upliftment of the education sector in South Africa as a whole.

1.8. Research Questions and Research Hypotheses

1.8.1 Research questions

According to Creswell (2017), a research question is the particular question to which the researcher seeks answers to successfully address the research topic. According to Bryman (2016), research questions are pivotal in determining the methodological approach, whether qualitative, quantitative, or mixed methods, and influence how data will be gathered and interpreted. In qualitative research, for instance, open-ended research questions are used to explore experiences, meanings, and

processes in-depth, while in quantitative studies, more focused questions may be used to test specific hypotheses.

Additionally, Clark and Ivankova (2016) argue that research questions are critical to the success of a mixed-methods study, as they help to integrate both qualitative and quantitative elements to provide a comprehensive understanding of the research problem. The process of developing research questions requires a deep understanding of literature, as well as clarity about the intended contribution of the study. There are other researchers who also underscore the dynamic nature of research questions. According to Maxwell (2018), research questions are not fixed. They may evolve as the study progresses, especially in qualitative research, where insights gained during the data collection process might prompt a refinement or shift in focus. This adaptability allows researchers to remain responsive to emerging themes and complexities within the data. To ensure that the research purpose is achieved, the following research questions were addressed:

1. Is there a statistical significance between the quality management strategies used by TVET schools and the quality of students produced?
2. What are the strategies used by TVET schools to produce quality students?
3. What are the challenges faced by TVET schools and how do these hinder the provision of quality education?
4. What are the roles played by public TVET schools stakeholders in the provision of quality education?

5. What are the important skills necessary for the employability of TVET schools graduates?

1.8.2. Hypotheses

According to Anupama (2018), a hypothesis is fundamentally a specific and testable prediction about the relationship between variables, often rooted in theoretical understanding or prior evidence. It provides a framework for research, guiding the design and methodology of experiments or observational studies. The hypothesis for this study was as follows

1.8.2.1. H01: The predictors have no significant effect on TeachLearnQuality.

H2: The predictor has a significant effect on TeachLearnQuality.

1.8.2.2. H02: Additional predictors have no significant effect on TeachLearnQuality

H2: The additional predictors have a significant effect on TeachLearnQuality

1.8.2.3. H03: There is NO statistical significance between the quality of education received by the students at TVET schools and the quality of the graduates produced.

H3: There is a statistical significance between the quality of education received by the students at TVET schools and the quality of the graduates produced.

1.9. Chapter Summary

This chapter serves as an introduction to the study, providing a comprehensive summary of its key components and setting the stage for deeper exploration in subsequent chapters. It highlights the problem statement, which delineates the specific

challenges facing the educational landscape in South Africa, particularly within higher education. The research questions are articulated to guide the inquiry, while the research objectives clearly outline the study's goals. Additionally, the purpose of the study is defined, emphasizing its relevance in addressing critical issues within the educational sector. The aim of the study is presented, focusing on the overarching intention to contribute to the existing body of knowledge regarding educational quality and efficacy. Furthermore, the nature of the study is described, outlining the methodological approaches and frameworks that underpin the research process. The study's theoretical foundation will be thoroughly examined in the next chapter, providing a framework for understanding the concepts and principles that inform the research. This foundation is crucial for contextualizing the findings and discussions that will follow. Subsequently, the chapter will outline the South African educational system, detailing its structure, policies, and recent reforms. This overview will provide essential context for understanding the challenges and opportunities within the system. A wealth of literature regarding the quality of education in the higher education sector will be addressed, drawing on national and international studies to highlight best practices, areas of concern, and emerging trends. This literature review will support the theoretical framework and illustrate the complexities surrounding educational quality, enriching the analysis and discussion in the following chapters. Overall, this introductory chapter serves as a roadmap for the study, clearly delineating its focus and significance while setting the stage for a thorough investigation into the dynamics of quality education in South Africa's higher education system.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This mixed-methods study aimed to assess the effectiveness of existing quality management practices in South African Technical and Vocational Education and Training (TVET) schools, focusing on their alignment with national education and training standards. Empirical studies (less than 5 years) from English journal databases such as Google Scholar, EBSCO, Emerald, ERIC, and Quality or Business Administration textbooks were used as literature sources to give a solid foundation and inform this study. Key terms that guided the researcher in searching the literature were quality, quality management, higher education, and TVET schools, among others. Reviewing various publications on quality management issues helped the researcher unveil topics and themes already researched and explored by other scholars. The conclusions of other researchers were pivotal in the acceptance and validation of this study regarding problem formulation, research design or methodology, and data analysis techniques. The comprehensive literature evaluation enabled the researcher to construct research questions and develop a strong questionnaire, as this study employed a mixed-method approach. Brink et al. (2017) assert that a literature review enables the researcher to juxtapose findings with those of other scholars during the discussion phase, thus reinforcing and validating the research study. This chapter encompasses the following: Theoretical framework, Conceptual framework, Description of the higher education and training industry, definition of quality and quality management, quality concerns in higher

education, quality control measures, factors influencing quality management, planning for quality, managing quality and lastly expenditures associated with quality.

2.2. Theoretical Framework

The theories that framed this study are stakeholder theory and human capital theory, but theories such as legitimacy and system theory, which are of value to this study, have been addressed below.

2.2.1 Stakeholder theory

Stakeholders are individuals or a group of people who are affected or who can affect the organisation's activities or operations (GPPAC, 2015). Stakeholder theory shows the relationships between stakeholders (internal and external) and how the organisation should implement business ethics and moral values. Stakeholder theory states that a company should create value for all its stakeholders and have a reciprocal relationship between the company, investors, suppliers, customers, and anyone interested in the company (Phillips, 2011). According to Rosa (2014), higher education customers include students, employers, all staff members, parents, former students, the government, and the entire society. According to Freeman et al. (2020), stakeholder theorists view making a profit ethically or without deceiving customers as the most important aspect of a business than the view of other stakeholders such as customers or clients. Stakeholder theory has been widely used and adopted by business and economics scholars but is criticized due to its lack of realism (Thaler, 2015). This theory relates to this study as it requires institutions to address the diverse needs of their

stakeholders not only their shareholders. In higher education, the diverse needs of students, faculties, staff, employers, governments, alumni, and society at large need to be considered to ensure quality education. According to UNESCO (2021), quality education encompasses inclusive access, student-centred learning environments, and teaching that fosters critical thinking and lifelong skills. Stakeholder theory promotes collaborative efforts among stakeholders to co-create value.

2.2.1. Justification of stakeholder theory

2.2.1.1. Holistic Understanding of Quality:

According to Hernández-Linares, Kellermanns, and López-Fernández (2021) quality management in education is multi-dimensional, involving curriculum relevance, teaching effectiveness, assessment integrity, and graduate employability. Stakeholder Theory helps capture the perspectives of all key actors (students, lecturers, industry partners, policymakers), ensuring that quality assessments are comprehensive.

2.2.1.2. Aligning Educational Outcomes with Labour Market Needs:

A significant challenge for TVET schools in Limpopo is addressing the skills mismatch between graduates and labour market demands. Stakeholder Theory highlights the importance of industry partnerships and employer feedback in curriculum design and quality assurance to ensure graduates are job-ready (Hernández-Linares, Kellermanns, and López-Fernández, 2021).

2.2.1.3. Conflict Resolution and Balancing Interests:

Different stakeholders often have competing interests, but students may prioritize affordable education, while industry demands specialized skills. Stakeholder Theory helps analyse how TVET schools balance these diverse expectations through effective quality management strategies.

2.2.1.4. Enhancing Stakeholder Engagement:

Quality management is about internal processes and how institutions engage with stakeholders in decision-making, policy development, and continuous improvement initiatives (Abu-Doleh, 2020). This theory emphasizes the importance of participatory governance in improving educational outcomes.

2.2.2. Human capital theory

As a fundamental concept in economics, human capital theory highlights the value of investing in people to increase their productivity and economic potential (Brown et al., 2000). According to this theory, a person's value as an economic agent is influenced by their knowledge, expertise, and experience. Human capital theory states that raising economic performance through investments in healthcare, education, and training is essential to producing a skilled labour force. Societies can boost their human capital stock and eventually reach greater levels of productivity and innovation by investing in the development of individuals' abilities. Human capital theorists state that higher education institutions are mainly tasked with investing in human capital, which is essential for the sustainable development of a country (Baatjes et al., 2014). This theory plays an

important role in how firms should operate, stay competitive, and be innovative. According to Habib et al. (2019), investing in human capital through education, training, and development programs improves the quality of firms. This theory highlights the significance of creating an environment that supports ongoing learning and skills development, which has important implications for policymaking (Baatjes et al., 2014). Human capital theory is a useful tool that governments and organisations can use to create efficient workforce development and talent management plans. Human capital theory provides important insights into how personnel investments can promote prosperity and economic growth. Societies can unleash the full potential of their workforce and establish long-lasting competitive advantages in the modern global economy by realizing the intrinsic value of human resources. Quality education received from higher education leads to easy access to employment.

2.2.2.1. Justification of human capital theory

Human Capital Theory, developed by economists like Gary Becker and Theodore Schultz, posits that investments in education, skills development, and training enhance individuals' productivity, contributing to economic growth and societal development (Ngure, 2021). Applying this theory to the context of Technical Vocational Education and Training (TVET) schools in Limpopo Province offers several justifications:

2.2.2.2 Alignment with TVET's Core Purpose

TVET schools are fundamentally designed to equip students with practical skills and competencies needed for the labour market. Human Capital Theory aligns with this mission because it emphasizes the economic value of skills development. By viewing

education as an investment rather than just a social good, human capital theory helps evaluate how effectively TVET institutions enhance students' employability and productivity (Ngure, 2021).

2.2.2.3. Focus on Educational Quality and Economic Outcomes

HCT provides a framework to assess how quality management practices in TVET schools impact student outcomes. Quality management issues such as curriculum relevance, teaching effectiveness, and assessment processes can be analysed regarding their contribution to human capital formation. This helps to justify resource allocation toward activities that directly improve student performance and long-term economic benefits.

2.2.2.4. Understanding the Return on Investment (ROI) in Education

In resource-constrained environments like Limpopo, it is crucial to demonstrate the ROI of public investment in TVET schools. According to Nzimande and Mkhize (2020), human capital theory allows for evaluating how investments in teaching and learning facilities, curriculum management, and staff development translate into tangible benefits such as higher employment rates, increased earnings, and reduced skills gaps in the local economy.

2.2.2.5. Addressing Skills Mismatch and Labour Market Needs

Limpopo faces unique socio-economic challenges, including high youth unemployment and skills mismatches. Human Capital Theory helps identify whether TVET programs are aligned with labour market demands. This alignment is a critical quality management issue because it ensures that graduates possess skills relevant to the evolving economy, thereby reducing unemployment and underemployment rates (Ngure, 2021).

2.3.4.5. Supporting Continuous Improvement in Quality Management

Quality management in education is not static; it requires continuous assessment and improvement. According to Ngure (2021), human capital theory provides a theoretical basis for monitoring and evaluating the effectiveness of educational practices. By measuring how improvements in curriculum, teaching methodologies, and assessment processes enhance human capital, TVET schools can adopt data-driven strategies for continuous quality enhancement.

2.3.4.6. Policy Relevance and Educational Planning

Given the South African government's focus on skills development as part of national development strategies (e.g., National Development Plan 2030), human capital theory is highly relevant (Nzimande & Mkhize, 2020). It offers policymakers a lens to

justify educational reforms, funding decisions, and strategic initiatives aimed at improving TVET outcomes in Limpopo Province.

2.2.3. Legitimacy theory

Legitimacy theorists argue that to maintain its existence, a company would do anything to justify its operations (Fernando & Lawrence, 2014). Legitimacy theory extends the stakeholder theory by focusing on more than what customers and society expect from a business. Its guarantee lies in the organisation's ability to conform to societal standards of different stakeholders within the society it operates. According to Suddaby, Bitektine, and Haack (2017), the legitimacy of an organisation is not immutable and can change over time and place due to how the community's attitudes unfold. Thus, to survive, organisations must constantly adapt their operations to meet the increasing demands of acceptability. Nevertheless, it is not easy to establish the congruency of different expectations, societal standards, and the objectives of the organisation. For higher education and training institutions to be successful and long-lasting, legitimacy theory and quality management are essential. According to legitimacy theory, organisations need to keep up a good reputation and image among their stakeholders to get resources and support going forward. Given how much funding and public trust educational institutions depend on, this is especially crucial. On the other hand, quality management is concerned with making sure that an institution's services either meet or surpass recognized benchmarks for excellence. Institutions can attract top talent, improve student outcomes, and build their reputation by implementing quality management practices. In higher education and training institutions, integrating

legitimacy theory and quality management creates a potent framework for success. By upholding a favorable reputation and offering excellent educational experiences, these establishments can establish strong connections with relevant parties, obtain financial support, draw in new enrollees, and ultimately fulfill their objective of offering superior education.

2.2.4. Systems theory

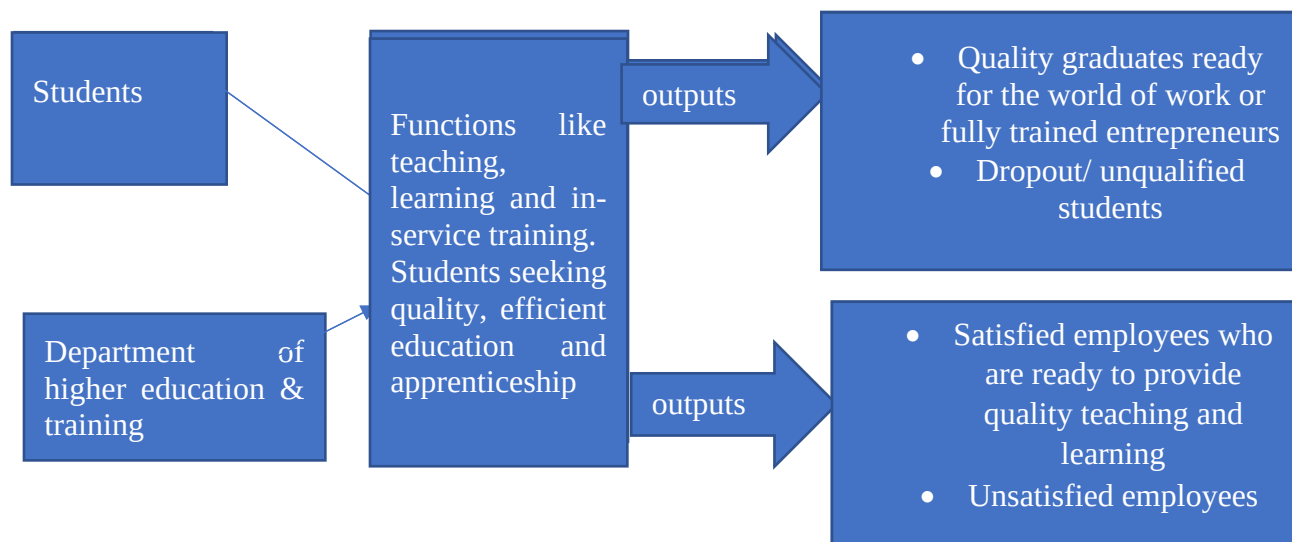
Systems theory, in contrast to legitimacy and stakeholder theory, is a conceptual framework and philosophy that states that life is a system of which humans are a part (Mingers, J., & White, 2020). All these theories are very important and play a crucial role in determining quality products or services. Systems theory and quality management are essential to the general operation of higher education establishments. Through applying systems theory principles, educational establishments can enhance their comprehension of the intricate relationships among diverse constituents within the organisation, resulting in increased efficacy and efficiency. On the other hand, quality management is concerned with making sure that every procedure and activity carried out by an organisation meets or surpasses recognized benchmarks for excellence. This covers everything, including the creation of curricula, student services, and faculty development. Through the integration of system theory and quality management practices, higher education institutions can establish a more unified and efficient strategy for accomplishing their objectives. Better decision-making procedures, more efficient resource allocation, and ultimately higher levels of student success are made possible by

this holistic approach. To sum up, system theory and quality management are critical instruments for improving the efficacy and standing of higher education institutions. Through the effective implementation of these strategies, educational institutions can guarantee that their students are receiving the best possible education.

Figure 2.1 is a diagrammatic representation of systems theory and shows that the users (students and government as the main shareholders) enter the system as inputs, bringing their wants and needs with them. The institution of higher learning, such as TVET schools, is expected to perform functions such as teaching and training students who, upon graduation, have been transformed into employable candidates or candidates who are equipped with quality business skills that will enable them to start viable businesses. On the other hand, satisfied and well-trained school employees can respond to their customers' needs and wants. If employees are poorly trained or dissatisfied, the students produced by such systems or institutions risk becoming irrelevant and unprepared to contribute effectively to the country's economy. According to Cunningham and Cochi-Ficano (2002), higher education graduates as partial products are the results of the production of the higher education system as a service industry. Higher education is called an industry because inputs are processed in the form of human capital, students, infrastructure, finance, etc, into output in the form of student competencies (Peakock & Ladkin, 2002).

Figure 2.1

System theory in the context of higher education and training



Systems theory has been used or applied in most industries including higher education of which this study focuses on with specific reference to Technical Vocational, Education and Training (TVET). Concepts and philosophies such as Total Quality Management (TQM), Crosby's concept, Juran, and EFQM model have emanated from systems theory. Crosby's concept of system theory primarily relates to quality management and is closely tied to Philip B. Crosby's principles. His ideas align with system theory in emphasizing that quality is not an isolated outcome. However, a product of the entire system's functioning, focuses on doing things right the first time and all the time and quality is not measured in terms of "poor or good" or "high or low" (Kumar et al., 2016). Crosby believes that planning and investment in strategies that are not useful is

meaningless and emphasized that quality should be managed by prevention rather than detection and testing. According to Crosby, a quality product falls within the specification of its design (Kumar et al., 2016). Juran's approach on the quality trilogy emphasized that problems should be seen as projects and improvements should be done on every projects. Even though the focus is on projects, Juran offers a systematic approach to quality over the developments that link all the functions required to launch a product or service (Kumar et al., 2016).

The total quality management process comprises various components which are interactive, and integration of all system parts leads to desired outcomes being attained. As depicted by systems theory, TQM is more than training, leadership, teams, and culture. Therefore, each organisation must reveal its own training needs, leadership, and teams to fit its particular brand of TQM (Reed et al., 2002). Systems theorists argue that implementing a complex system, such as quality management and other related components, fails because they are not managed as a system (Reed et al., 2002).

According to Erasmus et al. (2020), total quality management is a quality management system and philosophy that started in industries and can be traced back to the early 1920s when statistical theory was applied to the quality control process for manufactured products. This theory evolved during the late 1980s and the 1990s and revolves around quality. It was developed by quality gurus such as William Edwards Deming. It is a philosophy that the Japanese and the Germans first used, and it inspired management scholars because the Japanese and the German managers who used this philosophy produced top-quality products and did so at a higher rate of productivity

(Erasmus et al., 2020). Erasmus et al. (2020) further argue that Total Quality Management is a management philosophy that aims at customer satisfaction by providing high-quality products or services and aims to:

- Make sure that customer needs and their expectations are met;
- Cover all company areas, no matter how small or insignificant.
- All employees in the organisation are quality-conscious and responsible for their own contribution.
- Identify and consider all quality costs, including prevention and downtime costs.
- Be proactive rather than reactive to get things right the first time.
- Develop and implement systems and procedures for quality and its improvement.
- Continuous improvement process.

Due to the successes of Japanese products globally, Western managers have realized that to access international markets, they should not only put more effort on producing more products but also on quality production (Erasmus et al., 2020).

One of the models emanating from the philosophy of total quality management, also a building block of this research, is the European Foundation for Quality Management (EFQM) model, which is built on nine quality management criteria (Saraiva et al., 2003). The model was founded in 1992 by the European Foundation for Quality Management to help European organisations create a quality management system that allows the evaluation of organisations with the aim of performance improvement. There are five implementation factors (the criteria that determine what the company is doing) and four outcomes (the criteria that determine the company's achievements). The result

is a model that refrains from requiring a single methodology but recognises the diversity of quality management methodologies. EFQM focuses on areas such as organisational results, customer satisfaction, consistency, continuous learning, building partnerships, and corporate social responsibility (Laurett & Mendez, 2019). Universities can improve their performance in important areas like leadership, strategy, people management, partnerships, resources, processes, and results by putting the EFQM model into practice. Using the EFQM model in higher education has several advantages, one is that it offers a comprehensive approach to quality management. This implies that academic institutions can evaluate their performance in several areas and pinpoint areas in need of development. Institutions can improve their overall quality and reputation by concentrating on critical drivers of excellence like stakeholder engagement, process improvement, and leadership commitment. Moreover, the EFQM model promotes a culture of ongoing learning and improvement in higher education. Figure 2.2 illustrates the EFQM model.

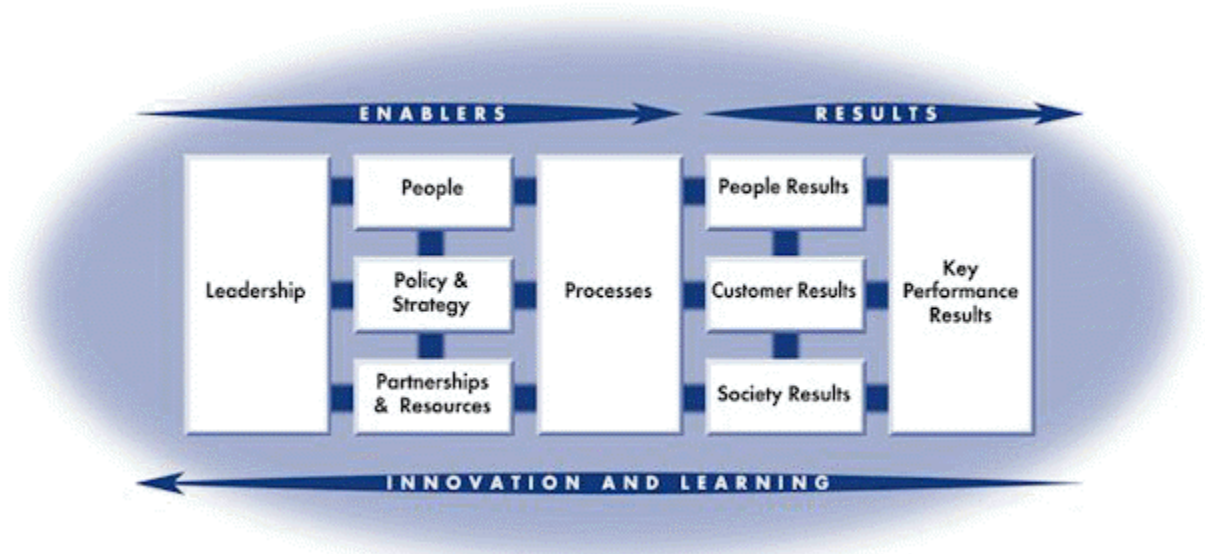
Figure 2.2*The EFQM model (Oakland, 1998)*

Figure 2.2 represents the EFQM model with nine boxes that represent criteria that are used to assess an organisation's progress towards excellence, of which five boxes represent enablers- what the organisation does to manage its human and capital resources, how the strategy is formulated, and how key processes are monitored and reviewed. The other four boxes represent results- how the organisation's customers and employees are satisfied, how the organisation impacts the community it serves, and the key performance indicators. The arrows represent the emphasis of dynamic nature of the model. Additionally, as demonstrated by the arrows, learning and innovation contribute to the enhancement of enablers, which enhance outcomes. The framework demonstrates how leadership guiding strategy and policy, people, and partnerships ultimately lead to excellence in key performance results for customer, people, and society outcomes.

The Excellence Model is a useful tool within EFQM that can be applied in several ways, such as self-evaluation, comparison with other organisations, opportunity identification guidance, and as a non-prescriptive framework acknowledging that there are various paths to organisational excellence (Saraiva et al., 2003). Rather, it is a tool to help organisations in their efforts to diagnose and assess the quality and to encourage them to engage in continuous improvement activities. Several studies, such as that of Nwachukwu et al. (2017), have pointed out that the model has some shortfalls, like not showing how quality management practices, which are linked with the model, can be applied for organisations to make it appropriate for services. In their study on the application of EFQM, La Rotta and Pérez Rave (2017) recommend in their conclusion that further studies will be useful in other sectors such as healthcare, education, and others.

Total quality management has generated many discussions about its potential importance for the sector and its educational and social implications (Stensaker, 2007). Even though several research on the field of total quality management shows its application in different areas as having positive changes in institutional activities, such as improving enrolment, student retention, and the internal institutional environment, other authors argue that TQM is not easy to implement in many countries such as India and other developing countries due to lack of resources and low employee satisfaction (Balasubramanian, 2016). Nevertheless, Birnbaum (2000) noted that total quality management was complete, but institutions fail to implement it due to employees resisting change, team leaders' lack of experience, employees ' non-existence of teamwork, and

the institutions' concern that the results are not sufficient. Principles of comprehensive quality management such as quality improvement that should always be continuous, consistency of quality, involvement of employees, students, and non-academic staff, customer satisfaction, and management procedures that seek to strengthen quality are some of the reasons why the researcher chose total quality management and European Foundation for Quality Management (EFQM) models as the basis of this research study.

2.3. Systemic Methodology for Educational Excellence

Garira (2020) underscores the necessity of approaching education quality from a holistic or systemic viewpoint. Educational quality is a complex term comprising multiple dimensions that encompass interactions among inputs (e.g., teacher quality, infrastructure), processes (e.g., curriculum delivery, instructional methodologies), and outputs (e.g., student accomplishment, societal outcomes). Neglecting to handle these links may result in unforeseen adverse outcomes. An enhancement in infrastructure may not yield improved educational outcomes unless teacher quality and curriculum relevance are concurrently addressed. Tikly (2019) contends that educational changes to enhance quality must include contextual aspects, including socio-economic realities, cultural relevance of courses, and local requirements. A systemic approach recognises the necessity for equilibrium among the diverse elements of the education system. Enhancing a single facet of education, such as augmenting access to technology, may not produce significant advancements if students lack fundamental abilities, educators are ill-equipped to incorporate technology proficiently, or insufficient support mechanisms.

2.4. Conceptual framework

A conceptual framework serves as a guiding structure for research, clarifying the relationships among the variables and constructs under study. It defines the inquiry's scope, direction, and boundaries by integrating theoretical and empirical insights. Conceptual frameworks are essential in establishing coherence, linking research objectives with existing knowledge, and helping researchers identify gaps in the literature.

Recent literature emphasizes the significance of a well-defined conceptual framework in ensuring rigorous research design. Adom et al. (2018) argue that a strong conceptual framework enables researchers to explain their study's key concepts while demonstrating their interrelationships. This helps refine research questions and hypotheses, making the study more focused and actionable. Similarly, Leshem and Trafford (2007) highlight that frameworks serve as lenses through which data are interpreted, ensuring alignment between the theoretical underpinnings and the methodology.

In education, conceptual frameworks often explore themes like curriculum design, teaching practices, and student outcomes. For instance, Chinyama et al. (2022) propose frameworks integrating technological tools into traditional teaching, emphasizing the need for adaptive and context-sensitive models. Furthermore, research by Khan (2021) underscores the importance of frameworks in addressing the gaps between theory and practice, especially in vocational and technical education, where a balance between academic knowledge and practical skills is crucial. When developing a conceptual framework, it is vital to incorporate multiple perspectives to ensure inclusivity and

relevance. Creswell and Creswell (2022) recommend grounding frameworks in both theoretical models and empirical findings, enhancing their validity. This approach strengthens the research design and facilitates actionable, evidence-based, and theoretically informed recommendations. Figure 2.3 illustrates the conceptual framework proposed for this study.

Figure 2.3
Conceptual framework

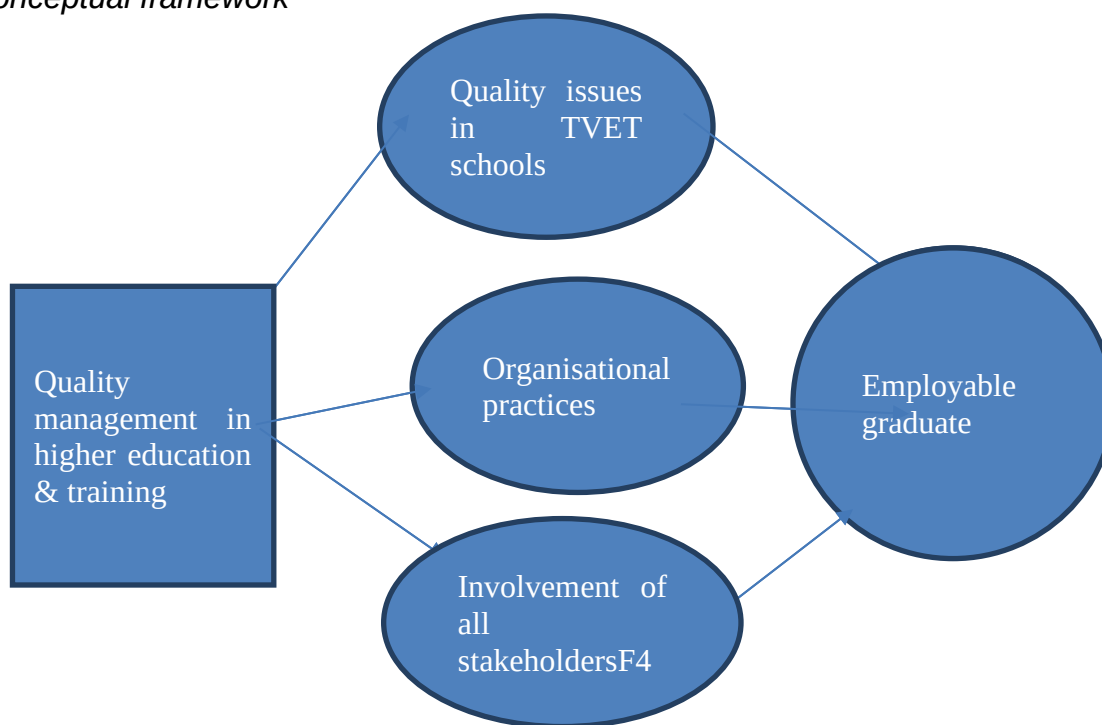


Figure 2.3 highlights the importance of a comprehensive approach to quality management within TVET (Technical and Vocational Education and Training) schools institutions. Effective quality management in these institutions requires a multifaceted strategy encompassing several key elements: quality issues, organisational practices,

and the active involvement of relevant stakeholders. Firstly, addressing quality issues involves identifying and understanding the specific challenges that affect educational outcomes. This can include curriculum relevance, teaching methodologies, and resource availability. By conducting regular assessments and evaluations, institutions can pinpoint areas for improvement and ensure that their educational offerings align with industry standards and workforce demands.

Secondly, the establishment of strong organisational practices is vital for fostering a culture of quality. This includes implementing standardized processes for course delivery, assessment, and feedback mechanisms. Institutions should prioritize continuous professional development for educators, enabling them to stay updated with industry trends and pedagogical advancements. By creating an environment that encourages innovation and collaboration among faculty, TVET schools can enhance their educational quality and responsiveness. The involvement of relevant stakeholders such as industry partners, alumni, and community representatives is crucial for ensuring that the education provided is both practical and applicable. Engaging these stakeholders allows institutions to gain insights into current labour market needs, ensuring graduates possess the skills and competencies employers require. Collaborative initiatives, such as internships, apprenticeships, and guest lectures, can further bridge the gap between theory and practice, enriching the student learning experience. The output of these concerted efforts is a cohort of employable graduates who are not only knowledgeable but also skilled, innovative, and creative. Such graduates are better equipped to navigate the complexities of the modern workforce, adapting to technological advancements and contributing

meaningfully to their communities and industries. TVET schools play a pivotal role in enhancing employability by emphasizing quality education and fostering economic growth and social development. For research on educational quality in TVET institutions, for example, the conceptual framework could focus on interrelationships between teaching quality, curriculum relevance, and industry alignment. Literature from authors like Mukhtar et al. (2022) suggests integrating feedback mechanisms from stakeholders (students, educators, and industry representatives) to refine the curriculum and ensure that it meets labour market demands.

2.5. What is Quality?

Defining and describing what quality is, varies according to who defines it and their role. Qualities can be perceived, heard, seen, and felt, though they are difficult to describe. Total Quality Management (TQM), Quality Management System (QMS), Quality Improvement Programme (QIP), Systems Management, and Continuous Improvement Strategy (CIS) are some of the terms used to characterize the quality management concept (Meyer, 1998). In the opinion of Erasmus et al. (2020), quality is the best available; it is error-free, appropriate for its intended use, satisfies a set of quantifiable requirements, or offers good value for money. Various factors must be considered when evaluating quality. Among them are dependability, toughness, effectiveness, and accuracy. Quality can also be arbitrary because personal preferences and expectations heavily influence high quality. The validity and credibility of research findings are determined by quality in the academic setting. Ethics must be followed, strict procedures

must be used, and credible findings that significantly advance our body of knowledge must be produced by high-quality research. According to Oakland (2014), quality is also about reliability. For a product or service to be acceptable, it should be able to function accordingly over a period and meet the customer's expectations continuously. Quality in the organisation includes determining a quality policy, creating and implementing quality planning and assurance, and quality control and quality improvement (Erasmus et al., 2020). Finally, any field or industry must prioritize quality. It establishes what constitutes acceptable or extraordinary and is a yardstick for excellence. By keeping integrity and professionalism in everything they do, striving for quality guarantees that goods and services satisfy customers' needs and expectations.

2.5.1. Quality in Higher Education

The feeder source system that provides the desperately needed human resources from management, planning, design, production, teaching, and research in higher education, according to Prasad (2006). The higher education system serves as a supplier for both technological innovation and national economic development. High standards, economy of cost, functionality, efficiency, and customer focus are all components of quality in higher education, according to Watty (2006). For vocational education to function effectively, there should be a high-quality standard in teaching and learning of students, quality infrastructure and materials available, and quality teaching methods in place. A quality organisation has a culture of quality where quality is always placed at the Centre of the organisation's doing. The mission and goals of a quality organisation focus

on the customer (students), activities and processes are standardised, and the needs of stakeholders are satisfied (Prasad, 2006).

2.5.2. Quality in teaching and education

The notion of quality in education has developed throughout time, originating from post-World War II manufacturing methods, where efficiency and effectiveness were primary determinants of quality. These concepts were implemented in the 1990s to address escalating state demands for enhanced educational outcomes (Geiger, 2017; Sallis, 2014). Nonetheless, after numerous decades of implementing quality measures, a wide range of interpretations of the definition of quality persists, especially in teaching and learning. Other studies underscore that effective teaching enhances student performance, concentrating on objectives critical for future success. Darling-Hammond (2000), Dube et al. (2022), and others have emphasized that student advancement should be the principal factor for evaluating teaching quality. Modern viewpoints resonate with this methodology. Rowland et al. (2023) assert that teaching quality encompasses the transmission of subject information, and the cultivation of critical thinking, creativity, and adaptability skills is essential for success in a rapidly evolving environment. Schneider and Hutt (2020) contend that effective teaching necessitates incorporating technology and new pedagogical approaches that actively engage students, especially in the post-pandemic context, where online and hybrid learning modalities are increasingly prevalent. Gore et al. (2021) assert that effective teaching must be inclusive, facilitating the support and success of diverse student populations in various learning situations.

Furthermore, Biggs and Tang (2021) emphasise that the congruence of pedagogical practices with learning objectives, termed constructive alignment, can substantially improve educational quality by guaranteeing that students not only get knowledge but also utilise it effectively. This is essential as educational systems worldwide encounter mounting pressure to equip pupils for an unpredictable and swiftly evolving labour market (OECD, 2023). Although perspectives on quality in education differ, many scholars consistently highlight the significance of student advancement, critical thinking, inclusion, and adaptability in characterising great teaching in the contemporary educational environment.

2.5.3. Quality in Technical and Vocational Education and Training (TVET) instruction and learning

The definition of quality in Technical and Vocational Education and Training (TVET) are contextual, comprising a multi-dimensional, multi-level, and dynamic framework (Prakash, 2018). Technical and Vocational Education and Training (TVET) quality is essential for equipping students with pertinent skills for the labour market. Idialu (2007) asserts that upholding excellent teaching standards necessitates that educators consistently fulfil stringent professional criteria, ensuring their instructional methods are following industry advancements. The delivery of superior instructional methods, educational resources, and student assessment is essential for effectively operating TVET programs (Gamble, 2016).

Contemporary literature consistently emphasises these principles. Mulder (2022) contends that the calibre of TVET is intrinsically connected to its capacity to generate graduates capable of fulfilling contemporary industry requirements. This underscores the need for industry partnerships, guaranteeing that courses stay pertinent and indicate contemporary technology and practices. Kraak and Paterson (2020) contend that high-quality TVET should prioritise incorporating digital capabilities, considering the growing demand for technologically proficient personnel in diverse sectors. Due to the swiftly evolving global economy, Dube et al. (2022) assert that quality assurance techniques in TVET must be resilient and adaptable. It is recommended that TVET universities implement continuous improvement approaches, incorporating regular feedback from employers and industry partners into program design and delivery. This guarantees that the skills and abilities students obtain are current and employable. Madimabe and Omodan (2021) assert that quality assurance in TVET includes program delivery and comprehensive monitoring and evaluation methods that guarantee student outputs meet national and worldwide workforce standards. As the global economy becomes increasingly interconnected, TVET institutions must synchronise their standards with worldwide benchmarks to guarantee that graduates can compete in a globalised labour market (OECD, 2023).

Achieving high-quality teaching and learning in TVET necessitates a comprehensive strategy encompassing ongoing professional development for educators, engagement with industry stakeholders, and stringent quality assurance processes that

adapt to changing industry demands. This is crucial for equipping students with the skills and abilities required for sustained employment and fostering economic development.

2.5.3. Multi-Dimensional Understanding of Quality

Barrett et al. (2018) examine the necessity for a comprehensive understanding of educational excellence. They suggest a framework that transcends basic metrics like test scores, incorporating aspects such as learner well-being, equal access, and the cultivation of critical thinking and problem-solving abilities. A non-systemic strategy that concentrates just on access or a singular aspect of quality, such as teacher qualifications, may neglect underlying systemic difficulties, such as student engagement, curriculum relevance, or socio-economic gaps affecting learning results. Zachariah and Pereira (2021) contend that in poor countries, where governments prioritise enhancing enrolment rates to achieve SDG 4 objectives, the quality of education frequently goes ignored, resulting in a gap between quantitative and qualitative advancements. For instance, although enrolment rates may increase, ineffective teaching techniques, obsolete curricula, or insufficient educational resources can impede genuine learning.

2.6. International Perspective on Vocational Education and Training

Vocational Education and Training (VET) is essential for developing skilled labour forces and enhancing economic competitiveness among countries. Countries employ various techniques and tactics for vocational education and training (VET) based on their unique socio-economic conditions and labour market needs. This review highlights

numerous important global perspectives on vocational education and training, supported by current scholarship.

2.6.1. Dual System Model (Germany and Switzerland)

The dual system model, particularly prominent in Germany and Switzerland, integrates theoretical education with practical vocational training. This curriculum is renowned for its effectiveness in preparing students for employment. Perry and Skiba (2021) contend that this system strongly connects educational outcomes and labour market demands, significantly reducing youth unemployment rates.

2.6.2. Competency-Based Training in Australia

Australia employs a competency-based training system that prioritizes the development of specific skills relevant to the employment market. Kisida (2022) contends that this system promotes flexible learning pathways, allowing learners to progress according to their individual abilities. The Australian VET system emphasizes collaboration with industry partners to ensure the relevance and up-to-date nature of training packages.

2.6.3. Initiatives for Skill Development in Singapore

Singapore's vocational education and training system has experienced significant transformation recently, prioritizing continuous skill development through initiatives like

the Skills Future program. Tan and Ng (2022) assert that this methodology promotes lifelong learning and empowers individuals to take charge of their professional development. The strong collaboration between educational institutions and corporations ensures that graduates obtain the skills required for a rapidly evolving job market.

2.6.4. Apprenticeship Programs in the United Kingdom

In the UK, apprenticeship programs have garnered heightened attention as a tool to mitigate skills shortages. Wolf (2021) states that these programs combine practical training with academic education, providing youngsters with unique pathways to employment. The government's efforts to increase the number of apprenticeships have been crucial in alleviating skill shortages in several areas.

2.6.5. Models of Inclusive Vocational Education and Training in the Nordic Countries

The Nordic countries, comprising Finland, Sweden, and Denmark, emphasize equitable access to vocational education. Kisida (2021) notes that vocational education and training (VET) is integrated into the broader educational system, positioning it as a valid alternative to academic pathways in these countries. These nations emphasize social equity through measures to support underprivileged groups, ensuring access to great educational opportunities for all.

2.6.6. Vocational Education and Training Enhanced by Technology (China)

China is rapidly advancing its vocational education and training system to satisfy the demands of a high-tech economy. Researchers such as Zhang et al. (2023), investigated the integration of technology in vocational training, including online platforms and virtual simulations. These technologies enhance training experiences and prepare students for modern work responsibilities in an increasingly digital landscape.

International perspectives on vocational education and training illustrate the many strategies employed by nations to develop skilled labour forces. Dominant themes in these approaches include the importance of partnership between educational institutions and corporations, integrating practical experience with academic knowledge, and promoting lifelong learning. As countries enhance their vocational education and training systems to meet changing economic demands, the sharing of best practices and collaborative learning will be crucial in formulating effective vocational education policies.

2.7. Perceptions of Technical and Vocational Education and Training Schools

The expectations and opinions of students about TVET schools are influenced by numerous internal and external elements related to schools. This encompasses the comprehension of the offerings of TVET schools, the marketing and positioning of these institutions, and the prevailing public conceptions of vocational education. Tlapana and Myeki (2020) identify a primary difficulty for TVET schools: numerous students are

unclear about the functions and advantages of these institutions. Inadequate communication and marketing methods intensify the public's misunderstanding of the job opportunities linked to TVET education.

The high attrition and low job placement rates of TVET schools are frequently criticized, as highlighted by Zulu (2017) and Azeem et al. (2022). Their inadequacies, along with a predominantly unfavorable public view, have fostered the belief that TVET schools are subordinate to conventional university education. Consequently, numerous pupils perceive TVET as a final alternative, choosing it solely when university admittance is unattainable. This viewpoint is not exclusive to South Africa; Gaffoor and Van der Bijl (2019) note that in numerous countries, TVET education is regarded as inferior to normal academic education. Despite its capacity to mitigate the skills deficit and unemployment, TVET education is ensnared in a "negative feedback loop," wherein diminished public esteem undermines its efficacy in attracting high calibre students and resources.

2.7.1. Perception from Germany and the United States

Global opinions of Technical and Vocational Education and Training (TVET) differ. In Germany, Technical and Vocational Education and Training (TVET) holds significant prestige and is a fundamental component of the nation's dual education system, integrating theoretical and practical instruction to cultivate a highly skilled workforce. Conversely, in the United States, Technical and Vocational Education and Training (TVET) is frequently linked to students from economically disadvantaged backgrounds, and its programs are viewed as a route to low-paying employment with restricted

prospects for professional advancement. This corresponds with the findings of James, Andrew, and Wilson (2019), who highlighted numerous deficiencies in global TVET programs, including low pass rates, inadequate instructional quality, restricted career advancement prospects, insufficient resource investment, and high expenses concerning the benefits provided.

2.7.2. Perspective from Australia

In Australia, TVET is regarded favourably as a tool to enhance employment opportunities, with students perceiving it as a pragmatic and worthwhile educational alternative. Nonetheless, in numerous other nations, notably South Africa, TVET institutions persist with adverse attitudes and societal prejudices. Needham and Papier (2019) discovered that secondary school students and TVET schools students had divergent perceptions of vocational training, with numerous students being unaware of TVET or regarding it as a subordinate choice that results in low-paying professions with limited prospects for career progression. Some researchers indicate these beliefs are profoundly entrenched in historical context and societal prejudices. Powell and McGrath (2023) emphasise that in poor nations such as South Africa, the significance of Technical and Vocational Education and Training (TVET) in economic development is sometimes undervalued, as vocational education is perceived as a less esteemed option than university education. This view influences enrolment statistics and the financing and resource distribution that TVET schools obtain, resulting in a loop where insufficient resources and inferior outcomes perpetuate negative public perceptions. Although TVET

schools aim to impart practical skills conducive to employment, assessments of their worth differ significantly between countries and contexts. These institutions contend with a negative reputation in South Africa and numerous other areas, intensified by elevated attrition rates and low employment placement statistics. In countries such as Germany and Australia, where vocational education is esteemed and adequately funded, Technical and Vocational Education and Training (TVET) is essential for mitigating skills shortages and enhancing employment opportunities. To disrupt the loop of adverse attitudes, TVET institutions must enhance their marketing strategies, allocate resources effectively, and align with labour market requirements, so ensuring that both students and employers regard vocational education as a significant and feasible route to success.

2.8. TVET institutions and sustainable development

Technical and Vocational Education and Training (TVET) is widely recognized as essential for enhancing productivity, reducing poverty, and fostering sustainable economic growth (Pavlova, 2014). Developing productive skills through TVET equips individuals with vital tools for employment and substantially aids in economic recovery and the progress of sustainable development goals. As countries globally grapple with challenges such as youth unemployment, economic inequality, and environmental sustainability, the importance of Technical and Vocational Education and Training (TVET) in cultivating a skilled workforce is becoming increasingly apparent. TVET has attracted significant attention from the international community, with groups like UNESCO-UNEVOC leading initiatives to help member states harness the potential of vocational

education. UNESCO-UNEVOC promotes inclusive and equitable quality education and lifelong learning opportunities for all, in accordance with the United Nations Sustainable Development Goals (SDGs), particularly Goal 4, which aims to ensure inclusive and equitable quality education and foster lifelong learning opportunities (UNESCO, 2022). Some studies highlighted the transformative impact of Technical and Vocational Education and Training (TVET) on sustainable development. Kisima and Makoni (2023) assert that integrating sustainability concepts into TVET curricula prepares students to address global challenges like climate change and social inequality. This integration ensures graduates are equipped for employment and ready to promote sustainable practices in their communities and workplaces. The World Bank has identified Technical and Vocational Education and Training (TVET) as an essential strategy for countries aiming to improve economic resilience and social cohesion, especially during disasters like the COVID-19 pandemic (World Bank, 2023). Investing in TVET allows nations to enhance their human capital, leading to more innovative and sustainable economic structures that benefit all parts of society.

2.9. Education system in South Africa

Two national departments supervise and control education in South Africa. The Department of Basic Education (DBE) oversees primary and secondary education. Institutions of higher education, vocational training facilities, adult basic education and training (ABET), and further education and training (FET) schools fall under the authority of the Department of Higher Education and Training (DHET). South Africa operates a unified national education system under the guidance of the National Department of

Education and the nine provincial ministries. In South Africa, the provision of Basic Education for All is a governmental obligation as stipulated in the Bill of Rights of the Constitution of the Republic of South Africa, Act 108 of 1996. In addition to basic education for adults and further education, all South Africans are entitled to these services. Primary and secondary schools are part of the Basic Education System. While secondary schools, also known as high schools, run from grades 8 to 12, primary schools are for students in grades 1 through 7. Following secondary school, students have the option of attending tertiary education, also known as higher education and training.

Starting with Grade R and involving students as young as six years old, the General Education and Training (GET) phase covers the early years of lower education (DHET, 2024). GET is a required phase that encompasses primary and lower secondary education, specifically from Grade R (kindergarten) to Grade 9. It is further divided into three phases: Foundation Phase (Grades R-3), Intermediate Phase (Grades 4-6), and Senior Phase (Grades 7-9). Pupils are not in the FET phase when they reach Grade 10, when they are between the ages of 14 and 16. In this level of education, students can choose to stay in a high school or attend a TVET schools. In general, and further education and training, the Umalusi Council for Quality Assurance oversees both the GET and FET phases (Houserman, 2016). When students graduate from high school, they have two options: TVET schools or universities. The technical and vocational education and training phase and the education learning phase make up the HET phase. Public universities comprise both technology and research universities, and there are 26 of them. There are 52 public TVET schools distributed around South Africa. The proliferation

of private higher education institutions commenced in the mid-1990s. These institutions were mandated by the Higher Education Act No. 101 of 1997 to provide programs recognized by the Higher Education Quality Committee and to be registered with the South African Council of Higher Education (CHE).

The National Qualifications Framework (NQF) regulates and oversees all three levels of education. The NQF was established under the South African Qualifications Authority Act No. 58 of 1995 to facilitate the integration of training and education systems governed by the South African Qualifications Authority (SAQA). The establishment and execution of the NQF was the mandate of SAQA, as articulated in the Act. Shortly thereafter, the Skills Development Act No. Afro (2015) and RSA (1998) indicated that the objective of Act 97 of 1998 was to amalgamate those policies into the NQF and to furnish an institutional framework for the formulation and implementation of national sector and workplace strategies designed to enhance and elevate the skills of the South African workforce. The government augmented its investment in education and training to facilitate industry-TVET schools collaborations and empower businesses to utilize the workplace as a dynamic learning environment (RSA, 1998). The Skills Development Act aims to support skills development through a levy-grant program and the National Skills Fund (NSF).

The emergence of democracy ushered in fresh starts for the acquisition of competencies necessary for social inclusion, employment, and poverty alleviation in addition to economic transformation and national development (Afro, 2015). Education,

politics, and the social and economic sectors were the three main challenges that the government had to tackle at the time. Racial segregation, economic hardship, and political marginalization were issues that the new administration had to deal with after it took over from the apartheid regime (Akoojee, 2008). Education has been acknowledged as a viable tool for meeting both social and economic aspirations in South Africa, which is why the aforementioned policies were introduced with the intention of speeding up the country's skill development (Akojee, Gewer and McGrath, 2005; RSA, 1998).

2.10. Higher education and training industry

According to Barnett (1992), higher education is the process in which students as products are absorbed in the labour market. Higher education is the input to the growth and development of industries and organisations. According to Safdar, Habib, Amjad, and Abbas (2020), higher education institutions' responsibilities lie in training and developing students according to what industries and businesses require. Higher education institutions require students to take three to four years to have qualities that students can have to perform competently and for the sustainability of chosen industries through their performance (Blazquez et al., 2018). In South Africa, there are three primary categories of higher education institutions: schools, universities of technology, and universities (CHE, 2008). They vary regarding the extent of schooling provided. Technical Vocational Education and Training (TVET) schools, previously referred to as Further Education and Training (FET), provide students with vocational and occupational courses. The courses provided by TVET schools are designed to furnish students with

both theoretical knowledge and practical experience, thereby preparing them for the workforce. TVET schools offer courses lasting from three months to three years, allowing students to enroll without a matriculation certificate at economic rates.

The University of Technology offers certificates and diplomas that are career-oriented where students start with theoretical work and proceed with practical training. A Matric certificate is the requirement for entrance, but requirements vary for each program. The third institution of higher learning is the university which offers undergraduate and postgraduate studies. The University's role is to offer academic rather than vocational training and students do not get hands-on experience like at the University of Technology. Entry requirements for university courses differ greatly and students need to have matric certificates with good marks.

2.11. Role of TVET schools in South African National Development Plan: Vision 2030

The National Development Plan (NDP): Vision 2030 is an essential policy framework outlining South Africa's aim to eliminate poverty and reduce inequality by 2030 (Kraak, 2016:47). This comprehensive book comprises fifteen chapters, each concentrating on critical facets of national development, including economic growth, social cohesion, and educational reform. In this context, numerous chapters are particularly relevant to Technical and Vocational Education and Training (TVET) schools, highlighting their essential role in developing a skilled workforce that can further the

nation's economic and social goals. The NDP, while primarily a national policy initiative, is influenced by international developmental agreements aimed at addressing inequality and sustainable development in emerging nations (Morock, Hazell, and Akoobhai, 2016:103). The United Nations' Sustainable Development Goals (SDGs) provide a framework that aligns closely with the objectives of the National Development Plan (NDP), particularly with the advancement of inclusive and equitable quality education (United Nations, 2015). A study by Reddy (2021) indicates that integrating TVET policies with the SDGs can significantly enhance the effectiveness of vocational training programs in meeting both local and international development standards. Some scholars indicate that TVET schools are essential in addressing the skills gap in the South African labour market, which is critical for economic growth and job creation. The South African Human Sciences Research Council (2020) contends that targeted vocational training can alleviate youth unemployment, a critical concern emphasised in the National Development Plan (NDP). The Department of Higher Education and Training (2021) underscores the need to improve the quality and relevance of TVET programs to equip graduates with the skills required for a dynamic economy, hence furthering the NDP's objectives. Furthermore, some research emphasizes the importance of partnership between TVET schools and businesses to align training programs with labour market demands. For instance, Dlamini (2022) notes that these collaborations enhance graduates' employability and foster innovation and economic resilience. Involving stakeholders is crucial for creating a flexible educational system that addresses the evolving demands of the economy. Moreover, ongoing reforms in the TVET sector, guided by national policies and international best practices, are essential for maximizing

the contributions of these institutions. Ngubane and Mthembu (2023) contend that the incorporation of technology and the promotion of entrepreneurship in TVET courses can augment student empowerment and stimulate economic development.

2.12. Constitution of the Republic of South Africa & TVET schools

The Constitution of the Republic of South Africa, 1996, establishes the right to education as a fundamental human right, emphasizing equality and accessibility for all citizens. Mchunu (2016:52) contends that this constitutional mandate compels the government to adopt reasonable steps to ensure equitable access to higher education, including Technical and Vocational Education and Training (TVET) institutes. Chapter 10 of the Constitution specifies the principles and ideals that should guide governmental administration, including accountability, transparency, and responsiveness. These principles are essential for the effective management and governance of TVET schools, which are tasked with providing education and training while meeting the socio-economic needs of their communities. There are some studies and reports, such as the 2023 South African Human Rights Commission's (SAHRC) report on education and the Department of Higher Education and Training's Strategic Plan 2020-2025 that emphasize the importance of these constitutional provisions. The SAHRC emphasizes the ongoing barriers to obtaining quality education and the imperative for TVET schools to implement strategies that align with constitutional principles, ensuring that underprivileged communities are not overlooked (SAHRC, 2023).

2.13. Legislative framework for Technical and Vocational Education and Training institutions

The governance of Technical and Vocational Education and Training (TVET) schools in South Africa is regulated by a comprehensive regulatory framework aimed at promoting effective administration and advancement within the sector. Following the democratic transition in 1994, the South African government instituted various legislation to address educational and training disparities, particularly within the TVET sector, which is essential for economic development and skill acquisition. Key legislation includes the Further Education and Training Act (No. 98 of 1998), which outlines the governance structure of TVET schools, detailing the roles and responsibilities of governing bodies, management, and stakeholders. This Act emphasizes the imperative of public accountability and stakeholder engagement, ensuring that universities operate transparently and responsively to the needs of the community and industry. The National Qualifications Framework Act (No. 67 of 2008) is crucial for standardizing qualifications across various educational institutions, particularly TVET schools. This framework aims to improve quality and coherence in educational programs, ensuring alignment with labour market skill demands. The Higher Education Act (No. 101 of 1997) also addresses the TVET sector by promoting collaboration between TVET schools and higher education institutions. This collaboration is crucial for creating student opportunities and fostering a more integrated education system.

The Skills Development Act (No. 97 of 1998) and the Skills Development Levies Act (No. 9 of 1999) create the framework for funding and advancing skills development in

South Africa. These policies foster partnerships between TVET institutions and enterprises, thereby enhancing the relevance of training programs to meet industrial needs. Recent initiatives, such as the National Development Plan (NDP) 2030, have emphasized the importance of a skilled workforce for economic growth and development. The NDP underscores the imperative for TVET schools to spearhead efforts in alleviating skills shortages and fostering innovation. The White Paper on Post-School Education and Training (2013) underscores the importance of TVET in providing accessible, relevant, and high-quality education and training. This document outlines strategic priorities for the sector, highlighting the need to improve governance, increase institutional autonomy, and boost the quality of education offered.

2.14. Higher Education Act (Act No. 101 of 1997)

The Higher Education Act (Act No. 101 of 1997) is crucial for reorganising and administering higher education in South Africa. Khambule (2015:30) asserts that the Act provides a framework for the governance and financing of public higher education institutions, assuring the availability of quality education to all inhabitants. The Act created the Council on Higher Education (CHE), an essential body tasked with advising the Minister of Higher Education on matters related to improving quality standards in higher education. The CHE is responsible for developing initiatives to enhance educational quality and ensure institutional compliance with national educational standards. This involves overseeing the accreditation of higher education programs and assessing institutional effectiveness. Recent amendments and policy frameworks have underscored

the importance of HEA in addressing contemporary challenges in higher education. The Department of Higher Education and Training's Strategic Plan 2020-2025 underscores the imperative for continuous improvement in educational quality and the importance of equitable funding strategies (DHET, 2020). The White Paper on Post-School Education and Training (2013) emphasizes CHE's responsibility to foster inclusion and responsiveness in higher education, address historical inequalities, and ensure access to quality education for marginalized populations (DHET, 2013). The CHE is tasked with enhancing student support services, especially financial aid, which is crucial for removing barriers to higher education access. The recent establishment of the National Student Financial Aid Scheme (NSFAS), in alignment with the goals specified in the HEA, aims to provide financial support to students from disadvantaged backgrounds, hence improving access to higher education (NSFAS, 2023).

2.15. TVET Schools Act 16

Technical and Vocational Education and Training (TVET) schools in South Africa are governed by the South African TVET Schools Act 16 of 2006, an important legislation piece. This legislation establishes the nation's TVET schools' organisational structure, financial support, and regulatory guidelines (Continuing Education Act No. 569, 2006). Providing all citizens with access to high-quality education and training opportunities is one of the main goals of the South African TVET Schools Act 16 (Rasool, Mahembe, 2014). This Act guarantees that students have access to pertinent skills development programs that align with industry demands by clearly defining the requirements for creating and managing Technical and Vocational Education and Training (TVET) schools.

The legislation also describes the obligations of different parties involved in the TVET industry, such as government agencies, employees, employers, students, and schools administration. Additionally, to guarantee that TVET schools provide top-notch instruction and training, it sets up procedures for accountability and quality assurance. The TVET Schools Act 16 of South Africa is a significant factor that has shaped the country's technical and vocational education sector. This act ensures that students receive pertinent skills training that equips them for employment or further education by establishing a legal framework for TVET schools.

2.16. 2013 White Paper on Post-School Education and Training

The White Paper for Post-School Education and Training (WPPST), implemented in 2013, serves as a crucial policy framework to address the systemic difficulties facing the South African education and training sector. Following the release of the Green Paper in 2012, the WPPST garnered over 200 submissions from a diverse array of stakeholders, including higher education institutions, Sector Education and Training Authorities (SETAs), labour unions, and the Department of Higher Education and Training (DHET). This comprehensive interaction highlighted urgent concerns regarding the quality, accessibility, and relevance of education, particularly in Technical and Vocational Education and Training (TVET) institutions (Mothapo, 2014). A core tenet of the WPPST is recognising that resource availability is essential for enhancing the quality of education in the TVET sector. Mothapo (2014) underscores the necessity for institutions to possess sufficient qualified teaching personnel to deliver effective instruction across many

disciplines. The 2023 DHET research on TVET Schools emphasizes the imperative of investing in infrastructure, instructional resources, and educator professional development to improve educational outcomes and align them with industry standards (DHET, 2023).

Moreover, the WPPST underscores the importance of cultivating collaborative partnerships between educational institutions and work settings. These agreements are crucial for ensuring that training programs are relevant and aligned with the economy's needs. The WPPST advocates for a unified strategy in education and training, enabling smooth transitions for learners across different educational levels, including vocational training and higher education. This extensive approach aims to create a more flexible and inclusive educational environment that addresses historical inequities and meets the skill demands of a changing job market.

2.17. Governance of TVET schools

Since 1994, South Africa has implemented substantial reforms in the governance of higher education, particularly in the administration of Technical and Vocational Education and Training (TVET) institutes. The White Paper for Post-School Education and Training (2013) delineates the government's objective to convert TVET schools into institutions that significantly fulfil the nation's socio-economic requirements. A significant feature adopted in the post-apartheid era was the creation of a national governance structure to ensure the successful management of public schools, emphasising

accountability, transparency, and competency (Department of Higher Education and Training, 2019). The enactment of the Further Education and Training Schools Act (2006) and its following revisions established a legislative framework for the reorganisation of TVET schools' administration. This legislation requires that all public schools be administered by qualified personnel possessing the necessary skills and expertise to enhance the institution's overall effectiveness. The National Development Plan (NDP) Vision 2030 underscores the significance of TVET schools in equipping individuals with essential skills for economic advancement, intensifying the demand for optimal management performance (Republic of South Africa, 2012).

Some studies indicate that, despite these policy frameworks, capacity limitations in managing TVET schools endure. Nkosi and Naidoo (2022) assert that numerous school administrators continue to grapple with the operational requirements of their positions owing to insufficient training and a deficiency in technical proficiency. This directly affects the schools' capacity to provide quality education. Moodley and Singh (2020) emphasise the necessity of ongoing professional development for TVET managers to keep abreast of evolving regulations and governance standards. In response to these difficulties, government engagement has concentrated on enhancing leadership within TVET schools. Programs like the TVET Schools Leadership Development Programme (TCLDP) have been established to provide managers with essential skills for effective leadership in the changing environment of post-school education (Department of Higher Education and Training, 2021). The current reforms seek to establish a strong foundation for enhanced and sustainable governance frameworks within TVET institutions.

2.18. Management arrangements of TVET schools

The organisational framework of Technical and Vocational Education and Training (TVET) schools is essential for aligning these institutions with labour market requirements and social demands (Nkosi & Naidoo, 2022). According to extant literature, a resilient and flexible management framework is needed to improve the efficacy of TVET schools in South Africa.

2.18.1. Governance and Leadership in Technical and Vocational Education and Training Schools

Nkosi and Naidoo (2022) assert that strong governance frameworks at TVET schools are crucial for operational efficacy and attaining national skills development objectives. The management organisation of TVET schools generally comprises the school's principal, deputy principals, academic leaders, and assorted administrative and support personnel. Nonetheless, increasing research indicates that this management framework frequently encounters capacity limitations, as numerous managers lack the requisite leadership and technical competencies to navigate the intricacies of TVET education (Petersen & Roberts, 2021).

2.18.2. Regulatory Frameworks

Regulatory frameworks play a pivotal role in shaping the governance and operational structure of TVET schools in South Africa. The Further Education and Training Schools Amendment Act of 2013 underscores the importance of establishing precise management and governance structures. This includes assigning responsibilities to schools' councils for strategic oversight and ensuring alignment with national educational and economic priorities. Councils are mandated to provide governance, while management teams focus on the daily operations of the institutions (Department of Higher Education and Training, 2021). In addition to governance, the Continuing Education and Training (CET) Act emphasizes accountability, transparency, and alignment with public financial management norms. It ensures that TVET institutions adhere to strategic planning processes, including monitoring and evaluating to meet national goals. For instance, schools must integrate equity targets, addressing historical disparities, in their strategic plans. This aligns with government initiatives to expand access to vocational training, especially for underserved communities (Government Gazette, 2019). Moreover, funding norms play a critical role in supporting the TVET sector. These norms aim to direct resources to areas of high demand while emphasizing cost-effective delivery. A funding formula considers various factors, including the cost of delivery, infrastructure needs, and program types, ensuring that schools operate efficiently while addressing local and national labour market needs. This approach highlights the government's commitment to fostering a skilled workforce and improving employability outcomes for graduates

2.18.3. The Function of Schools Councils and Senior Administration

The governance framework of TVET schools encompasses schools' councils, which fulfil a regulatory function. These councils comprise representatives from the community, industry, staff, and students, tasked with policy formation and strategic monitoring. Research by Nyirenda (2021) indicated that the efficacy of these councils is frequently undermined by ambiguous function definitions and the insufficient managerial proficiency of council members. This matter highlights the necessity for continuous capacity-building activities to enable councils to oversee TVET institutions efficiently. Recently, there has been an initiative to refine the management framework of TVET schools to augment their responsiveness to economic demands. The TVET Schools Improvement Project (2020), endorsed by the Department of Higher Education and Training (DHET), seeks to enhance management capability via leadership training and refined governance methods. The TVET Leadership Development Program, launched in 2021, emphasizes strategic planning, resource management, and quality assurance to rectify deficiencies in current management frameworks (DHET, 2021).

2.19. Quality management

Goetsch and Davis (2006) define quality management as the actions taken by the organisation to satisfy applicable regulatory requirements, customer quality requirements, and customer satisfaction while striving for continuous performance improvement. For any organisation striving for excellence in its offerings, quality management is an essential component. Ensuring that the highest standards are consistently met requires the implementation of systematic processes, procedures, and policies (Sallis, 2014).

Continuous improvement, quality assurance, and control are just a few of the components that make up quality management. Improving customer satisfaction is a major advantage of putting quality management into practice. Organisations can enhance sales and profitability by fostering customer loyalty and trust through the consistent provision of high-quality products or services. Furthermore, quality control lowers expenses by minimizing errors and defects in manufacturing processes. Additionally, the development of an innovative culture within an organisation is greatly aided by quality management (Erasmus et al., 2020). Organisations may maintain a competitive edge and adapt to evolving market needs by enabling employees to identify areas for enhancement and implement solutions. In conclusion, quality management is essential for the sustained success of any organisation. By prioritising quality in all aspects of their operations, businesses may enhance innovation, reduce costs, improve customer happiness, and secure a competitive advantage in the marketplace.

2.19.1. Quality management in higher education

Quality management in higher education remains one of the most complex and vital areas for improvement. The lack of a standardized definition often leads to inconsistencies in how quality is perceived and measured across different institutions. Despite these challenges, it is widely accepted that the pursuit of quality in higher education should primarily focus on enhancing instructional practices and improving student outcomes (Lopez et al., 2018). Institutions must navigate their infrastructure, financial resources, and human capital effectively to implement quality management

systems that can foster continuous improvement. While many higher education institutions have committed to various quality initiatives, research indicates that only a small fraction actively engages in long-term quality measurement and enhancement (Evans & Lindsay, 2014). This disparity highlights the need for sustained commitment and the establishment of strong frameworks to support ongoing quality improvement efforts. There are some studies that emphasize the importance of a culture of quality within institutions, where leadership, faculty, and staff collaboratively engage in practices that promote excellence (Harvey & Green, 2020).

One notable example of a successful quality management initiative is the Academic Quality Improvement Project (AQIP), which encourages institutions to adopt systematic quality practices based on principles of continuous improvement. AQIP focuses on aligning institutional strategies with quality objectives, thus fostering a more integrated approach to quality management (Baldrige Performance Excellence Program, 2022). Furthermore, the Baldrige Award, established in 1987, recognized educational institutions for their excellence in performance and quality management. Since the introduction of an education category in 1999, the University of Wisconsin-Stout stands out as the only university to have received this prestigious award, demonstrating the potential for higher education institutions to achieve excellence through rigorous quality management practices. Moreover, recent developments in quality assurance frameworks, such as the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), emphasize the need for continuous improvement and stakeholder engagement in quality management processes (ENQA,

2020). These frameworks provide valuable insights and best practices that can be adopted by institutions worldwide to enhance their quality assurance systems.

2.19.2. Quality management in South African higher education

The establishment of the Council for Higher Education (CHE) in South Africa was a driving force for the promotion and regulation of quality education (CHE, 2008). The primary objective of CHE is to develop quality assurance for higher education institutions to comply to retain accreditation. Spaull (2013) has argued that in South Africa is not easy to define quality education due to the country's diverse population and the inconsistent nature of the education system. According to Cloete (2016), students' protests in South Africa are based on seeking improved quality education as they feel they are not receiving the kind of education that can prepare them for the wider world of work. The Department of Education (1997) in South Africa has emphasized four important objectives for higher education which are of great value for quality assurance:

- A. Meeting learning needs and goals of individuals by developing student intellectual abilities and aptitudes during one's life;
- B. Addressing societal developmental needs and providing the labour market with competencies, expertise, and skills necessary for the economic development of a country;
- C. Contributing to developing enlightened, responsible, and critical citizens; and

- D. Contributing to the development of knowledge that will be shared and evaluated.

2.20. Quality management components

According to Juran and Godfrey (2020), quality management is widely recognized to comprise five essential components: quality planning, quality assurance, quality control, quality improvement, and quality framework. Each component plays a crucial role in ensuring the delivery of high-quality products and services that meet or exceed customer expectations.

2.20.1. Quality Planning

Quality planning is an essential component for the success of any quality management program. It involves a systematic approach that allows organisations to define and achieve their quality objectives effectively. During the planning process, organisations must consider a variety of factors, including their quality mission, specific objectives, key attributes valued by customers, market commitments, available human resources, production capabilities, and financial constraints. The first step in quality planning is identifying the organisation's customers, both internal and external and understanding their needs and wants. This insight is crucial for optimizing product or service features, guiding design decisions, and developing offerings that meet customer expectations. Goetsch and Davis (2006) emphasize that external customers ultimately define the quality of the products or services provided, while internal customers play a vital role in shaping the quality of the people, processes, and environments that contribute

to delivering those products or services. It is important to reinforce and engage internal and external customers in the quality planning process. For instance, a study by Kumar et al. (2020) highlights that organisations involving stakeholders in quality planning are better equipped to address market needs and enhance customer satisfaction. By incorporating feedback from customers, organisations can make informed decisions that lead to improved product or service quality.

Once customer needs have been identified, the next critical step is to standardize processes to ensure that products or services are consistently delivered at a desired level of quality. This standardisation facilitates the establishment of quality benchmarks and performance metrics, enabling organisations to monitor progress and make necessary adjustments over time. Al-Khouri (2021) suggests that organisations that implement standardized processes improve operational efficiency and foster a culture of continuous improvement. Also, involving employees in the planning process is crucial. Their insights and experiences can significantly enhance the quality of the developed product or service. Engaged employees are likely to take ownership of quality initiatives, contributing to a shared commitment to excellence. According to Deming (2018), a participatory approach in quality planning empowers employees, enabling them to contribute valuable ideas and solutions that can lead to better quality outcomes.

2.20.2. Quality Control

According to Oakland (2016), quality control refers to activities and techniques employed to achieve and maintain the quality of a product, process, or service. Quality

control includes monitoring activity but also trying to find and eliminate quality problems so that customers are continually served with what they want. Quality control is an important aspect of quality management and requires employees who are consistently and properly trained so that errors can be limited and controlled. The aspect of control occurs during production and after the production phase. The aim is to determine out-of-control process conditions and product non-conformance as early as possible in the production phase. Inconsistency in products and services can be avoided by using Statistically Process Control techniques. The need for rigorous quality control has only increased with modern manufacturing and service industries, where customer expectations are higher and processes are often more complex. According to Bartholomew and Olson (2019), QC now encompasses not only traditional monitoring activities but also predictive quality measures enabled by digital tools such as artificial intelligence (AI) and machine learning (ML). These technologies allow companies to anticipate potential defects and take preventive actions before they manifest into more significant quality issues. By integrating such advanced systems, organisations can maintain high levels of consistency and reduce the risk of out-of-control conditions in real time, further ensuring product reliability and customer satisfaction.

Training remains a key component of effective quality control, as Oakland (2016) suggests, requiring employees to be thoroughly equipped with the knowledge and skills needed to detect and mitigate errors. Da Silva and Cavalcante (2020) support this, stating that continuous employee training in QC methodologies is essential to reducing errors and maintaining product consistency. Employees trained in advanced QC techniques,

such as Six Sigma and Lean manufacturing, can better identify and resolve defects during the early stages of production, minimising the potential for costly rework and scrap. Training programs have also evolved to include digital tools that help workers better understand data analytics and statistical process control (SPC) methods, which have become more prevalent in modern quality management systems. The use of Statistical Process Control (SPC) techniques, as highlighted by Oakland (2016), continues to play a central role in monitoring product and process variations. Recent advancements in SPC methods have incorporated big data analytics, enabling organisations to monitor large volumes of real-time production data more effectively. A study by Kumar and Mital (2021) found that companies employing SPC alongside big data analytics experienced significant improvements in identifying out-of-control conditions and non-conformance earlier in the production process. The combination of SPC and data analytics offers more precise control over production parameters, allowing for quicker corrective actions when deviations occur, thus ensuring higher product quality and fewer customer complaints.

Besides, the rise of Industry 4.0 technologies, including the Internet of Things (IoT), has revolutionized quality control practices. IoT sensors embedded in production lines can continuously monitor critical variables such as temperature, pressure, and machine performance, providing real-time data for quality control managers. According to Zhang and Zhong (2022), integrating IoT in QC processes allows for more effective detection of abnormalities in production conditions, reducing the likelihood of non-conformance and enhancing the overall efficiency of quality management systems. This shift toward more

digital and automated quality control systems has the potential to drastically reduce production errors, increase reliability, and improve overall customer satisfaction

2.20.3. Quality assurance

Quality assurance (QA) is critical in ensuring the integrity and excellence of products, services, and processes across various sectors, including higher education. As Oakland (2016) noted, QA is fundamentally about preventing quality problems through planned and systematic activities, which often include documenting procedures that meet specific quality standards. The ISO 9000 standards define quality assurance as "part of quality management focused on providing confidence that quality requirements will be fulfilled," highlighting its role in fostering trust among stakeholders regarding quality commitments. Beckford (2016) elaborates that quality assurance encompasses administrative and procedural activities integrated into a quality system, ensuring that the goals and requirements of products, services, or activities are consistently met. This structured approach facilitates the creation of an effective quality management system and involves assessments of competence, audits, and systematic reviews to uphold quality standards.

From the higher education perspective, quality assurance pertains to how institutions demonstrate to their stakeholders that they are effectively maintaining and enhancing educational standards (Boonzaaier, 2020). This assurance is vital for building trust with students, parents, employers, and regulatory bodies, as it underlines the

institution's commitment to providing high-quality education. Specific quality assurance structures in South Africa were established to uphold educational standards, including the Council on Higher Education (CHE), Umalusi, and the Quality Council for Trades and Occupations (QCTO). These bodies were formed in 1998 to oversee and ensure quality education across various levels (DHET, 2012). More recent developments, such as the Higher Education Quality Committee (HEQC), have reinforced these structures by providing a framework for accreditation, monitoring, and evaluation of higher education institutions, thus fostering an environment of continuous improvement. Studies such as those by Kezar and Gehrke (2020), have emphasized the importance of evolving quality assurance practices in higher education to adapt to the rapidly changing educational landscape, including the integration of technology and online learning. The authors argue that effective quality assurance mechanisms must focus on compliance and encourage innovation and responsiveness to student needs. Furthermore, the ongoing discourse surrounding quality assurance in South Africa has highlighted the need for collaborative efforts among quality assurance bodies, educational institutions, and industry stakeholders to create more relevant and impactful quality standards (CHE, 2021). This collaborative approach ensures that quality assurance systems align with national educational and workforce development goals.

2.20.4. Quality improvement

As Beckford (2016) defined quality improvement, it is fundamentally about the ongoing effort to enhance products, services, or processes. This continuous improvement aims to increase efficiency, effectiveness, and ease in delivering these offerings over time

or all at once, aligning with the organisation's objectives. According to Knowles (2017), the focus of quality improvement encompasses several key dimensions, including reducing process costs, enhancing process quality, and increasing the speed of delivery.

In the context of higher education, particularly in Technical and Vocational Education and Training (TVET) schools, quality improvement must address specific industry needs to remain relevant and effective. As highlighted by Mohammad Shafi, Neyestani, Jafari, and Taghvaei (2021), several crucial factors should be considered in this endeavour, such as labour market needs, teaching methods, curriculum alignment, and on-the-job learning. When planning the curriculum, it is vital to identify what the labour market requires. This ensures a strong connection between technical and vocational higher education planners and the employment sectors. By aligning educational outcomes with industry needs, institutions can better prepare students for the workforce. There is a pressing need to revise teaching methods and practical application approaches. Utilizing the resources and facilities of local industries can enhance practical training, allowing students to gain hands-on experience that complements their theoretical knowledge. The curriculum must be tailored and revised to reflect new job opportunities in the labour market. This dynamic approach ensures graduates possess relevant skills and competencies that meet current employer expectations. Providing students with opportunities for on-the-job learning is critical. Allowing them to attend industrial centres and factories enhances their practical skills and gives them valuable exposure to real-world work environments. This experience is crucial for bridging the gap between education and employment.

Some studies emphasize the importance of stakeholder collaboration in these quality improvement initiatives. For instance, partnerships between educational institutions and industries can facilitate curriculum development responsive to changing labour market demands (Kumar & Kaur, 2022). By actively involving employers in the educational process, TVET schools can ensure that their training programs are aligned with industry standards and expectations. Likewise, integrating feedback from students, faculty, and industry representatives into the quality improvement process is essential for fostering a continuous enhancement culture. Studies show that institutions prioritising stakeholder engagement in their quality improvement efforts tend to achieve better educational outcomes and higher levels of student satisfaction (Boonzaaier, 2020).

In summary, quality improvement in higher education, particularly in TVET schools, requires a multifaceted approach that addresses curriculum relevance, teaching methodologies, and opportunities for practical experience. By focusing on these key areas, institutions can enhance their educational offerings and better prepare students for successful careers.

2.20.5. Harvey and Green's (1993) Quality Framework

The concept of excellence in higher education is a complex and controversial one, according to Aithal and Aithal (2023), with practitioners and scholars regularly at odds over how to define and evaluate it. The original paradigm developed by Harvey and Green

(1993) is among the most well-known in this discussion since it provides a fundamental taxonomy for comprehending quality in higher education. Five interrelated but distinct dimensions of quality from Harvey and Green quality framework are outlined as follows as described by Gunn (2018): exceptionalism, which views quality as exceptional or superior; perfection/consistency, which emphasizes flawless processes and dependability; fitness for purpose, where quality is evaluated based on an institution's accomplishment of its stated objectives; value for money, which assesses efficiency and accountability, especially in contexts with limited resources; and transformation, which highlights the role of higher education in empowering and fostering learners.

2.21. Factors affecting quality in higher education

Students are the main customers of higher education and satisfying them with quality service is vital for the competitiveness of the higher education industry. Abdullah et al (2021) highlight how academic quality, support services, and institutional responsiveness to student needs all have a direct impact on student satisfaction and how these factors all contribute to long-term competitiveness. Higher education institutions that produce quality graduates produce a satisfied or happy customer. For this study, factors that play a significant role in higher education quality management that have been identified from previous studies are as follows: academic staff quality; quality of support/administrative staff; higher education facilities; quality of offered programs; higher education geographical area; student financial assistance; and the role of leadership.

2.21.1. Quality of Academic staff

The quality of teaching staff or lecturers in terms of their wider knowledge of their discipline, how they deliver their teaching, how they are supported by teaching materials, and how students are evaluated are vital for higher education quality management. More studies have reinforced these findings. For example, a study by Guerrero, Bravo, and Darder (2021) emphasized that students highly value lecturers who create an engaging learning atmosphere and offer timely, constructive feedback. Effective communication between faculty and students inside and outside the classroom has become increasingly important, particularly in a post-pandemic learning environment where blended and online learning has become more common.

According to Yusoff, McLeay, and Woodruff-Burton (2015), the behaviour and professionalism of academic faculty, including their approachability, responsiveness, and enthusiasm, significantly contribute to students' satisfaction levels in higher education. This is echoed in other research, such as that by Tang and Chowdhury (2020), which found that students greatly emphasize their lecturers' teaching style, communication skills, and ability to relate course content to real-world applications. Faculty who can create a supportive, interactive, and engaging classroom experience while connecting theory with practical examples are more likely to enhance student satisfaction. Wilkins and Balakrishnan (2013), and Karna and Julin (2015), also affirm the significant association between academic staff quality and student satisfaction. These studies demonstrate that students are more satisfied when they perceive their lecturers as

experts in their field, effective communicators, and supportive mentors. A study by Thompson and Mazer (2022) further reinforced this association by demonstrating that students who view their instructors as knowledgeable and approachable are more likely to experience higher satisfaction and engagement, positively affecting their academic performance.

However, Martirosyan (2015) noted an insignificant relationship between student satisfaction and specific aspects of teaching styles, particularly regarding graduate teaching assistants (GTAs). Research by Baeten et al. (2020) supports this by indicating that while the teaching effectiveness of full-time academic staff has a substantial impact on student satisfaction, the influence of GTAs and adjunct faculty is often less significant, especially in large institutions where students may have limited interaction with these instructors. Nonetheless, GTAs and part-time faculty play important roles in larger classrooms and introductory courses, where their teaching quality can still influence student perceptions of the institution's overall educational quality. Some research has begun to focus on the role of professional development for academic staff in enhancing teaching quality. Ewell et al. (2019) postulate that continuous faculty development programs that focus on pedagogical skills, student engagement strategies, and innovative teaching techniques are becoming essential for improving academic quality. Institutions that invest in such programs are better able to meet the evolving demands of students and ensure that faculty remain at the forefront of educational best practices.

2.21.2. Quality of support/administrative staff

The quality of higher education institutions also depends on how well the administrative staff responds to/supports students during their stay. According to Malik, Danish, and Usman (2010), administrative staff who are cooperative, show kindness, and are responsive play an important role in determining how a student is satisfied during the period of student enrolment. More studies, such as that by Aghaz, Hashemi, and Sharifi (2019), have further expanded on this, showing that students who feel supported by administrative staff, particularly during complex processes like course registration, fee management, or dealing with personal issues, are more likely to report higher satisfaction and loyalty to their institution. Precise and responsive communication from staff, especially during times of uncertainty or crisis, significantly boosts students' trust and satisfaction.

Moreover, the importance of administrative support has been magnified in the wake of the COVID-19 pandemic, as many institutions shifted to online or hybrid learning models. According to a study by Johnston, McKay, and Maclean (2020), institutions with administrative staff who successfully adapted to the digital landscape by providing efficient online support, such as virtual advising, clear communication channels, and swift responses to student inquiries, saw higher levels of student satisfaction compared to those with less proactive support systems. This highlights the critical role of administrative flexibility and responsiveness, especially in changing circumstances. Additionally, modern students increasingly value institutions that provide holistic support systems,

where administrative staff handle logistical concerns and engage in student well-being. As noted by Nguyen and Evans (2021), institutions that invest in student services, such as mental health counselling, career advising, and extracurricular programming, delivered by supportive and professional administrative teams, are seen as more student-centred. This holistic approach enhances student retention and satisfaction, fostering a more inclusive and welcoming campus environment.

2.21.3. Higher education facilities

According to Karna and Julin (2015), higher education infrastructures are planned, constructed, and offered to facilitate the smooth processes of the organisation. The quality of lecture classes, library services, supporting laboratories, student social areas, student accommodation, and sports facilities are considered important aspects of quality management for this study. Karna, Julin, and Nenonen (2013) assert that higher education institutions and their administration are essential for delivering the effective infrastructure necessary to execute their primary functions for students and staff. Yusoff et al. (2015) indicate a significant association between higher education institutions and student satisfaction. Research conducted by Hanssen and Solvoll (2015) further substantiates this relationship, revealing that the quality of higher education facilities encompassing social areas, auditoriums, and libraries significantly impacts student satisfaction. Lewis (2000) and Tanner (2009) identified that the amenities of higher education institutions significantly influence students' perceptions of the institution's reputation. Hassanbeigi and Askari (2010) discovered that inadequate facilities impair and diminish student motivation. However, Navarro et al. (2006) and Douglas et al. (2008)

identified statistically negligible correlations between higher education institutions and student satisfaction.

2.21.4. Quality of offered programs

According to Weerasinghe and Fernando (2017), the quality of the program studied can be defined as a well-established and flexible program that a higher education institution designs to provide diversified knowledge and skills for students in a specific field. According to Farahmandian et al. (2013), a higher education curriculum is an academic program that is offered to students, and the curriculum in different articles is also called “course content,” “program issues,” “academic concerns,” and “course content.” A study by Coates and Mahat (2020) reinforces this, suggesting that students increasingly seek variety and personalization in their academic journeys. Programs that offer interdisciplinary courses, opportunities for specialization, and experiential learning, such as internships or project-based learning, contribute to a more enriched and fulfilling educational experience. Such programs prepare students for the workforce by giving them practical skills and hands-on experience and enhancing critical thinking, creativity, and problem-solving abilities.

Moreover, the introduction of online and hybrid learning formats has significantly transformed the structure of academic programs. According to Majumdar and Santoro (2020), institutions that have successfully integrated digital learning components, such as online courses and virtual labs, have seen increased student satisfaction. This shift toward flexible, technology-enhanced learning environments allows students to learn at

their own pace and on their terms, further improving the quality of the educational experience.

2.21.5. Higher education institution geographical area

The accessibility of student accommodation, transportation, experiential learning, entertainment areas around the institution and the proximity of prominent employers can also measure the quality of higher education. Andrea and Benjamin (2013) found that students value or are satisfied by higher education closer to natural environments, entertainment, and safe areas. According to Hanssen and Solvoll (2015), the higher education host city has a strong influence on the overall satisfaction of the student. Pucciarelli and Kaplan (2016) assert that the campus environment, including safety, accessibility, and recreational facilities, is increasingly seen as a significant aspect of student satisfaction, as these factors contribute to a balanced and fulfilling student life. Likewise, research by Nguyen and Tang (2020) emphasizes that the proximity of institutions to job markets and prominent employers is crucial for student satisfaction, particularly for those seeking experiential learning opportunities such as internships, co-ops, and part-time jobs. Gaining practical experience alongside academic learning enhances students' employability and makes them feel more connected to their future careers. The importance of experiential learning is further underscored in the work of Kahu and Nelson (2018), who argue that student engagement is driven by what happens within the classroom and shaped by the opportunities for applied learning in the real world.

Hanssen and Solvoll's (2015) findings, which highlight the influence of the host city on students' overall satisfaction, continue to be supported by recent studies. Soria and Roberts (2021) confirm that students are more satisfied with institutions located in cities or towns that offer vibrant cultural and social life, good infrastructure, and safety. The presence of entertainment, social engagement, and a supportive community can significantly affect the mental well-being of students, which in turn impacts their academic performance and long-term satisfaction with their education.

2.21.6. Student financial assistance

Countries like South Africa have free basic and higher education for all qualifying students who need financial assistance. According to Farahmandian et al. (2013), the accessibility of financial aid in the form of scholarships, loans, and bursaries is one aspect that influences student satisfaction. According to Joseph et al. (2005), the cost of the program offered by higher education institutions affects the satisfaction with perceived quality, and students are more likely to choose affordable institutions or institutions with scholarships and bursaries. For example, Thomas and Hanson (2018) found that students who receive adequate financial assistance are more likely to report higher levels of satisfaction with their academic experience due to the reduced stress of covering tuition, accommodation, and other living expenses. Financial security allows students to focus more on their studies, contributing to better academic outcomes and overall satisfaction. Moreover, Joseph et al. (2005) noted that the cost of higher education programs impacts students' perceived quality of education and their likelihood of choosing more affordable institutions or those offering scholarships and bursaries. Studies by

Ahmed and Farooq (2021) reinforce this view, stating that students increasingly prioritize affordability when selecting higher education institutions. Rising tuition and living expenses, especially in countries without government-funded education, have made financial aid programs a critical factor in attracting and retaining students. Institutions that provide comprehensive financial aid packages tend to have higher student enrolment and satisfaction rates, as financial relief helps mitigate the financial pressure on students and their families. Additionally, research by Oosterbeek and van den Broek (2018) highlights the long-term effects of financial assistance on student success. They argue that students who receive consistent financial support throughout their education are more likely to complete their degrees and experience less financial stress post-graduation. This is particularly important as financial aid programs that include loan forgiveness or income-based repayment options have gained traction in countries like the United States, further enhancing the appeal of institutions that offer such programs.

2.21.6. The role of Leadership in TVET schools

To improve academic performance, graduate employment outcomes, and institutional performance, technical and vocational education and training (TVET) institutions must have strong leadership. Strategic planning, governance, resource mobilization, innovation support, and interaction with business partners all depend on effective leadership. Leadership in education is essential for improving teaching and learning, influencing organizational culture, and guaranteeing accountability, according to Bush

(2020). Leaders in TVET face unique challenges, such as lack of skills, limited resources, and the requirement for labor-market-sensitive courses.

Leadership also has a direct impact on staff retention, skill development, and motivation. TVET leaders in South Africa are crucial in promoting inclusive access, facilitating change, and aligning training initiatives with the Fourth Industrial Revolution's (4IR) skills agenda and the National Development Plan (NDP), according to Ngcobo and Tikly (2021). To ensure graduates' employability in a rapidly changing labor market, this highlights that leadership involves not only administrative management but also flexibility and foresight. In TVET colleges, recent research has emphasized the importance of transformative and distributed leadership models. By encouraging stakeholder engagement, industry partnerships, and participatory decision-making, these approaches enhance institutional responsiveness and quality (Chiwandire and Mutereko, 2023). In environments with limited resources, such as rural areas, strong leadership is essential for overcoming challenges like inadequate infrastructure.

2.22. Factors Affecting Student Engagement in Technical and Vocational Education and Training

The decision to pursue Technical and Vocational Education and Training (TVET) is influenced by various factors that shape students' perceptions and choices. Understanding these motivations is crucial for improving enrolment and ensuring that TVET programs meet the needs of both students and the labour market.

2.22.1. Perception of Vocational Education

The representation and design of vocational training significantly influence students' decisions to pursue TVET programs. Positive perceptions, such as seeing TVET as a legitimate and respected career path, play a critical role in attracting students. Effective marketing that highlights success stories, such as graduates achieving significant career milestones, strengthens the credibility and appeal of vocational programs (Bhanugopan et al., 2021). In addition to marketing, program design is essential. Vocational training that aligns with industry demands and offers clear employment pathways or options for further education significantly attracts students seeking practical and results-oriented education. By incorporating industry-relevant skills and providing flexibility through partnerships with universities for credit transfers, TVET programs can enhance their appeal. For example, in Zambia, TVET institutions like Northern Technical Schools have agreements that enable students to transition to higher education, emphasizing lifelong learning opportunities (International Labour Organisation, 2021).

Recent trends also highlight innovations in vocational education. These include integrating Industry 4.0 technologies like robotics and AI into curricula, which prepares students for the evolving job market. Personalized learning pathways and blended learning models have also gained prominence, ensuring accessibility and alignment with individual career goals (UNESCO, 2023; TVET Training Trends, 2023). By adopting these approaches, TVET programs can better meet students' aspirations while addressing

workforce needs, thereby strengthening their role in education and economic development

2.22.2. Influence of Parents and Guardians

Parents and guardians significantly influence kids' educational choices, often shaped by their own experiences and beliefs on the importance of vocational training. Chen and Kwan (2022) believe that parental support and encouragement can significantly impact children's decisions to participate in TVET. When parents view vocational education positively and emphasize its benefits, students are more likely to consider it a viable option. Research indicates that when parents emphasize these outcomes, respect and financial success, children are more likely to follow similar aspirations, sometimes at the cost of exploring their passions or making choices based on personal fulfilment (Chae, 2019). Parental involvement and guidance are crucial, but when expectations are overly focused on prestige or wealth, they can create stress and undermine a child's self-esteem if they are unable to meet these often high or unrealistic standards. This focus on respect and monetary success can create an environment where alternative educational options, like vocational training, may be viewed as less valuable, despite their potential to offer rewarding careers that contribute positively to society (Cohen, 2021). Thus, while parental expectations can provide direction, they can also impose pressure, leading to a mismatch between children's interests and career paths. Encouraging open discussions about individual goals, fostering self-discovery, and ensuring that parental aspirations align with their child's intrinsic motivations can help balance these expectations

2.22.3. Academic Environment and Counselling

The role of school administrators and counsellors in guiding students toward TVET is multifaceted and pivotal. Moleleki (2023) highlights that effective guidance improves understanding of vocational pathways, countering misconceptions that TVET is a lesser choice than academic routes. Effective counselling ensures students know the alignment between vocational training and job market demands, fostering informed decisions. Recent studies extend this understanding by emphasizing structured career guidance. For instance, the World Bank underscores the importance of embedding career counselling into the academic framework to better inform students about career outcomes associated with TVET pathways. They advocate for leveraging partnerships with industries to enhance counselling sessions, making them more relevant and inspiring confidence in TVET as a viable option. Furthermore, Yunos (2023) argues that strategic planning in TVET institutions, which includes strong academic counselling, is essential for aligning educational outcomes with workforce needs. Counsellors play a key role in illustrating the pathways to employment or entrepreneurship facilitated by TVET, ensuring these opportunities resonate with students' aspirations. School administrators and counsellors can significantly elevate the perception and uptake of TVET among students by integrating structured career guidance programs with real-world success stories and market trends.

2.23.4. Demand in the Labour Market and Economic Factors

Economic factors, such as the demand for skilled labour in local markets, strongly influence students' choices to pursue Technical and Vocational Education and Training (TVET). According to Adebayo and Aliyu (2023), students are more inclined toward vocational programs when they perceive significant job opportunities in technical fields. This trend is especially pronounced in regions with shortages of skilled personnel, where TVET becomes a practical path to employment. Some literature supports this assertion, emphasizing that factors like career prospects, societal perceptions, and parental influence shape attitudes toward TVET. For example, students in Malaysia showed varied interest in TVET depending on their perceived job prospects and self-efficacy in technical fields (Amin et al., 2023). Similarly, a study in South Africa highlighted that students view TVET as a viable alternative for career development, especially in engineering and technical domains, where demand for skills aligns with aspirations for economic productivity (Sibiya et al., 2023). Moreover, TVET choices are often influenced by societal norms and the broader human capital perspective, which suggests that education is an investment aimed at enhancing productivity and economic returns. This model, while criticized for its narrow view of education's social role, remains central to skills formation policies globally (Ashton et al., 2012). Addressing these factors through awareness campaigns and improved policy frameworks could further promote TVET as a credible pathway for both individual and societal advancement.

2.23.5. Career Goals and Skill Development

Students' aspirations to develop practical skills and achieve career goals significantly influence their interest in Technical and Vocational Education and Training (TVET) programs. Chinomona and Sandada (2022) emphasize that the opportunity to acquire employable skills motivates many students to enrol in TVET courses. Recent studies corroborate this, highlighting how industry-relevant training and hands-on learning foster skills development and enhance job prospects. For instance, the hybrid collaborative TVET model employed in the Philippines incorporates competency-based training with industry immersion. This approach prepares students for immediate employment by aligning curricula with industry needs, effectively bridging the gap between education and workforce demands (TVET Journal, 2023; TVET@Asia, 2023). Similarly, UNESCO's strategy for TVET (2022–2029) underscores the importance of equipping youth with skills for employment, entrepreneurship, and lifelong learning to address labour market inequalities intensified by global challenges (UNESCO, 2023). Moreover, TVET programs often integrate innovative partnerships with employers, offering on-the-job training opportunities that directly enhance students' employability. Such initiatives demonstrate that TVET's emphasis on practical and in-demand skills makes it a compelling pathway for students aspiring to secure stable and rewarding careers (TVET Journal, 2023; UNESCO, 2023). These findings suggest that TVET institutions can attract more students by effectively showcasing their role in skill development and employability enhancement.

2.23.6. Peer Influence and Social Networks

Social dynamics and peer influence are pivotal in shaping students' decisions to pursue Technical and Vocational Education and Training (TVET). Zhou (2022) highlights that endorsements from peers who have successfully navigated vocational pathways can serve as powerful motivators, fostering confidence and interest in TVET among others. A strong social network that values vocational education can significantly enhance students' confidence in choosing this path. Some research adds depth to this understanding. Studies indicate that peer groups often influence students' perception of the desirability of vocational education, particularly when peers share positive experiences or career success stories post-TVET training. For example, the dynamics of peer influence in decision-making highlight that when close associates advocate for TVET as a viable and rewarding option, students are more likely to follow suit, especially in collaborative and community-focused environments (William T. Grant Foundation, 2023). Additionally, social networks extend beyond immediate peers to include online communities. The integration of digital platforms in TVET has shown that peer interactions in virtual spaces, such as forums and collaborative projects, can create a sense of belonging and encourage enrolment. This trend underscores the importance of leveraging both traditional and modern social networks to promote vocational training programs (Oxford Academic, 2023). By creating environments where peer success stories are shared and celebrated, TVET programs can harness these dynamics to increase enrolment and positively shape perceptions of vocational education.

2.24. Integration and retention of students

The integration and persistence of students in higher education have been extensively examined as vital components of academic achievement and retention. Cabrera, Nora, and Castaneda (2020) assert that students' endeavours to assimilate into the institution's academic and social frameworks are essential for their persistence. Effective integration necessitates alignment among academic integration, social integration, institutional commitment, and the student's dedication to their goals. Research consistently emphasizes that student attrition is not an isolated incident but a process stemming from a sustained misalignment between the student and the institution's academic or social structures. Tinto (2014) and Heublein (2014) endorse this perspective, emphasizing that insufficient interaction within these systems heightens the probability of student attrition. This corresponds with the conclusions of Van der Bijl and Lawrence (2019), who contend that students with favourable academic and social experiences are more inclined to persist and complete their programs. Increased student engagement in the academic community correlates with heightened commitment, hence improving persistence.

The notion of belonging has been extensively examined in contemporary literature. Thomas (2020) asserts that a student's sense of belonging in the academic community feeling accepted and valued is a crucial determinant of student retention. Institutions that cultivate a hospitable, inclusive atmosphere in which students perceive themselves as members of a supportive community generally exhibit reduced retention rates. Sabtu,

Noor, and Isa (2016) assert that student attributes, including motivation, resilience, and pre-schools academic preparation, interact with institutional systems such as support services, mentorship programs, and co-curricular activities to affect persistence rates. Subsequent research has highlighted the significance of support systems in facilitating student assimilation. Roberts and McNeese (2021) recognise institutional activities, including peer mentorship, academic advising, and student organisations, as essential for fostering academic and social integration. Students engaged in these activities are more inclined to express a sense of affiliation with their peers and professors, resulting in increased levels of persistence. Furthermore, some studies underscore the significance of institutional flexibility in enhancing integration and retention. Evans et al. (2021) propose that adaptable learning environments, which cater to varied learning preferences and life situations (such as providing part-time study options or online courses), can markedly improve student integration, especially for non-traditional students, who might otherwise find it challenging to fully participate in campus life. In conclusion, the integration of students into academic and social institutions is essential for perseverance and successful program completion. Institutions must prioritize cultivating a sense of belonging, establishing support systems, and assuring adaptability to address the varied requirements of students. As higher education progresses, addressing these variables will be essential for enhancing retention and student achievement.

2.25. Determinants of talent acquisition and retention in TVET institutions

The attraction and retention of talent in Technical and Vocational Education and Training (TVET) schools in South Africa has emerged as a crucial priority, given the vital

function these institutions serve in providing the workforce with practical skills. Multiple factors affect the capacity of TVET schools to attract and retain skilled personnel, especially in a progressively competitive educational environment. There are several studies that have highlighted several critical aspects, including work environment, career advancement prospects, compensation, institutional leadership, and organisational culture.

2.25.1. Professional Setting

An enabling and supportive work environment is crucial for fostering teacher retention and satisfaction in TVET institutions. Maharaj and Moodley (2021) emphasize that access to adequate resources, such as teaching materials, modern infrastructure, and technological tools, is fundamental to ensuring that educators can perform effectively. Professional development opportunities are another critical factor. Teachers who receive ongoing training both in pedagogy and in up-to-date industry practices are better equipped to deliver relevant and engaging education, which enhances their job satisfaction. Additionally, fostering connections between TVET educators and industry partners helps ensure that curricula remain aligned with evolving labour market needs, making the teaching process more dynamic and industry focused. This alignment not only enriches the learning experience for students but also provides teachers with a sense of purpose and value in their roles. Establishing supportive environments requires collaboration among policymakers, educational institutions, and industries to create clear career pathways, improve work conditions, and provide financial incentives to attract and retain qualified educators. Challenges like low social recognition of TVET teaching and

competition from higher-paying industry jobs further highlight the need for supportive environments. Flexible working arrangements and opportunities to stay connected with industry practices can help retain skilled professionals in teaching roles while boosting the overall credibility of TVET systems (World Bank, 2023; UNEVOC, 2023).

2.25.2. Professional Advancement Opportunities

Opportunities for professional development and career progression are critical to retaining skilled instructors in TVET institutions. Beyers and Hay (2022) highlight that continuous professional development (CPD) enhances educators' skills and contributes to greater job satisfaction and improved teaching quality. Structured CPD programs that align with current industry standards and technological advancements ensure that instructors remain relevant in their fields. Recent findings emphasize the importance of flexible and accessible training programs. Such initiatives allow educators to balance their demanding schedules while upgrading their skills through various modalities, including workshops, online sessions, and mentorship programs. Tailored training content that directly addresses vocational and pedagogical needs has proven especially effective in boosting engagement and professional growth (BCcampus, 2023). In addition, career progression opportunities, such as promotions linked to CPD completion, can motivate instructors. For instance, in several countries, participation in CPD is tied to salary increments or promotion opportunities, creating a direct incentive for engagement. Institutions that prioritize pathways for advancement whether through additional qualifications, leadership roles, or specialization in emerging vocational areas demonstrate a commitment to educators' long-term growth (UNESCO, 2023). A well-

rounded strategy combining skill enhancement, recognition, and clear progression trajectories ensures that TVET institutions not only retain talented instructors but also foster a strong teaching environment that adapts to evolving industry demands and educational standards.

2.25.3. Compensation and incentives

Competitive compensation and attractive incentives are vital for retaining skilled educators in TVET institutions. Research highlights the role of salary equality between TVET schools and other educational institutions or industry roles in curbing staff turnover. According to Nkomo and Mohale (2020), discrepancies in pay can undermine retention efforts, particularly when TVET educators perceive better financial opportunities elsewhere. Recent insights stress that comprehensive compensation packages, including not just base salaries but also benefits such as healthcare, retirement plans, and performance bonuses, significantly improve job satisfaction and organisational loyalty. For instance, a 2023 UNESCO report notes that well-aligned financial incentives contribute to attracting and retaining a skilled workforce essential for achieving TVET's educational and socioeconomic goals. Furthermore, examples from Malaysia's evolving TVET system show that integrating industry-specific allowances and career-oriented benefits can make these positions more appealing while also aligning educational programs with national workforce needs. Providing these benefits demonstrates institutional commitment to staff well-being, fostering a professional environment conducive to long-term career growth and quality education delivery.

2.25.4. Institutional Governance

According to Moodley and Singh (2020), effective leadership is foundational for talent retention and organisational success in TVET schools. Research highlights that strong, visionary leadership fosters improved morale, organisational commitment, and loyalty among staff members. Leaders who implement participatory governance structures, where staff opinions are valued, help establish a sense of inclusivity and trust. This leadership approach not only motivates educators but also encourages innovation and collaboration within the institution. The UNESCO-UNEVOC Leadership Programme underscores the importance of transformative leadership in managing change and aligning institutions with modern challenges, such as sustainable practices and digital transformation. Building leadership capacity has proven to be essential for cultivating an adaptable and resilient workforce in TVET settings. Leaders who demonstrate strategic vision and engage in evidence-based decision-making significantly influence institutional effectiveness and educator satisfaction. Moreover, reports by the British Council suggest that capable administrators who focus on fostering professional development, ensuring access to resources, and advocating for their staff contribute to higher retention rates. Such governance practices enable TVET schools to attract and maintain high-calibre professionals while meeting their strategic goals

2.25.5. Organisational Culture

The institutional culture plays a pivotal role in attracting and retaining skilled personnel in TVET schools. Gaffoor and Van der Bijl (2019) highlight that fostering a

collaborative, supportive, and innovative environment that acknowledges and rewards staff contributions is fundamental for long-term retention. Such cultures, rooted in mutual respect, transparent communication, and professional teamwork, not only enhance employee satisfaction but also strengthen organisational commitment. Makole et al. (2023) further emphasise the importance of aligning institutional culture with broader societal and economic goals, such as those outlined in national development strategies. TVET schools can create environments where staff feel empowered and valued by embedding values like inclusivity, teamwork, and shared ownership. This approach is particularly effective in addressing challenges like staff turnover and disengagement. Moreover, a culture that promotes continuous improvement and innovation encourages professional growth among educators, fostering a sense of purpose and belonging. For instance, integrating modern technologies and collaborative practices into the workplace has enhanced teaching effectiveness and job satisfaction (UNESCO, 2023; British Council, 2023). By prioritizing an inclusive and dynamic organisational culture, TVET institutions can position themselves as attractive employers capable of retaining a motivated and dedicated workforce.

2.25.6. Employment Stability

Employment stability is a critical factor in the context of TVET (Technical and Vocational Education and Training) schools, especially given the ongoing restructuring and financial challenges within the South African higher education system. The financial instability of these institutions, coupled with frequent policy changes and budget cuts, often creates an environment of uncertainty for educators and staff. This climate of

insecurity can severely impact morale and job satisfaction, leading to concerns about the sustainability of employment. As Van der Westhuizen and Kruger (2021) assert, job stability is a key driver of employee retention, with those who experience anxiety or uncertainty about their long-term prospects more likely to seek alternative career opportunities elsewhere. Moreover, the lack of clear career progression and the constant threat of retrenchment may contribute to disengagement and dissatisfaction among educators. This insecurity can undermine their ability to focus on their teaching responsibilities, affecting their professional performance and the quality of education offered to students. As educators search for more stable career options, TVET schools risk losing valuable talent, which could have long-term consequences on institutional performance and student outcomes. In addition, the broader implications of job instability extend beyond the individual educator to the institution. High turnover rates can lead to a loss of institutional knowledge, disrupt continuity in teaching, and undermine the schools' overall reputation. Therefore, fostering job security and offering a stable work environment is essential for employee well-being and ensuring the success and sustainability of TVET schools in a rapidly changing educational landscape.

2.25.7. Extrinsic Factors

Government policies and overarching economic conditions significantly impact talent acquisition and retention in TVET schools. Ramrathan (2016) asserts that the national government's dedication to enhancing TVET institutions has bolstered staff recruitment; nonetheless, issues such as insufficient budget, bureaucratic obstacles, and a deficiency in strategic direction continue to exist. Mitigating these external variables can

improve the reputation and efficacy of TVET schools, rendering them more appealing to skilled educators. Attracting and retaining talent in South African TVET schools necessitates a comprehensive strategy encompassing enhancing the work environment, offering professional development opportunities, ensuring competitive compensation, and cultivating effective leadership and positive organisational cultures. By addressing these variables, TVET schools can enhance their ability to attract and retain proficient educators, strengthening their educational programs and contributing to national skills development.

2.26. Quality practices in higher education

According to Dean and Bowen (1994) (as cited in Gustafsson, Nilsson & Johnson, 2003), quality management is based on principles such as quality practices, quality principles, and quality techniques. Quality principles are implemented through a set of practices such as customer information and analysis, human resource management, and improving organisational processes (Gustafsson et al., 2003). The following quality processes are important in managing quality in business organisations: top management support, information analysis, strategic planning, customer focus, program design, people management, process management, organisational and technical innovation.

2.26.1. Top management support

In higher education institutions, top management plays a crucial role in establishing the institution's mission, values, and objectives to foster a culture of quality and employee involvement in quality management practices (Manatos, Rosa, and Sarrico, 2018).

Setting the strategic direction and putting in place the mechanisms necessary to support high organisational performance are the responsibilities of leadership. The development of a cohesive goal, inspiring change, controlling the surroundings, and fostering a collaborative approach to enhanced performance are just a few of the various facets that comprise the leadership component. According to Abbas, Kumari, and Al-Rahmi (2021), organisational leadership plays a vital role in controlling and implementing organisational policies as well as encouraging employees to work together in different teams.

2.26.2. Information and analysis

According to Evans and Lindsay (2013), organisations need to know what is happening now and forecast the future by using performance data and their analysis. It is not enough to collect data, organisations must make sure that the data collected is valid and accurate and that it is available to everyone who needs them in a timely fashion and secure for unauthorized access. For instance, results from customer surveys for a certain brand preference might be an indication of satisfaction with what the organisation is offering. To sustain a customer-focused approach, promote quality excellence, and enhance performance, this component addresses the extent, handling, and application of data and information (National Institute of Standards and Technology, 1995). For example, several TQM strategies, like cause-and-effect analysis and Pareto charts, are meant to assist businesses in efficiently handling information. Information converted into knowledge is essential in making decisions and strategic planning as it is good management practice that can increase overall quality. According to Hosseinioun et al.

(2012), some form of analysis based on artificial intelligence and data mining to produce outputs is needed to convert raw data into knowledge.

Higher education quality management is very diverse, and it is aimed at securing and improving teaching and learning (Lopes, Álvarez-García, & González-Vázquez, 2018). According to Lopez et al. (2018), several questions are raised by higher education institutions' managerial staff that can be answered by raw data collected that have been automated by tools that generate reports or insightful visualization. Examples of questions that can be answered are as follows:

- How many hours does a teacher or department have for teaching and practicals?
- Which employee is currently studying and for how long?
- What is the rate of students progressing up to graduation per department?
- How many courses does each lecturer teach?
- What are the requirements for enrolment in each course?

2.26.3. Strategic planning

Strategic planning comprises two different yet important words: "strategic" and "planning". According to Corral (1996), strategy is an organisation's direction by configuring resources to fulfil stakeholders' return on their investments. According to De Andreis (2019), planning refers to an organisation's process to prepare the steps necessary to achieve a set goal. Strategic planning involves deciding what to do, how to

do it, when to do it, and why it should be done before any decision can be taken. According to Ian and Hjortso (2019), higher education institutions have a role in satisfying conflictive stakeholders to obtain resources and legitimacy. Higher education institutions' strategic planning comprises a process of what to do now to thrive in the future (Hinton, 2012). According to Porter and Lee (2015), higher education in developing countries like South Africa should see the strategic process as a tool that they can use to make decisions about future expectations and how those outcomes can be measured and fulfilled. According to Hassanien (2017), good strategic planning should consist of: management's knowledge about the economic, technological, and competitive environment; goals setting and desired objectives; SWOT analysis; choosing the right strategy and its alternative that will assist in the achievement of organisational goals and objectives; monitoring and implementation of tactical or operational plans to achieve desired goals and objectives. According to Hartley, Alford and Hughes (2015), defining an organisation's collective vision and alignment of vision through strategic planning can enhance higher education institutions to respond to unforeseen challenges in a beneficial way.

2.26.4. Customer focus

Organisations need to understand who their customers are so that they can understand their needs. According to Evans and Lindsay (2013), customers assess the quality and develop their perceptions (perceived quality) by comparing their expectations (expected quality) with what they receive (actual quality). Organisations need to be attentive to the needs and expectations of their customers and use customer feedback

for improvement. According to Evans and Lindsay (2013), producers should look at processes through the eyes of customers and not that of an organisation. Students are the main customers of institutions of higher learning, and their needs should be recognized and enticed by academic ethics (Bayraktar et al., 2008).

2.26.5. Program design

In higher education institutions, academic programs are the main products that entice the needs of customers (students and other stakeholders) to invest their money and time. According to Baker and McCulloch (2020), the design of TVET schools programs is crucial to ensuring that these institutions effectively prepare students for employment. Practical training, industry needs alignment and fostering partnerships with nearby businesses are all essential components of a well-designed program (Kamarudin, 2022). Graduating students' employability is increased by this alignment, which guarantees they have the relevant skills and competencies that companies value. According to Baker and McCulloch, a range of stakeholders, including legislators, educators, and industry representatives, must be involved in developing TVET programs. A curriculum that considers the latest developments in technology and labour market trends is produced through this cooperative approach (Baker & McCulloch, 2022). Additionally, incorporating opportunities for work-based learning, like internships or apprenticeships, into the curriculum can greatly improve students' exposure to real-world problems and practical experience. This experiential learning element strengthens ties between academia and business while also enhancing the educational process. According to the World Bank (2021), program relevance must be maintained through

ongoing assessment and revision in an ever-changing labour market. When it comes to developing curricula, higher education institutions are expected to take the initiative and regularly evaluate the skill gaps that labour market analyses have revealed. TVET schools can enhance their community service and promote economic development by prioritising adaptability in program design.

2.26.6. People management

According to Evans and Lindsay (2013), human resource management or people management consists of activities designed for people's or employees' well-being in an organisation. Employees in any organisation are an important resource that needs to be valued as they are the ones who transform policies, strategies, and objectives into actions for the success of the organisation. People management practice addresses the effectiveness of the department of human resources within the organisation on how they recruit new staff members, how they are trained and developed, communication flow, employee safety, and the retention of satisfied employees. HRM is more than just administrative tasks; it is about professional development, talent management, strategic workforce planning, and performance review. The diverse demographic context of South African universities necessitates that HRM address equity and transformation-related issues. This entails encouraging diversity in recruiting procedures and creating a setting that supports academic freedom while ensuring that national laws meant to correct historical injustices are followed. According to Brewster, Chung, and Sparrow (2016), innovative and continuous improvement cultures are promoted in higher education institutions by efficient human resource management (HRM). Institutions of higher

education can further develop their intellectual capital by sponsoring research collaborations and investing in faculty development programs. In the end, effective human resource strategies are essential for overcoming obstacles like financial limitations and increased global competition while ensuring institutions continue to adapt to the changing nature of education (Brewster et al., 2016). According to Abbas, Kumari, and Al-Rahmi (2021), highly performing institutions treat their employees with care and value, and all employees are motivated to use their skills, knowledge, and expertise to develop their institution.

2.26.7. Process management

Organisations are seen as multiple subsystems integrated to form a single, cohesive system when viewed from an open system perspective (Doyle, 2000). Evans and Lindsay (2013) assert that a process underlies every task carried out in an organisation. Standard business processes include, but are not limited to, gathering customer feedback, strategic planning, research and development, acquisition, creation of new goods or services, completing customer orders, information management, performance evaluation, and employee training. According to Deming (1986), performance improvement starts with improving the interconnected processes that make up an organisation. The administration of various departmental missions, such as teaching and learning, research, and scholarship, is a component of process management in higher education institutions (Manatos, Rosa, & Sarrico, 2018). In the context of higher education institutions, processes, according to Abbas, Kumari, and Al-Rahmi (2021), refer to activities like training, workshops, and lectures that help students

acquire the skills, knowledge, values, abilities, habits, and characteristics needed for personality development. Designing processes that can generate and deliver goods and services can have a positive impact in terms of producing quality students. According to Evans and Lindsay (2013), higher education institutions that are highly competitive are those that design and manage their processes in such a way that both stakeholders' values are increased or enhanced (Abbas, Kumar & Al-Rahmi, 2021).

According to Kumar and Gupta (2019), better decision-making, departmental collaboration, and ultimately the institution's success can all be achieved through the integration of process management techniques. Creating well-defined workflows and standardized procedures is a crucial component of process management in higher education. Institutions can minimize errors and redundancies by documenting procedures pertaining to course registration, grading, and admissions (Kumar & Gupta, 2019). This standardization improves operational effectiveness while giving students a consistent experience with targeted interventions. Maintaining successful process management practices by cultivating a culture of continuous improvement is also crucial. According to Gulia (2020), institutions should actively involve faculty, staff, and students in developing new initiatives while soliciting their feedback on current procedures. This cooperative approach results in creative solutions that improve institutional effectiveness and empower stakeholders. Ultimately, higher education settings can better adapt to changing demands while providing high-quality educational experiences by prioritising process management strategies.

2.26.8. Organisational innovation and technical innovation

Innovation involves inventing and designing completely new products and services that collaborate with new ideas, technologies, and discoveries to enhance performance and quality. In the context of this study, innovation will relate to both social and technological innovation. According to Rodgers (2003), social innovation is about social practice change implemented to achieve a defined, societal relevance goal in a way that is better than the current organisational practice. According to Leiber (2022), the relevance of social innovation in higher education relates to the shift from models of teaching that are rooted in behaviourist learning theory to those that emphasize constructivist tradition with the focus on competence-oriented and learning that is self-directed. In a modern society, social innovation is followed by technological innovations like online learning platforms that also support constructive a learner and self-directed learning processes. According to Winks et al. (2020), innovation in higher education is an issue for quality management. However, those who are tasked to manage it should launch a management culture that takes into consideration the unpredictable nature of innovation and processes related to change. According to Pohlenz (2021), quality management in all sectors, including higher education, is undergoing the process of innovation, like in digitalization, where learning analytics and big data are involved.

2.27. Involvement of higher education stakeholders

Stakeholders are integral to the dynamics of organisations, significantly higher education institutions. According to numerous experts, stakeholders include diverse individuals and groups. This encompasses internal stakeholders, including staff and

students, with external stakeholders like as alumni, employers, regulatory agencies, and the wider society (Freeman, 1984; Jones et al., 2016). Comprehending the varied requirements and expectations of different stakeholders is essential for the success of higher education institutions, as it can markedly affect their competitive positioning (Smith & Jones, 2021). Garcia and Lind (2020) assert that external stakeholders, including non-educational community members, are crucial as they can influence institutional policies and performance. Consequently, identifying stakeholders and actively involving them is crucial for improving the efficacy and prestige of higher education institutions (Brown & Hesketh, 2021). In all organisations, identified stakeholders should be regarded as strategic partners who should be consulted and involved, starting from strategic planning, policy development, and new product/ program development for ultimate success (Dess, Lumpkin, Eisner, Mcnamara, & Kim, 2012). Higher education institutions' stakeholders are consulted and involved for the sake of students' quality welfare and institutions' development (Saxena, 2014). According to Labanauskis and Ginevicius (2017), higher education institutions have many stakeholders with different roles and internal connections, and different expectations are vital. The legitimacy of higher education to its society is increasingly evaluated by the quality of its commitment to multiple stakeholders (Jongbloed, Enders & Salerno, 2008). According to Paraschivescu and Şavga (2016)'s study, those who manage quality in higher education should focus on building networks and strategic alliances with different stakeholders who design, produce, accreditors who evaluate the higher education system, distributors of continuing education, financiers, and anyone who directly or indirectly benefit from the higher education system. One of the responsibilities of higher education administrators for better performance on the job and

knowledge enrichment is to know who the stakeholders of higher education are (Omer, Emily, and Mitchell, 2015). Besides the institution employees who should be involved in matters of higher institution education, below are some of the key stakeholders that should be involved:

2.27.1. Students and parents

Students play a central role in the educational process and are the most important actors because without them, a school cannot exist. Students are the main buyers of services in higher education, although users of research results from the higher education system can also be considered customers. According to Hall, Symes, and Luescher (2002), students have reasonable expectations and desires that should be met, and they know that higher education can provide them with privileges that come with responsibilities to facilitate the proper continuation of transformed academic programs. According to Hayward and Ncayiyana (2003), higher education institutions should value student participation for the success of strategic planning in higher education. According to Omer, Emily, and Mitchell (2015), students are important to the development of a schools, and their academic careers reflect the schools that produced them. According to Omer et al. (2015), students' voices should be heard through student government associations as student government is necessary for the success of the overall student population when students are part of the decision-making. Parents should also be considered important stakeholders as they could decide where their children can attend schools (MacAllum, Glover, & Queen, 2007).

2.27.2. Government and accreditors

The government's role in higher education lies in regulating the institutions, providing grants to both students and institutions, and giving employment to graduates. According to Sibiya (2017), governance of higher education institutions extends from the ministry, the political head, to the council, with the principal or vice principal as the accounting officer. Although various non-government organisations provide financial assistance to higher education institutions and enrolled learners, the government remains the main stakeholder that provides more financial support. Accreditation institutions evaluate and give accreditation to higher education institutions' programs. They also provide higher education institutions with appropriate and important information to support government decisions and guide prospective students to choose careers.

2.27.3. Alumnus

According to Moore and Kuol (2015), alumni are former students or graduates with a wealth of information to share. Graduates from postsecondary educational institutions can assess how well their qualifications are applied to current market trends and job requirements because they have firsthand industry experience. Schools strategic goals can benefit greatly from alumni's networks and resources. In nations and postsecondary institutions that do not cultivate alumni relations, this data is often underutilized despite its great importance (Ebert et al. 2015). The world's best universities are determined by the calibre of their faculty, staff, and alumni employment, according to the Centre for World University Rankings (CWUR) referenced by Business Tech (2014). According to Ebert et al. (2015), these factors help universities get major funding and recognition. Many

traditional university alumni associations involve fundraising, which explains why 16 alumni can add enormous value to an institution of higher learning without raising money. Therefore, in nations without long-standing traditions, like the United States of America and Great Britain, there is a significant and growing interest in creating alumni relations strategies (Ebert et al, 2015). Alumni are the real gauge of a university's programs and quality of instruction, according to Barron (2015). Graduates serve as role models for the skills learned in academic institutions. Alumnus is provided with an identity and offer for qualification improvement by higher education institutions. According to Labanauskis and Ginevicius (2017), alumni's role is to provide higher education institutions with feedback and support and are invited to give lectures, moral support, and practical to current students during institution events.

2.27.4. Partnership with employers and industries

Several studies have been done on the importance of partnering with employers or industries that employ student graduates or give in-service training to students who are still studying. Szucs's (2018) study on the partnership between universities and industries found that academic quality enhances the working relations between the universities and industries. According to Ankrah and Al-Tabbaah (2015), collaboration between universities and industries is progressively perceived to enhance innovation through the sharing of knowledge.

2.27.5. Benefits of stakeholder involvement

According to Edelenbos and Klijn (2006), involving and consulting stakeholders in the form of surveys, one-on-one meetings, and multi-stakeholder consultations have the following benefits:

- Quality decision-making is based on quality input because a different perspective reduces groupthink, challenges traditional thinking, and induces creative problem-solving;
- Different stakeholders are satisfied with the final product as they know that they were part of planning or recreating it;
- Stakeholders who are consulted and involved make it easy for the organisation to successfully implement its strategy or plan as they take pride in the plan's design and good governance;
- Stakeholders feel that the organisation part they are part of is open and transparent, and they feel free to give feedback.

2.28. Benefits of an Integrated Curriculum in Higher Education

An integrated curriculum, which combines various disciplines into a cohesive educational experience, offers substantial benefits in higher education. This approach fosters deep understanding, enhances critical analysis, and prepares students for

complex real-world challenges. The following are a few notable advantages supported by current research:

2.28.1. Enhanced Analytical Reasoning and Solution Development Skills

Integrated curricula are designed to foster connections between various disciplines, enabling students to engage with content from multiple perspectives. This cross-disciplinary approach encourages the application of knowledge from diverse fields and strengthens critical thinking and problem-solving abilities. As Gonzalez and Kallio (2021) suggest, students involved in integrated learning experiences develop advanced analytical skills by synthesizing information across subjects, which enhances their capacity to tackle complex, real-world problems. By addressing challenges from different viewpoints, students can draw on a broader range of tools and methods, enabling them to propose innovative solutions. Moreover, integrated curricula cultivate a holistic understanding of problems, encouraging students to think beyond traditional disciplinary boundaries. Research by Boyer (1990) emphasizes that integrated learning helps students make connections that would otherwise remain unnoticed in isolated fields of study. This process not only improves their problem-solving skills but also nurtures their ability to think creatively and approach challenges with a multidisciplinary mindset. Additionally, scholars like Tovani (2004) point out that such curricula promote deeper learning, where students are encouraged to engage critically with the material, making learning more meaningful and applicable in varied contexts.

In sum, integrated learning experiences equip students with the cognitive flexibility to navigate complex issues and develop practical, innovative solutions, preparing them for the demands of a rapidly changing world. This approach is particularly valuable in an educational landscape that increasingly values interdisciplinary collaboration and the ability to think critically and creatively across domains.

2.28.2. Augmented Engagement and Motivation

Students often find integrated curricula more engaging due to the clear and immediate relevance of their academic studies. Miller (2022) observed that students in integrated learning environments exhibited heightened motivation and interest in their coursework, directly contributing to better engagement and improved academic performance. This is because integrated curricula break down traditional disciplinary silos, allowing students to explore the connections between subjects and apply their knowledge in more meaningful ways. Recent studies further support these findings. For instance, a study by Carney et al. (2023) found that students who participated in interdisciplinary courses reported feeling more connected to the content, as they could see its practical applications in the real world. This connection to practical outcomes enhances students' intrinsic motivation, as they understand the value of what they are learning beyond the classroom. Similarly, research by Laal and Ghodsi (2012) underscores the idea that integrated curricula encourage active participation, fostering deeper engagement by allowing students to engage with complex problems from multiple perspectives.

Moreover, integrated learning has been shown to increase student retention and satisfaction. According to a study by Kivunja (2014), students in interdisciplinary programs often demonstrate more tremendous enthusiasm for learning, which is linked to higher levels of persistence in their academic journey. This heightened enthusiasm stems from the interdisciplinary nature of integrated curricula, which challenges students to think critically and solve problems innovatively. In summary, integrated curricula promote student engagement and motivation by showing the real-world relevance of their studies and contribute to improved academic outcomes by fostering active, meaningful learning experiences. These benefits are particularly evident in environments where students are encouraged to draw connections between different fields of knowledge, enhancing their intellectual curiosity and drive.

2.28.3. Workforce Preparedness

In today's rapidly evolving job market, employers are increasingly looking for graduates with diverse skills and interdisciplinary knowledge. Adapting to a wide range of tasks and collaborating effectively in team environments is becoming essential for success in complex work settings. An integrated curriculum is particularly effective in fostering these competencies, as it encourages students to engage with knowledge and skills from multiple disciplines, bridging gaps between them and promoting flexibility. Harris and Worrell (2023) argue that graduates from programs using an integrated approach demonstrate superior adaptability, which allows them to handle various challenges across different domains. This adaptability is crucial in a world where job roles

are continuously evolving, and employers highly value the capacity to shift between tasks or adjust to new contexts. Furthermore, students who experience integrated curricula are often better prepared for teamwork, as they are accustomed to drawing upon diverse perspectives and expertise, making them effective collaborators in interdisciplinary teams.

In addition, research by Beers and Sutherland (2022) supports the idea that interdisciplinary education not only boosts adaptability but also enhances problem-solving skills. By encouraging students to apply knowledge from various fields to real-world problems, integrated curricula cultivate the critical thinking and creativity necessary for innovative solutions. Similarly, studies by Evers and Rush (2021) emphasize that interdisciplinary learning equips students with the necessary skills to navigate the complexities of modern workplaces, where issues are rarely confined to a single discipline. In sum, an integrated curriculum not only prepares graduates to be more adaptable and effective team players but also ensures they are equipped with the problem-solving capabilities required in the multifaceted and fast-paced modern workplace.

2.28.4. Enhancement of Lifelong Learning Skills

Integrated curricula are instrumental in fostering student autonomy in learning, essential for developing the skills necessary for lifelong education. Baldwin et al. (2022)

argue that students engaged in integrated learning environments are more likely to embrace self-directed learning. This crucial skill allows them to take charge of their educational journey beyond the classroom. By connecting content across disciplines and emphasizing practical, real-world applications, integrated curricula encourage students to become active participants in their learning process, promoting independence and the ability to pursue knowledge independently. This autonomy improves academic performance and nurtures resilience which is another key trait for lifelong learning. As students encounter diverse challenges and learn to navigate complex, interdisciplinary problems, they develop the ability to adapt and persevere through difficulties. This is particularly important in today's fast-changing world, where lifelong learning is essential for professional and personal development. Research by Candy (2020) supports this, showing that students who are taught to be self-directed learners are more likely to seek out new knowledge, adapt to changing environments, and develop valuable skills throughout their careers.

Furthermore, an integrated curriculum provides opportunities for students to develop a growth mindset closely tied to resilience. Dweck (2006) posits that students who view challenges as opportunities for growth are more likely to persist in their learning and adapt to new situations. The cross-disciplinary nature of integrated learning fosters this mindset, as students are regularly encouraged to think critically and creatively, solving problems from multiple angles. In sum, integrated curricula are not only beneficial for academic achievement but also equip students with lifelong learning skills such as

autonomy, resilience, and self-direction that are essential for success in an ever-evolving world

2.28.5. Improved Collaboration and Teamwork

An integrated approach to learning often incorporates collaborative projects that require teamwork among students, significantly enhancing their ability to work effectively in group settings. Nguyen et al. (2023) highlight that students engaged in integrated programs demonstrate improved communication skills and a deeper understanding of group dynamics. These skills are crucial for professional success, as the modern workforce increasingly values the ability to collaborate with diverse teams and manage complex tasks collectively. Working in interdisciplinary teams exposes students to various perspectives, encouraging them to communicate ideas more clearly and navigate differing viewpoints. As research by Johnson and Johnson (2022) suggests, such experiences cultivate essential skills like active listening, conflict resolution, and mutual respect which are vital for effective collaboration. These skills are important for achieving academic success and fostering positive, productive relationships in the workplace.

Furthermore, integrated curricula often emphasize the importance of collective problem-solving, which mirrors the demands of professional environments where collaboration is key. By working together on complex projects that draw on multiple areas of expertise, students gain practical experience in managing group tasks, setting collective goals, and coordinating efforts to achieve common objectives. According to Tuckman (2021), these experiences enhance students' understanding of group

dynamics, helping them develop leadership skills and learn how to function as both leaders and team members, depending on the situation. Integrated learning not only improves students' communication and collaboration skills but also provides them with the tools necessary to thrive in team-based professional environments, where the ability to work effectively with others is a critical determinant of success

2.28.6. Pragmatic Application of Knowledge

Integrated courses often incorporate real-world projects and case studies, allowing students to apply theoretical knowledge in practical settings. This experiential approach helps bridge the gap between classroom learning and the complexities of the professional world. Jones and Smith (2022) argue that applying theory in practice deepens students' understanding and boosts their readiness for real-world challenges. By tackling authentic problems, students gain hands-on experience that enhances their critical thinking, problem-solving, and decision-making skills, which are crucial for success in their careers. Research by Darling-Hammond et al. (2021) further emphasizes the value of such applied learning experiences. They found that students who engage in project-based learning or case studies that simulate workplace scenarios are better prepared for professional environments as they develop the skills to navigate complex situations. These projects also help students build confidence in their abilities, as they can see the direct impact of their work in solving real-world problems. Similarly, Kolb (2015) highlights that experiential learning, central to integrated curricula, fosters a deeper understanding of concepts, as students learn by doing rather than passively receiving information.

Incorporating real-world applications into the curriculum also enhances students' ability to collaborate and innovate as they work together on projects that require interdisciplinary knowledge. This collaborative approach and practical application equip students with the tools to thrive in dynamic, fast-paced professional environments. Integrating real-world projects and case studies in education not only reinforces theoretical knowledge but also ensures that students are better prepared for the challenges and demands they will face in their future careers.

2.29. Entrepreneurial Education and Skill Development

Entrepreneurship education is recognized as a crucial component of higher education, particularly in Technical and Vocational Education and Training (TVET) institutes. This instructional method cultivates essential entrepreneurial skills and traits, allowing students to navigate the complexities of the business landscape effectively. According to Volkmann et al. (2024), offering entrepreneurial education to students has the following benefits.

2.29.1. Fostering Entrepreneurial Traits and Skills

In higher education, particularly within TVET institutions, educators play a pivotal role in nurturing entrepreneurial mindsets and skills among students. By combining theoretical knowledge with hands-on practical experiences, educators help students develop the competencies to start and sustain successful businesses. Volkmann et al. (2022) emphasise that entrepreneurship education involves more than just classroom instruction. It incorporates experiential learning opportunities like internships, case

studies, business simulations, and mentorship programs. These elements foster innovation, resilience, and adaptability, essential in navigating today's competitive and dynamic market landscape. Practical engagement, such as running student-led ventures or participating in industry-sponsored challenges, provides learners with real-world applications of their studies. Studies by Neck and Greene (2019) suggest that these experiences not only enhance students' ability to think creatively but also build their confidence in identifying and seizing business opportunities. Additionally, mentorship from seasoned entrepreneurs or industry professionals offers invaluable insights into the intricacies of starting and managing a business. Such guidance bridges the gap between theoretical frameworks and practical realities, helping students to better anticipate and manage risks.

Further, fostering entrepreneurial traits requires creating an environment that encourages experimentation and tolerates failure as a learning opportunity. Rae (2020) highlights that entrepreneurship education should instil a growth mindset in students, enabling them to view setbacks as stepping stones rather than obstacles. This approach equips them with the perseverance and resourcefulness needed to thrive in uncertain conditions.

In summary, fostering entrepreneurial traits and skills in TVET institutions involves a multifaceted approach, blending theoretical knowledge with practical application, mentorship, and experiential learning. This holistic model enhances students' readiness

for entrepreneurial ventures and prepares them to contribute innovatively and effectively to the broader economy.

2.29.2. Advancing Entrepreneurial Initiatives

TVET schools play a crucial role in advancing entrepreneurial initiatives by offering essential resources and support to aspiring entrepreneurs. These institutions often provide access to business incubators, hands-on workshops, and valuable networking opportunities, enabling students to develop, refine, and assess their business ideas. Such programs create an environment conducive to entrepreneurship, equipping students with the tools and knowledge to succeed in the competitive business world. According to Pittaway and Cope (2021), these initiatives significantly reduce the barriers prospective entrepreneurs face, leading to higher rates of business start-ups among graduates. In addition to reducing challenges, entrepreneurship programs at TVET schools emphasize the practical aspects of starting and running a business. For example, students benefit from mentorship opportunities, where experienced business professionals guide them through the intricacies of business planning, market analysis, and financial management. Gibb (2022) emphasizes that this mentorship improves students' confidence and helps them navigate the complexities of the entrepreneurial landscape.

Furthermore, by facilitating access to funding opportunities and industry connections, TVET schools empower students to take their ideas from concept to

execution. Koirala and Pant (2020) highlight that networking events these institutions host provide students with opportunities to interact with potential investors and collaborators, creating pathways for their ventures to thrive. These experiences also foster a strong entrepreneurial mindset, encouraging students to view challenges as opportunities and to approach problems creatively. In sum, TVET schools are well-positioned to cultivate entrepreneurial talent by providing a comprehensive ecosystem of support. These institutions play a pivotal role in nurturing the next generation of entrepreneurs through practical resources, mentorship, and real-world opportunities.

2.29.3. Skill Development for Future Employment

Entrepreneurship education goes beyond equipping students to launch their businesses; it instils transferable skills essential for success in various professional environments. By focusing on competencies like critical thinking, problem-solving, financial acumen, and effective communication, entrepreneurship education prepares students to thrive as entrepreneurs and in corporate or nonprofit settings. Schreuder et al. (2023) assert that these qualities significantly enhance employability, making graduates more attractive to potential employers who value adaptable and innovative thinkers. Critical thinking and problem-solving are at the core of entrepreneurship education, enabling students to approach challenges strategically and devise innovative solutions. These skills are particularly relevant in today's fast-paced and complex job market, where adaptability and creativity are highly prized. Neck and Corbett (2022) highlight that entrepreneurship education encourages students to take calculated risks

and think outside traditional frameworks, traits equally valuable in roles requiring strategic planning or decision-making.

Financial literacy, another key component of entrepreneurship education, is a critical skill for managing budgets, analysing financial performance, and making informed economic decisions. These skills are indispensable in nearly every professional setting, from small businesses to multinational corporations. According to Galloway and Brown (2021), students with strong financial acumen are better equipped to take on leadership roles that involve resource allocation and fiscal responsibility. Effective communication, whether in pitching ideas, leading teams, or collaborating with diverse stakeholders, is another vital outcome of entrepreneurship education. Research by Clarke et al. (2020) underscores that students who develop strong interpersonal and communication skills are more successful in building professional networks and fostering teamwork, both of which are critical for career advancement. Entrepreneurship education is a powerful tool for skill development, providing students with a suite of transferable competencies that enhance their employability across industries. By cultivating critical thinking, problem-solving, financial literacy, and effective communication, this education model prepares graduates for a wide range of professional opportunities, equipping them to excel in an increasingly dynamic global economy.

2.29.4. Addressing Unemployment Challenges

High unemployment rates, particularly in developing countries, underscore the critical importance of entrepreneurship as a viable career path for graduates. Traditional

job markets in these regions often cannot absorb the growing number of job seekers, leaving many without stable employment opportunities. In this context, TVET schools play a vital role by fostering economic development and job creation through entrepreneurship education. By nurturing an entrepreneurial ethos, these institutions equip students with the skills and mindset to identify opportunities, start businesses, and contribute to their local economies. Entrepreneurship education empowers students to view challenges as opportunities, encouraging self-reliance and innovation. Kelley (2023) emphasizes that this approach enables graduates to create employment opportunities and positions them as catalysts for broader economic growth. For example, student-led ventures often create additional jobs within their communities, amplifying the impact of entrepreneurial education. Moreover, fostering entrepreneurship addresses the structural limitations of traditional job markets. According to GEM (Global Entrepreneurship Monitor) data, developing regions with strong entrepreneurship programs often experience reduced youth unemployment rates, as these initiatives encourage individuals to forge paths outside conventional employment systems (Bosma et al., 2022). This reduction in reliance on traditional job markets is particularly valuable in economies with limited industrial diversification or those transitioning from resource-based to knowledge-based structures.

In addition to practical skills, entrepreneurship education at TVET schools often instills a sense of social responsibility, inspiring students to pursue ventures that address pressing societal needs, such as access to clean energy, education, or healthcare. These socially conscious businesses generate income for entrepreneurs and contribute to

sustainable development goals, fostering a culture of innovation and impact. In summary, by equipping students with the tools to create their employment opportunities, TVET schools help mitigate unemployment challenges while driving economic and social progress. Through targeted entrepreneurial education, they empower graduates to transform systemic challenges into opportunities for growth and innovation.

2.29.5. Promoting a Sustainable Economy

Entrepreneurship education plays a pivotal role in promoting sustainable economic practices by equipping students with the tools and knowledge to assess the social and environmental implications of their economic actions. This approach instils an ethos of ethical corporate conduct, ensuring that future entrepreneurs prioritize sustainability alongside profitability. By integrating concepts such as resource efficiency, circular economy principles, and environmental stewardship, entrepreneurship education aligns student ventures with global goals like the United Nations' Sustainable Development Goals (SDGs). Students are taught to consider sustainability at every stage of the entrepreneurial process, from ideation to execution. Floyd (2022) emphasizes that incorporating sustainability into entrepreneurship education prepares students to navigate and respond to evolving market challenges, such as consumer demand for eco-friendly products and stricter environmental regulations. These skills are essential in fostering innovative solutions that address pressing global issues, such as climate change and resource depletion. Research by Hallinger and Nguyen (2021) highlights the growing importance of sustainability literacy in entrepreneurial education, noting that students who understand business's economic, social, and environmental dimensions are better

equipped to create value-driven enterprises. Programs incorporating real-world applications, such as sustainability-focused business simulations or collaborations with green enterprises, provide students with practical experience balancing economic goals with environmental considerations.

Additionally, entrepreneurship education encourages students to identify opportunities within the green economy, such as renewable energy, sustainable agriculture, or waste management. By leveraging these opportunities, graduates advance their careers and contribute to broader efforts to build resilient and sustainable economies. Embedding sustainability into entrepreneurship education prepares students to be responsible leaders and innovators who can address the challenges of a rapidly changing global market. By fostering ethical decision-making and sustainable practices, these programs contribute to developing a more equitable and environmentally conscious economy.

2.30. Administering resources of TVET schools

The administration of educational resources in Technical and Vocational Education and Training (TVET) institutions is essential for efficiently and successfully attaining educational goals (Mbatha, Buthelezi, & Ajani, 2024). This procedure entails guaranteeing the availability, efficient utilisation, and upkeep of resources, which are essential for the operational success of TVET education. Worldwide, managing educational resources is a critical concern, with various studies highlighting its importance and advocating for measures to improve teaching and learning results (Ajoke, 2014;

Kong, 2009; Muremela et al., 2023). Efficient resource management optimises educational advantages, and studies repeatedly indicate that more funding does not inherently result in enhanced educational outcomes (Mthethwa et al., 2022). Managing resources, specifically their efficient utilisation and proper maintenance, can significantly influence learning outcomes (Glover & Levai, 2020). Tshabalala and Dube (2023) contend that resource management is equally crucial as resource availability for TVET schools to fulfil their educational goals. They assert that leadership and strategic planning in managing educational resources can improve student performance and institutional efficacy. Kellerman et al. (2023) propose that utilizing technology for resource monitoring and allocation can enhance outcomes by facilitating real-time adjustments to changing requirements.

Nonetheless, numerous developing nations encounter difficulties with resource management inside TVET institutes. Research conducted in Nigeria, Ethiopia, Kenya, and Swaziland indicates ongoing challenges, including inadequate supply, insufficient money, poor maintenance, and substandard management methods (Asukwo, 2018; Edokpolor, 2019; Hailu, 2007; Makori, 2014). The issues are intensified by inadequate institutional frameworks, resulting in resource underutilization and mismanagement, adversely impacting student accomplishment. Mwangi and Omollo (2022) assert that these inefficiencies frequently stem from insufficient professional development for resource managers, advocating that enhancing capacity in resource management should be prioritized by educational leaders in developing nations. Aluko and Adeyemi (2021)

emphasize the significance of collaborations between communities and industries in enhancing resource management within Technical and Vocational Education and Training (TVET). They contend that partnerships can mitigate resource deficiencies and offer alternative funding sources, especially in resource-limited environments. Dlamini et al. (2023) advocate for increased governmental control and support to guarantee that resources are allocated and utilised in ways that benefit students and the educational environment. Effective management of educational resources is crucial for TVET schools to achieve their educational goals. Despite ongoing obstacles, especially in developing nations, strategic management, capacity enhancement, and collaborations with industry and communities can optimise resource utilisation, enhancing student results and institutional efficacy.

2.31. Rate of completion in higher education in South Africa

The problem of poor throughput rates in South African schools and universities remains a substantial barrier in the education industry (Makibinyane & Khumalo, 2021). Research indicates that throughput rates, representing the proportion of students who attain their diplomas within the designated timeframe, are much lower in South Africa compared to numerous other nations (Council on Higher Education, 2020). This affects not only the students but also the wider educational system and its financing. Letseka and Breier (2021) highlight that elevated dropout rates and the extended duration required for students to finish their studies substantially lead to inefficiencies in higher education. These inefficiencies affect government funding distributions, which are primarily based on the throughput rates of institutions.

Government funding is progressively linked to performance criteria, including throughput rates, as noted by Botha et al. (2022). Institutions with low completion rates receive less financing, which strains resources and restricts future student enrolment capacity. This establishes a detrimental loop in which underfunded institutions are unable to deliver excellent education, resulting in increased dropout rates and subsequent funding decreases. Motala and Walker (2022) contend that this system unfairly impacts historically marginalised institutions, many of which already encounter resource limitations and cater to students from poor backgrounds.

Besides financial consequences, low throughput rates also impact the enrolment of new students. Maringe and Osman (2020) emphasise that when students exceed the allotted time to finish their qualifications, it creates a bottleneck effect, diminishing the availability of spots for new students. Consequently, institutions encounter escalating pressure to accommodate both existing and prospective students, resulting in congested facilities and a decline in educational quality. Some studies indicate that tackling the problem of poor throughput rates necessitates a multifaceted strategy. Nkosi and Motsepe (2023) suggest that enhancing student support services, including academic advising, counselling, and tutoring, may decrease dropout rates and enhance completion times. Furthermore, they advocate for specific interventions for at-risk students, like extended degree programs, to enable them to finish their studies within a feasible timeframe. Mthethwa et al. (2022) contend that the use of technology and online learning

tools can augment student involvement and offer greater flexibility in learning opportunities, perhaps improving throughput rates.

Furthermore, the calibre of instruction and the pertinence of curricula are essential in enhancing student success rates. Pitso and Jacobs (2023) assert that obsolete curriculum and misalignment between educational programs and labour market requirements lead to elevated dropout rates and subpar student performance. Modernizing courses and enhancing industrial relationships may enhance the total throughput rate. Low throughput rates at South African higher education institutions have considerable financial and operational consequences, affecting government financing and new students' enrolment. Augmenting student support, modernizing curricula, and utilizing technology are vital tactics for tackling this issue and increasing educational outcomes nationwide. Numerous factors affect higher education throughput rates, and the current study underscores a wide array of concerns that influence student completion rates in universities and schools, especially in South Africa. The following are essential aspects and insights derived from previous studies:

2.31.1. Socioeconomic Context

Socioeconomic status significantly impacts throughput rates in higher education. Students from economically disadvantaged backgrounds frequently encounter financial challenges that may impede their enrolment and completion of qualifications. Botha et al.

(2022) emphasise that students from underprivileged families are more prone to discontinuing their education due to financial limitations, insufficient access to resources, and familial responsibilities. Financial assistance, including bursaries and scholarships, has demonstrated an enhancement in completion rates; nevertheless, it is not always adequate or available to all students.

2.31.2. Student Readiness

A significant number of students commencing higher education are academically unprepared, especially in the disciplines of science, technology, engineering, and mathematics (STEM). Kivilu and Sibanda (2021) indicate that inadequate fundamental skills in mathematics and language adversely impact throughput rates, since students find it challenging to fulfil the academic requirements of higher education. Bridging programs and extended degree programs have been developed to tackle this issue; nonetheless, their efficacy is inconsistent. Universities are urged to augment academic support services, such as tutoring, academic advising, and mentorship, to bolster student performance.

2.31.3. Institutional Assistance and Involvement

Institutional factors, including student support services and engagement, substantially influence throughput rates. Universities that offer strong academic support systems, such as counselling, academic advising, tutoring, and extracurricular activities,

experience higher student retention and completion rates. Maringe and Osman (2020) assert that students who utilise university resources, such as library services and learning centres, generally achieve superior academic performance and are more inclined to graduate on schedule.

2.31.4. Monetary Assistance and Economic Viability

Financial limitations persist as a significant obstacle to student graduation. Motala and Walker (2022) discovered that numerous students in South Africa discontinue their studies due to financial constraints, especially those lacking comprehensive scholarship or bursary support. Despite the availability of financial help, the assistance may be inadequate to meet the total expenses of university attendance, encompassing living costs, textbooks, and transportation. Implementing the National Student Financial Aid Scheme (NSFAS) has alleviated specific issues; yet deficiencies persist in guaranteeing that all financially disadvantaged students have sufficient assistance.

2.31.5. Relevance of Curriculum and Instructional Strategies

A curriculum matched with the job market and students' career objectives significantly contributes to maintaining student engagement and facilitating the completion of their studies. Pitso and Jacobs (2023) contend that numerous university programs in South Africa are antiquated and insufficiently equip students for workforce requirements. The discrepancy between educational attainment and employment results

leads to diminished throughput rates. Furthermore, innovative pedagogical methods, including blended and problem-based learning, have enhanced student engagement and achievement. These methodologies offer enhanced flexibility and are based on student needs, which are crucial for heterogeneous student demographics.

Enhancing throughput rates in higher education is affected by socioeconomic factors, institutional support, financial aid, mental health, and curriculum pertinence. Recent work continuously emphasises the necessity of a comprehensive strategy to resolving these difficulties, wherein interventions must be customised to accommodate students' varied needs and institutional circumstances. Addressing these characteristics can markedly improve student retention and achievement, increasing throughput rates throughout the sector.

2.32. Psycho-Social support

Psycho-social support is widely acknowledged as essential for the well-being and success of students and employees at higher education institutions. There are studies that highlights that offering this form of assistance mitigates the emotional, mental, and social obstacles that might hinder academic achievement, workplace efficiency, and general well-being. A significant number of students encounter elevated levels of stress, anxiety, and depression, which can adversely impact their academic performance and general well-being. Du Plessis and Bezuidenhout (2023) assert that university mental health support services are essential for ensuring student success. Yet, these programs frequently suffer from inadequate funding and staffing. Students who obtain sufficient

mental health care generally exhibit elevated retention and completion rates, whereas those lacking such support may encounter academic difficulties and withdraw prematurely. The mental well-being of students and staff in higher education institutions has garnered considerable focus. Ndlovu and Sithole (2023) determined that universities must offer comprehensive mental health services, including psychosocial support, to mitigate increasing levels of anxiety, depression, and burnout among students and staff. Effective assistance mitigates the adverse impacts of mental health concerns on academic and professional performance while promoting an inclusive, health-oriented campus atmosphere. This is particularly crucial given the escalating mental health crises intensified by the COVID-19 epidemic. The following are the benefits of having psychological support in institutions of higher education, according to Ndlovu and Sithole (2023).

2.32.1. Enhancing Student Retention and Academic Achievement

Psycho-social support is crucial for enhancing student retention and academic achievement. Many students experience stress, worry, and sadness, which can adversely affect their capacity to concentrate on their academic pursuits. Theron and Phasha (2021) contend that psycho-social support systems, such as counselling services and peer support programs, are vital for assisting students in managing personal and academic stresses, enhancing academic performance and retention. Implementing prompt interventions and cultivating a nurturing educational atmosphere assists students in surmounting obstacles, thereby decreasing dropout rates.

2.32.2. Workplace Efficiency and Employee Welfare

Psycho-social support is crucial for employees to sustain workplace productivity and general well-being. Barkhuizen et al. (2022) observe that personnel at higher education institutions frequently endure elevated stress levels stemming from academic demands, administrative responsibilities, and employment instability. Delivering psycho-social support via employee wellness initiatives, mental health services, and stress management courses can augment job happiness, diminish absenteeism, and increase work-life equilibrium.

2.32.3. Managing Academic and Personal Difficulties

Psycho-social support assists students and employees in managing the many academic, social, and personal issues they encounter. Mhlongo and Letsoalo (2022) discovered that students receiving psycho-social support are more adept at managing stress, time, and interpersonal relationships, enhancing academic achievement. Employees likewise gain advantages from support systems that facilitate their management of the stresses associated with their positions in higher education.

2.32.4. Assisting At-Risk Populations

Marginalised groups, such as first-generation students, international students, and individuals from underprivileged backgrounds, derive substantial advantages from psycho-social assistance. Khan and Naidoo (2023) indicate that these students frequently

encounter heightened emotional and social demands, rendering them more vulnerable to academic failure and mental health challenges. Providing customised psycho-social support to these groups fosters an equitable learning environment and enhances their academic achievement.

2.32.5. Crisis Management and Resilience

Psycho-social assistance is essential for students and staff during emergencies, such as the COVID-19 pandemic. Ramsaroop and Naicker (2022) emphasise that institutions providing psycho-social assistance during crises enhance resilience and flexibility in students and staff. These support systems assist individuals in managing unpredictability and stress, ensuring continuity in learning and production. Psycho-social support is crucial for tackling the diverse issues encountered by students and personnel in higher education. It enhances academic retention, promotes mental well-being, and increases workplace productivity. Recent evidence emphasises that customised psycho-social treatments foster a more supportive and resilient learning and working environment, enhancing achievement and well-being for all participants.

2.33. Employability of schools graduates

According to Pavlin (2010), the employability concept is associated with “professional success” which is measured by subjective and objective indicators such as how well a graduate can transit from schools to the labour market (period of job search); socio-economic status and salary worth; position held as compared to the level of

educational achievement; necessary employment conditions; and level of job satisfaction. Graduate employability refers to a set of skills and abilities a graduate can acquire to obtain the desired job and succeed in their career (Chen, 2017). Employability is “the ability to access a job, maintain it or find another one” (Hillage & Pollard, 2018). Olivier et al. (2014) summarized employers’ skills requirement into six clusters: *foundation skills* in the form of written and oral communication skills, problem-solving and critical analysis; adaptive capacity in the form of the ability to adapt to new and foreign places, learn autonomously, innovative and ability to develop new ideas; Information technology skills; ability to work under pressure, flexibility and meeting deadlines; and technical and domain-specific skills. UNESCO (2012) recommended the following six sets of competencies that make a graduate employable: communication skills, Logical, analytical, and problem-solving skills, Personality, confidence, and integrity, flexibility and adaptability, Innovation and creativity, and team spirit. According to Wickramasinghe and Perera (2010), as cited by Hosain, Mustafi, & Parvin (2021). Employability means the ability to get and preserve employment in any organisation that requires graduate skills while being able to transition into other roles between different jobs. Such skills and abilities should allow the graduate candidate to meet the requirements necessary for the labour industry. It is a kind of all-encompassing package of skills and abilities that enhance future career development. As a result, it has become difficult for a schools graduate without work experience to find a job in recent years. Several competency standards measure the level of graduate employability or graduate quality like the ones developed by Suleman (2016, 2018), Suarta et al. (2017), Olojuolawe et al. (2019) and so on. For this study, the researcher will consider a person's employability as determined

by meeting one of the following criteria per previous research: acquired skills and knowledge, practical experience, the reputation of higher education institutions, connectivity and networking, adaptive skills, and emotional intelligence.

2.33.1. Acquired skills and knowledge

TVET schools, like any other institution of higher education, have a role to produce employable graduates. According to Froehlich, Beausaert, Segers, and Gerken (2014), employable candidates are those who have the necessary skills for the job market, can apply the acquired skills, and adapt to changes within the organisation. Strong evidence from the researchers suggests that acquired knowledge, coupled with soft skills, plays a vital role in a person being employable. According to Robles (2012), hard skills or technical knowledge should be compensated with added skills to allow one to be employable. Klaus (2010, as cited from Hossain, Alam, Alamgir, & Salat, A. 2020) also argued that 75% of skills required for the organisation's success are soft skills like integrity, communication, responsibility, courtesy, social skills, professionalism, flexibility, teamwork, and work ethic while technical knowledge accounts for the remaining 25%. As per Kigwilu (2016), soft skills should be integrated into the curriculum to avoid industries and organisations from being a place of acquiring soft skills. Chaudhary and Dey (2013) suggested that strategies for assessment, such as observation, assignments, projects, and portfolios, should be integrated to assist school students in attaining the necessary employability skills. Furthermore, Ng (2016) added that collaboration and interaction of students should be integrated into the school's curriculum. South African TVET schools have the responsibility to train and develop young people's talents, attitudes, and

knowledge necessary for the labour market. As a result, Bauer and Gessler (2016) recommended that TVET schools should integrate their approach to teaching and learning so that school students, including those who are unable to get the highest netted course (N6), are also employable. Such integration will assist schools' engineering students who often choose to leave at lower exit levels, like N3 or N4. In European countries, the dual approach has been used as a general practice in vocational education and training, and the education and employment systems are structurally linked to allow a smooth transition into the world of work (Bauer & Gesler, 2016). Through the dual system approach, companies get involved in the education of a school's students through apprenticeships, and students get to put their theories before they are fully committed (through permanent employment) to the real world of work.

2.33.2. Practical experience

According to Jackson (2013), work experience, which is also known as “work-based learning” or “work-integrated learning,” is derived from doing the actual job or doing a real job at the workplace. Work experience has been found to have a positive influence on employability status (Tymon, 2013). Practical experience can be obtained from full permanent employment, part-time employment, or a student doing a job as part of a curriculum or volunteering in an organisation. According to Rodzalan and Saat (2012), work experience empowers student graduates to apply theoretical knowledge into practical work in a professional setting. Carbone and Hamilton (2016) added that work experience is a key that allows students and graduates to understand what they are good at and to identify areas that need improvement. Griffin and Coelho (2019) suggest that

schools graduates need more practical experience through internships before entering the labour market because they lack critical thinking and intellectual skills. According to NACE (2013), internships are vital in career exploration as they allow organisations to identify, and groom hidden and future talent. Over the past years, internships had become a bridge to a career entry into a range of professional vocations. According to a study by Calvo and D`Amato (2015), there is a need for a collaborative method to enhance internship evaluation through stakeholder alignment. In addition, Cumming (2010) implies that institutions of higher education are expected to include employability skills into the academic curriculum. Again, the question is whether educational institutions should play a more important role in graduate employability, and if so, how to measure whether they are fulfilling that role. Some researchers like Jackson (2013) contend that work experience does not always convert into increased skills outcomes although further research needs to be conducted.

2.33.3. Higher education institution's reputation

According to Suleman (2018), higher education institutions are called upon to prepare students to be ready for the world of work. The reputation of a higher education institution based on a perceived quality plays a role on employers and recruiters. According to Drydakis (2016), universities that are rated highly are accepted as having exclusive relations with their employed alumni and other employers. Higher education institutions that have a good reputation are in a good position to receive good treatment from employers, regular career awareness programs by reputable companies, and government officials who are succeeding in their career paths. According to Walker and

Fongwa's (2017) findings, South African university staff and students believe that highly ranked institutions of higher learning have more contact with experiential learning activities than lowered ranked institutions of higher learning because of where they are situated. Times Higher Education World University Rankings (2018) also confirmed that the six highest-ranking Universities in South Africa are situated in major urban cities, and they can grow stronger links with highly rated companies.

2.33.4. Connectivity and networking

According to Bridgstock and Tippet (2019), social capital that is entrenched in professional networks is vital for higher education institutions that want to enhance their graduates' employability. To maximize graduate employability, the curriculum for higher education institutions should be relevant and higher education institutions should encourage their students to explore external relationships and professional networks (Bridgstock, 2017). According to Bridgstock and Tippet (2019), social capital that is developed within the professional community is gaining momentum for career management due to online networking such as social media (i.e. LinkedIn, Facebook or Twitter) and the rise of portfolio careers. Some graduate recruiters take advantage of social media to advertise and recruit potential employees, which makes digital skills one of the important skills for employability (De Villiers Scheepers, McIntyre, Crimmins, and English, 2019).

2.33.5. Adaptive skills

Adaptive skills are becoming increasingly important for employability in today's quickly changing job market. A variety of competencies are included in these skills, allowing people to adapt well to changing circumstances and obstacles at work. Problem-solving, communication, and emotional intelligence are examples of adaptive skills that are applicable in a variety of situations, in contrast to technical skills that may become outdated because of industry changes or technological advancements. This flexibility develops resilience, a quality that is quite helpful in the highly competitive job market, in addition to improving a person's capacity to adapt to changing surroundings. Communication skills are among the most important adaptive abilities. Communication skills are critical for working in diverse teams, as is the ability to listen intently and clearly. Professionals need to be skilled at communicating ideas across a variety of media, whether they are spoken or written, in an era where working remotely and interacting with people from around the world are normal. Cohesion in the workplace can also be improved by effective communicators because they can bridge cultural gaps and establish rapport with coworkers from different backgrounds. Being able to solve problems is a crucial component of adaptive abilities. Companies are always looking for people who can think outside the box and find creative answers to challenging problems. Staff members can thoroughly analyze situations thanks to this critical thinking and creative skill. Adaptive skills are how an employee behaves and the ability to interact with other employees at the workplace. As per McEwan, Ruissen, Eys and Zumbo (2017), it is not enough to bring skilful employees, but an individual employee who can work

effectively in teams so that the organisation can fulfill its purpose through its groups of teams. Through teamwork, organisations can become innovative, competitive, and continue to learn.

2.33.6. Emotional intelligence (EI)

Emotional intelligence, which can also be known as emotional literacy or emotional competency plays a significant part in the employability of a graduate (Coetzee, 2013). According to Marzuki, Mustaffa, and Saad (2015), intelligence alone is not enough to guarantee success in life, as it only contributes 20% to individual success, while other factors, such as emotional intelligence, take up 80%. According to Marzuki et al. (2015), employers look for graduate candidates with high IQ complemented by high levels of EI. Emotional intelligence theory states that emotions are important social functions that show others' intentions, thinking, and behaviour (Brackett, Rivers, & Salovey, 2011). Goleman (1998), as the initiator of emotional intelligence, defines emotional intelligence as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships".

- Perceiving emotions, which is the skill of understanding own feelings and those who are around
- Managing others' emotions based on the capability to control the emotions of others
- Utilization of emotions based on the capacity to create and reason with those emotions

- Always introduce the figure and not just dump in in space.

Figure 2.4

Components of emotional intelligence as adapted from Coetzee and Harry (2014:95)

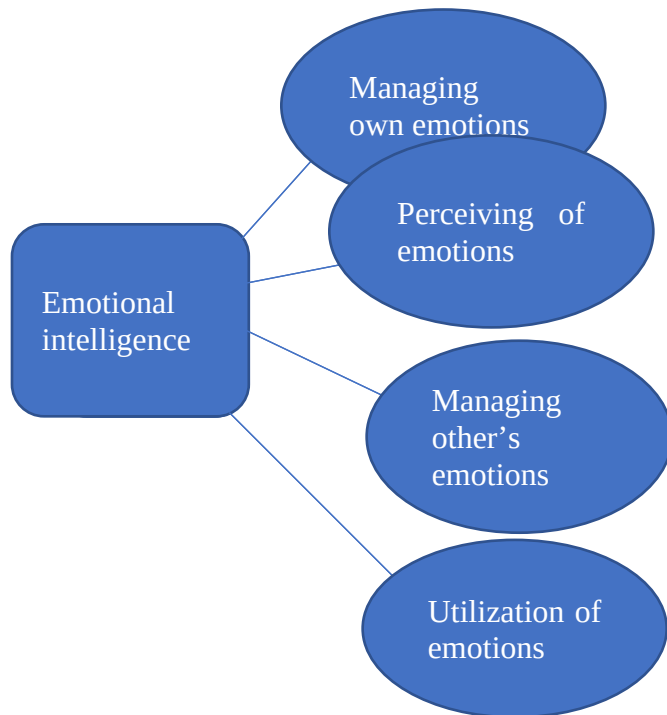


Figure 2.4 above shows that emotional intelligence (EI) has four interrelated components, which are:

- Ability to control own emotions, which is the capacity to manage emotions within oneself and understand complex emotions as well as the transition of emotions from one level to another

According to Armour (2012), emotional intelligence is associated with academic achievement as positive emotional engagement facilitates attention necessary for learning. The research conducted by Marzuki et al. (2015) concluded that emotional intelligence is positively linked with the development of communication and skills for information technology, thus affirming that emotional intelligence is an important resource necessary for other skills and competence to develop. According to Potgieter and Coetzee (2013), emotional intelligence is the career enabler for one to be employable and to be successful for the chosen career. Elliott and Dawson (2015) also conducted a study and found that emotional intelligence on its own is the biggest factor for 42000 successful individuals. There are numerous South African studies, like the one conducted by Potgieter and Coetzee (2013), that confirm emotional intelligence as having a positive impact on work performance and good leadership. Nevertheless, Coetzee and Beukes (2014) asserted that from a South African career perspective, emotional intelligence has not been acknowledged enough due to a lack of studies on the associations between emotional intelligence, employability, and satisfaction with career support which means that more studies need to be conducted in South Africa.

2.34. The function of TVET institutions in facilitating employment for young people

The function of TVET (Technical and Vocational Education and Training) Schools in mitigating the socio-economic difficulties of South Africa continues to be a subject of contention. Although it is commonly asserted that skills development is essential for addressing issues like poverty, inequality, and unemployment, there is increasing

apprehension that this assertion may be overstated, especially considering the country's ongoing economic difficulties.

Sibiya and Nyembezi (2018) emphasise the persistent socio-economic challenges in South Africa, notably elevated rates of poverty, inequality, and unemployment, which disproportionately impact the youth. Although TVET institutions are regarded as a crucial means of providing young individuals with essential skills for employment, the effectiveness of this education in alleviating youth unemployment is under scrutiny. Masoabi and Alexander (2020) contest the prevailing notion that youth unemployment is exclusively attributable to a deficiency of skills. They contend that unemployment often endures even in industries with an abundance of skilled labour. This indicates that fundamental problems in the employment market extend beyond mere skills improvement. Bhorat et al. (2022) assert that although skills development significantly influences employment, South Africa's elevated unemployment rate, especially among TVET graduates, cannot be entirely attributed to a deficiency in skills. Research reveals that 31.2% of TVET graduates are unemployed, prompting concerns regarding the quality of TVET education and the alignment of imparted skills with labour market demands. This signifies a discrepancy between educational outcomes and labour market requirements, with numerous graduates deficient in the skills most sought after by employers, or an insufficiency of job creation in critical economic areas.

Furthermore, McGrath and Powell (2023) contend that the economic landscape significantly influences employment prospects and that the belief that TVET alone can address unemployment is excessively simplistic. Their research on global TVET systems

indicates that, even in high-income nations with stronger economic conditions, youth unemployment persists, suggesting that structural economic factors such as job creation, economic growth, and industrial development are as significant, if not more so, than skills training in mitigating unemployment.

Furthermore, the International Labour Organisation (ILO, 2021) observes that the integration of graduates into the labour market relies not only on the skills they possess but also on the availability of economic possibilities. In South Africa, this is intensified by sluggish economic growth, restricted private sector employment generation, and inadequate entrepreneurial prospects, all of which contribute to the elevated unemployment rate among both TVET graduates and the broader youth demographic. Another concern, as noted by Spaull and Jansen (2021), is the impression of TVET schools as a "fallback" alternative for students who fail to qualify for university admission. This social prejudice may impact the employability of graduates, since employers may devalue vocational qualifications in favour of university degrees. This indicates that, besides offering education, TVET schools must connect their programs more closely with industry requirements and establish strong partnerships with the private sector to enhance graduates' career opportunities.

Although TVET schools play a vital role in skills development and can aid in mitigating socio-economic issues, it is an exaggeration to believe they can independently resolve South Africa's young unemployment crisis. A comprehensive approach is required that emphasises skills training, job creation, economic development, and the

enhancement of the quality and relevance of TVET education to connect more effectively with labour market demands.

2.35. Statistical significance between student selection and admission, as well as teaching and learning processes

The correlation between selection and admission procedures and teaching and learning methodologies in educational institutions has garnered increasing attention in recent years. Studies indicate that the criteria employed for student selection and the efficacy of admission processes can profoundly affect the quality and results of education. Recent scholarship has examined the statistical importance of how admission standards and teacher quality influence student performance, retention rates, and educational outcomes.

2.35.1. Selection and Admission Procedures

The selection and admission processes denote the criteria and methodologies universities employ to choose students for enrolment. These processes may encompass standardised test scores, academic records, and additional assessments such as interviews or personal statements. Jones and Smith (2023) assert that schools with stringent entrance criteria generally exhibit elevated retention rates and superior academic outcomes. This indicates that student preparation, as reflected by selection methods, is highly linked to the extent of student engagement with the curriculum and their academic performance.

2.35.2. Educational Processes

The teaching and learning processes encompass the methodologies, educational approaches, and resources employed to impart instruction to pupils. Effective teaching necessitates aligning instructional approaches with student capabilities and requirements, which may be affected by the calibre of admitted students. White and Green (2022) emphasise that the readiness of new students, as assessed by the entrance process, frequently influences the speed and intricacy of the program. This has resulted in the conclusion that selective admission methods can improve instructional efficacy by guaranteeing that students possess the requisite skills to interact with advanced content.

2.35.2. Statistical Significance of the Correlation

Recent research has employed statistical analysis to investigate the correlation between admission processes and educational outcomes. Nguyen et al. (2021) performed a regression analysis study to assess the influence of student selection criteria on academic performance. The research identified a statistically significant association between elevated admission scores (standardised tests, high school GPA) and student performance, as measured by graduation rates and grade point averages ($p < 0.05$). This substantiates the notion that stringent selection procedures result in superior academic performance. Garcia and Adams (2023) examined the correlation between admission standards and teaching quality using a survey of university professors. Teachers indicated a more effective teaching experience and student engagement when students were selected based on meritocratic standards rather than open-access admission policies. Their findings reveal a positive link between selective admission processes,

enhanced student-teacher interaction ($p < 0.01$), and diminished remedial education necessity.

2.35.4. Influence on Educational Results

The efficacy of teaching and learning is determined by instructional quality and student preparedness, which is directly affected by selection processes. Gibbons et al. (2022) employed a multivariate analysis to investigate the relationship between student entrance scores and subsequent academic achievement in higher education. Students admitted under elevated academic criteria had significantly superior performance in ongoing evaluations and final examinations, indicating a notable enhancement in learning outcomes. Likewise, Baker and Lewis (2021) research has highlighted the interplay between instructional strategies and students' academic capabilities. Their research indicated that the most substantial enhancements in student learning transpired when selection criteria were congruent with the teaching tactics utilised ($p < 0.05$). Inquiry-based learning approaches proved efficient for students exhibiting high preparation, as evidenced by admission tests and previous academic performance.

2.35.5. Admission Adaptability and Varied Educational Requirements

There has been considerable discourse over the trade-offs between open-access admission policies and the quality of education. Brown and Taylor (2022) contend that. In contrast, selective admission procedures typically enhance instructor efficacy and student performance, they may also marginalise children from underprivileged backgrounds who could excel in different educational frameworks. Their research employed propensity

score matching to evaluate outcomes for students admitted via various pathways, revealing that flexible admission processes that considered non-academic factors (such as socioeconomic background) yielded comparable teaching and learning outcomes ($p < 0.05$) when supplemented with additional support structures.

2.36. Statistical importance of teaching methods and curriculum management

The statistical significance of instructional methods and curriculum administration has been a primary emphasis in examining educational efficacy. Teaching processes encompass the methodologies, techniques, and practices educators employ to enhance learning, whereas curriculum management pertains to the preparation, execution, and ongoing refinement of an academic program. The correlation between these two factors is vital for educational outcomes, as research indicates that well-structured curricula, in conjunction with effective teaching methodologies, markedly improve student performance and engagement.

2.36.1. Instructional Methods and Their Effects

Effective pedagogical practices entail employing various instructional tactics to accommodate the various demands of learners. These may encompass inquiry-based learning, collaborative learning, and differentiated instruction. Mertens and Flowers (2023) discovered a statistically significant correlation between the diversity of teaching tactics employed and student academic achievement, indicating that a broader range of instructional methods is associated with increased engagement and improved learning

outcomes ($p < 0.01$). Their research examined data from multiple higher education institutions in the United States and discovered that students exposed to diverse instructional methods were more inclined to excel in formative and summative evaluations. Feldman et al. (2022) demonstrated that student-centred teaching methodologies, which prioritise active engagement and critical analysis, were positively correlated with student retention and academic success ($p < 0.05$). Their research highlighted the significance of student engagement in learning environments that emphasise active teaching methodologies.

2.36.2. Management of Curriculum

Curriculum management entails aligning learning objectives, material, assessments, and instructional methodologies. Effective management guarantees the curriculum is pertinent, cohesive, and connected to educational objectives. O'Connor and Murphy (2021) established that curricular alignment with targeted learning outcomes strongly influences student achievement of those outcomes ($p < 0.05$). Their research revealed that a mismatch between the curriculum and pedagogical approaches adversely affects student learning outcomes, underscoring the necessity of cohesive curriculum design. Curriculum management entails frequent revisions to integrate contemporary information and instructional methodologies. Nguyen et al. (2022) performed a longitudinal study on curriculum modifications in reaction to technological advancements and industrial requirements in STEM education. A statistically significant enhancement in student satisfaction and performance was observed following curriculum revisions that more closely coincided with real-world applications ($p < 0.01$).

2.36.5. Interrelationship Between Teaching Methods and Curriculum Management

The interplay between instructional methods and curricular administration influences educational outcomes. When the two parts are properly aligned, pupils are more likely to attain the desired learning results. Garcia and Lewis (2023) examined the necessity for teaching strategies to align closely with curricular structure to enhance student performance. Their research indicated that adjusting teaching methods to align with curriculum objectives such as integrating active learning strategies into a problem-solving curriculum resulted in substantial improvements in student outcomes ($p < 0.05$). Furthermore, a study conducted by Ali and Hussein (2023) on the incorporation of blended learning methodologies within a structured curriculum revealed that the alignment of curriculum management with digital instructional resources correlated with a significant enhancement in student performance and satisfaction ($p < 0.01$). This indicates that curricular flexibility, along with adaptive teaching methodologies, can improve the efficacy of both.

2.36.4. Curriculum Management as an Indicator of Teaching Efficacy

Curriculum management can indicate teaching efficacy, as the calibre of curriculum development affects teachers' instructional delivery. Baker and Adams (2021) discovered that effectively managing curricula enabled educators to concentrate more on pedagogical strategies instead of curriculum development, hence enhancing the overall instructional quality. Their examination of more than 50 schools revealed a substantial

correlation between curriculum planning and teacher efficacy ($p < 0.01$), underscoring the essential function of curriculum management in the educational process.

2.36.5. Statistical Significance of the Correlation

Numerous research employing statistical techniques, including regression analysis and correlation testing, have evidenced the substantial association between instructional processes and curriculum management. Miller et al. (2023) utilised a multivariate regression model to analyse the correlation among curricular coherence, teaching quality, and student performance. A significant link ($p < 0.05$) was identified between well-coordinated curricula and enhanced student results, particularly when educators utilised differentiated instruction aligned with the curriculum. Additionally, Lee and Jones (2022) employed ANOVA tests to analyse student performance among institutions that adopted varying curriculum management strategies. The findings demonstrated that institutions with more organised and consistently evaluated curriculum management systems had significantly superior student performance and teacher satisfaction ($p < 0.01$).

The correlation between instructional procedures and curriculum management is statistically significant, with well-managed curricula facilitating superior teaching methodologies and enhanced student performance. Research repeatedly demonstrates that aligning teaching tactics with curriculum objectives and routinely updating them to address the needs of students and educators considerably enhances the overall learning experience. Future studies may concentrate on optimal approaches for integrating pedagogy and curriculum administration, particularly within a digital and globalised educational context.

2.37. Statistical significance between teaching methods and the employability of graduates

The correlation between pedagogical methods and the employability of graduates is a subject of growing research as higher education institutions strive to reconcile academic instruction with the competencies demanded by the labour market. Instructional processes, encompassing teaching tactics, active learning methodologies, and skills-oriented education, are critical determinants of graduate employment. Numerous recent research has demonstrated the statistical relevance of these pedagogical methods in improving employability results.

2.37.1. The Influence of Educational Methods on Employability

Instructional methods that prioritise practical skills, critical analysis, and real-world applications have been statistically correlated with enhanced employability. Sharma and Kumar (2023) did a study examining the correlation between student-centred teaching methodologies and the employability of business graduates from five universities. Their findings indicated a substantial positive link between active learning methodologies (including case studies and internships) and increased employability rates, with a p-value below 0.05. Wilson et al. (2022) examined the impact of project-based learning on improving employability skills among engineering graduates. Their research revealed a statistically significant association ($p < 0.01$) between project-based learning and the enhancement of problem-solving and collaborative abilities, which are essential for employability. The study encompassed a cohort of 500 engineering graduates, revealing

that participants in project-based courses exhibited superior job placement rates relative to their counterparts in standard lecture-based programs.

2.37.2. Skills for Employability and Instructional Approaches

Instructional methods emphasising soft skills like communication, collaboration, and adaptation have demonstrated a considerable enhancement in employment prospects. Research conducted by Martin and Jones (2022) indicated that graduates who participated in collaborative learning environments had a higher likelihood of securing employment within six months post-graduation ($p < 0.05$). The study encompassed 10 distinct universities throughout the UK and demonstrated that students subjected to these methodologies had an increased likelihood of securing employment in sectors that emphasise collaboration and interpersonal competencies. Additionally, Smith and Rao (2023) examined the influence of work-integrated learning (WIL) on graduate employment. Their five-year longitudinal study demonstrated that students engaged in WIL programs such as internships, apprenticeships, or industrial placements exhibited markedly superior job prospects ($p < 0.01$). The research demonstrated that these instructional methods, which closely replicate the professional world, enhance students' confidence and practical expertise, hence increasing their appeal to employers.

2.37.5. Statistical Models and Employment Outcomes

Statistical techniques, including regression analysis and ANOVA, have been extensively employed to assess the impact of educational methodologies on employability. Johnson and Clark (2023) employed a multivariate regression model to examine the employability outcomes of graduates across several disciplines,

emphasising the educational methodologies to which they were subjected. The analysis demonstrated that practical-based instruction and skills-based evaluations were strong predictors of graduate employability, evidenced by a regression coefficient of 0.75 and a p-value below 0.05, signifying a strong and significant correlation. Li and Zhang (2023) also utilised ANOVA testing to evaluate employability results among three distinct instructional methods: traditional lectures, online learning, and blended learning. Their findings revealed a statistically significant difference ($p < 0.01$) in employability rates, with blended learning models yielding the highest employment outcomes. Blended learning, integrating in-person instruction with online elements, significantly enhanced the employability of IT and business graduates, indicating that a hybrid teaching methodology may more effectively equip students for the contemporary, technology-oriented labour market.

2.37.6. Instructional Methods and Industry Integration

A crucial aspect affecting the statistical importance of educational processes on employability is the congruence between pedagogy and industry requirements. Davies and Patel (2024) showed that a close alignment between instructional procedures and employer-required skills considerably enhances graduate employability. Their research, utilising a sample of 800 graduates from health sciences programs, revealed that universities collaborating closely with industry partners to develop curriculum and pedagogical approaches achieved a 40% higher employability rate compared to those who did not ($p < 0.05$). Furthermore, White and Huang (2022) investigated the effects of instructional methods aimed at replicating workplace environments. Their research

indicated that role-playing exercises and practical problem-solving tasks markedly enhanced employment results for law and business graduates ($p < 0.01$). Graduates exposed to educational methodologies, including real-world issues, were more adept in interviews and excelled in practical evaluations throughout job recruitment processes.

2.37.7. Development of Soft Skills and Technical Skills

Acquiring both technical and interpersonal skills through educational methodologies is crucial for employability. Wong and Chen (2023) discovered that incorporating soft skills training into the curriculum via methodologies such as group projects, presentations, and leadership assignments significantly improved employability ($p < 0.05$). Their research examined 1,200 recent graduates around Asia and emphasised that employers greatly esteemed applicants exhibiting strong communication, leadership, and interpersonal skills qualities directly cultivated by new pedagogical approaches.

Substantial statistical evidence indicates that instructional methodologies considerably influence the employability of graduates. Research repeatedly demonstrates that active, student-centred, and skills-oriented pedagogical approaches enhance employment outcomes. These techniques facilitate the integration of academic knowledge and practical skills, enhancing graduates' appeal to prospective employers. Institutions that synchronise their pedagogical approaches with industry demands, prioritise soft skills, and incorporate them.

2.38. Statistical significance between educational methods and educational resources

The correlation between instructional methods and the quality of educational facilities has been examined to assess the impact of infrastructure and resources on academic outcomes. Educational facilities encompass classrooms, labs, libraries, technology (including smartboards and computers), and additional physical resources that facilitate education provision. Recent research indicates a statistically significant correlation between the efficacy of teaching methodologies and the availability and quality of educational facilities, as these factors directly impact student engagement, learning outcomes, and instructional efficiency (Nguyen & Tran, 2023).

2.38.1. Influence of Educational Facilities on Instructional Methods

Research demonstrates that contemporary and adequately equipped educational facilities are essential for successfully executing efficient teaching methodologies. Nguyen and Tran (2023) assert that schools with superior teaching environments characterized by interactive classrooms, advanced IT infrastructure, and adaptable learning spaces exhibit markedly improved student engagement and instructional efficacy. Their research utilized regression analysis and identified a strong link between facility quality and teaching performance, evidenced by a correlation coefficient of 0.82 and a p-value below 0.01, signifying a statistically significant relationship. Furthermore, Johnson et al. (2022) discovered that incorporating technology into educational settings (e.g., smart classrooms, online platforms) improves the efficacy of active learning strategies and flipped classrooms. Their research, encompassing 20 schools in three

nations, revealed that contemporary facilities enhance instructional processes, showing a statistically significant difference in teaching efficacy between institutions with advanced facilities and those lacking them ($p < 0.05$).

2.38.2. Accessibility of Educational Materials and Instructional Efficacy

The accessibility of educational resources, including library facilities, multimedia tools, and laboratory equipment, has been shown to influence teaching methodologies substantially. Barkley and Miller (2023) investigated the impact of access to digital libraries and e-learning platforms on pedagogical approaches in higher education. The findings indicated that institutions with superior access to resources were more inclined to use research-informed teaching methodologies, resulting in enhanced student assessment performance. The research identified a statistically significant association with a p-value below 0.05. Smith and Lawrence (2023) investigated the function of science laboratories in facilitating inquiry-based learning within STEM disciplines. Their analysis indicated that institutions with adequately equipped laboratories and educational facilities exhibited a statistically significant enhancement in implementing practical and experiential teaching methodologies ($p < 0.01$). This underscores the essential function of facilities in facilitating practical, skill-based instruction, especially in technical and scientific fields.

2.38.5. Infrastructure and Learner-Centric Pedagogical Methods

Research indicates that student-centred pedagogical methods, including collaborative and project-based learning, necessitate specific facility standards for optimal effectiveness. Anderson and Taylor (2024) discovered a high correlation between

flexible, adaptive learning environments that facilitate collaborative work, interactive instruction, and enhanced teaching outcomes. A poll of 500 instructors revealed that those with access to such venues were considerably more inclined to implement collaborative teaching methods ($p < 0.05$). The ANOVA analysis of the study indicated that learning results considerably increased when facilities facilitated active learning methods in contrast to typical lecture rooms.

Wilson and Harris (2023) examined the influence of classroom design on instructional efficacy in vocational and technical education environments. The research indicated that classrooms structured to facilitate problem-based learning and collaborative projects exhibited a statistically significant positive impact on implementing these pedagogical methods, with a p-value below 0.05. Classrooms including adaptable seating configurations, multimedia resources, and workshop instruments were conducive to fostering new pedagogical methods.

2.38.6. Statistical Models and Educational Resources

Zhang and Lee (2023) utilised structural equation modelling (SEM) to demonstrate that the quality of teaching facilities directly influences instructional processes, mediated by teacher satisfaction and student engagement. The model exhibited a strong path coefficient between facility quality and instructional approaches, with a significance level of $p < 0.01$. This study emphasised that adequately resourced facilities augment the teaching experience and elevate student engagement, resulting in improved learning results.

2.38.7. Technologically Augmented Educational Settings

The emergence of technology-enhanced learning settings has resulted in a substantial transformation of teaching methodologies. Jones and White (2023) assert that classrooms outfitted with interactive boards, high-speed internet, and online learning management systems (LMS) enhance teaching methodologies, facilitating the integration of blended learning and digital tools into educators' instructional strategies. Their research centred on implementing smart technology in educational settings, revealed that institutions with access to such technologies were markedly more inclined to employ blended teaching methodologies ($p < 0.01$). Additionally, Rahman et al. (2023) discovered that the incorporation of virtual learning environments (VLEs) and digital content into the curriculum results in statistically significant enhancements in teaching efficacy and adaptability ($p < 0.05$). The capacity of educators to utilise online platforms for interactive conversations, assignments, and assessments was associated with improved teaching outcomes, especially during the transition to online learning instigated by the COVID-19 epidemic.

The correlation between instructional methods and educational resources is statistically significant across diverse educational settings. Studies regularly indicate that institutions with contemporary, well-equipped, and adaptable learning environments are more effectively positioned to execute successful teaching methodologies. These facilities facilitate active learning, collaborative pedagogical approaches, and technological integration, all enhancing student performance and instructional efficacy.

Therefore, investing in superior facilities is essential for improving educational processes and student achievement.

2.40. Challenges facing TVET schools in South Africa

Technical and Vocational Education and Training (TVET) schools in South Africa face various challenges that impact their effectiveness and the quality of education they provide. Some of the key challenges include:

2.40.1. Funding

The decline in funding for Technical and Vocational Education and Training (TVET) schools in South Africa has significantly impacted enrolment numbers and the overall effectiveness of these institutions. Since 2015, budget allocations for TVET schools have steadily decreased, leading to a troubling enrollment trend. This decline is particularly pronounced after the government's commitment to fund all university students from low-income families. This promise emerged after the 2015/16 Fees Must Fall protests. While crucial for supporting access to higher education, this initiative has resulted in limited financial resources for TVET schools, intensified further by the economic fallout from the COVID-19 pandemic (Mahlaka, 2023). In 2023, the National Treasury's decision to reduce the budget allocation for TVET schools directly impacted their operational capacity. The Department of Higher Education and Training (DHET) reported that the state could only fund 480,686 TVET enrollments from the fiscus, reflecting the severe constraints imposed by budget cuts. For context, in the 2020/21 financial year, the total expenditure for the Post-School Education and Training (PSET) sector amounted to

R123.1 billion, with only R11.4 billion allocated to TVET schools significantly less than the funding received by public universities (Khuluvhe & Netshifhefhe, 2022).

The implications of these funding reductions are profound. Due to fiscal constraints, the DHET has imposed restrictions on TVET school's admissions, resulting in a dramatic decrease in state-funded enrolments. This limitation not only hinders TVET schools' ability to fulfil their enrolment targets but also undermines the goals set forth in the National Development Plan, which aims to enhance skills development and economic growth in the country (Department of Higher Education and Training, 2023).

Recent studies emphasize the urgent need for a re-evaluation of funding priorities to ensure that TVET schools receive adequate resources. A report by The World Bank (2023) underscores the importance of diversifying funding sources for TVET institutions, advocating for public-private partnerships and increased investment in skills development to mitigate the adverse effects of budget cuts. Such strategies are essential to bolster the capacity of TVET schools to produce a skilled workforce that meets the demands of a changing economy.

2.40.2. Skills Mismatch

A significant challenge for TVET schools is the mismatch between the skills they offer and the needs of the labour market. Many TVET programs are not aligned with industry demands, leaving graduates with qualifications that are not in high demand. McGrath and Powell (2022) note that TVET curricula in South Africa often lag behind the fast-changing industrial and technological environment. As a result, graduates struggle to find employment despite having qualifications. This is intensified by the lack of

partnerships between TVET schools and industries, which could otherwise help align training programs with current labour market requirements.

2.40.3. Quality of Education

The quality of education in many TVET schools is substandard, leading to poor student outcomes. Research by Erasmus and van Zyl (2020) points to inadequate teacher training and a lack of professional development opportunities as key factors contributing to this issue. Many instructors lack the necessary technical expertise and pedagogical skills to effectively teach and train students in modern practices. This leads to a situation where students are not adequately prepared for the workplace, diminishing the overall value of TVET qualifications. Furthermore, the shortage of teaching staff in some fields forces TVET schools to offer fewer courses, limiting students' choices and career opportunities (Akoojee, 2021). The combination of poorly qualified instructors and a lack of course diversity significantly affects the quality of education provided.

2.40.4. Perception and Stigma

TVET schools in South Africa often face negative perceptions from students and employers. There is a widespread belief that TVET education is inferior to university education, leading many young people to opt for universities, even when TVET courses may better suit their career aspirations. Papier and Powell (2020) state that this stigma has resulted in lower enrolment rates at TVET schools, particularly among top-performing students. Employers sometimes undervalue TVET qualifications, preferring to hire university graduates even when TVET students have relevant skills. The negative perception of TVET education is closely tied to the quality and outcomes of these

institutions. The high dropout rates and poor pass rates further reinforce the belief that TVET education is subpar compared to other forms of higher education.

2.40.5. Administrative and Governance Issues

Many TVET schools in South Africa face administrative inefficiencies and governance challenges. Erasmus et al. (2022) point out that TVET institutions often suffer from weak management structures, poor financial accountability, and bureaucratic delays, which impede the smooth running of academic programs. This has led to issues such as delays in the disbursement of student financial aid (NSFAS), which negatively affects student retention and academic performance. The management and governance issues also extend to the poor coordination between national and provincial governments, leading to inconsistencies in policy implementation and resource allocation (Akoojee, 2021).

2.40.6. High Dropout and Low Graduation Rates

TVET schools in South Africa experience high dropout rates and low graduation rates, a problem compounded by the socioeconomic challenges faced by many students. A study by Cloete (2022) found that financial difficulties, inadequate student support services, and a lack of career guidance contribute to high dropout rates. Many students come from disadvantaged backgrounds and struggle to cover living expenses, transport, and other necessities while attending schools. Furthermore, the lack of academic support, such as tutoring and counselling, intensifies the problem, as many students cannot cope with the academic and technical demands of their courses.

2.40.7. Workplace Integration and Internships

One of the core goals of TVET schools is to prepare students for employment through practical training and internships. However, there is often a disconnect between TVET institutions and industry, resulting in limited opportunities for students to gain hands-on experience. According to McGrath and Powell (2022), many TVET students struggle to find internships or workplace learning opportunities due to weak industry partnerships and a lack of formal mechanisms to ensure that internships are part of the educational experience. The lack of practical experience affects students' employability and diminishes the perceived value of TVET qualifications in the labour market.

2.41. Challenges in the management of educational resources

The administration of educational resources in Technical and Vocational Education and Training (TVET) institutions encounters five principal challenges: procurement procedures, insufficient resource availability, financial constraints, inadequate maintenance, and ineffective management practices (Mbatha, Buthelezi, & Ajani, 2024). These difficulties cumulatively impede the capacity of TVET schools to deliver high-quality, industry-relevant education.

2.41.1. Acquisition procedure

Sebetlene (2017) asserts that inflexible protocols and bureaucratic delays hinder the procurement process in numerous TVET schools. Instructors frequently must fill out numerous requisition forms, necessitating permission from multiple departments, resulting in considerable delays in obtaining critical materials. Tezera (2017) and Wilson (2019) emphasise that mismanagement and inefficiencies in procurement processes

intensify supply concerns, resulting in bottlenecks that hinder the timely delivery of essential resources to students. Recent research corroborates these conclusions. Mawela et al. (2022) propose that optimising the procurement process via digital technology and simplifying approval hierarchies can diminish delays and improve resource accessibility. This necessitates policy modifications and training for administrative personnel to guarantee adherence to procurement requirements, a worry reiterated by Wilson (2019).

2.41.2. Insufficient availability and underutilisation of educational resources

The second significant difficulty is the insufficient availability and underutilisation of educational resources, which severely impedes effective teaching and learning. Research conducted by Asukwo (2018), Edokpolor (2019), and Makori and Onderi (2014) underscores that numerous workshops are deficient in essential equipment, and instructional materials are either obsolete or absent, hence constraining students' capacity for practical, experiential learning. Furthermore, physical resources like libraries, labs, classrooms, and sports facilities are frequently either non-existent or inadequately exploited due to ineffective planning and resource distribution. Recent evidence indicates that digital and mobile technologies may alleviate certain issues by offering alternate methods for delivering educational content and practical training. Ndonge and Muya (2023) contend that incorporating virtual simulations and online learning platforms can mitigate the deficiency of physical resources. However, these approaches necessitate an initial investment in technological infrastructure.

2.41.3. Insufficient financial resources

A deficiency of financial resources is another considerable concern, as emphasised by numerous research (Akpabio, 2015; Mengistu, 2014; Okoroafor, 2010; Udoka, 2010; Yusuf & Soyemi, 2012). Mengistu (2014) emphasises that financial allocations significantly influence the nature, quality, and amount of accessible educational resources. Many educational institutions, especially in underdeveloped nations, encounter persistent budgetary limitations. These financial difficulties jeopardise the efficient administration of resources and result in a cycle of substandard education. Research by Mthethwa et al. (2022) Recent research corroborates this, indicating that numerous TVET institutions are insufficiently funded to acquire current equipment and adequately train personnel in resource management (Mthethwa et al., 2022). Nduka and Ibe (2021) advocate for TVET institutions to investigate alternate funding sources, including public-private partnerships, which can alleviate budgetary deficits by supplying both capital and equipment.

2.41.4. Resource maintenance

The preservation of resources constitutes a significant challenge. Many TVET institutions suffer from inadequate maintenance of equipment and facilities, resulting in premature obsolescence and worsening resource problems (Okolie et al., 2022). Aluko and Adeyemi (2021) contend that insufficient planned preventive maintenance significantly contributes to resource degradation in educational institutions. Inadequate maintenance procedures diminish resource longevity and lead to underutilising existing infrastructure.

2.41.5. Suboptimal management approaches

Ultimately, inadequate management practices remain a considerable hindrance to effectively utilising educational resources. Numerous institutions lack adequate mechanisms for monitoring resource utilisation and maintenance, resulting in waste and inefficiency (Dlamini et al., 2023). Furthermore, Mwangi and Omollo (2022) contend that enhancing the capabilities of administrative personnel and educators is crucial for optimising resource management, as many are inadequately trained to supervise and use educational resources proficiently.

The management of educational resources in TVET institutions necessitates tackling various interrelated difficulties, including enhancing procurement processes and ensuring sufficient funding and upkeep. Recent studies indicate that technological innovation, improved administrative processes, and exploring alternate funding mechanisms might alleviate these issues, guaranteeing that TVET institutions deliver high-quality education to students.

2.42. Insufficiency of qualifications among TVET instructors

The deficiencies in qualifications among TVET educators constitute a substantial problem within the South African education system. The Green Paper on Education and Training highlighted a significant shortage of qualified academics, particularly in technical fields, which has persisted over the years (Siani & Yarden, 2022). The challenges TVET schools teachers face extend beyond simple teaching preparation deficiencies. A study by McBride et al. (2009) in the Western Cape Province revealed alarming statistics: only 6% of TVET instructors possessed degrees in all three critical areas—academic,

pedagogical, and practical experience. Over 90% of respondents possessed an inadequate amalgamation of qualifications necessary for effective education in technical fields. The lack of comprehensive certifications substantially impacts the quality of education offered at TVET institutes.

Since McBride's study, few improvements have been made to address these deficiencies. Wedekind (2016) observed that many educators need to participate in additional courses to enhance their qualifications. Recent assessments reveal that a substantial proportion of academic staff in South Africa's TVET schools system remains without a professional teaching credential that meets national minimum standards. The lack of qualifications has considerable repercussions since it hinders their ability to implement discipline-specific pedagogical strategies effectively (Mtshali & Singh-Pillay, 2024; Van der Bijl, 2020). A 2022 study by Chisholm demonstrated that the ongoing deficit of skilled lecturers negatively impacts student performance, highlighting the need for deliberate recruitment and professional development efforts. Mahlalela (2023) emphasises the imperative of establishing extensive professional development programs tailored for TVET instructors to enhance their pedagogical competencies and subject matter expertise.

2.43. Empirical literature

Numerous studies were conducted to examine the role of quality management practices in higher education institutions in a different perspective. A study conducted by Anthony (2017) on the role of total quality management in Greek higher education institutions concludes that total quality management significantly improves education

staff's working performance and fulfilment level. A study conducted by Abbas (2020), concluded that a quality management system in higher education institutions helps institutions to improve leadership quality traits among ordinary employees. Papanthymou and Darra (2017) found that a quality management system helps organisations in improving their production and image. Mahmood (2020) examined total quality management's role in employees' performance at middle school schools in the USA and the results were satisfactory. A study on quality issues in higher education conducted by Rombe, Allo, Tolla, and Kusama-Dewi (2016) found that leadership is the main priority in business education, affecting quality improvement, compared to customer service and process management issues. Rombe et al. (2016) recommended that a further study should broaden the criteria and sub-criteria to obtain better results, as their research focused on five criteria (policy, academic staff competency, non-academic staff competencies, student activities, and facilities for students). In South Africa, a study was conducted by Badenhorst and Radile (2018) to explore stumbling blocks in improving students' performance at TVET schools. A study was conducted in the province of Free State targeting only four schools and had some transferability limitations, such as geographical area, which influence the effective application of strategies in other schools contexts. Badenhorst and Radile (2018) also suggested that a similar study should be conducted in other provinces to compare the findings. Researchers, such as Baughman (2018) and Imran and Abbas (2020), found that higher education institutions cannot equip students with the necessary skills to add value to different industries. For this reason, most institutions are failing to meet employers' expectations of student graduates. Research needs to be conducted on how higher education institutions can impart quality

skills to meet industries' expectations in different fields. Moreover, they must make a substantial effort to link their HEI experience with the job market.

2.44. Research gaps

Although there is a vast study on quality issues in higher education (Rombe et al., 2016; Badenhorst & Radile, 2018, Schalkwyk & Steenkamp, 2016; Abbas & Kumari, 2021; Wong & Sultan, 2021), limited attention has been given to quality issues in Technical Vocational, Education and Training (TVET) schools. As Rombe et al. (2016) recommended, this study will also look at curriculum structure and the performance of the student graduates in the world of work as mentioned in this study's objectives as some of the criteria to measure the quality of the student. This study will not only focus on the student (satisfaction level by quality issues) as the main customer of higher education but will also look at life after graduation (employability of the student graduate). This study is undertaken towards improving the quality of TVET schools for economic sustainability and reducing unemployment in South Africa.

A major research gap exists in understanding how well the curriculum in South African TVET schools aligns with the skills required by industries. While there is some recognition of the disconnect between TVET offerings and labour market demands, more empirical research is needed to identify specific areas where curriculum revisions are necessary. According to Powell (2022), many graduates find themselves unemployed or underemployed because their training does not match the evolving demands of the

economy. Studies on bridging this gap through enhanced industry partnerships and continuous curriculum updates are limited.

Although quality management systems (QMS) are essential for improving educational outcomes, there is insufficient research on the direct impact of QMS on student employability in South African TVET schools. While some studies (Akoojee, 2021) discuss the importance of quality management, they often focus on academic outcomes rather than employability. Understanding how quality assurance processes such as teacher training, curriculum design, and student support translate into better employment prospects for graduates is a crucial area that requires further investigation.

Work-based learning (WBL), including internships and apprenticeships, is a key strategy for enhancing employability. However, there is limited research on how effectively South African TVET schools integrate WBL into their programs and the quality of these experiences for students. Studies (McGrath & Powell, 2022) suggest that while many TVET programs aim to offer practical experience, the quality and consistency of these opportunities are inconsistent across institutions. A gap exists in evaluating the success of these programs in improving student employability and how quality management practices could better support WBL initiatives.

There is a notable gap in the literature on the monitoring and evaluation (M&E) of employability outcomes in TVET institutions. Many studies acknowledge the importance of tracking employment rates, but few examine how TVET schools systematically measure the success of their graduates in the labour market. The absence of strong data

on graduate outcomes hinders the ability of policymakers and educators to assess the effectiveness of quality management practices in improving employability (Erasmus & van Zyl, 2020). More research is needed on developing and implementing M&E frameworks that focus on employability metrics such as job placement rates, income levels, and job satisfaction.

Student perspectives on how well TVET education prepares them for the labour market remain underexplored. While studies like those by Cloete (2022) have examined student satisfaction with the quality of education, fewer have delved into students' perceptions of how their education translates into employment opportunities. Understanding students' views on the effectiveness of their education in securing jobs would provide valuable insights for improving the alignment between quality management and employability.

The role of teaching staff in shaping student employability is another area that requires further exploration. Many studies focus on the overall quality of teaching, but few directly link the competencies of TVET instructors to students' employability. Research by Papier and Powell (2020) suggests that teacher qualifications and professional development are key factors influencing student success. Nevertheless, there is a lack of specific research on how teacher quality impacts the readiness of TVET graduates for the job market. Investigating this relationship further could inform quality management practices regarding recruitment, training, and retention of highly skilled instructors.

Research on the institutional and policy-related challenges that hinder the implementation of effective quality management systems and their influence on employability is also limited. TVET schools in South Africa operate within complex regulatory environments, and issues such as inadequate funding, poor infrastructure, and inefficient governance structures negatively impact the delivery of quality education (Mokhele, 2021). More research is needed to identify how these structural challenges can be addressed to enhance both the quality of education and the employability of graduates.

2.45. Summary

This chapter covered theoretical and conceptual frameworks and past literature concerning quality management issues in the higher education sector. Four theories were discovered that are related to this study, which are as follows: stakeholder's theory, legitimacy theory, human capital theory, and system theory that also include total quality management and the European Foundation quality management Model. The stakeholder's theory emphasizes the importance of creating value for all company stakeholders. Legitimacy theory extended to stakeholder theory by including customer and society expectations and emphasizing that the organisation should be able to change over time to meet the increasing demands of acceptability. According to human capital theory, knowledge, expertise, and experience play a role in a person's value as an economic agent. The systems theory views life as a system where humans are part of the system and with the integration of system theory and quality management practices, higher education institutions can establish a unified and efficient strategy that can

accomplish their objectives. The literature review addressed the following quality issues in higher education: quality management components, factors affecting quality management in higher education and training, quality practices, the role of higher education stakeholders, and the employability of higher education graduates. It has been a challenge to get relevant literature that focuses on quality issues in TVET schools, but instead, quality issues in higher education in general have been explored. The purpose of this mixed-methods study was to examine strategic quality management tools and the benefits of their successful implementation in South African public Technical Vocation Education and Training (TVET). While some progress has been made in understanding the relationship between quality management and employability in South African TVET schools, several key research gaps remain. These include the alignment between curriculum and industry needs, the impact of quality management systems on employability, the role of work-based learning, the monitoring of employability outcomes, and the influence of teacher quality. Addressing these gaps through focused research could significantly improve the quality of education in TVET schools and enhance the employability of their graduates, contributing to the overall socio-economic development of South Africa.

CHAPTER 3: RESEARCH METHOD

3.1. Introduction

This study aimed to investigate the implementation and management of quality in TVET schools in South Africa, as well as the associated advantages. The primary aims of this study were to investigate the quality management strategies implemented by Technical Vocational Education and Training (TVET) schools in South Africa, analyse the challenges encountered, and assess the impact of these strategies or obstacles on the employability of their student graduates. The preceding chapter provided an overview of the literature assessment about several quality management concerns in higher education and training institutions. This chapter presents the research approach employed to carry out this investigation. The forthcoming discussion will address specific methodological concerns, including the study approach, design, and methodology. Additionally, the rationale behind these choices will be provided. The subsequent sections in this chapter will outline the data collection, analysis, validation, and reporting methods. The chapter also describes other significant research components, such as ethical considerations, to demonstrate their application to this study.

3.2. Research Approach and Design

3.2.1 Research Approach

According to Cresswell and Plano Clark (2018), the research methodology refers to a plan and procedure that starts with specific assumptions and progresses to the ways of collecting, analysing, and interpreting data. There exist three distinct research methodologies: mixed method, qualitative, and quantitative. The initial technique is the

quantitative research method, which Creswell and Plano Clark (2018) define as "the gathering and examination of numerical data to depict, clarify, anticipate, or manage phenomena of interest." The quantitative approach is characterised by researchers who provide a theory that represents a specific hypothesis, which is subsequently tested. Conclusions about this hypothesis can then be reached based on a series of observations and data analysis (Rovai, Baker & Ponton, 2014). The process of gathering and examining data with this method involves employing statistical or mathematical techniques and drawing conclusions based on data acquired from multiple individuals or groups (Choy, 2014). Quantitative research employs a logical reasoning technique in its investigation. The quantitative method possesses several advantages, such as the ability to test hypotheses and theories, generate generalizable findings, measure cause-effect relationships, predict variables based on others, control for confounding variables, and reduce researcher bias (Johnson & Christensen, 2020). Johnson and Christen (2014) argue that quantitative research has several drawbacks. These include a higher level of abstraction, a focus on breadth rather than depth, a lack of consideration for contextual factors, and the researcher's categories not accurately representing the perspectives of local communities. The second research methodology is the qualitative approach method, which involves the gathering, analysis, and interpretation of detailed narrative and visual data to acquire a deeper understanding of a specific occurrence. Qualitative research is the method of studying multiple facets of a topic simultaneously and observing objects in their natural state. The technique refers to the method employed to further elucidate the intricacies of a situation, underlying motivations, and perspectives. It offers valuable information about the topic or aids in the generation of ideas or hypotheses for possible

quantitative study (Choy, 2014). It is a qualitative research method that investigates intricate phenomena that cannot be fully understood through quantitative study. The primary emphasis is placed on the quality of objects and their accompanying descriptions, to provide individuals with a lucid comprehension of the topic at hand (Johnson & Christensen, 2008). Upon completion of the study, both the researcher and the readers get a heightened understanding of the nature of the problem and, potentially, strategies for its resolution (Fetters, 2016). This methodology employs an inductive reasoning approach for conducting research. Johnson and Christensen (2020) argue that the qualitative method offers several advantages. These include the ability to comprehend the meaning that individuals create, a comprehensive understanding of various fields' phenomena, the consideration of individual cases, the consideration of contexts, its dynamic nature, and the capacity to generate novel theories. The qualitative research approach is characterised by several limitations, including the absence of generalizability of findings, the inability to empirically verify theories and hypotheses, the time-intensive nature of the research process, and the potential for researcher bias.

The third research approach is a mixed method approach, as defined by Creswell and Plano Clark (2018), which involves the collection of both quantitative and qualitative data. This approach utilises various designs that incorporate philosophical assumptions and theoretical frameworks to integrate the data. The mixed method approach is associated with limitations such as limited time, increased resource requirements, and the researcher's need for a higher level of expertise and knowledge compared to employing a single research strategy for a specific subject (Fetters, 2016). Collected data in a mixed

method approach are blended based on the nature of inquiry and the philosophical perspective of the researcher (Johnson & Christensen, 2020).

This study employed a mixed method approach, utilising both quantitative and qualitative data to identify and explain quality management concerns in South African TVET schools. This study employed a mixed method technique for data collection, analysis, and interpretation of the findings for a better understanding of the problem under investigation. The data collection and analysis for schools academics and admin personnel utilized the quantitative method, while the qualitative approach will be employed for data collection and analysis from schools managers, former students, and employers of former TVET institutions. Given the researcher's aim in devising a strategy or framework for quality management in TVET schools, the chosen technique was suitable for addressing inquiries that could not be adequately addressed by a single method. Fetters (2016) argues that the mixed method approach has several advantages when dealing with complicated research problems. By combining post-positivism and interpretivism philosophies, this technique integrates both qualitative and quantitative data in a way that provides meaningful explanations for research concerns. The mixed method provides researchers with a logical foundation, a flexible approach, and a comprehensive understanding to address research problems with adequate depth and breadth. This allows for generalising the findings to the entire population (Maxwell, 2016; Enosh et al., 2014). The additional justification for combining quantitative and qualitative data was to comprehensively collect information regarding quality management trends in relation to teaching and training, as well as to obtain specific insights into how these patterns impact

the quality of students graduating from TVET schools. Johnson and Turner (2003) argue that using both quantitative and qualitative methods in research can enhance the data by allowing them to mutually reinforce each other, resulting in a more comprehensive understanding of the research problem. However, this approach may require more time to complete the study and can present challenges for researchers when it comes to planning and integrating the two sets of data.

3.2.2. Research design

For a study to be conducted successfully, a research design which is “a procedure for collecting, analysing, interpreting and reporting data in a research study” will have to be developed (Creswell, 2014). Research design represents different models and procedures with different names for doing research. According to Morse (2016), research designs are useful as they guide the researcher to choose the right methods and set the logic for making interpretations at the end of the study. According to Creswell (2022), the research problem statement and question to be addressed allow a researcher to come up with a research design. According to Mohan (2014), research design offers the general path in which data of the study should be collected and analysed. The significance of the study design stems from its ability to connect research theory and the empirical data that has been collected (Vogt et al., 2012). According to Bryman and Bell (2022), methodological procedures like sampling and data analysis depend on the researcher's chosen research design. The research design also allows the researcher to predict well in advance the limitations and ethical issues that will form part of the study.

Creswell and Plano Clark (2018) propose three primary sequential mixed method designs that researchers can select while performing a study: convergent parallel mixed method design, exploratory sequential design, and explanatory sequential design. The convergent parallel mixed method combines qualitative and quantitative methods to obtain triangulated results. This involves collecting two types of data simultaneously, which are then analysed independently using qualitative and quantitative analytical methods (Schoonenboom & Johnson, 2017; Shorten & Smith, 2017; Creswell & Plano Clark, 2018; Wisdom & Creswell, 2022). This approach incorporates both quantitative and qualitative data to enhance the researcher's comprehension beyond what can be achieved by relying just on either qualitative or quantitative findings alone (Creswell & Plano Clark, 2018). Dawadi et al. (2021) state that researchers employing the convergent parallel mixed method gather quantitative data through surveys and qualitative data through interviews. They then assess whether the results align or deviate. In the event of divergence, the researcher re-evaluates the findings and acquires additional data to elucidate the findings or enhance the understanding of dataset quality. As to Creswell and Plano Clark (2018), this study method is appropriate for researchers with time constraints or those seeking to gather both qualitative and quantitative data from the same individuals.

Dawadi et al. (2021) define exploratory sequential design as a research design consisting of three phases, guided by the constructivist concept. In the first step, the researcher thoroughly investigates an issue and then adopts the post-positivist approach in the second phase to identify and measure the variable and statistical trend (Creswell & Plano

Clark, 2018). Schoonenboom and Johnson (2017) propose a research design where qualitative data is collected and analysed first, followed by the collection and analysis of quantitative data. The researcher utilizes qualitative findings as a foundation to create a quantitative tool. In the final stage, the researcher examines the quantitatively identified factors and expands upon the qualitative discoveries (Creswell & Plano, 2018). As stated by Creswell and Plano Clark (2018), this design is suitable for researchers who prioritise qualitative methods, have sufficient time to perform a study in three phases, and are interested in the potential to generalise and transfer the findings to larger populations. Researchers who employ this approach adhere to positivist assumptions when selecting instruments, but transition to constructive assumptions when they prioritise different perspectives and thorough examination, as stated by Creswell and Plano Clark (2018).

Schoonenboom and Johnson (2017) describe explanatory sequential design as a research approach that involves initially collecting and analysing quantitative data, and then using the findings to inform the design of qualitative tools. Creswell (2022) defines sequential explanatory design as a research approach that involves collecting and analysing quantitative data to address research questions, followed by collecting and analysing qualitative data. Subedi (2016) argues that while quantitative data and outcomes provide a broad overview of a study subject, including qualitative data collection and analysis complements and enriches this overview, offering additional insights and giving voice to the quantitative data. Wisdom and Creswell (2013) state that this design enables the researcher to investigate specific quantitative data findings and provide explanations using qualitative data. The additional qualitative data provides a more

comprehensive explanation for the unexpected findings observed in the quantitative data. This design is particularly advantageous for researchers who prioritise quantitative data and have already identified the variables they want to measure. It is also beneficial when the researcher has access to participants from whom they can collect qualitative data. Additionally, this design requires the researcher to have sufficient time to collect data in two phases and to be the sole investigator responsible for collecting and analysing the data one at a time (Wilkinson & Staley, 2019).

After carefully considering the three forms of sequential mixed methods, the study utilized the convergent parallel mixed method research design, noting its limitations. According to Creswell and Creswell (2023), integrating and resolving differences between qualitative and quantitative data can be difficult from a methodological standpoint. This calls for researchers who are proficient in both qualitative and quantitative techniques, as well as enough time and material to conduct parallel analysis (Almalki, 2021). According to Fetters, results that are inconsistent can be challenging to understand, which may cause ambiguity or necessitate additional research. According to Schoonenboom and Johnson (2017), equal weighting may not be appropriate in certain studies because the research question may naturally call for a greater emphasis on one method. The researcher employed this design to triangulate the results in the context of a convergent parallel mixed method design, which is one of its primary benefits. The researcher aimed to enhance the validity and reliability of the findings by cross validating the results by collecting both qualitative and quantitative data.

This method also enables researchers to comprehend complex research topics more thoroughly. Insights from qualitative data can help interpret quantitative data more nuancedly by illuminating the underlying causes of certain trends or patterns. In summary, a convergent parallel mixed-method design in research can produce more reliable and perceptive results. Through integrating qualitative and quantitative data collection techniques, the researcher was able to achieve triangulation of results and enhance comprehension of intricate research subjects. The tested variables are within quality management in TVET schools, including factors affecting quality management, stakeholders' roles, and quality practices. Quantitative data were collected from the school's lecturers and administrators (quality providers) from five sampled schools (260 respondents) in Limpopo province. Data was analysed quantitatively with the aid of SPSS techniques. The qualitative phase was conducted using a semi-structured interview guide that was conducted with a maximum of fifteen participants (former TVET school students, TVET school managers, and those who employ TVET school students) to have a full explanation of some of the quantitative variables. Both results assisted the researcher in linking the association between TVET Schools' quality management strategies and the employability of students and graduates (the product).

3.3. Population and Sample of the Research Study

3.3.1. Study population

According to MacMillan and Schumacher (2014), a population refers to a collection of individuals, objects, or events that meet characteristics and are used to generalize research findings. This group is alternatively known as the target population or universe. Bhattacharjee (2012) defines a population as the aggregate of individuals or objects with specific characteristics that a researcher or individual aims to investigate.

A research population is a substantial assemblage of humans or items that serve as the primary subject of scientific investigation. Welman et al. (2011) state that the research problem pertains to a particular population, which includes all the units of analysis that the researcher aims to conclude expressly. Given the substantial population size, the researcher cannot examine every individual or object that possesses all the features relevant to the research question, primarily due to limitations in time and funding. Consequently, researchers depend on sampling procedures to obtain participants, responders, or objects suitable for the study's objectives. According to Polit and Beck (2017), a research population refers to a clearly defined group of individuals or things with similar features.

Prior to doing research, most researchers consistently consider the target population. Dixon et al. (2016) define the target population as the complete set of individuals or things that researchers aim to generalize their conclusions to. The target population, sometimes

referred to as the theoretical population, typically exhibits diverse features. The accessible population refers to the specific demographic that researchers can apply their findings to in a research study. The population referred to here is a specific group within the larger target population, commonly called the study population (Dixon et al., 2016). Researchers select their samples from the accessible population. The study's population comprised seven Limpopo public TVET schools, and together, they have over 30 campuses within the province with close to 2400 employees (DHET, 2024). The researcher employed purposive sampling to select four institutions in Limpopo province. However, clearance letters were obtained from just three of the schools.

The rationale for choosing four from seven was due to accessibility to the researcher, reduced costs, and time management. The targeted population of this study was the TVET schools' lecturers, admin staff, campus managers, former TVET schools' students, and industry representatives or employers of TVET students. TVET schools in South Africa have the same syllabus/ curriculum, and students in the same program write the same exam at the exact prescribed time. All public TVET schools in South Africa are funded by the government, which makes the selected population representative of the entire population.

3.3.2. Study settings

The study was conducted in Limpopo province (Figure 3.1), which has a population of about six million people, representing ten percent of the South African population (Stats SA, 2021). The study covered 124000 square kilometres of geographical area. The

province is in the northeastern region of South Africa. It has borders with Zimbabwe to the north, Botswana to the northeast, and Northwest, Gauteng, and Mpumalanga to the southwest, south, and southeast, respectively. There are five districts in the province: Vhembe, Mopani, Sekhukhune, Waterberg, and Capricorn. The province has the highest youth population, at 33.6%, followed by Eastern Cape Province at 32.7% (Stats SA, 2021). From the population, which is estimated, 54,6% are women, and 45,4% are men. According to the Census (1996), about 42.2% of people aged 15 and above were considered illiterate because they did not attend school or their grades were below grade 7. In 2001, about 41% of people aged 15 and above were illiterate, but in 2011, the numbers changed drastically to only 24% as more people started to take education seriously (census, 2011). The unemployment rate in the province stands at about 36%, and the youth are the most affected. The primary issues faced in Limpopo province encompass unemployment, poverty, inequality, illiteracy, HIV/AIDS, inadequate skill set, and migration of individuals from neighbouring countries. There are five public TVET schools (named using district names) in the province with each having its campuses situated in its district's jurisdiction. Of the five public TVET schools in the province, only four TVET schools were selected (Vhembe, Sekhukhune, Mopani, and Capricorn) due to their accessibility.

The study included the population and sample of staff members from three Technical Vocational Education and Training (TVET) schools in Limpopo Province, South Africa. To determine the appropriate sample size for both subgroups, the Raosoft sample calculator was utilised, assuming an unknown number of staff members, a margin of error

of 10%, and a confidence level of 90%. As per the ETD - Technical Education and Vocational Training Schools manual (2021), the total number of personnel working at Limpopo public TVET schools was slightly over 2000. According to the Raosoft calculator, the researcher aimed to get 234 respondents from both categories of employees. The sample frame for the quantitative study comprised teaching staff and administrative staff members who could provide informed permission. The sample frame for qualitative data included school management, former TVET school students, and industrial representatives. The purpose was to collect qualitative data related to the outcomes of specific statements or variables in the questionnaire. Respondents were recruited by requesting to work with any designated officer to facilitate the recruitment of a maximum of 40 participants from each school who could volunteer to complete the informed consent and a questionnaire from each school. All participants who completed the questionnaire were expected to be above 18 years and below 65 years old, employees of selected TVET schools, and mentally stable to complete the consent form

Figure 3.1

South African and Limpopo map (explore South Africa.net, 2023)

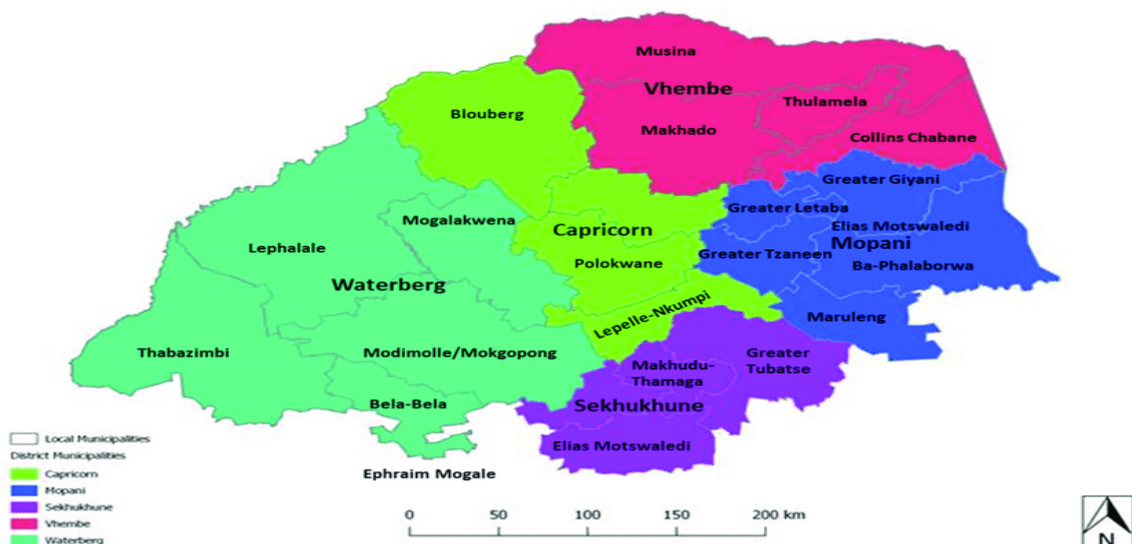


Figure 3.1 shows the South African and Limpopo maps, respectively. It shows the country where the study is being conducted and the selected province with the schools' districts.

3.3.3. Sampling and sampling techniques

A sample is a subset of the population created because the researchers cannot evaluate every individual in the population (Kumar, 2018). The sample must accurately reflect the characteristics of the population it was taken from and be sufficiently large to justify statistical analysis.

Kumar (2018) states that the primary purpose of the sample is to enable researchers to examine people from the community. This allows them to draw findings that can be generalised to the full population. Pattern and Newhart (2017) state that the population serves as the source of the sample, and based on the findings from the sample, the researcher formulates a conclusion. To obtain pertinent findings, researchers employ two distinct sampling methods: probability and non-probability. Each method utilises various techniques.

3.3.4. Probability sampling

Probability sampling ensures that everyone in the community has an equiprobable chance of being chosen as a research subject (Kumar, 2018). According to Iliyasu and Etikan (2021), each population segment has a non-zero probability of being picked. This strategy ensures that the selection process is entirely randomised and free from bias. A

fundamental illustration of probability sampling involves compiling a comprehensive list of all individuals in the population on individual pieces of paper and selecting multiple papers one by one from the entire assortment of names (Kumar, 2018). Welmaet al. (2011) state that the benefit of employing probability sampling is the enhanced precision of the statistical techniques used in the study. Additionally, it can be utilised to approximate the population parameters as it accurately represents the complete population. Additionally, it is a dependable approach for mitigating sample bias. Probability sampling encompasses several techniques, such as simple random sampling, systematic sampling, stratified random sampling, cluster sampling, multistage sampling, and multiphase sampling (Patten & Newhart, 2017).

3.3.4.1. Simple random sampling

According to Pattern and Newhart (2017), simple random sampling gives an equal chance to all subsets to be selected, which is done by assigning a number or letter to each unit in the sampling frame. According to Acharya et al. (2013), simple random sampling requires a sampling frame so that all individuals or objects in the population are coded with numbers in descending or ascending order. Once the researcher has assigned numerical values to the sampling frame, a table of random numbers or a lottery system is employed to choose the units that will be selected. Simple random sampling is appropriate when the population is small, homogeneous, and easily accessible (Christensen et al., 2011). Acharya et al. (2013) state that simple random sampling offers several advantages. These include the minimal requirement of population information, good internal and external validity, and ease of data analysis. An inherent drawback of

employing this approach is that when the sampling frame is excessively extensive, the procedure becomes unfeasible, potentially resulting in inadequate representation of certain minority populations in the sample for the study (Dixon et al., 2016). The method also tends to exhibit a higher degree of sampling error than stratified random sampling with the same sample size.

3.3.4.2. Systematic random sampling

Prakash et al. (2013) define systematic random sampling as a method where the initial subject is chosen randomly, and subsequent subjects are selected at regular intervals. Systematic sampling begins with random sampling and then selects every k th element (Pattern & Newhart, 2017). Systematic sampling is a method that involves organising the target population in a specific order and then choosing items at consistent intervals from this ordered list. Kumar (2019) states that the starting point is not always the first element in the list. Instead, it is selected randomly from within the range of the first to the k th element in the list. For example, this may involve selecting every 5th name on a list of student numbers ordered in numerical order. This sample approach facilitates the identification of the sampling frame. The benefits of utilising this approach include moderate utilisation, good internal and external validity, moderate cost, and ease of implementation and verification (Prakash et al., 2013). One drawback of systematic sampling is its potential bias, particularly if the population's hidden periodicity aligns with the selection process. Additionally, it might be challenging to accurately judge the estimate's precision based on a single survey (Dixon et al., 2016). Given that the initial

subjects are chosen in a random manner, it follows that any subsequent subjects will have a probability of zero of being selected (Prakash et al., 2013).

3.3.4.3. Stratified random sampling

Iliashu and Etikan (2021) define stratified random sampling as selecting a subset of objects from a population based on shared criteria such as age, gender, race, income level, and education level. The selection is done randomly within each stratum. Simple random sampling is conducted in each state by dividing the target population into homogeneous and mutually exclusive segments. Pattern and Newhart (2017) state that the stratified sampling approach is employed when the population can be divided into multiple groups, and the sample frame may be organized into "strata". Each stratum can be sampled separately, and individual elements can be randomly chosen from each sub-population. Every unit within a stratum has the same probability of being selected, and employing the same sampling fraction for all strata ensures that the sample accurately represents the proportions (Laher & Botha, 2012). The stratified sampling method guarantees the inclusion of minority groupings of interest by dividing the population into several strata and adjusting the sampling fraction accordingly. An advantage of this strategy is that it ensures the inclusion of individuals from the population that interest the researcher (Iliashu & Etikan, 2021). An inherent limitation of employing the stratified sampling technique is creating a distinct sampling frame for each stratum within the overall population (Polit & Beck, 2017). When analysing numerous criteria, including stratifying factors may show a relationship with some criteria but not others. This might complicate the design and potentially decrease the usefulness of the strata. The method

also necessitates precise data that may not be readily available, and creating stratified lists can be costly (Prakash et al., 2013).

3.3.4.4. Cluster random sampling

Cluster sampling is a method that involves dividing the population into smaller subgroups based on comparable traits or geographical proximity (Pattern & Newhart, 2017). Instead of individually selecting members from each subgroup, the researcher chooses the entire subgroup at random. It is frequently employed in extensive national surveys, when all persons inside the cluster are included in the sample (Prakash et al., 2013). An inherent drawback of this sampling strategy is the presence of a heightened sampling error resulting from significant dissimilarities among clusters (Polit & Beck, 2017). Ensuring that the sample clusters accurately reflect the population of interest is similarly challenging (Prakash et al., 2013).

3.3.4.5. Multistage sampling

Pattern and Newhart (2017) define multistage sampling as a sampling technique that involves dividing the population into clusters or groups to undertake research. The method employed is a complex process that involves dividing substantial clusters of sampled individuals into subgroups at several stages, intending to facilitate primary data collection. Multistage sampling entails selecting a sampling frame and employing a probability-based method to choose sample members from the sample group. The primary motivation for selecting this strategy is to enhance accuracy, minimize expenses, and mitigate non-response (Prakash et al., 2013). While not as efficient as genuine

random sampling, it likely addresses the underlying issues associated with random sampling. To ensure adequate representation of the school's community and considering the benefits and limitations of the sample method, a stratified random sampling approach was employed for collecting quantitative data. The population of the schools was separated into two distinct subgroups, namely teaching staff and administrative personnel.

With the information provided by gatekeepers, it was found that a ratio of approximately 8:1 (8 lecturers to 1 admin staff) is being used in balancing the employees needed by each school. Everyone who voluntarily gave informed consent had a fair chance of being selected but since teaching employees are more than admin employees, more teaching staff will be recruited than admin staff. Despite being a non-probability sampling technique, it can be employed in both qualitative and quantitative research to obtain insights from certain subgroups within a community. The researcher employed a stratified random sampling strategy to include pertinent internal stakeholders in the study. This approach enabled the researcher to gather insights on the input and output aspects of quality management from two distinct groups (Frey, 2018). Reducing sampling error was one of the key justifications for employing stratified random sampling in this study. To mitigate bias and enhance the applicability of the results in this study, the researcher ensured that each subgroup was well represented in the sample, as indicated above. Furthermore, by using this method, population parameters were estimated, made more precisely, producing conclusions that are more reliable and valid. In summary, there is a clear justification for employing the stratified random sampling method in research

as it permits more precise population representation, lowers sampling error, and permits a more thorough examination of subgroup disparities.

3.3.5. Non-probability sampling

Non-probability sampling is a method of population sampling when individuals in the population are not selected with equal probability (Polit & Beck, 2017). Consequently, it is not prudent to presume that the sample accurately represents the entire target population. It is plausible that the researcher intentionally selected the participants who will partake in the study. Dixon et al. (2017) state that the non-probability population sampling method is beneficial for pilot studies, case studies, qualitative research, and hypothesis formulation. This sampling strategy is typically used in studies that do not focus on the parameters of the complete population. Certain researchers favour this sample methodology due to its cost-effectiveness, efficiency, and simplicity. The primary non-probability sampling approaches are accidental, quota, and purposive.

3.3.5.2. Quota sampling

The quota sampling approach is a non-probability sampling technique where a researcher selects a sample that includes individuals representing a specific community of interest (Acharya et al., 2013). Like stratified sampling, the population is initially divided into distinct and non-overlapping subgroups. Then, a subjective decision is made to choose individuals or entities from each subgroup based on the defined population. The potential limitation of this sampling approach is in the possibility of bias since it may result in individuals not being afforded an equitable opportunity for selection.

3.3.5.3. Convenience sampling

Convenience sampling is also referred to as "grab", "accidental", "haphazard", or "opportunity" sampling (Etikan & Bala, 2017). It is a sampling method that comprises drawing the sample from a population that is easily accessible or selecting the sample based on its suitability. According to Stratton (2021), convenience sampling is very common to most researchers because it is not expensive, and it is simple to apply compared to other sampling strategies. Convenience sampling is a beneficial strategy when the researcher aims to produce a prospective hypothesis or study objective. The benefits of this approach include its widespread usage, cost-effectiveness, and the absence of a requirement to enumerate population constituents. An inherent drawback of this strategy is its susceptibility to various forms of bias, hence impeding the ability to statistically evaluate sampling error or ascertain statistical validity (Stratton, 2021). The researcher employing this method cannot make generalisations about the entire population, as the method lacks sufficient representativeness. The findings derived from this sampling technique are not applicable outside the specific sample (Prakash et al., 2013).

3.3.5.4. Purposive or Judgemental sampling

Purposive or judgmental sampling is a deliberate sampling technique where specific individuals, objects, or settings are purposely selected to gather information that cannot be collected by conventional sampling methods (Etikan et al., 2016). It is

commonly referred to as judgmental sampling, where participants are chosen based on specific attributes without the need for underlying theories or a predetermined quantity of participants (Stratton, 2021). This strategy involves a researcher determining the necessary facts and then seeking individuals willing to provide their insights based on their experience or acquired expertise. Purposive sampling is susceptible to researcher bias and can potentially exclude significant subgroups from the study (Etikan et al., 2016).

3.3.5.5. Snowball sampling

The Snowball sampling method, also known as chain-referral sampling, is a non-probability sampling strategy used to select items for a sample that possess rare or difficult-to-find features (Etikan & Bala, 2017). In this sampling strategy, the researcher relies on the existing or known subjects to make referrals to recruit the necessary samples for a research project. The primary data source identified by this sampling strategy willingly selects additional data sources to participate in the research investigations. Like a snowball growing, the researcher continues to gather data until they have a sufficient sample size to analyze and draw definitive conclusions (Etikan & Bala, 2017). The Snowball sampling approach relies exclusively on referrals for a researcher to generate a sample. An inherent limitation of this sample strategy is that, despite receiving referrals, there is a significant possibility of individuals not complying and persistently declining to engage in the research investigations (Parker et al., 2019). Parker et al. (2019) suggest that the method used in the study may be prone to sampling bias and margin error. This

is because the researchers may only select a limited number of people to participate, which could lead to incomplete and inconclusive results.

Considering the main qualitative sampling methods and their drawbacks, the snowball sampling method was employed to identify another fifteen participants (schools managers, authorities, former students, and industrial representatives) to gather qualitative data. The type of snowball method used is the exponential non-discriminative snowball sampling. The primary data source was the schools gatekeeper who provided multiple referrals (i.e., employer representative, former students, and regulatory bodies representative). This sampling method was ideal for this study since it is cost-effective and quicker for the researcher to find the required sample since it relied on reliable sources. The researcher opted to use snowball sampling's capacity to reach populations that are difficult to reach as some of the schools are in unknown areas to the researcher, and the researcher relied on campus managers to provide a database or referrals of former students and employers who will also refer the researcher to other participants. Snowball sampling has assisted researchers in accessing networks that conventional sampling techniques might miss in situations where the target population is small, dispersed, or marginalized. Referred to by a reliable source, participants are more inclined to feel at ease disclosing personal information, resulting in more accurate and comprehensive data. Nonetheless, researchers had recognized possible biases and restrictions associated with snowball sampling. Due to the absence of a random selection method, there is a possibility that some features may be disproportionately represented in the sample, rendering the results inapplicable to the broader population.

In conclusion, even though snowball sampling has certain disadvantages, its special advantages have made it an invaluable tool for this study.

3.4. Variables of study

The measured variable constructs from the identified population include staff recruitment and selection, staff training and development, staff motivation enhancement, student admission and selection, programme design, teaching processes, assessment processes, curriculum management, geographical location, teaching enhancement, motivation enhancement for students, schools' adaptation, and students and staff integration.

3.5. Research Tools

Data collection is essential to the research process as the cornerstone for obtaining accurate and trustworthy results. Researcher questions and hypotheses can be addressed through methodically collecting observations or measurements. Bhandari (2020) states that defining the research aim, choosing suitable methods, organizing procedures, and collecting data are necessary for effective data collection. The quality of the research findings is ultimately influenced by each stage, which is crucial in guaranteeing that the data collected is reliable and pertinent. A multitude of data collection methodologies are available, each with pros and cons of its own. Creswell and Creswell (2021) emphasize that choosing an appropriate method depends on factors such as the nature of the research question and whether qualitative or quantitative data is required.

An in-depth understanding of participants' experiences and perspectives, for example, can be obtained through qualitative techniques like focus groups and interviews. However, their limited sample sizes may prevent them from being broadly applicable.

3.5.1. Types of data

According to Creswell and Creswell (2021), research data collection typically involves two main types of data: primary and secondary data. Each data type serves different research purposes and is collected through distinct methods, contributing uniquely to research findings and insights.

3.5.1.1. Primary data

The type of data the researcher collects that has never been used before is primary data. Bryanard et al. (2014), define primary data as first-hand knowledge gathered through data collection tools like questionnaires, observations, and interviews and not relying on existing data sources. According to Schumacher (2014), primary sources in quantitative research consist of what the subject or participants did or reported and can be presented in articles, reports, monographs, websites, books or other formats with the analysis of the initial data gathered. On the other hand, primary sources in qualitative research are artefacts and individuals or respondents with whom the researcher had a direct interaction and had interviewed or observed artefacts and individuals or respondents with whom the researcher had direct interacted and had interviewed or observed directly (Schumacher, 2014). As per Ajayi's (2017) assertion, researchers typically gather data to address research questions during their investigation. According

to Wilson (2014), collecting primary data may be challenging because it might be time-consuming and frustrating. However, the findings generated significantly contribute to the overall research and the body of knowledge. According to Wilson (2014), there are three reasons why researchers use primary data in their research:

- When there is no existing data available, especially when the researcher has chosen a contemporary topic that has only come to the attention of researchers.
- When the existing secondary data is not suitable for the researcher's study or when the data is too broad or general rather than specific.
- When the researcher's institution requires primary data.

Despite its advantages, primary data has the following limitations:

- Time-Consuming: Collecting primary data can be time-intensive, especially if the study requires extensive fieldwork or complex data collection methods (Creswell & Creswell, 2017).
- Cost: Primary data collection can be more expensive than using secondary data, as it often involves resources for surveys, participant incentives, and data analysis (Bryman, 2016).
- Potential for Bias: The design of data collection methods and the researcher's presence can introduce biases, potentially affecting the validity of the findings (Kvale & Brinkmann, 2015).

3.5.1.2. Secondary data

Secondary data is preexisting information that has not been created by the researcher and can be found in reports from organisations, published research studies, and other materials compiled by other researchers and relevant to the study's subject (Etikan et al., 2016). So, information that is easily accessible to the researcher and does not require any special collection techniques makes up secondary data (Brynard et al., 2014). According to Saunders et al. (2014), secondary sources summarize, analyze, review, or discuss primary source information and what is contained in other secondary sources. If granted access, information can be gathered at a predetermined time using secondary data. According to Saunders et al. (2019), secondary data include both quantitative (numeric) and qualitative (non-numeric) and are used primarily on descriptive and exploratory research. In descriptive studies, secondary data helps to paint a comprehensive picture of a phenomenon or population. It allows researchers to summarize characteristics and identify trends without conducting new surveys (Saunders et al., 2019). In exploratory research, secondary data serves as a preliminary resource to generate hypotheses or identify gaps in literature. It can guide further investigations by highlighting areas that require deeper exploration (Saunders et al., 2019). The following are the reasons why researchers use secondary data:

- **Cost-Effectiveness:** Secondary data collection is generally less expensive than primary data collection, making it an appealing option for budget-conscious researchers (Brynard et al., 2014).

- Timesaving: The availability of existing data allows researchers to bypass lengthy data collection phases, enabling quicker analysis and results dissemination (Etikan et al., 2016).

- Broad Contextual Insights: Secondary data can provide a broader understanding of trends and phenomena, helping researchers situate their studies within larger contexts (Saunders et al., 2019).

- Certain research topics are more likely to warrant a greater emphasis on secondary data, like doing a comparative study on gross domestic product growth rate among states (Wilson, 2014).

Despite its advantages, secondary data has some limitations, which are as follows:

- Relevance and Specificity: The data may not directly address the specific research question or context, leading to potential misinterpretations or misapplications (Brynard et al., 2014). According to Saunders et al. (2019), data collected by the researcher has a specific purpose, which may include answering a research question and meeting the researcher's objectives, while secondary data may may be collected for a different purpose.

- Quality Concerns: The accuracy and reliability of secondary data can vary significantly depending on the source. Researchers must critically assess the credibility and methodology of the original data collection (Etikan et al., 2016). According to Saunders et al. (2019), many secondary data sets are from government archives. They are probably of higher quality than what could be collected as primary data. However, the researcher will have to assess the quality of the data.

- Lack of Control: Since researchers do not gather the data themselves, they lack control over how it was collected, which may impact the validity and applicability of the findings (Saunders et al., 2019).
- Access may be difficult and costly: Data which was collected for commercial reasons may be difficult to get or very expensive if they are not readily available online or in the researcher's library (Saunders et al., 2019)

Based on the above types of data and their applications, benefits, and limitations, the researcher collected primary data in both the collection of qualitative and quantitative data.

3.5.2. Research tools

Research tools are essential instruments that aid researchers in collecting, analysing, and interpreting data. These tools can vary based on the study's research design, methodology, and specific objectives. Below is an overview of various research tools commonly used in qualitative and quantitative research.

3.5.2.1. Surveys and Questionnaires

According to Dillman et al. (2014), surveys and questionnaires are widely used for gathering quantitative data. They can be designed to collect various information, such as opinions, behaviours, or demographic details. According to Saunders et al. (2019), survey strategy is usually associated with deductive research approaches wherein questions such as 'what,' 'who,' 'where,' 'how much,' and 'how many' are answered, especially in business and management research. According to Wilson (2014), survey strategies using

questionnaires are popular as they allow the collection of standardized data from many respondents cost-effectively, allowing easy comparison. According to Saunders et al. (2019), survey strategies allow the researcher to collect data that is analysed quantitatively using descriptive and inferential statistics. This enhances the feasibility of collecting data from diverse populations and allows for straightforward comparisons across different groups. The standardized format minimizes variability in responses that can arise from differing question interpretations, thereby improving the reliability of the findings.

Furthermore, Saunders et al. (2019) emphasize that survey strategies enable researchers to analyze data quantitatively. The collected data can be subjected to descriptive and inferential statistical analyses, providing insights that can inform decision-making and strategic planning. Descriptive statistics summarize the data, revealing trends and patterns, while inferential statistics allow researchers to make broader generalizations about a population based on sample data. This dual capability is particularly valuable in drawing conclusions and making predictions, thereby enhancing the overall impact of the research. In addition, integrating online survey tools has further transformed the data collection landscape. Platforms like SurveyMonkey and Google Forms facilitate real-time data collection and analysis, enabling researchers to reach wider audiences and respond dynamically to emerging data trends (Rea & Parker, 2014). This technological advancement has not only improved accessibility but also increased the speed at which researchers can gather and analyze data.

3.5.2.2. Research interviews

According to Saunders et al. (2019), research interviews are purposeful conversations between two or more people wherein the interviewer asks concise and unambiguous questions and listens to the participants talking. According to Wilson (2014), interviews are more commonly associated with a qualitative research strategy, they allow the researcher to gain insight into a person's beliefs and attitudes towards a particular subject. Unlike quantitative methods, which focus on numerical data and statistical analysis, qualitative interviews enable researchers to capture the complexities and nuances of human behaviour. This method is particularly valuable when investigating subjective experiences or abstract concepts that are difficult to quantify.

According to Saunders et al. (2019), interviews can take various forms: structured, semi-structured, or unstructured, depending on the flexibility the researcher requires. In structured interviews, questions are predetermined and consistent across all interviews, ensuring comparability of responses. According to Wilson (2014), these types of interview questions are read from the questionnaire exactly as they are written, in the same tone of voice, to avoid any form of bias. Semi-structured interviews allow more flexibility, enabling the interviewer to probe further based on participants' responses. According to Saunders et al. (2019), semi-structured interviews start with a predetermined list of themes and possibly some key questions that are related to those themes to guide the conduct of each interview or session. On the other hand, unstructured or in-depth interviews are conversational and free-flowing, allowing participants to steer the conversation toward areas they consider most relevant (Wilson, 2014). According to

Saunders et al. (2019), unstructured interviews are informal and do not use predetermined and written down themes or questions to structure or guide how the interviews should be conducted. Convergent interviews start as unstructured or in-depth, with the interviewer also seeking to develop a rapport, and the interviewee can talk freely about the topic being explored (Saunders et al., 2019). The convergent interview is an informant interview directed by the interviewer who does the talk with the researcher, only asking a few questions and fewer prompts. However, in subsequent or follow-up interviews, the researcher may use more probing questions.

Overall, interviews are an invaluable tool for qualitative research. They provide rich, detailed data that can offer profound insights into individual and collective human experiences. They are particularly useful for exploring sensitive, complex, or not easily quantified topics, giving participants a voice to express their views in a more personal and in-depth manner.

Data collection was conducted using two instruments: a questionnaire and an interview guide. De Vaus (2014) defines a questionnaire as a pragmatic tool for gathering data in a survey, which yields a quantitative depiction of a population based on a sample. The advantage of questionnaires on participants lies in the ability of participants to feel confident and their flexibility in deciding which question they will not want to respond to. According to Creswell and Creswell (2017), an instrument is used to measure, observe or document research data. Quantitative instruments contain specific questions and response possibilities established or developed for the research study. According to Muijs

(2004), researchers develop the appropriate instrument for data collection after establishing a suitable research design.

3.5.3. Quantitative constructs

The questionnaire comprised three sections. The initial section offers a concise and explanatory overview of the study's nature, aim, purpose, and potential advantages. The introduction also provides participants with information regarding the projected duration of the study and ethical considerations, ensuring that participants are aware of their rights and are not coerced into completing the study. Part B comprises demographic inquiries to gather background information from each participant while maintaining anonymity. The purpose of gathering demographic information from participants was to enable the researcher participants to define the features of the participants accurately and demonstrate that they are a valid representation of the target population sample, allowing for the generalisation of the findings. Part C comprises the core section of the questionnaire, encompassing inquiries pertaining to the constructs being investigated. The questions in section C are Likert-type questions, utilising a scale from 1 to 5. In this scale, 1 represents "strongly disagree," 2 represents "disagree," 3 represents "neither agree nor disagree," 4 represents "agree," and 5 represents "strongly agree."

Table 3.1*Constructs under study*

Constructs under study	No of items	The scale used for all items were strongly disagree (1), disagree (2), neither agree or disagree (3), agree (4) and strongly agree (5)
Participants' demographics	9	
Staff resource management practices		
Recruitment and selection	4	
Training and development	4	
Motivation enhancing	5	
Opportunity enhancing	2	
Student resource management practices		
Recruitment and selection	4	
Motivation enhancement	2	
Student involvement/ participation	2	
Facility resource management	7	
Geographical location	2	
Dynamic capabilities		
Program design	3	
Teaching processes	3	
Assessment processes	5	
Curriculum management	3	
Intergration	3	
Teaching and learning quality	5	
Adaptation to environment		
Schools adaptability	2	

Table 3.1 shows the constructs under study the number of items on each construct, and the scale that will be used to measure them. The demographic questionnaire

consisted of 9 items, namely: school name, gender, age range, race, qualifications, designation, experience working at a TVET school, department within the school, and the number of modules taught if the participant is a lecturer. Part C comprises 16 main constructs, which are summarized in Table 3.1 above.

3.5.3.1 Measurement of Constructs

Staff recruitment and selection questions pertain to the necessary skills for new staff members, their eligibility, previous work experience, formal structured interviews, and the assessment of their capabilities during the recruitment process. Staff training and development inquiries pertain to orientation programs for newly hired personnel, training sessions aimed at enhancing the necessary soft skills for the job or facilitating the adjustment of new staff members to their unfamiliar work environment.

Motivation-enhancing quality practices consist of incentives and rewards provided to all staff members, performance management, and assistance in developing their careers. This survey's questions pertain to financial and non-financial incentives, employee well-being, job stability, training workshops, professional growth, and advancement opportunities based on firm performance.

Opportunity-enhancing constructs consist of how employees are involved/ participate and teamwork. Questions that were asked about this practice relate to how employees are involved in decision-making in their day-to-day work dealings and how they are allowed to make changes in their work.

Student resource management practices include recruitment and selection of students, motivation enhancement, opportunity enhancement, student involvement/ participation, facility resource management, and geographical location. The recruitment and selection process includes various aspects such as assessing students' abilities, selecting suitable candidates, establishing admission requirements, providing orientation for selected students, and organising in-service training for them.

Motivation enhancement includes rewards for performing students and funding for students. Student involvement/ participation consists of questions about feedback on teaching and learning and involvement in extra-curricular activities. Facility resource management practices consist of questions related to classrooms for teaching and learning, laboratories for practical, office equipment, library and library materials, student and staff amusement facilities, technology for e-learning, emergency and health facilities, and appropriate IT facilities.

Dynamic capabilities include questions about program design, teaching processes, assessment processes, curriculum management, integration, and teaching and learning quality. Program design questions consist of questions relating to aims and objectives and subject content related to aims and objectives. Teaching processes consist of questions relating to the lecturer's understanding of aims and objectives, delivery methodology, and students' learning experience. Assessment processes include questions relating to assessment methodology decisions, assessment required standards, assessment and grading criteria, and assessment feedback. Curriculum management consists of questions relating to the systematic, progressive development

of assessments, quality assurance systems, and internal verification and evaluation of assessments. Integration consists of questions about communication channels between students and staff in exchanging ideas, attending to students' needs, and accepting feedback from graduates' employers. Teaching and learning quality consists of questions relating to whether the school offers a blended curriculum, quality learning experience, quality grades, meets the needs of industries and professional bodies, and the relationship with external bodies.

Adaptation to the environment consists of questions about whether the schools consider the changing environment when formulating teaching strategies and whether the schools considers the changing environment when maintaining its facilities.

3.5.4. Questionnaire pretesting

A crucial methodological step in creating useful survey instruments is research questionnaire pretesting. Before its complete implementation, a small, representative sample of the target population is given access to a draft version of the questionnaire. This initial stage helps to find possible problems with the clarity of the questions, the available responses, and the general flow of the survey. Researchers can improve the validity and reliability of their findings by addressing these issues early in the research process. Determining whether respondents understand the researcher's intended meaning for the questions is one of the main goals of pretesting. Misunderstandings may result in erroneous or biased answers, ultimately distorting data analysis and conclusions. Because of this, researchers can learn more about how participants comprehend and

interact with each question by using cognitive interviewing techniques during pretesting. By encouraging verbalization of thought processes during the response process, this method helps participants identify ambiguities and presumptions that might not be immediately apparent. According to Muijs (2014), it is crucial to do instrument testing in social science research to ensure the clarity and conciseness of the questions. To ensure the validity and reliability of the questionnaire tool, a pretest was conducted with five colleagues employed at the institution of higher education and training (University). Creswell (2017) defines validity as the ability of an instrument to accurately measure the intended data, while reliability refers to eliminating mistakes to provide consistent and valid results. During the pretesting phase, colleagues were allowed to provide feedback regarding their comprehension of the questions. By doing pretesting, the researcher could observe participants' responses to questions and ascertain whether the offered information aligned with the desired data (validity).

The researcher also asked the participants why they answered the questions the way they did, and all had similar ideas on why they responded in the way they did (reliability). The researcher also listened to respondents' discomfort in answering both questionnaire and research questions, and the researcher was also able to remove some ambiguous questions or rephrase them. Some of the questions in the questionnaire were modified, and the five colleagues who did the pretest were asked to redo them and the questionnaire's other shortcomings (i.e., spelling, rephrasing difficult words and summarizing long questions) and a more improved questionnaire was developed for

approval by UREC committee. Based on the pretest, it was determined that the questionnaire would require a maximum of 20 minutes to complete.

3.5.5. Interview schedule

This study also used an interview schedule as the instrument to collect qualitative data. The interview schedule consisted of three sections. Section A consisted of questions that will be asked to employers of TVET schools graduates, Section B consists of questions to be asked to former students, while the last section consists of questions to be asked to school managers. Major questions for TVET schools employees consist of questions relating to the preparedness of TVET schools graduates in the eyes of employers, skills to be incorporated into school students, and employers' suggestions on what should be improved for students to be employable. The main questions for TVET former students relate to employment status, their preparedness for the world of work or to use their acquired skills to start their businesses, and what should be incorporated into the curriculum for them to be fully ready for the world of work. Major questions for school managers relate to challenges faced by schools in providing quality education, how those challenges can be overcome, and whether their graduates are ready for industry demands. In each set of questions, the main questions are structured in a way that could lead to other questions through probing or follow up. Each set of questions consisted of five main questions.

3.5.5.1. Pretesting the interview questions

Pretesting research interview questions is an essential step in the qualitative research process to improve the efficiency of the data collection tools (Creswell, 2014). Researchers can find any biases or ambiguities in the questions that might cause participants to misinterpret them by administering pretests. This stage enables researchers to evaluate whether the questions generate pertinent and significant answers, guaranteeing that the information gathered is consistent with the study's goals. Pretesting feedback can be very helpful in rewriting questions to make them more relevant and clearer. Five coworkers were invited to participate in a pretest before conducting interviews. Participants were asked to review the questions to make sure that all questions asked were not causing any discomfort or any big words that might be confusing. After pretesting interview questions, it was established that each participant would take approximately 15 minutes to answer all questions. Figure 3.2 shows the steps that were followed in developing a questionnaire.

Figure 3.2

Steps used in developing the questionnaire of the study

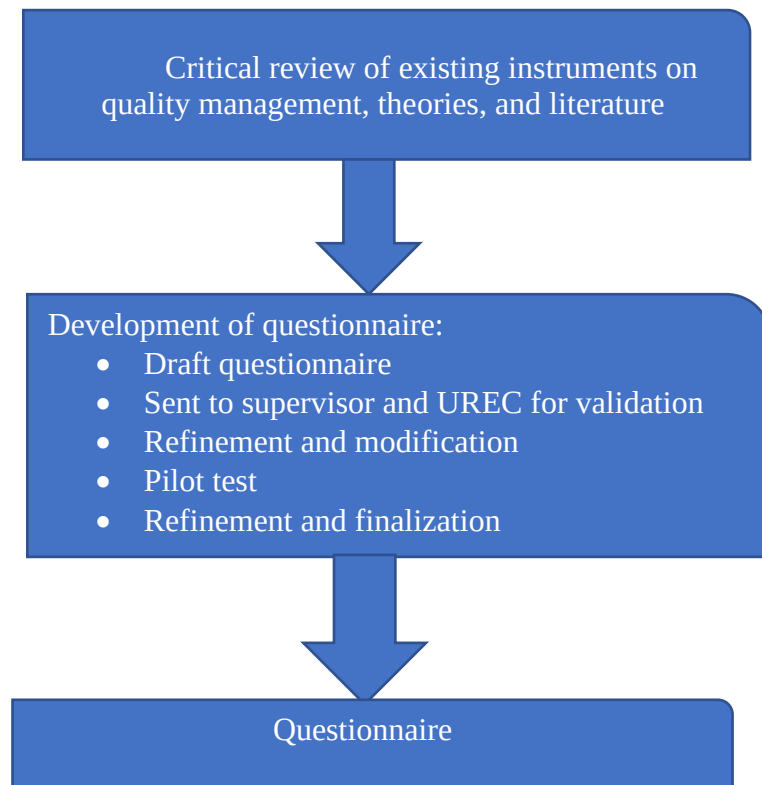


Figure 3.2 shows the process flow followed when developing the questionnaire for the study. A comprehensive evaluation of current tools, literature, and theories on quality management in higher education was undertaken, resulting in the development and drafting of 95 closed-ended questions. Questionnaires were sent to a supervisor for validation, where some questions were eliminated. The instrument was also sent to the UREC committee for validation, where suggestions were implemented, and the instrument was approved. A pilot test was done, and the final refined instrument was used in the research survey.

3.6. Reliability and validity

According to Saunders et al. (2019), reliability and validity are central to judging the quality of qualitative and quantitative research in natural and social sciences. Reliability refers to replication and consistency, while validity refers to the appropriateness of the measures used, the accuracy of the analysis of the results, and the generalisability (Saunders et al., 2024). Reliability is the degree to which a given test, process, or instrument, such as a questionnaire, can yield comparable or related outcomes under various conditions as long as no additional changes occur. In other words, if a researcher can replicate previous research designs and get the same findings, that research would be seen as reliable. According to Mills and Gay (2021), the more reliable a test is, the more confidence we can have that the score obtained from the test is essentially the same score that would be obtained if the test were to be readministered to the same test takers at another time or by different people. The concept of validity pertains to the degree of correspondence between the observed and intended measurements. Punch (1998) defined validity as the degree to which a measure accurately captures the idea it purports to measure. The percentage of variation in a measured score that results from variation in the true score is known as reliability in quantitative research (Roberts et al., 2006). Hence, an accuracy of 0.8 indicates that 80% of the variation in the actual score is accurate, while the remaining 20% results from mistakes. Fundamentally, inter-rater reliability refers to the expectation that any research instrument should yield identical results when utilized by multiple individuals, and test-retest reliability is the result of using the instrument at various times.

Research reliability is a key characteristic for quality in research, but it is not enough to ensure good-quality research. Validity should also be considered (Saunders et al., 2019). Internal or external validity can be found in quantitative research. Internal validity refers to the extent to which the findings can be attributed to the intervention the research requires rather than the flaws in the research design. External validity on the other hand, is concerned with the ability of the study's findings to be generalized in other relevant contexts. Examining the internal causes of a study's results helps eliminate any unexpected factors that may have contributed to the findings. Content validity, criterion-related validity, and construct validity are the three methods by which internal validity can be reached (Bryman & Bell, 2015). When deciding which data should be collected and how to go about it, the initial concept, notion, question, or hypothesis is known as construct validity. According to Bryman and Bell (2015), the researcher derived a hypothesis from a theory pertinent to the concept, which was used in the study. Within the qualitative research paradigm, trustworthiness, rigour, and quality are the lenses through which validity and reliability are viewed (Golafshani, 2003). By employing triangulation to increase the veracity of a claim about a social phenomenon, the researcher can increase these constructs while avoiding all types of bias (Denzin, 1978). To perform an exploratory factor analysis and a reliability test prior to beginning the analysis of the entire sample, the researcher first chose 10 respondents from the quantitative data. The findings showed that every construct was dependable, and a Cronbach's alpha of 0,726 for 55 items was obtained, which shows an excellent internal consistency. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items is as a group. Cronbach's Alpha was used to confirm the internal

validity of the quality management variables. According to Field (2006), the most widely used reliability metric is Cronbach's alpha. Cronbach's alpha of 0.926 was found to be acceptable. A minimum of 0 points is required for a good test, according to Kline (2000). According to Field (2006), a Cronbach's alpha value of between 0.7 and 0.8 is acceptable. Good internal consistency is indicated by Cronbach's alpha values greater than 0.8. A Cronbach's alpha value of greater than 0.9 indicates a very good result; however, it may also point to questionnaire redundancy (Curtis & Drannan, 2013).

Leedy and Ormrod (2005) define dependability as the degree of consistency in the performance of a measuring device. Therefore, in addition to providing precise outcomes, the measuring device must also constantly provide comparable outcomes. The instrument's dependability has been validated in pilot research involving five colleagues and five TVET schools' staff, serving as a pretest. The instrument's validity was confirmed by submission to the supervisor and UREC committee for approval. After the researcher made the necessary modifications, the instrument was authorised. In ensuring a high degree of validity and reliability, an extensive review of the literature was carried out, a conceptual framework was also developed, and qualitative and quantitative data were collected to validate each other.

3.7. Variables of the study.

According to Mills and Gay (2021), a variable is a characteristics of the research study that is subject to change. It is a concept that can assume any one of a range of values. Any scientific investigation must have research variables because they define the

relationships that researchers want to investigate. The main differentiation in the social sciences is between independent and dependent variables. The variables that the researcher manipulates or modifies to see how they affect other variables are known as independent variables. On the other hand, dependent variables are the results or phenomena that are measured in reaction to adjustments made to independent variables. For example, the type of intervention is the independent variable and student performance is the dependent variable in a research study addressing how educational interventions affect students' performance. Apart from these fundamental categories, numerous other kinds of research variables enhance our comprehension of research design. Two important classifications of variables are categorical and continuous. Categorical variables can be further subdivided into discrete groups, whereas continuous variables have an infinite range of possible values. Furthermore, confounding variables can make interpretations more difficult by concurrently affecting independent and dependent variables. This intricacy highlights the need for researchers to precisely define every variable in their investigations (Labaree, 2024). By doing this, they improve replicability and reliability in addition to making their research questions clearer. In the end, we define and operationalize these research variables.

3.7.1 Measurement scales and variables

According to Mills and Gay (2021), researchers use four types of measurement scales, which are nominal, ordinal, interval, and ratio scales. Nominal variables include two or more named categories like gender, employment status, marital status and type of school. In the nominal variable, the coding of either male as 1 or female as 2 does not necessarily indicate that one category is superior to the other, but numbers are only labels for the group. Ordinal scales not only classify persons or objects but also rank them in order from the highest to lowest or from most to least. Although variables from ordinal data allow researchers to describe the performance as higher, lower, better, or worse, they do not indicate how much higher, lower, better, or worse, and they do not indicate how much higher a person performed as compared to the lower one. The interval variable has values that are ranked in order, but its values also represent equal intervals. Ratio variables have equal intervals in rank order, and their measurement scale has a true zero point. Examples of ratio variables are: height, weight, time, distance, and speed. Below are the variables of this study.

Table 3.2

Variables of study

Variables	Measurement
1. Demographics	• Schools name • Gender • Age range • Race • Qualifications

	• Designation • Experience • Department • Number of modules teaching
2. Staff recruitment and selection	• Skills required when hiring • Criteria for advertised positions • Previous experience • Structured interview when hiring
3. Staff training and development	• New staff orientation • Staff annual training • Investment on staff training
4. Motivation enhancing	• Staff remuneration • Staff recognition awards • Staff well-being • Retention rate • Staff promotion
5. Opportunity enhancing	• Staff empowerment • Staff involvement/participation
6. Student admission and selection	• Selection of students • Admission criteria for students • New student orientation • In-service training for students
7. Program design	• Programs aims and objectives • Skills to be imparted • Subject content
8. Teaching processes	• Lecturer understanding of program • Delivery methodology • Learning experience to employment
9. Assessment processes	• Student assessment methodology • Assessment to required standard • Grading criterion • Assessment's return • Useful feedback

10. Curriculum management	• Systematic and progressive development of assessments • Quality assurance system • Procedures for internal verification
11. Geographical location	• Accessibility of the schools • Transport frequency
12. Facility enhancing	• Classrooms and laboratories availability • Staff office equipment • Library facilities • Student and staff amusement facilities • Technology for e-learning • Emergency and health service • Staff IT facilities
13. Motivation enhancement for students	• Rewards for students • Students funding
14. Student involvement	• Feedback from students • Extracurricular for students
15. Staff and Student Integration	• Communication channels for exchanging ideas between staff and students • Student's needs • Feedback from employers of students
16. Schools' adaptation	• Consideration of changing environment • Facilities maintenance for changing environment
17. Teaching and learning quality	• High quality blended curriculum • High quality learning experience • Production of quality grades • Programs meeting the needs of industries and professional bodies • Overall relationship with external stakeholders

A set of variables was established to be incorporated in the questionnaire instrument to comprehend quality management concerns at technical vocational education and training schools in the Limpopo province. Table 3.2 summarizes the identified independent factors.

Part A

Demographic questions

Schools name - This variable was measured on a nominal scale and participants were required to name the schools and campus where they were working.

Gender - This variable was measured on a nominal scale, and participants were expected to choose their gender between male, female, or other if they are bisexual or transgender, and was a nominal variable. During data analysis, participants' gender was summed up and presented in a frequency table.

Age range—This variable was measured on an ordinal scale, and participants were expected to tick the age range provided (the researcher put ranges as there were some participants who did not want their real age to be known). The age ranges provided were 20-29; 30-39; 40-49; 50-59; and 60-65, and it was an ordinal variable. During data analysis, this variable will be summed up according to age range and presented in a frequency table.

Race- This variable was measured on a nominal scale and participants were expected to choose between four races or others according to how they are named in South Africa (African, White, Coloured, Asian, and other) and the variable will be nominal.

Qualifications—This variable was measured on an ordinal scale, and participants were expected to choose the highest qualification they have from grade 12, diploma, degree, or postgraduate degree, which will include honors, Master's, or PhD. The variable was ordinal since grade 12 is the lowest qualification expected for participants, while postgraduate will be expected to be the highest.

Designation—This variable was measured on a categorical scale. Participants were expected to choose their designation between being a lecturer or, if they were not, between Lecturer and Admin Staff.

Experience—This variable was measured on an ordinal scale, and participants were expected to tick the experience range according to the number of years they have been with the schools: 0-5, 6-10, 11-15, 16-20, 21-25, and above 25 years. The variable was ordinal, where 0-5 years would be the lowest experience while above 25 years would be the highest experience.

Department -The department was a categorical variable and since most employees are lecturers, they were able to choose their relevant departments, such as engineering studies or business studies. Other supporting staff could choose between human resources, finance, and others (where they were expected to specify).

Modules number- This quantitative variable was ordinal between 1 and above 5 where participants who are lecturers were expected to choose the number of modules they were assigned to. The support staff were expected to skip this question.

Part B

Staff Recruitment and selection

This section measured how the schools recruits and selects their potential staff members. Recruitment is the systematic procedure of actively seeking out potential employees and encouraging them to submit job applications to an organisation. Recruitment, as defined by Otoo et al. (2018), is the act of attracting and locating a skilled group of individuals who meet the necessary qualifications for a job or important roles. The recruitment process involves attracting applications from various suitable candidates who are qualified for the job, thus maximizing the organisation's ability to employ the best available person (Smith & Rees, 2017). Recruitment in this section was defined as the process where the schools searches for or gets potential staff members for anticipated positions. Selection is the systematic evaluation of applicants to determine their appropriateness for a certain job or occupation, with the goal of identifying the most qualified individuals and dismissing the rest (Erasmus et al., 2019). Recruitment is the act of evaluating an applicant's qualifications, experiences, abilities, expertise, and other relevant factors to determine their appropriateness for a position (DeCenzo, Robbins, & Verhulst, 2016). Selection will be defined as how the process of shortlisting candidates and providing them with a job unfolds at the schools.

Staff training and development

Training and development focus on improving the performance of individuals and groups within an organisation through commercial activities. Okechukwu (2017) defines training and development as the process by which organisations support their employees in acquiring the necessary knowledge and skills to carry out their everyday responsibilities effectively. According to Tahir et al. (2014), training and development are regarded as

reliable indicators of efficiency, quality, and employee performance. Participants will be expected to rate whether the schools or the employer has function-related development initiatives and programs aimed at empowering them to grow in their roles.

Motivation enhancing

Motivation enhancement refers to the process of encouraging individuals to fully utilise their strengths to enhance the quality of their contributions to their work. According to Erasmus et al. (2019), employees influence the organisation's productivity and profitability directly and managers need to understand what motivates the behavior of their employees. Participants will be expected to rate the level of their agreement towards the fairness of remuneration, recognition awards for staff members, the well-being of staff members, and retention rate based on their satisfaction with the schools.

Staff promotion and career development

Staff promotion refers to the ascension of an employee to a higher rank with an increase in salary, benefits, status, and responsibilities. Career development is a process developed to help employees manage their careers, learn new things, and take steps to improve personally and professionally. Participants are required to assess their degree of agreement with the acknowledgment of their performance in relation to promotion.

Staff involvement and participation

Employee involvement and participation refer to employees taking part in business activities or being allowed to give input on how they should execute their duties.

Participants rated their levels of agreement toward decision-making and gave suggestions on how things are done at the schools.

Student admission and selection

Admission and selection refer to the way in which an institution selects and admits students to different programs. Participants rated their level of agreement on whether the schools have a process for selecting students, admission criteria, orientation, and regular training for students.

Program design

Program design refers to the way in which an institution of higher learning plans to bring about desired change by conceptualizing change for the learning environment and selecting program activities. Participants assessed their level of agreement regarding whether the programmes provided by the schools have explicit aims and objectives for the skills that should be taught.

Teaching processes

Teaching processes in this study will refer to how learners are engaged in learning to enable their understanding and application of knowledge, concepts, and processes. Participants rated their level of agreement with the lecturer's understanding of the aims and objectives of programs they are tasked with, decisions about delivery methodology, and relevance of learning experience to employment.

Assessment processes

Assessment in this subject pertains to the evaluation of the extent to which learners have acquired knowledge and skills because of the teaching and learning process. Participants rated their level of agreement on how the assessment methodology is decided, how the required standard is attained, the grading criterion for each program, and how the assessment and feedback are returned to students.

Curriculum management

Curriculum management refers to the educational process as a whole, where the formulated curriculum objective is achieved. Participants assessed and graded their agreement with the presence of a systematic and progressive development of an assessment and quality assurance system, as well as an internal verification mechanism.

Geographical location

The geographical location in this study refers to a place where the campus schools is located in relation to where students reside or their homes. This variable was measured based on the accessibility of the schools by students and employees and frequent transportation to and from the schools.

Facilities to enhance teaching and learning.

The term "facilities to enhance teaching and learning" in this study refers to the provision of resources and infrastructure that facilitate and improve teaching and learning.

This variable was measured based on the availability of laboratories and classrooms, staff office equipment, up-to-date library materials, technology for e-learning, emergency and health facilities, and access to IT facilities.

Motivation enhancement for students

Motivation enhancement for students in this study refers to the way in which the schools enhance or motivate students to utilize their capabilities to the optimum level. This variable was measured in terms of monetary and non-monetary incentives given to students who perform above the rest, and the availability of student funding for deserving students.

Student involvement/ participation

Student involvement/ participation in this study refers to students taking part or giving suggestions or input in their teaching and learning. This variable was measured in terms of how students are given the opportunity to give feedback on teaching and learning and allowed to take part in extracurricular activities.

Integration of students and staff

In this study, integration of students and staff refers to the working/ professional relationship between staff and students at the schools in meeting students' needs. This variable was measured in terms of communication channels for staff and students to exchange ideas, provide students' needs, and accept feedback from students' employers at the schools.

Schools' adaptation

In this study, schools' adaptation refers to the capacity of schools to cope with or strategically respond to the evolving technological environment. This concept encompasses the ability of institutions to identify, implement, and sustain changes that align with advancements in technology, ensuring they remain relevant and effective in delivering quality education. Schools' adaptation was assessed through two primary dimensions. The first dimension was the institution's ability to effectively manage and adapt its physical and technological infrastructure to meet the demands of a changing environment. This includes upgrading existing facilities, incorporating modern equipment, and ensuring reliable access to advanced technology for both teaching and administrative functions. A school that successfully adapts to this area demonstrates foresight in addressing emerging trends and challenges, ensuring that its infrastructure supports innovative practices. The second dimension focuses on the ability to modify instructional methodologies in response to changes in technology infrastructure. This involves integrating digital tools and platforms into teaching and learning processes, adopting new pedagogical approaches such as blended learning or online education, and equipping educators with the skills and knowledge to leverage these technologies effectively. The capacity to evolve instructional strategies to align with technological advancements is a key indicator of how well schools prepare students for the demands of a technology-driven workforce.

Together, these dimensions of schools' adaptation reflect an institution's readiness to embrace change and its commitment to maintaining excellence in education in the face of continuous technological progress. By assessing both infrastructure and instructional adaptation, this study aims to provide a comprehensive understanding of how schools navigate and respond to the dynamic technological landscape.

Teaching and learning quality

In this study, the phrase teaching and learning quality will specifically refer to the strategies and methods employed by the schools to ensure that students acquire, retain, and apply knowledge and essential skills over the long term. The goal of this process is to enhance students' employability and ensure their preparedness to meet the demands of the workforce and society. This concept emphasizes not only the immediate academic outcomes but also the enduring impact of educational practices on students' professional and personal development.

High-Quality Blended Curriculum: The extent to which the schools integrates traditional face-to-face instruction with modern digital tools and online platforms. A high-quality blended curriculum reflects a well-balanced approach that leverages the strengths of both methods, ensuring flexibility, accessibility, and engagement while maintaining academic rigor.

High-Quality Learning Experience: The overall effectiveness of the learning environment, including factors such as the use of innovative teaching techniques, student

support services, access to up-to-date resources, and the fostering of critical thinking and problem-solving skills. This dimension also considers the inclusivity and relevance of the learning experience to diverse student needs.

Production of Quality Grades: The ability of the schools to consistently produce graduates with strong academic performance, as reflected in grades and distinctions. However, this measure extends beyond numerical outcomes to consider how well these grades represent meaningful learning and skill acquisition.

Programs Meeting Industry and Professional Bodies' Needs: The alignment of the schools' programs with current industry standards and the requirements of professional bodies. This includes the development of curricula that respond to market trends, incorporate practical and technical skills, and facilitate students' certification or licensure in their respective fields.

Overall Relationship with External Stakeholders: The strength and effectiveness of the school's engagement with external stakeholders, including employers, community organisations, and industry representatives. Strong relationships ensure the schools receives valuable feedback, facilitates internships or work placements, and adapts its programs to evolving external demands. By assessing these dimensions, the study aims to provide a comprehensive understanding of how teaching and learning quality is fostered within the schools and how it contributes to its graduates' long-term success and employability.

3.8. Study Procedures and Ethical Assurance

Ethics in research pertains to using appropriate principles of behaviour that are necessary when conducting research (Creswell, 2014). Ethics refers to the ethical differentiation between morally correct actions and those that are morally incorrect. It is important to note that actions that are deemed immoral may not necessarily violate the law (Kumar, 2012). Every profession adheres to a code of ethics that has developed to adapt to the evolving ethos, values, needs, and expectations of individuals involved in the profession. Johnson and Christensen (2020) define research ethics as a set of criteria that researchers must adhere to ensure that their research procedures are appropriate and in line with ethical standards. The purpose of safeguards is to protect participants, whether humans or objects, from any potential injury or risk that may arise from the research activities (Trochim, 2006). According to Gomm (2008), research ethics remind researchers that they should always be moral when conducting any research, especially with human beings and animals.

3.8.1. Permission to conduct the research

Before seeking authorization from the selected schools, the researcher obtained approval from UREC. Before data collection, the researcher obtained permission from the principals of the schools. The permission was granted because the data collection process would not disrupt the institutions' normal operations. The researcher identified gatekeepers in each school and requested a list of emails for all administrative and instructional staff members to distribute questionnaires via email. The participants were

provided with informed consent, which included information on the study's objectives and the participants' rights. The questionnaires were emailed, and some were personally delivered to the participants. All participants were instructed to fill out the surveys at their convenience. A formal request for authorization was submitted to the Department of Education and the schools' CEOs. The letter will include the study's purpose, objectives, and the questions or questionnaire.

3.8.2. Informed Consent

An essential ethical guideline for research involving human subjects is informed consent (Cresswel, 2014). It guarantees that before consenting to participate, participants are completely informed about the study's purpose, dangers, and rewards. This procedure upholds participant autonomy while also encouraging trust between participants and researchers. Obtaining informed consent usually entails supplying detailed information about the study's goals, methods, possible risks, and confidentiality precautions. Before deciding, participants had enough time to think through their involvement and ask questions. It is universally regarded as unethical in all fields to gather information from someone without their awareness, explicit desire, and informed consent. Maree (2016) defines informed consent as the process of ensuring that participants have a thorough understanding of the data required from them, the reasons for seeking this information, the intended purpose of the study, their expected level of involvement, and the potential direct or indirect impact it may have on them. The researcher did not coerce subjects into signing the consent form. The consent form template provided by UREC

was filled out and, once approved, was utilised for all participants. It is important to note that no participants were subjected to coercion or pressure to complete the form. The form included the participants' rights and the study's purpose. Given that all the participants were over 18, it was anticipated that every participant would be required to complete the consent form.

3.8.3. Voluntary participation and harmlessness.

Participants in a research project must be informed that their involvement in the study is optional, and they have the autonomy to withdraw from the study at any point without facing any negative repercussions. Additionally, they should be assured that their well-being will not be compromised due to their decision to participate or not participate in the project (Cohen et al., 2013). Researchers must judiciously evaluate if the participants' engagement is prone to cause any harm and guarantee that, if any harm does occur, it is kept to a minimum (Kumar, 2012). Bryman and Bell (2007) state that it is crucial to safeguard research participants from any physical or psychological injury. If the researcher anticipates any potential harm, participants must be notified to make an educated choice regarding their participation. The level of risk and discomfort should not be beyond what is typically encountered in daily life. The participants in this study did not experience any life-threatening danger or personal distress because of their participation. Participants were not subjected to coercion or compulsion to take part in this study. Instead, they were granted the autonomy to withdraw from the study without any consequences. The researcher also avoided questions that could cause discomfort, be

too personal, or be tricky. Interview questions were conducted at school institutions or where the participants had chosen for security reasons, and no participants raised an issue about security.

3.8.4. Anonymity and confidentiality.

To safeguard the interests and future welfare of the subjects, it is incumbent upon the researcher to ensure the anonymity of all participants in any research study. The readers should not be able to know or trace any participants in any way (Rajasekar, 2013). Anonymity should also assure participants that they will not be exposed to law enforcement based on their responses. The issue of confidentiality implies that participants' information will not be divulged in any form other than putting this research together (Robson, 2012). According to Anderson (2009), confidentiality in research implies that the researcher should control access to collected data and not allow any unauthorized access to participants' data. For this study, the researcher assured all participants that their names would not be used anywhere. They should not put their names on the questionnaire forms as the questionnaires were coded as participants 1, 2,3, etc., to protect them. The researcher ensured that the information given would not automatically be related to any individual participants and that the information gathered would not be available to the public until it was due.

3.8.5. Disclosure

In many research studies, researchers are expected to give information about their study, their qualifications, their purpose, and who will benefit before data can be collected (Bhattacharjee, 2012). For this study, the researcher included his name, biography summary, and intentions with the study. The researcher's identity, study objectives, and contact information for any participant inquiries were included in the permission letter, gatekeeper letter, informed consent, and questionnaires.

3.8.6. Avoiding deceiving participants

As Creswell (2017) observed, participants need to be aware that they are actively engaging in a study. With its ability to shed light on a wide range of subjects, research is a crucial part of academic study. However, it is vital to make sure that the study findings are trustworthy and legitimate. Participants who are dishonest and willing to give inaccurate or misleading information are a frequent problem for researchers and might lead to researchers deceiving their participants. To prevent misleading study participants, the researcher took immediate action to avoid a deceiving environment for both participants and the researcher. Informed consent protocols represent a practical means of guarding against research participant deception. The researchers built a relationship of trust with his participants by explaining the study's goals, potential risks and benefits and making sure participants were aware of their rights and obligations. To maintain the research results' credibility, all participants signed informed consent, which also shielded participants from harm. Vigilant recruitment and screening procedures are key to a

research participant protection strategy. Researchers need to choose study participants carefully, making sure they are sincere and free from any hidden agendas. When gathering qualitative data, the researcher tried to provide participants with a safe and encouraging atmosphere. By fostering open communication and building rapport with subjects, the researcher fostered honesty and transparency among participants. To mitigate the issue of misleading participants, the researcher implemented instructions on the front page of the questionnaire and informed participants about the study's objective before each interview took place.

3.8.7. Analysis and reporting

Cohen et al. (2013) argue that research ethics encompass not just the interaction between the researcher and participants but also extend to the analysis and reporting of results. It is necessary to communicate not only positive information but also unexpected or alarming findings, especially if they impact the research strategy. Creswell (2022) advises researchers to refrain from selectively sharing favourable findings, as doing so would be deceptive and unethical. It is crucial to present all data without bias or manipulation, even if they are not favourable. In qualitative research, it is necessary to disclose all findings, even those that may contradict the established themes. In contrast, quantitative research requires data analysis that accurately reflects the results of statistical tests and avoids underreporting. The researcher's actions can be considered dishonest if they present doubtful claims as valid, using incomplete, partial, or inappropriate data analysis (Bhattacharjee, 2012). In this study, the researcher consistently provided accurate and unbiased reporting.

3.8.7. Role of the Researcher

In quantitative data collection, the researcher was responsible for creating a questionnaire that received approval from the supervisor and the UREC committee. All participants were granted autonomy to perform and complete the questionnaire without any intervention from the researcher. The researcher served as the primary tool for data gathering in the qualitative study. The researcher served as a mediator to gather data on the quality management by specific institutions, ensuring that all participants were informed before the commencement of the interview. Though there were predetermined interview questions, the researcher also asked probing questions as a follow-up to clarify.

3.9. Data Collection and Analysis

3.9.1 Study procedure

This study employed a convergent parallel mixed method design, which involved simultaneously collecting quantitative and qualitative data. As stated by Creswell and Creswell (2017), this design necessitates researchers to gather qualitative and quantitative data, analyse them independently, and subsequently compare the outcomes to determine if the findings support or contradict one another. The following steps were followed during data collection:

- Informed consent, gatekeeper letter, REAF form, and research instrument were completed and sent to the supervisor for suggestion and approval.
- After the supervisor approved the forms, they were then sent to UREC for approval.

- Suggested corrections from UREC were made, and the researcher was given ethical clearance.
- The researcher sent letters to school principals and schools requesting accompanying documents.
- The schools received accompanying documents (e.g., ID copy, DHET form, informed consent, and gatekeeper letter) via email.
- Three schools issued approval letters out of five schools.
- The researcher visited the three schools and met with campus managers who allowed the researcher to visit offices.
- A soft copy of the consent form and questionnaire was also sent to campus managers, who sent it to other staff members who were not in.
- Campus managers were also interviewed to get qualitative data.
- The researcher asked campus managers to suggest employers of school students who can participate in the study.
- A total of 260 respondents and 15 participants voluntarily participated in the study.

3.9.1.1. Quantitative data collection procedure

Before all participants completed the questionnaire, they were first asked to sign consent forms and were briefed on the aim, purpose, and objectives of the study. All ethical considerations were also included on the consent form for participants to read before signing the form, and no participant was forced or coerced. The questionnaire was

self-administered (by those who chose to have the questionnaire emailed to them), or person-administered (for those who preferred a hard copy while the researcher waited). The quantitative data collected was based on the following hypothesis and research question:

Hypothesis: There is a statistical significance between the quality of education received by the student at TVET Schools and the student's employability.

Research question: Is there a statistical relationship between the quality management strategies used by TVET schools and the quality of students produced?

3.9.1.2. Qualitative data collection procedure

All qualitative data were collected through face-to-face interviews on sessions and times agreed upon by both the researcher and the participants. The researcher started each session by greeting the participant and explaining the aim of the study which was to explore how TVET schools in South Africa implement and manage quality and the benefits thereof. Consent form was given to each individual participant to complete before the beginning of each session were collected only from those who signed the form and voluntarily participated. The researcher requested permission to record the responses on a notepad for each individual participant and at the end of each session the researcher read all the responses to the individual participant so that they know what the researcher has recorded. All participants were allowed to agree or disagree with what has been recorded and even to make amendments. The researcher collected data on the following research questions:

- To what extent do the challenges faced by TVET schools hinder the provision of quality education?

- What are the roles played by public TVET schools' stakeholders in the provision of quality education?
- What are the important skills necessary for the employability of TVET schools' graduates?

While gathering qualitative data, the researcher strived to achieve data saturation. As proposed by Creswell and Creswell (2017), data saturation refers to the point at which a researcher ceases data collection because further data no longer provides novel insights or uncovers new characteristics. Saturation can also pertain to the degree to which themes are sufficiently represented in the collected material. Morse (2015) asserts that saturation is a fundamental aspect of all qualitative research and is often regarded as the benchmark for establishing sample size, with minimal differentiation across various types of qualitative research. When collecting qualitative data, semi-structured interview questions already identified were sequentially executed so that the main questions that are aimed at answering research questions were put at the top of the list. Questions on the list were not repeated if participants gave information that answered the next questions.

3.9.2. Data analysis

As defined by Cope (2014), data analysis involves the methodical arrangement and integration of research data. Data synthesis is the systematic procedure of arranging gathered data for the meaningful integration of raw data, resulting in enhanced

comprehension and interpretation (Creswell & Clark, 2017). During the data analysis step, the researcher provides a clear and detailed explanation of how the raw data obtained were handled, structured, and analysed in preparation for presenting the research findings (Bless et al., 2006). Creswell and Clark (2011) outline that quantitative and qualitative data undergo similar analytical processes, albeit with distinct procedures. These procedures include data preparation, data exploration, data analysis, representation of the analysis, interpretation of the analysis, and validation of both the data and the interpretation. The procedures are carried out sequentially in quantitative research, but in qualitative research, they are typically conducted concurrently and repeatedly. The study collected both quantitative and qualitative data simultaneously from different groups of participants and respondents.

3.9.2.1. Quantitative data analysis

Based on Creswell (2017), analysing quantitative data involves scrutinizing the database to meet the research questions or hypotheses. The Likert scale questions were analysed using appropriate statistical tests such as correlation, regression analysis, and ANOVA tests. On the other hand, demographic questions were analysed using descriptive test analysis. The data were analysed to address the research questions. Inferential tests were conducted using the SPSS program, and the results included information on the effect sizes and confidence intervals. The acquired quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) version 28.0 for Windows. The researcher collated all information into the data view of SPSS so that the system developed frequencies, frequency percentages, cross-tabulations, and other

statistical designs to interpret the data. According to Creswell and Creswell (2017), the researcher's statistical procedures are applied to raw data depending on the purpose of the analysis and the software's capability. Errors can be reduced if the data is correctly entered according to prescribed instructions. The following steps were followed in analysing quantitative data as recommended by Creswell and Clark (2017):

3.9.2.2. Explore the data

Exploring the data involves analysing the data to identify overarching patterns and the distribution's structure, reviewing the data, taking notes, and gaining an initial grasp of the database. The researcher visually examines the data at this stage before performing a descriptive analysis. The researcher examines patterns and distributions and documents them. Creswell and Clark (2017) posit that investigating quantitative data involves visually examining the data and using descriptive analysis to identify overall patterns in the data initially. In this phase, the researcher checked all the data forms to check if participants answered all questions, and those that were incomplete or had some unanswered questions were put aside. Four questionnaires were incomplete, and these were put aside.

3.9.2.3. Preparing data for analysis

During the second step, the researcher initiates transforming the unprocessed data into a suitable format for analysis. This involves assigning numerical values to each response, rectifying any errors in data entry, and generating specific required variables. All questionnaires were coded using numbers from 1, according to how they were

returned. Numeric data were assigned variables like the male as 1 and female as 2 depending on the order of variables to prepare them to be analysed by the SPSS program. All the data were coded, and a codebook was created so that the researcher would know the meaning of each code based on the data variables. The information was put on the variable view menu of the SPSS, where the researcher assigned the name and characteristics of each variable included in the data set. The researcher put all the information required by the software with codes.

3.9.2.4. Putting data on the software

The researcher put all the data on the Data View of the software package using assigned codes to allow the software to read and interpret them. After entering all the participants' information into the software, the researcher checked if no mistakes were committed, as a single mistake could corrupt the entire data set.

3.9.2.5. Representing the data analysis

To gain a deeper comprehension of the data set and effectively convey its characteristics, the researcher employed the descriptive statistics method. Descriptive statistics, or summary statistics, allow researchers to gain a deeper understanding of datasets by using concise figures and basic graphs to summarise the variables' contents (Knapp, 2018). During this step, the outcomes were presented concisely using frequency tables and figures. The researcher utilised graphical representations, such as bar charts, scatterplots, line graphs, or charts, to provide quantitative results visually. Every graph or figure included a title and provided information, with labels for columns and rows and

relevant categories. They were designed to be easily readable and understandable. All figures also displayed similarities or discrepancies in the supplied data and demonstrated correctness in a visual manner.

3.9.2.6. Interpreting the results

Subsequently, the researcher elucidated how the outcomes directly pertain to the research inquiries and hypotheses. The collected results were compared to previous literature, theories, or prior interpretations. The researcher analysed the detailed results and made connections between the results and the research difficulties, research study questions or objectives, the current literature, and personal experiences. The results were subsequently compared to the original research questions to ascertain how the questions or hypotheses were addressed in the study.

3.9.2.7. Data and results validation

Validity and reliability are used to assess the data quality, outcomes, and interpretation (Creswell & Creswell, 2017). The current data's validity and reliability were determined by evaluating the internal and external validity of the findings. The researcher assessed the validity of the scores obtained from the questionnaire and the soundness of the conclusion derived from the quantitative data analysis.

3.9.2.8. REGRESSION ANALYSIS

Multiple regression analysis was conducted to evaluate the relationship between various predictors of independent variables (quality management strategies) and a

dependent variable (factor influencing students' quality). Table 1 shows the regression tests of the variables assessed. In this analysis, we used Descriptive Statistics to summarize the basic features of a dataset. These include Mean, which is the average value of each variable, indicating the central tendency. Standard Deviation measures the spread or variability of the data around the mean (higher values indicate greater dispersion). N = The sample size of 255 for all variables indicates the number of observations. Also, the Model Summary table provided metrics about the overall fit of the models, including R, R-Square, Adjusted R Square, and changes in fit when predictors are added or removed. R and R Square measure the strength and proportion of variance explained by the predictors. In contrast, the adjusted R Square for the number of predictors provides a more conservative estimate of model fit. R Square Change and F Change assessed whether adding or removing predictors significantly improves the model's explanatory power and Std. An error of the Estimate indicates the average prediction error. The ANOVA was used to evaluate the overall significance of three regression models (Models 1, 2, and 3) in explaining the variance in the dependent variables. F-statistic and p-value tested whether the regression models (as a whole) explain a statistically significant portion of the variance in dependent variables compared to a model with no predictors (i.e., the null hypothesis that all regression coefficients are zero). A sum of Squares shows the total variation explained by the model (Regression), the unexplained variation (Residual), and degrees of freedom. Lastly,

Table 3.3

Quality management strategies used by TVET schools and the factors that influence the quality of students

Test	Predictors - QUALITY MANAGEMENT STRATEGIES	Factors that influence the quality of students - dependent variable
2	Staff recruitment and selection, staff promotion and development, Staff involvement/participation, Teaching processes, Curriculum Management, Program design, Incentives and rewards, Facilities to enhance teaching and learning, Staff training and development, Assessment processes, Student involvement/ participation, Schools adaptation, Integration of staff and students	Teaching and learning quality

3.9.3. Analysing qualitative data

According to Nowell et al. (2017), qualitative data analysis involves the examination of data collected, which are often in the form of written words, narration in audiotapes, videotapes, and even photographs. The methodological approach set out by Parahoo (2014) was followed in analysing qualitative data. The method includes categorizing the data according to the types of participants (Schools managers, former students, and employers of TVET schools graduates). Thematic data analysis was employed to analyse the qualitative data. Thematic data analysis is a systematic approach used to find, organise, and gain insight into patterns of meaning (themes) across all data sets (Braun & Clarke, 2012). The thematic analysis enables the researcher to perceive and comprehend the communal and shared significances and encounters.

The following steps, as suggested by Creswell and Creswell (2017) were followed to analyze qualitative data:

3.9.3.1. Familiarizing oneself with the data

As Braun and Clarke (2012) stated, qualitative analysts should initially engage deeply with the data by thoroughly reading and reviewing textual data in the form of interview transcripts and qualitative survey responses. Alternatively, they may also listen to audio recordings or watch video data. The transcript papers were categorised and clustered based on the participants' classification, which included school managers, former students, and employers of TVET schools' students. The researcher meticulously analysed the data to understand their appearance and significance. The interpretations that arose while reading were recorded and transcribed into thoughts that occurred. The researcher reviewed the transcripts to enhance comprehension and documented observations in a notebook.

3.9.3.2. Reducing collected data

Braun and Clarke (2012) state that phase 2 involves methodically studying the data using coding techniques. Creswell and Creswell (2017) state that codes are used to identify and label data features that may be relevant to the study questions. Codes can succinctly encapsulate a data segment or elucidate the data's nature. Certain codes can accurately reflect the language and concepts used by participants, while others may draw from the conceptual or theoretical frameworks of the researchers. Upon thorough reading and comprehension, the researcher condensed the gathered data by categorizing it into

codes, considering the frequency of the concepts utilized in the verbatim transcriptions. At this stage, the researcher categorized comparable themes and formed clusters of those topics without association.

3.9.3.3. Searching for themes

During this phase, the researcher's analysis begins to materialize as they transition from coding to identifying themes (Braun & Clarke, 2012). During this stage, the researcher examines the coded data to detect commonalities and intersections among the codes. The researcher pondered the interview transcriptions at this level, considering the assigned codes. According to Creswell and Creswell (2017), the questions the researcher should ask are: "Which words describe it?" "What is this about?" and "What is the underlying meaning?"

3.9.3.4. Reviewing potential themes

As Braun and Clarke (2012) stated, this stage necessitates a recursive procedure in which the emerging themes are examined in connection with the coded data and the complete dataset. This is where the researcher does the quality assessment, which is crucial for emerging researchers and researchers working with extensive datasets that cannot be stored in memory. The researcher condensed the ideas that had arisen into codes. The codes were placed adjacent to the corresponding sections of the transcription. The codes, representing various participants' data, were inscribed at the uppermost section of the paper using coloured pens. The researcher further cross-referenced the discovered themes with the compiled data extracts to ensure their compatibility.

3.9.3.5. Development of themes and subthemes

When delineating themes, the researcher must possess the ability to articulate with clarity the distinctive aspects of each topic or determine if it is possible to encapsulate the fundamental nature of each theme concisely. As stated by Creswell and Creswell (2017), the theme development process enables grouping comparable ideas and concepts. Additionally, this technique provides researchers with a clear framework for organizing and comparing data. Akinyode and Khan (2018) argue that producing themes and subthemes is beneficial in reducing and consolidating data into more digestible units or ideas. During this phase, the researcher is responsible for doing an in-depth analysis necessary for thematic analysis, which involves refining the study into its intricate details. At this point, the researcher should be able to carefully examine the gathered data and filter out any material that is not pertinent (O'Conner et al., 2003). During this stage, the researcher identified and categorized themes and sub-themes based on the coded data, associated texts, and reduced data. The grouped data were organised into coherent and meaningful themes and sub-themes. Subsequently, the development of corresponding themes accompanied the study questions, and the questions necessitating intervention were categorized into five distinct themes.

3.9.3.6. Presentation of results

As Braun and Clarke (2006) stated, this stage represents the culmination of qualitative data analysis, resulting in the creation of a report, such as a journal article or thesis. However, it is important to note that this phase does not solely occur after the

analytic process. Nowell et al. (2017) argue that researchers should employ meticulousness while analysing data to produce a succinct, cohesive, logical, nonrepetitive, and engaging narrative of findings across all topics. This phase is crucial for assessing the reliability of the study, and it is important for the researcher to provide the results in a way that accurately represents the reliability of the measurement tool employed (Creswell & Creswell, 2017). According to Cote and Turgeon (2005), credibility also requires researchers to cover sections found to be irrelevant to avoid igniting another research interest. In this final stage, results were presented under each theme and subthemes developed supported by secondary data and quotes from the developed codes. The researcher endeavoured to present the facts in a comprehensible manner and open to interpretation by any reader.

3.9.3.7. Strategies to merge two sets of results

Following the recommendations of Plano Clark and Creswell (2015), the researcher employed the subsequent procedures to combine the findings of two data sets:

Step 1 - The researcher determined the content areas in both data sets to compare, contrast, and combine the findings in a discussion or table.

Step 2- The researcher assessed whether there were any disparities in one set of outcomes based on dimensions within the other set and examined the variations within a display arranged according to the dimensions.

Step 3 - The researcher subsequently devised methodologies to convert one form of outcome into another form of information, such as converting themes into codes.

Additional analysis was conducted to establish a relationship between the modified data and other data. This involved performing statistical analysis and including theme codes.

3.9.3.8. Merged results interpretation

Results from the two sets of data were summarized and interpreted separately. The researcher concluded the study by examining the degree to which two sorts of data aligned, differed, or interrelated to enhance comprehension.

3.10. Chapter Summary

This chapter focused on the research design employed in this study, detailing the methodologies used to gather responses to the research questions identified at the outset. The methodology encompasses a comprehensive overview of the procedures for selecting the population and the sampling strategies implemented to ensure a representative sample. The study employed both quantitative and qualitative methods for data collection. Quantitative data was gathered through structured surveys, which provided measurable insights into the experiences and perceptions of participants regarding the quality of education at TVET schools. On the other hand, qualitative data was collected through in-depth interviews and open-ended questionnaires, allowing participants to express their views and experiences in greater detail. This dual approach enriched the data set and facilitated a more nuanced understanding of the issues.

Precise definitions of the key variables studied were articulated to provide clarity and consistency throughout the research. This includes defining terms such as "quality of

education," "employability," and "student satisfaction," ensuring that all stakeholders have a shared understanding of these concepts.

Data analysis procedures relevant to mixed methodologies were discussed in detail, highlighting the use of statistical analysis for quantitative data and thematic analysis for qualitative responses. Quantitative data was analysed using the Statistical Package for the Social Sciences (SPSS), which enabled the researcher to identify trends, correlations, and other significant findings. The qualitative data was thematically coded, allowing for the identification of recurring patterns and themes that emerged from participant responses. Ethical considerations were paramount in this study. Procedures to ensure ethical assurance included obtaining informed consent from all participants, ensuring confidentiality, and allowing participants the right to withdraw from the study at any time without repercussions. This commitment to ethical standards was crucial for maintaining the integrity of the research process. The research was conducted within TVET schools located in the Limpopo province, with participants drawn from various categories: schools staff members, former students who had attended Limpopo TVET schools, and employers of these graduates. This diverse participant pool aimed to capture a comprehensive perspective on the quality and effectiveness of TVET education.

Stratified sampling was employed for the quantitative data, ensuring that various subgroups within the population were adequately represented. The snowball sampling method was used for the qualitative data collection, allowing initial participants to refer

other potential participants, thereby expanding the sample organically. A total of 118 participants contributed to this study, providing valuable insights and perspectives.

This chapter has laid the groundwork for understanding the research methodology employed in this study, emphasizing the mixed-methods approach that combines quantitative rigour with qualitative depth. The findings from this comprehensive approach will contribute to the ongoing discourse on the challenges and opportunities facing TVET schools in South Africa, particularly in the Limpopo province.

CHAPTER 4: FINDINGS

4.1. Chapter Introduction

This study sought to assess and evaluate the implementation and management of quality within Technical Vocational Education and Training (TVET) schools in South Africa, exploring the strategies employed and the associated benefits for both institutions and graduates. With a primary focus on examining the quality management strategies adopted by these schools, the study aimed to understand the methods and systems in place and the effectiveness of these approaches in promoting educational quality and aligning with industry standards. Specifically, it investigated how quality management initiatives contribute to producing graduates who are better prepared for the labour market, thereby enhancing their employability. In addition to analysing the strategies themselves, the study delved into the challenges and obstacles that TVET schools face in implementing quality management systems, such as limited resources, regulatory constraints, and varying levels of stakeholder engagement. These challenges impact the consistency and effectiveness of quality management efforts and, in turn, affect the readiness and competitiveness of graduates entering the workforce. Understanding these obstacles is crucial for identifying areas of improvement and ensuring that TVET institutions can adapt to the evolving demands of the job market.

The preceding chapter provided a detailed overview of the research methodology used for this study, outlining the rationale behind each methodological choice. The chapter discussed the research approach, design, techniques, and the reasoning behind

selecting a mixed-methods approach. This allowed for a more nuanced understanding of both quantitative and qualitative aspects of quality management in TVET schools. Key methodological considerations were addressed, including the ethical guidelines adhered to in conducting the research, such as confidentiality and informed consent, ensuring that the study respected the rights and perspectives of participants. The data collection process was meticulously designed to gather reliable and representative data, employing methods such as surveys, interviews, and document analysis. Data analysis involved statistical methods for quantitative data and thematic coding for qualitative data, ensuring a thorough interpretation and validation of findings. This chapter presents the findings sequentially, beginning with the quantitative results, which provide measurable insights into the prevalence and effectiveness of quality management practices within South African TVET schools. This is followed by exploring the qualitative findings, which offer a more profound, contextual understanding of participant experiences and perspectives. By employing a mixed-methods approach with a convergent parallel design, this study enabled a balanced analysis where both quantitative and qualitative data were collected and analysed independently before being merged to gain a holistic view of the research problem. This convergence allowed the researcher to identify parallels, distinctions, and interconnections between the two data types, resulting in richer insights and a more comprehensive understanding of how quality management strategies impact the outcomes of TVET schools and the employability of their graduates.

Ultimately, this combined analysis provided a strong framework for identifying best practices in quality management and making informed recommendations on addressing

the challenges encountered by TVET schools. The study underscores the importance of continuous improvement in quality management systems. It highlights the need for greater collaboration between TVET institutions, industry stakeholders, and policymakers to enhance educational outcomes and better prepare graduates for the labour market demands.

4.2. Trustworthiness of Data

As cited by Creswell (2022), Guba (1981) raised four trustworthiness concerns that should be addressed by all qualitative researchers: credibility, transferability, dependability, and confirmability. According to Amin et al. (2020), trustworthiness refers to how a researcher ensures the quality of qualitative data. It is also about the confidence that the researcher has in their data. To ensure the trustworthiness of data, the following criteria were observed: credibility, dependability, confirmability, and transferability.

4.2.1. Credibility

Credibility refers to the degree of research trustworthiness and how believable the study is. According to Cote and Turgeon (2005), credibility also requires researchers to cover sections found to be irrelevant to avoid igniting another research interest. In this final stage, results are presented under each theme and subthemes developed, supported by secondary data and quotes from the developed codes. Based on the analysis, the researcher produced graphs and tables with explanations. The researcher presented the data in a manner that is accessible and comprehensible to all readers,

enabling them to analyse the information effectively. The study's credibility was established by employing triangulation, engaging extensively with the participants, and utilising coding techniques. To establish credibility, the researcher toured and spent some time at the school's campuses. The campus managers showed him around to see the state of the campuses and how they perform some of their duties. The researcher did the same with industry bosses who hire school graduates or those who are doing in-service training. The researcher engaged with participants' campus managers and industry bosses until data were saturated. Triangulation is a research technique that enhances credibility by using many methodologies, investigators, sources, and ideas to obtain corroborating evidence (Stahl & King, 2020). Triangulation, as described by Noble and Heale (2019), is a strategy used to validate and establish data credibility in qualitative and quantitative research. It involves examining many sources of information to determine if there is agreement or convergence, which helps construct the study's categories and themes.

Triangulation in this study assisted the researcher in enhancing validity as the same topic was explored using different data collection tools and reducing biases that might have been caused by single structured questionnaires. According to Polit and Beck (2012), there are four types of triangulation methods which are: data source triangulation (using multiple types of data to establish findings), methodological triangulation (using multiple methods to ensure validation of data), theory triangulation (applying different theoretical frameworks to data), and investigator or member triangulation (having participants read and provide feedback about the results and analysis). This study utilised

three triangulation techniques: data source triangulation, methodological triangulation, and theory triangulation. Data source triangulation in this study was applied by conducting an extensive literature review that informed the researcher about the questions to ask. Methodological triangulation was also explored in the previous chapter, where quantitative and qualitative methods were explored in detail. Theory triangulation has been used to analyze and interpret data by using different theories applicable to quality management. Conducting semi-structured interviews with three different groups and gathering quantitative data from school personnel increased the trustworthiness of the data. All participants who were part of the quantitative data gathering were not used during semi-structured interviews, but different participants were used. The researcher administered questionnaires to teaching and administration staff on twelve campuses from three main schools that are in Limpopo province, and 256 questionnaires were completed and returned. The researcher also interviewed five campus managers, five former TVET school students, and five employers of TVET school students. To enhance the precision of the data, the researcher posed all pertinent inquiries, asked further questions depending on the participants' answers, and documented the most crucial and precise information. To increase credibility, the researcher also compared the field notes and the recordings of respondents (interview transcripts) to cross-check if there was accuracy in capturing the data.

Although the researcher works at a university, one of the institutions of higher education and training, the researcher did not allow any preconceptions to bias when conducting semi-structured interviews. To limit biases, the researcher suspended all preconceptions, presumptions, and judgments during data collection. Dependability

Polit and Beck (2017) define dependability as the stability and consistency of data, ensuring that findings are reliable across time, settings, and contexts. This quality criterion is essential in qualitative and quantitative research as it verifies the trustworthiness and applicability of data in real-world scenarios. Recent literature emphasizes that dependable data should yield similar results under similar conditions, allowing findings to be used confidently for decision-making and generalization (Lincoln & Guba, 2021). To achieve dependable data, researchers often integrate multiple data types or methods to detect potential inconsistencies, commonalities, and variations that may arise. This process, known as data triangulation, enhances dependability by validating findings through comparison across various sources and methods. For example, Yin (2023) advocates using qualitative and quantitative data as an effective strategy for cross-verifying results, thereby strengthening the study's dependability. Quantitative data offers numerical stability and objectivity, while qualitative data provides contextual richness, offering insights that add depth to the findings (Creswell & Creswell, 2021). Ensuring dependability also requires a thorough audit trail and detailed research process documentation, allowing other researchers to review and confirm that findings were generated consistently. Dependability audits, as described by Lincoln and Guba (2021), are commonly used to examine research processes and decisions to ensure that data were collected and analysed rigorously, with attention to maintaining stable and reproducible results.

This study assessed data reliability through an integrative approach that combined quantitative and qualitative data. This approach allowed for identifying and examining

data inconsistencies, commonalities, and variations. By integrating these data types, the study could cross-validate findings, enhancing the strongness of conclusions and ultimately contributing to a deeper understanding of the research topic. Additionally, this approach aligns with recent calls for methodological rigour in mixed-methods research, underscoring the value of multiple data sources in building reliable and dependable results (Teddlie & Tashakkori, 2022).

4.2.2. Confirmability

In this study, several strategies were implemented to maximize confirmability. First, an audio recorder and notebook were used during interviews to capture participants' responses precisely, minimizing any chance of information loss or misinterpretation. Other research supports the use of recording devices to achieve more objective data collection, as these devices provide a direct record of participant responses that can be reviewed to verify accuracy (Yin, 2023). By recording interviews, the researcher can focus on maintaining an unbiased stance during data collection, knowing that all responses are documented verbatim and can later be reviewed to ensure fidelity to the participants' intended meanings.

To further enhance confirmability, the researcher summarized and shared notes with each participant, allowing member checking. This approach allows participants to confirm or clarify their statements, adding an extra layer of reliability and ensuring their views are captured accurately. Member checking has been widely recognized as a critical

tool for validating findings in qualitative research, as it allows participants to provide feedback on the researcher's interpretations (Creswell & Creswell, 2021). By involving participants in this way, the researcher minimized the risk of imposing unintended meanings or personal bias on the data, enhancing both the confirmability and credibility of the findings.

Despite an initial plan to gather data from five TVET schools in the Limpopo province of South Africa, data were collected from only three institutions. This limitation arose due to the researcher's inability to secure permission letters from the other two schools. Although this restricted the sample size, the researcher documented the circumstances transparently, which is an important aspect of confirmability as it acknowledges potential limitations without compromising data integrity (Marshall & Rossman, 2019). Additionally, to maintain objectivity throughout data collection, the researcher refrained from influencing participants' responses and objectively documented all feedback received. In qualitative research, confirmability is often strengthened by maintaining clear and detailed documentation of all procedures and decisions made during the research process. This creates an audit trail that other researchers can examine, confirming that data was collected and interpreted based on the participants' perspectives rather than the researcher's influence (Nowell et al., 2017). This study's adherence to confirmability practices, such as member checking, documentation of limitations, and unbiased recording, aligns with contemporary best practices in qualitative research, ensuring a transparent and trustworthy reflection of the participant's experiences and viewpoints.

4.2.3. Transferability

Transferability pertains to the degree to which the conclusions of a study can be applied to different contexts or populations with equivalent significance (Polit & Beck, 2017). To support transferability, the researcher provided biographical details of participants, and a comprehensive description of the methodologies and procedures used in data collection and analysis. This approach, often referred to as thick description, involves detailing the study's context, participants, and processes so that others can assess whether the findings apply to their settings (Creswell & Creswell, 2021). By including such rich, contextual information, the researcher enables others to make informed judgments about the relevance of the findings to similar educational environments.

Although this study was conducted in a specific context of TVET schools in the Limpopo province of South Africa, its transferability is supported because TVET institutions across the country typically offer standardized programs and operate under similar regulatory frameworks and assessment criteria. This uniformity enhances the likelihood that insights from one setting may be relevant to others, particularly in cases where institutional objectives and challenges align closely (Yin, 2023). It is important to note the importance of contextual similarity in transferability, noting that findings are often more applicable to settings with comparable structures, challenges, and objectives (Merriam & Tisdell, 2016). To further strengthen transferability, this study's detailed account of the research methods and participant demographics allows readers to

evaluate the potential relevance of the findings to their own educational or vocational contexts. This approach aligns with best practices in qualitative research, as it ensures that conclusions are presented transparently and enables future researchers to build on or replicate the study (Shenton, 2022). By providing both detailed contextual information and comprehensive methodological transparency, this study offers insights that can inform quality management practices not only in Limpopo TVET schools but potentially in similar institutions facing analogous educational and operational requirements. Transferability, therefore, serves as a bridge between specific research findings and broader applicability, ensuring that insights gained from one study may have meaningful implications in similar settings. This focus on rich description and contextual similarity supports the external validity of qualitative research, enhancing its value in practical applications and ensuring that its contributions to knowledge can extend beyond its immediate setting.

4.3. Reliability and validity of quantitative data

Leedy and Ormrod (2005) define dependability as the degree of consistency in the performance of a measuring device. Therefore, in addition to providing precise outcomes, the measuring device must consistently produce identical outcomes. For this study, the dependability of the research instrument was rigorously evaluated through a pilot study, which was tested with five colleagues and five TVET schools staff members. This pilot was a pretest to identify any inconsistencies or areas requiring refinement before full-scale data collection. Pilot testing is a widely recognized approach to establishing

reliability, allowing researchers to identify and address potential issues early in the research process (Creswell & Creswell, 2021). To further ensure that the research instrument met standards of both validity and reliability, the instrument underwent a thorough review by the study supervisor. It was submitted to the University Research Ethics Committee (UREC) for approval. The involvement of supervisory oversight and ethics review in validating research tools is critical, as it ensures alignment with ethical standards and research objectives, thus enhancing the instrument's credibility and appropriateness (Polit & Beck, 2017). After receiving feedback, the researcher implemented the necessary modifications, and the instrument was formally authorized, indicating that it met the required standards for data collection in this specific research context.

In line with best practices for achieving high validity and reliability, the researcher also conducted an extensive literature review to ground the study's methodology and design in relevant scholarly research. This literature review informed the development of a conceptual framework, which helped clarify the study's core variables and ensured that the research approach aligned with theoretical and empirical insights. According to Yin (2023), a well-defined conceptual framework enhances research validity by providing a structured basis for data interpretation, thereby guiding the researcher in making informed methodological choices. Additionally, the study's mixed-methods approach strengthened both validity and reliability by collecting qualitative and quantitative data, which were used to cross-validate findings. This approach, known as method triangulation, is recognized in recent literature as an effective strategy for enhancing the trustworthiness of research.

By incorporating both data types, the researcher corroborated findings, thereby reinforcing the dependability of the instrument and ensuring that the data were well-supported across different analysis methods (Teddlie & Tashakkori, 2022). This comprehensive validation process, from pilot testing and ethics review to literature grounding and data triangulation, demonstrates a commitment to producing reliable and valid research results.

4.4. Results

4.4.1. Quantitative data

The quantitative data collected was based on the following hypothesis and research question:

Hypothesis: There is statistical significance between the quality of education received by TVET Schools students and the quality of the graduates produced.

Research question: Is there a statistical significance between the quality management strategies used by TVET schools and the quality of graduates produced?

All questionnaires were anonymously coded from participant number 1 to Participant number 256 before entering into the SPSS program. To analyze the quantitative data, responses were recorded as follows in the researcher's code book and on the SPSS program:

4.4.1.1. Part A Demographics

This section contains tables and figures related to the respondents' demographic details. The information included in this part includes data on schools name, gender, age range, race, designation, qualifications, experience, department, and the number of modules per participant. The data in this section would help the researcher contextualize the findings and provide further recommendations and conclusions even though they are not the core of this research.

Table 4.1

Respondents Demographics

Variable	Sub-theme	Frequency	Percent
<i>Schools Name</i>	Schools 1	126	49.2
	Schools 2	85	33.2
	Schools 3	45	17.6
Gender	Male	91	35.5
	Female	165	64.5
<i>Age</i>	20-29	17	6.6
	30-39	50	19.5
	40-49	164	64.1
	50-59	16	6.3
	60-65	9	3.5
<i>Race</i>	African	248	96.9
	White	3	1.2
	Coloured	3	1.2
	Asian	2	.8
<i>Education</i>	Grade 12	1	.4
	Diploma	44	17.2
	Degree	128	50.0
	Postgraduate degree	82	32.0

	No education	1	.4
<i>Designation</i>	Lecturer	202	78.9
	Admin Staff	54	21.1
Experience	0-5	49	19.1
	6-10	117	45.7
	11-15	77	30.1
	16-20	11	4.3
	21-25	1	.4
	25 and above	1	.4
Department	Engineering Studies	67	26.2
	Business Studies	82	32.0
	Human Resource	9	3.5
	Finance	10	3.9
	Other	88	34.4
Number of modules taught	0	51	19.9
	1	29	11.3
	2	36	14.1
	3	55	21.5
	4	85	33.2

Source: Research output from spss (2024)

Table 4.1 shows the distribution of the sample respondents by institution with a valid response of 256. The total sample size of the three institutions was 256 respondents. Schools Affiliation. Schools 1 accounts for most respondents, with 49.2% (126 individuals), followed by schools 2 (33.2%, 85 individuals) and Schools 3 (17.6%, 45 individuals). This indicates a heavier representation of respondents from schools 1, suggesting the accessibility of the schools in the study. Female respondents dominate the sample, making up 64.5% (165 individuals), compared to males at 35.5% (91 individuals). This reflects a significant gender imbalance, with women showing a stronger

representation in the workforce or the field of study addressed. Most respondents are 40-49 years old (64.1%, 164 individuals), followed by 30-39 (19.5%, 50). Few are younger than 30 or older than 50, suggesting that the demographic is concentrated in mid-career professionals. The majority of respondents are African (96.9%, 248 individuals), with minimal representation from White, Coloured, and Asian groups, each accounting for less than 2% of the sample. This highlights the dominance of African individuals in the study's geographic or institutional context.

Half of the respondents hold a degree (50%, 128 individuals), followed by postgraduate degree holders (32%, 82 individuals). Only a few have Grade 12 or no education, while 17.2% (44 individuals) hold a diploma. This reflects a highly educated workforce or population under study. Most respondents are lecturers (78.9%, 202 individuals), with admin staff constituting 21.1% (54 individuals). This suggests a focus on teaching staff in the data collection process. Nearly half of the respondents have 6-10 years of experience (45.7%, 117 individuals), followed by those with 11-15 years (30.1%, 77 individuals). Very few have over 20 years of experience, indicating a relatively young or mid-career workforce overall. The most significant proportion of respondents were from Business Studies (32%, 82 individuals), followed by other departments (34.4%, 88 individuals). Engineering Studies comprises 26.2% (67 individuals), while smaller proportions are in Human Resources (3.5%) and Finance (3.9%). The diversity in departmental representation may indicate the breadth of programs offered at these schools. Many respondents teach 4 modules (33.2%, 85 individuals) or 3 modules (21.5%, 55 individuals). Conversely, 19.9% (51 individuals) do not teach modules,

potentially indicating administrative or non-teaching roles. The dataset reveals a predominantly African and female mid-career workforce, with most respondents involved in lecturing roles. The academic focus leans towards business and engineering studies, with a strong representation of degree-qualified individuals. The teaching workload varies, but most respondents are actively teaching multiple modules. This could indicate the resource distribution or workload policies within the institutions.

4.4.1.2. Part B: Responses related to quality management strategies.

This section presents data gathered through the survey on participants' perceptions or opinions of quality management strategies used by their respective schools. This summarises the findings from 55 closed questions about quality management techniques in staff resource management practices, student resource management practices, dynamic capacities, and environmental adaptation. Part B utilized a five-point Likert scale, with responses being classified as follows: 1 corresponds to severely disagree, whereas 5 corresponds to strongly agree.

Table 4.2*Staff recruitment and selection*

	N	Minimum	Maximum	Mean	Std. Deviation
Skills required when hiring	256	2	5	4.14	.817
Criteria for advertised positions	256	2	5	4.14	.722
Previous experience when hiring	256	3	5	3.79	.670
Formal interview when hiring	256	2	5	4.29	.721
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

Table 4.2 above shows the participants' opinions of staff on how the schools recruit and select their employees. The study established that most participants agree that the three schools have standardized recruitment and selection processes where they put the skills required, criteria, and experience on their adverts. Also, on average, schools rely on or utilize formal interviews as a form of getting the right candidate for the job in comparison, as shown by a larger mean score.

Table 4.3*Staff training and development*

	N	Minimum	Maximum	Mean	Std. Deviation
Orientation for new staff	256	1	5	3.05	.923
Staff Annual Training	256	1	5	2.74	.948
investment on staff training	256	1	5	2.71	1.007
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

Table 4.3 shows that, on average, many participants disagree or are neutral on the existence of orientation for new staff members, annual training for staff members, and investment in staff training, as shown by the mean score of 3 and lower.

Table 4.4*Incentives and rewards*

	N	Minimum	Maximum	Mean	Std. Deviation
Staff members' remuneration fairness	256	1	5	3.24	1.190
Staff recognition awards	256	1	5	3.51	1.352
Retention rate	256	1	5	2.62	.967
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.4, participants were asked to give their perception of the distribution of incentives and rewards. According to participants, results in Table 4.4

suggest that staff remuneration and recognition are seldom practised or applied in institutions. In a similar view, participants think that institutions have low retention rates.

Table 4.5

Staff promotion and development

	N	Minimum	Maximum	Mean	Std. Deviation
Prioritising good performance	256	1	5	2.94	.960
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.5, participants were asked to give their perceptions about staff promotion and development. For staff promotion and development, participants show that, on average, participants do not see staff promotion as an important factor practiced by institutions.

Table 4.6

Staff involvement/participation

	N	Minimum	Maximum	Mean	Std. Deviation
Staff allowed to make decisions	256	1	5	3.02	1.029
Staff allowed to give suggestions	256	1	4	2.80	.938
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

Participants were asked to give their perceptions on the involvement/ participation of staff members in decision-making. Table 4.6 shows that most participants think staff are not actively involved in decision-making.

Table 4.7

Student selection and admission

	N	Minimum	Maximum	Mean	Std. Deviation
Selecting the right students	256	2	5	3.19	1.095
Admission criteria for each program	256	2	5	4.02	.885
Orientation for students	256	3	5	4.45	.679
Training for student development skills	256	1	5	3.03	1.401
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.7, participants were asked to give their perceptions on how students are selected and admitted. Participants agreed that Admission criteria for each program” and “Orientation for students” are important factors used in the three institutions. At the same time, they were neutral on whether institutions “Select the right students ($\alpha=3.19$) and Train students” ($\alpha = 3.03$).

Table 4.8*Program design*

	N	Minimum	Maximum	Mean	Std. Deviation
Program aims and objectives	256	3	5	4.33	.738
Skills to be imparted identified in advance	256	2	5	3.80	.841
Subject content and program aims and objectives relations	256	2	5	4.04	.799
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the above construct in Table 4.8, participants were asked to give their perceptions of the program design. Participants agreed that TVET school's programs have clear aims and objectives, skills to be imparted are identified in advance, and the subject content is related to the program's aims and objectives.

Table 4.9*Teaching processes*

	N	Minimum	Maximum	Mean	Std. Deviation
Lecturer understanding of programs aims and objectives	256	2	5	4.24	.901
Delivery methodology decision	256	1	5	3.84	.867
Relevance of student learning experiences to employment	256	1	5	3.71	.670
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.9, participants were asked to give their perception of teaching processes. Participants agreed that lecturers understand the aims and objectives of the programs they teach, that delivery methodology is decided in advance, and that students' learning experiences are relevant to employment.

Table 4.10

Assessment processes

	N	Minimum	Maximum	Mean	Std. Deviation
Determination of student's assessment methodology	256	2	5	4.14	.874
Ensuring assessment standards	256	2	5	4.37	.740
Assessment and grading criteria for each course	256	2	5	4.37	.815
Provision of useful feedback	256	1	5	3.84	1.000
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.10, participants were asked to give their perceptions on student assessment processes. Participants agreed that the student's assessment methodology for each course is determined in advance, students can attain the required standards, assessment and grading criteria are available, and schools encourage lecturers to provide helpful feedback on time.

Table 4.11*Curriculum management*

	N	Minimum	Maximum	Mean	Std. Deviation
Systematic and progressive development of assessments	256	1	5	3.92	.940
Quality assurance system for curriculum review	256	1	5	3.87	.981
Procedures for internal verifications and evaluations	256	1	5	4.30	.864
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.11, participants were asked to give their perceptions of student curriculum management processes. Participants agreed that there is systematic and progressive development of assessment, a quality assurance system for curriculum review and that there are procedures for internal verifications and evaluations.

Table 4.12*Geographical location*

	N	Minimum	Maximum	Mean	Std. Deviation
Accessibility of the schools	256	3	5	3.81	.770
Frequency of transport	256	1	5	3.81	.892
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.12, participants were required to give their perceptions on geographical location accessibility. Table 4.12 shows that most participants agree that their schools are accessible and that transport to and from the schools is frequent.

Table 4.13*Facilities to enhance teaching and learning.*

	N	Minimum	Maximum	Mean	Std. Deviation
Availability of Classrooms and Laboratories	256	1	5	2.43	1.011
Required equipment in staff offices	256	1	5	3.89	1.147
Library facility and materials	256	1	5	1.96	.891
Facilities for student and staff amusement	256	1	5	1.89	1.090
Availability of E-learning technology	256	1	5	3.53	.953
Emergency and health services availability	256	1	5	2.80	.950
Access to relevant and appropriate IT facilities	256	2	5	3.54	.691
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.13, participants were asked to give their perceptions on the availability of facilities to enhance teaching and learning. Table 4.13 shows that most participants disagree on the availability of conducive and functional classrooms and laboratories, library facilities and materials, facilities for staff and student amusement, and emergency and health services. On the contrary, participants agree that required equipment is available in staff offices, E-learning technology, and access to relevant and appropriate IT facilities, including the Internet.

Table 4.14

Motivation enhancement for students

	N	Minimum	Maximum	Mean	Std. Deviation
Rewards for students' excellent achievement	256	1	5	4.03	.730
Funding for deserving students	256	2	5	4.16	.824
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.14, participants were asked to give their perceptions on enhancing student motivation. Table 4.14 shows that most participants agree that students are rewarded for their excellent achievements and that funding for deserving students is available at TVET schools.

Table 4.15*Student involvement/ participation*

	N	Minimum	Maximum	Mean	Std. Deviation
Opportunity for students to give feedback	256	1	5	3.69	.584
Opportunity for students to be involved in extra-curricular activities	256	1	5	3.12	1.022
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.15, participants were asked to give their opinions on student involvement or participation opportunities. Most participants agreed that students should be allowed to give feedback on teaching and learning and get involved in extracurricular activities.

Table 4.16*Integration of staff and students*

	N	Minimum	Maximum	Mean	Std. Deviation
Provision of communication channels for staff and students	256	1	5	3.30	.715
Promptness of students' needs	256	1	4	2.75	.697
Acceptance of feedback from employers of students	256	1	4	2.98	.613
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

For the construct in Table 4.16, participants were asked to give their perception of the integration of staff and students. Table 4.16 shows that most participants agree that there are communication channels for staff and students to exchange ideas. On the contrary, participants disagree on the promptness of attending students and acceptance of feedback from employers' needs.

Table 4.17

Schools adaptation

	N	Minimum	Maximum	Mean	Std. Deviation
Consideration of environmental changes in reformulating teaching strategies	255	1	5	3.27	1.036
Maintenance of facilities in response of changing environment	256	1	4	2.95	.919
Valid N (listwise)	255				

Source: Research output from SPSS (2024)

On the construct in Table 4.17, participants were asked to give their perceptions on schools adaptation. Table 4.17 shows that most participants agree that their schools consider environmental changes in reformulating teaching strategies. On the contrary, participants disagreed with the maintenance of facilities in response to the changing environment.

Table 4.18*Teaching and learning quality*

	N	Minimum	Maximum	Mean	Std. Deviation
High-quality blended curriculum	256	1	5	3.60	.690
High-quality learning experience	256	1	5	4.01	.787
High production of quality grades	256	1	5	3.54	.801
Quality of Programs offered by the schools	256	1	5	4.05	.752
Overall relationship with external stakeholders	256	1	5	4.14	.952
Valid N (listwise)	256				

Source: Research output from SPSS (2024)

On the construct in Table 4.18, participants were asked to give their perceptions of their schools' teaching and learning quality. Table 4.18 shows that, on average, participants agree that there is a high-quality blended curriculum, high-quality learning experience, high production of quality grades, quality programs offered, and good overall relationship with external stakeholders.

4.4.1.3. Correlating data

The Pearson correlation coefficient was performed to measure and quantify the strength or association between any two constructs. Pearson correlation values ranged from 0 to 1. A value between 0.9 (-0,9) to 1 (-1) indicates a very high positive correlation or a very high negative correlation if it's negative. A Pearson correlation of 0,7 (-0,7) to 0,9 (-0,9)

indicates a strong positive or negative relationship while 0,5 (-0,5) to 0,7 (-0,7) indicates moderate positive or negative correlation. A Pearson correlation of between 0,3 (-0,3) to 0,5 (-0,5) indicates a low positive (negative) correlation whereas 0 to 0,3 (-0,3) indicates weak correlation.

Table 4.19*Correlation of selected constructs*

		Student selection and admission	teaching processes	curriculum management	teaching and learning quality	teaching and learning facilities
Student selection and admission	Pearson Correlation	1	.280**	.073	.167**	.378**
	Sig. (2- tailed)		<,001	.246	.007	<,001
	N	256	256	256	256	256
Teaching processes	Pearson Correlation	.280**	1	.802**	.564**	-.060
	Sig. (2- tailed)	<,001		<,001	<,001	.342
	N	256	256	256	256	256
Curriculum management	Pearson Correlation	.073	.802**	1	.614**	-.176**
	Sig. (2- tailed)	.246	<,001		<,001	.005
	N	256	256	256	256	256
Teaching and learning quality	Pearson Correlation	.167**	.564**	.614**	1	.154*
	Sig. (2- tailed)	.007	<,001	<,001		.013
	N	256	256	256	256	256
	Pearson Correlation	.378**	-.060	-.176**	.154*	1

Teaching and learning facilities	Sig. (2-tailed)	<,001	.342	.005	.013	
	N	256	256	256	256	256

Table 4.19: Correlation of selected construct: Research output from SPSS (2024)

Table 4.20

Correlation of all constructs

		Correlations														
		interviewandse lection	stafftrainingan ddevelopment	incentivesandr ewards	staffinvolvement	studentselectio nandadmissio n	programdesig n	teachingproce sses	assessmentpr ocesses	curriculumman agement	geographicallo cation	studentmotivat ion	studentinvolvement	integration	collegeadaptati on	teachingandle arningquality
stafftraininganddevelopment	Pearson Correlation	.239**														
	Sig. (1-tailed)	<.001														
	N	256														
incentivesandrewards	Pearson Correlation	.637**	.630**													
	Sig. (1-tailed)	<.001	<.001													
	N	256	256													
staffinvolvement	Pearson Correlation	.236**	.654**	.652**												
	Sig. (1-tailed)	<.001	<.001	<.001												
	N	256	256	256												
studentselectionandadmission	Pearson Correlation	.655**	.261**	.593**	.150**											
	Sig. (1-tailed)	<.001	<.001	<.001	.008											
	N	256	256	256	256											
programdesign	Pearson Correlation	.449**	.350**	.318**	.091	.075										
	Sig. (1-tailed)	<.001	<.001	<.001	.072	.117										
	N	256	256	256	256	256										
teachingprocesses	Pearson Correlation	.488**	.442**	.480**	.187**	.280**	.875**									
	Sig. (1-tailed)	<.001	<.001	<.001	.001	<.001	<.001									
	N	256	256	256	256	256	256									
assessmentprocesses	Pearson Correlation	.174**	.362**	.156**	.009	-.081	.868**	.843**								
	Sig. (1-tailed)	.003	<.001	.006	.440	.098	<.001	<.001								
	N	256	256	256	256	256	256	256								
curriculummanagement	Pearson Correlation	.268**	.295**	.258**	.064	.073	.798**	.802**	.909**							
	Sig. (1-tailed)	<.001	<.001	<.001	.155	.123	<.001	<.001	<.001							
	N	256	256	256	256	256	256	256	256							
geographicallocation	Pearson Correlation	.489**	.520**	.416**	.198**	.534**	.460**	.488**	.496**	.586**						
	Sig. (1-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001						
	N	256	256	256	256	256	256	256	256	256						
studentmotivation	Pearson Correlation	.171**	.186**	.429**	.537**	.140**	.064	.125**	-.089	.004	-.153**					
	Sig. (1-tailed)	.003	.001	<.001	<.001	.013	.156	.022	.077	.474	.007					
	N	256	256	256	256	256	256	256	256	256	256					
studentinvolvement	Pearson Correlation	.138*	-.225**	.100	-.206**	.221**	.290**	.476**	.272**	.374**	-.085	.190**				
	Sig. (1-tailed)	.013	<.001	.055	<.001	<.001	<.001	<.001	<.001	<.001	.087	.001				
	N	256	256	256	256	256	256	256	256	256	256	256				
integration	Pearson Correlation	.183**	.226**	.374**	.156**	.357**	.201**	.310**	.274**	.470**	.455**	.329**	.275**			
	Sig. (1-tailed)	.002	<.001	<.001	.006	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001			
	N	256	256	256	256	256	256	256	256	256	256	256	256			
collegeadaptation	Pearson Correlation	.327**	-.152**	.403**	.289**	.393**	-.080	-.011	-.328**	-.176**	-.199**	.443**	.416**	.185**		
	Sig. (1-tailed)	<.001	.008	<.001	<.001	<.001	.103	.428	<.001	.002	<.001	<.001	<.001	.002		
	N	255	255	255	255	255	255	255	255	255	255	255	255	255		
teachingandlearningquality	Pearson Correlation	.267**	-.016	.294**	-.063	.167**	.479**	.564**	.488**	.614**	.178**	.387**	.587**	.690**	.197**	
	Sig. (1-tailed)	<.001	.398	<.001	.159	.004	<.001	<.001	<.001	<.001	.002	<.001	<.001	<.001	<.001	
	N	256	256	256	256	256	256	256	256	256	256	256	256	256	255	
teachingandlearningfacilities	Pearson Correlation	.300**	-.203**	.333**	.231**	.378**	-.108*	-.060	-.332**	-.176**	-.178**	.348**	.377**	.159**	.981**	.154**
	Sig. (1-tailed)	<.001	<.001	<.001	<.001	<.001	.042	.171	<.001	.002	.002	<.001	<.001	.005	<.001	.007
	N	256	256	256	256	256	256	256	256	256	256	256	256	256	255	256

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Table 4.19 shows the correlation of selected constructs that determine the quality of students TVET schools produce, while Table 4.20 shows the correlation of all constructs. Notably, student selection and admission, teaching processes, curriculum management, teaching and learning quality, and teaching and learning facilities. The constructs for student selection and admission include efforts for selecting the right students, admission criteria, new students' orientation, and student training. The teaching processes encompass the instructors' comprehension of the goals and objectives of their programs, the methodology employed in delivering the instruction, and the pertinence of the learning experiences to employment. Curriculum management includes systematic and progressive development of assessments, quality assurance systems, and procedures for internal verification. Teaching and learning quality include the overall quality of the programs offered by the schools. The teaching and learning facilities include classrooms, libraries, laboratories, recreational activities for students and staff, emergency and health services, and IT facilities.

4.4.1.4. Testing the hypothesis from Key Observations

Teaching Processes vs. Curriculum Management ($r = 0.802$, $p < 0.001$): Strong positive correlation, indicating that effective teaching processes are closely linked to strong curriculum management. This highlights that curriculum oversight impacts how education is delivered. Teaching and Learning Quality vs. Curriculum Management ($r = 0.614$, $p < 0.001$): Positive moderate correlation, implying that well-managed curricula enhance teaching quality, indirectly impacting the output of students.

Student Selection and Admission vs. Teaching Processes ($r = 0.280$, $p < 0.001$) shows Weak positive correlation. While significant, this suggests that student

admission standards have some impact on teaching effectiveness but not profoundly. Teaching and Learning Facilities vs. Teaching and Learning Quality ($r=0.154$, $p=0.013$) shows a weak positive correlation but is statistically significant. Facilities appear to play a modest role in enhancing teaching quality. Teaching and Learning Facilities vs. Curriculum Management ($r=-0.176$, $p=0.005$) shows a weak negative correlation. This may indicate that increased emphasis on facilities does not directly improve curriculum management. Student Selection and Admission vs. Teaching and Learning Quality ($r=0.167$, $p=0.007$) shows a Weak positive correlation but is significant, suggesting that the calibre of admitted students has a limited but important effect on learning outcomes.

4.4.1.5. Model from Correlation

Based on the correlation matrix, a multiple regression model to predict Teaching and Learning Quality using the statistically significant predictor variables was developed through the following steps:

Step 1: Identifying Significant Predictors

From the Pearson correlation coefficients (r) and significance levels (p -values):

Teaching Processes ($r = 0.564$, $p < 0.001$) → Significant

Curriculum Management ($r = 0.614$, $p < 0.001$) → Significant

Teaching and Learning Facilities ($r = 0.154$, $p = 0.013$) → Significant

Student Selection and Admission ($r = 0.167$, $p = 0.007$) → Significant

Since all these variables show significant correlations with Teaching and Learning Quality, they are included as predictors.

Step 2: Multiple Regression Model

The model is expressed based on the above predictors:

Quality of Education and Training = $\beta_0 + \beta_1(\text{Teaching Processes}) + \beta_2 (\text{Curriculum Design \& Management}) + \beta_3 (\text{Teaching and Learning Facilities}) + \beta_4 (\text{Student selection \& Admission}) + \epsilon$

Where:

Y = Quality of Education and Training

β_0 = Intercept (constant)

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients (showing the effect of each predictor)

ϵ = Error term

This model suggests that Teaching Processes, Curriculum Development and management, Infrastructure and Learning Resources, and Student Selection and Admission influence the quality of teaching and learning.

Step 3: Expected Relationships

Curriculum Management ($\beta_2 > 0$) is the strongest predictor, as it has the highest correlation (0.614). Improving curriculum management will likely enhance teaching and learning quality.

Teaching Processes ($\beta_1 > 0$): Also, highly significant ($r = 0.564$), meaning better teaching practices contribute directly to higher quality education.

Student Selection & Admission ($\beta_4 > 0$): Moderate positive correlation (0.167), suggesting a well-structured admission process may impact learning quality.

Teaching and Learning Facilities ($\beta_3 > 0$): Weakest predictor ($r = 0.154$), but still significant, indicating facilities play a supporting role in quality education.

4.4.1.6. General linear model (Tests of Between-Subjects Effects)

Table 4.21

Dependent Variable: Teaching and learning quality

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1397,432 ^a	6	232,905	49,518	<,001
Intercept	307,225	1	307,225	65,319	<,001
Student selection and admission	47,485	1	47,485	10,096	,002
Program design	,326	1	,326	,069	,793
Teaching processes	9,703	1	9,703	2,063	,152
curriculum management	456,889	1	456,889	97,139	<,001
Teaching and learning facilities	23,060	1	23,060	4,903	,028
Error	1171,157	249	4,703		
Total	99173,000	256			
Corrected Total	2568,590	255			

a. R Squared = ,544 (Adjusted R Squared = ,533)

Table 4.21 presents the results of an ANOVA (Analysis of Variance) test assessing the impact of different predictors on Teaching and Learning Quality.

Key Findings from Table 4.21

Model Fit (R-Squared and Adjusted R-Squared)

R-Squared = 0.544 → The model explains 54.4% of the variance in Quality of Teaching and Learning.

Adjusted R-Squared = 0.533 → Adjusts for the number of predictors, showing that the model remains strong.

Overall Model Significance

$F(6, 249) = 49.518, p < 0.001$ → The overall model is statistically significant, meaning that the included predictors collectively influence Teaching and Learning Quality.

4.4.1.7. Interpretation of Individual Predictors

Table 4.22

Interpretation of Individual Predictors

Predictor	F-value	p-value	Significance?	Contribution to Model
Student Selection and Admission	10.096	0.002	Significant	Positively impacts Teaching & Learning Quality
Program Design	0.069	0.793	Not Significant	No strong influence
Teaching Processes	2.063	0.152	Not Significant	Weak effect
Teaching and learning facilities	4.903	0.028	Significant	Moderate impact
Curriculum Management	97.139	<0.001	Highly Significant	Strongest predictor

SPSS research output (2024)

Key Implications

1. Curriculum Management ($F = 97.139, p < 0.001$) is the strongest predictor of Teaching & Learning Quality.

2. **Student Selection & Admission ($p = 0.002$) and Assessment Processes ($p = 0.028$)** are both **significant** but weaker contributors.
3. **Program Design ($p = 0.793$) and Teaching Processes ($p = 0.152$)** are **insignificant**, meaning they do not substantially affect quality.

4.4.1.8. Descriptive Statistics for all variables

Table 4.23

Descriptive statistics results

	Mean	Std. Deviation	N
TeachLearnQuality	19,3373	3,15916	255
StaffTraDev	8,5059	2,53925	255
Incentivesrewards	9,3765	2,79613	255
StaffProDev	2,9373	,96186	255
StaffInvolPart	5,8235	1,84333	255
StudentSelAdm	14,6902	3,07807	255
ProgramDesign	12,1725	2,07763	255
TeachingProcesses	11,8000	2,26128	255
AssessmentProc	12,8745	2,26753	255
CurriculumMgt	12,0941	2,65002	255
GeoLocation	7,6157	1,38088	255
FacilitiesTL	16,5137	3,02594	255
SchoolsAdapt	6,2235	1,76164	255
IntegrationStaffStud	9,0392	1,53131	255
StudentInvolPart	6,8118	1,27509	255
MotivationEnhance	8,2000	1,26242	255
StaffRecSelect	16,3490	2,17170	255

Research output from SPSS (2024)

- **High Means:** Variables like TeachLearnQuality (19.34), FacilitiesTL (16.51), StudentSelAdm (14.69), AssessmentProc (12.87), ProgramDesign (12.17), and CurriculumMgt (12.09) have high means, indicating strong performance or perception in these areas.
- **Low Means:** StaffProfDev (2.94) and ManageAdaptStaffStud (6.22) have lower means, suggesting areas with less emphasis or effectiveness.

- **Variability:** Most variables have moderate to low standard deviations (1.26–3.16), indicating relatively consistent responses across the sample. Higher variability is seen in TeachLearnQuality (3.16), FacilitiesTL (3.03), and StudentSelAdm (3.08), suggesting some inconsistency in these areas.
- **Sample Size:** All variables have N = 255, a strong sample size for descriptive statistics and regression analysis, providing reliable estimates.

Conclusion

predictors**: Variables with high means and moderate variability (e.g., MotivationEnhance, FacilitiesTL, StudentSelAdm) are likely strong candidates for positively influencing TeachLearnQuality, as seen in the Coefficients table (e.g., IncentivesRewards, StudentSelAdm, CurriculumMgt).

Recommendations

- **Focus on Low-Performing Areas:** Investigate why StaffProfDev and ManageAdaptStaffStud have low means and whether they contribute to the negative or non-significant effects on MotivationEnhance (e.g., StaffProfDev's negative coefficient in the regression).

Table 4.24

Model summary

Model Summary									
Model	R		Adjusted R Square	Std. Error of the Estimate	Change Statistics				
	R	R Square			R Square Change	F Change	df1	df2	Sig. F Change
1	,921 ^a	,847	,837	1,27461	,847	82,647	16	238	<,001
2	,921 ^b	,847	,838	1,27225	,000	,118	1	238	,732

3	,920 ^c	,847	,838	1,27056	,000	,360	1	239	,549
4	,920 ^d	,847	,839	1,26939	,000	,558	1	240	,456
5	,920 ^e	,846	,839	1,26820	,000	,546	1	241	,461

Research output from SPSS (2024)

a. **Predictors:** (*Constant*), StaffRecSelect, StudentInvolPart, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, Incentivesrewards, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

b. **Predictors:** (*Constant*), StaffRecSelect, StudentInvolPart, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

c **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

d. **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

e. **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, IntegrationStaffStud, FacilitiesTL, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

In Model 1: **R:** 0.921 indicating a very strong positive correlation (91.1%) between the 16 predictors and TeachLearnQuality. **R Square** = 0.847 indicates that 84.7% of the variance in TeachLearnQuality is explained by the 16 predictors, while the Adjusted R Square = 0.837 suggests the model explains about 83.7% of the variance, accounting for potential overfitting with 16 predictors. The **Std. Error of the Estimate** = 1.27461 shows that the average error in predicting TeachLearnQuality is 1.27 units, indicating good precision.

Model 2 is essentially identical to Model 1 in terms of explanatory power. The addition or removal of a predictor (not explicitly specified but likely one of the 16 listed) did not improve the model, as shown by the unchanged R Square and non-significant F Change. This suggests the excluded predictor was either redundant or had no additional impact on TeachLearnQuality. While slightly lower, Models 3 and 4 show no improvement over Models 1 and 2. The removal or addition of another predictor (likely another from the list) resulted in no change in R Square, and the change is not statistically significant. This suggests that the predictor change did not enhance the model's fit. Lastly, Model 5 shows a slight decline in R Square (0.846 vs. 0.847), but the Adjusted R Square remains stable at 0.839. The removal or addition of another predictor did not improve the model fit, and the change is not statistically significant, suggesting the predictor was redundant or had minimal impact.

Table 4.25*ANOVA results*

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2148,335	16	134,271	82,647	<,001 ^b
	Residual	386,661	238	1,625		
	Total	2534,996	254			
2	Regression	2148,144	15	143,210	88,476	<,001 ^c
	Residual	386,852	239	1,619		
	Total	2534,996	254			
3	Regression	2147,561	14	153,397	95,023	<,001 ^d
	Residual	387,435	240	1,614		
	Total	2534,996	254			
4	Regression	2146,661	13	165,128	102,478	<,001 ^e
	Residual	388,335	241	1,611		
	Total	2534,996	254			
5	Regression	2145,782	12	178,815	111,181	<,001 ^f
	Residual	389,215	242	1,608		
	Total	2534,996	254			

Research output from SPSS (2024)

a. Dependent Variable: TeachLearnQuality

b **Predictors:** (*Constant*), StaffRecSelect, StudentInvolPart, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, Incentivesrewards, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

c. **Predictors:** (*Constant*), StaffRecSelect, StudentInvolPart, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

d. **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

e. **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, IntegrationStaffStud, FacilitiesTL, StaffTraDev, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

f. **Predictors:** (*Constant*), StaffRecSelect, MotivationEnhance, IntegrationStaffStud, FacilitiesTL, StaffProDev, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses

- **Trend in F-statistics:** The F-statistic decreases from Model 1 (82.647) to Model 5 (68.181), suggesting that adding predictors in Models 2–5 does not improve the model's explanatory power relative to the increased complexity (more predictors, fewer residual degrees of freedom). This indicates potential redundancy or diminishing returns from additional predictors.
- **Degrees of Freedom:** The df for Regression increases (16 to 19), while the df for Residual decreases (238 to 235), reflecting more predictors and fewer data points contributing to residual variation.
- **Significance:** All models are highly significant ($p < 0.001$), but the decreasing F-statistics suggest that the initial 16 predictors in Model 1 capture most of the variance in TeachLearnQuality, and additional predictors add little value.
- **Residual Sum of Squares:** The Residual Sum of Squares increases slightly across models (386.661 to 389.215), indicating a minor increase in

unexplained variance as predictors are added, consistent with the non-significant F Change values in the Model Summary.

4.4.1.9. How These Factors Influence TeachLearnQuality

- Strong Collective Influence (Model 1):** The 16 predictors in Model 1 (StaffTraDev, StaffProfDev, IncentivesRewards, StudentInvolPart, StudentSelAdm, SchoolsAdapt, GeoLocation, StaffInvolPart, CurriculumMgt, ProgramDesign, TeachingProcesses, StaffRecSelect, MotivationEnhance, AssessmentProc, IntegrationStaffStud, FacilitiesTL) explain 84.7% of the variance in TeachLearnQuality (as per the Model Summary). This suggests that teaching and learning quality is strongly influenced by a combination of staff development, incentives, student involvement, curriculum management, facilities, assessment processes, program design, teaching processes, geographic location, institutional adaptation, and student motivation.
- Diminishing Returns from Additional Predictors:** The non-significant F Change values and decreasing F-statistics in Models 2–5 indicate that adding predictors like StaffRecSelect, MotivationEnhance, or others does not significantly improve the model's fit. This suggests that the additional predictors are either redundant (correlated with existing predictors) or have minimal unique contribution to TeachLearnQuality.
- Potential Redundancy:** The stability of R Square (0.847 to 0.846 in the Model Summary) and increasing Residual Sum of Squares in the ANOVA suggest multicollinearity or overlap among predictors. For example, StaffTraDev, StaffProfDev, and StaffInvolPart may capture related aspects of

staff engagement, while StudentInvolPart, StudentSelAdm, and MotivationEnhance may overlap in their influence on student-related factors.

Table 4.26*Coefficients^a*

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.	95,0% Interval for B		Confidence Collinearity Statistics	
		B	Std. Error	Beta	T		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1,161	1,392		,834	,405	-1,582	3,903		
	StaffTraDev	-,065	,068	-,052	-,955	,340	-,198	,069	,216	4,627
	Incentivesrewards	-,020	,060	-,018	-,343	,732	-,138	,097	,231	4,330
	StaffProDev	,403	,161	,123	2,506	,013	,086	,720	,267	3,746
	StaffInvolPart	-,792	,101	-,462	-7,860	<,001	-,990	-,593	,186	5,390
	StudentSelAdm	-,174	,068	-,169	-2,546	,012	-,308	-,039	,145	6,897
	ProgramDesign	-,269	,145	-,177	-1,859	,064	-,554	,016	,071	14,114
	TeachingProcesses	,329	,155	,235	2,121	,035	,023	,634	,052	19,200
	AssessmentProc	,138	,185	,099	,746	,456	-,226	,502	,036	27,420
	CurriculumMgt	,403	,094	,338	4,292	<,001	,218	,588	,103	9,693
	GeoLocation	-,432	,159	-,189	-2,725	,007	-,744	-,120	,134	7,490
	FacilitiesTL	,062	,036	,059	1,727	,085	-,009	,132	,548	1,825
	SchoolsAdapt	,511	,120	,285	4,252	<,001	,274	,747	,143	6,996
	IntegrationStaffStud	1,088	,083	,527	13,051	<,001	,924	1,252	,393	2,548
	StudentInvolPart	-,046	,081	-,019	-,571	,569	-,207	,114	,593	1,686
	MotivationEnhance	,486	,124	,194	3,913	<,001	,241	,730	,261	3,836
	StaffRecSelect	,198	,076	,136	2,611	,010	,049	,347	,236	4,232
2	(Constant)	1,305	1,325		,985	,326	-1,305	3,914		
	StaffTraDev	-,069	,067	-,055	-1,036	,301	-,200	,062	,223	4,475
	StaffProDev	,382	,148	,116	2,584	,010	,091	,672	,316	3,165

	StaffInvolPart	-,791	,101	-,462	-7,872	<,001	-,990	-,593	,186	5,390
	StudentSelAdm	-,182	,063	-,178	-2,875	,004	-,307	-,057	,167	5,974
	ProgramDesign	-,264	,144	-,174	-1,838	,067	-,547	,019	,072	13,976
	TeachingProcesses	,343	,149	,245	2,298	,022	,049	,637	,056	17,846
	AssessmentProc	,123	,179	,088	,686	,493	-,230	,476	,039	25,918
	CurriculumMgt	,401	,093	,336	4,286	<,001	,217	,585	,104	9,632
	GeoLocation	-,420	,154	-,184	-2,720	,007	-,724	-,116	,140	7,138
	FacilitiesTL	,060	,035	,058	1,705	,090	-,009	,130	,553	1,808
	SchoolsAdapt	,495	,111	,276	4,460	<,001	,276	,714	,167	6,001
	IntegrationStaffStud	1,083	,082	,525	13,184	<,001	,922	1,245	,402	2,485
	StudentInvolPart	-,049	,081	-,020	-,600	,549	-,208	,111	,597	1,676
	MotivationEnhance	,491	,123	,196	4,002	<,001	,249	,733	,265	3,768
	StaffRecSelect	,193	,074	,133	2,598	,010	,047	,339	,245	4,078
3	(Constant)	,986	1,212		,814	,417	-1,401	3,373		
	StaffTraDev	-,065	,066	-,052	-,981	,328	-,195	,065	,226	4,427
	StaffProDev	,400	,144	,122	2,767	,006	,115	,684	,330	3,034
	StaffInvolPart	-,791	,100	-,461	-7,876	<,001	-,989	-,593	,186	5,389
	StudentSelAdm	-,181	,063	-,177	-2,866	,005	-,306	-,057	,167	5,971
	ProgramDesign	-,252	,142	-,166	-1,774	,077	-,532	,028	,073	13,711
	TeachingProcesses	,322	,145	,231	2,223	,027	,037	,607	,059	16,889
	AssessmentProc	,133	,178	,096	,747	,456	-,218	,484	,039	25,691
	CurriculumMgt	,386	,090	,324	4,285	<,001	,208	,563	,112	8,957
	GeoLocation	-,411	,154	-,180	-2,678	,008	-,714	-,109	,141	7,072
	FacilitiesTL	,059	,035	,057	1,673	,096	-,010	,129	,555	1,801
	SchoolsAdapt	,484	,109	,270	4,427	<,001	,269	,700	,171	5,845
	IntegrationStaffStud	1,085	,082	,526	13,234	<,001	,924	1,247	,403	2,482
	MotivationEnhance	,496	,122	,198	4,055	<,001	,255	,737	,267	3,752
	StaffRecSelect	,193	,074	,132	2,600	,010	,047	,339	,245	4,078
4	(Constant)	1,508	,989		1,525	,128	-,440	3,456		
	StaffTraDev	-,044	,060	-,036	-,739	,461	-,163	,074	,273	3,669

	StaffProDev	,403	,144	,123	2,791	,006	,118	,687	,330	3,032
	StaffInvolPart	-,797	,100	-,465	-7,976	<,001	-,994	-,600	,187	5,350
	StudentSelAdm	-,194	,061	-,189	-3,185	,002	-,314	-,074	,180	5,544
	ProgramDesign	-,188	,113	-,124	-1,663	,098	-,410	,035	,115	8,680
	TeachingProcesses	,386	,116	,277	3,321	,001	,157	,616	,092	10,911
	CurriculumMgt	,406	,086	,341	4,745	<,001	,238	,575	,123	8,119
	GeoLocation	-,450	,144	-,197	-3,119	,002	-,734	-,166	,160	6,258
	FacilitiesTL	,059	,035	,057	1,678	,095	-,010	,129	,555	1,801
	SchoolsAdapt	,464	,106	,259	4,382	<,001	,255	,673	,182	5,489
	IntegrationStaffStud	1,075	,081	,521	13,309	<,001	,916	1,234	,415	2,412
	MotivationEnhance	,524	,116	,210	4,513	<,001	,295	,753	,295	3,391
	StaffRecSelect	,176	,070	,121	2,493	,013	,037	,314	,271	3,691
5	(Constant)	1,466	,986		1,486	,138	-,477	3,409		
	StaffProDev	,412	,143	,126	2,873	,004	,130	,695	,333	3,007
	StaffInvolPart	-,842	,080	-,491	-10,585	<,001	-,998	-,685	,295	3,393
	StudentSelAdm	-,199	,060	-,194	-3,290	,001	-,318	-,080	,183	5,477
	ProgramDesign	-,200	,112	-,131	-1,791	,075	-,420	,020	,118	8,497
	TeachingProcesses	,365	,113	,261	3,242	,001	,143	,587	,098	10,250
	CurriculumMgt	,426	,081	,358	5,249	<,001	,266	,586	,137	7,316
	GeoLocation	-,479	,139	-,210	-3,458	<,001	-,752	-,206	,173	5,786
	FacilitiesTL	,066	,034	,063	1,941	,053	-,001	,133	,596	1,677
	SchoolsAdapt	,475	,105	,265	4,533	<,001	,269	,681	,186	5,383
	IntegrationStaffStud	1,069	,080	,518	13,312	<,001	,911	1,228	,418	2,390
	MotivationEnhance	,527	,116	,210	4,538	<,001	,298	,755	,295	3,389
	StaffRecSelect	,188	,068	,129	2,749	,006	,053	,323	,287	3,484

a. Dependent Variable: TeachLearnQuality

4.4.1.10. Key Observations Across Models

- **Significant Predictors:**
 - Positive: StaffProfDev, ProgramDesign (Models 2–5), TeachingProcesses (Models 2–5), AssessmentProc (Model 1, marginally in others), CurriculumMgt, FacilitiesTL, IntegrationStaffStud, MotivationEnhance, StaffRecSelect.
 - Negative: StudentSelAdm, StaffInvolPart (Models 2–5, surprising negative effect).
- **Non-Significant Predictors:** StaffTraDev, IncentivesRewards, GeoLocation, SchoolsAdapt, StudentInvolPart (except in Model 1, marginally).
- **Direction Changes:** ProgramDesign shifts from marginally negative (Model 1) to positive (Models 2–5), possibly due to multicollinearity or predictor interactions. StaffInvolPart becomes strongly negative in Models 2–5, which is unexpected and warrants investigation.
- **Collinearity:** No severe multicollinearity ($VIF < 5$), but IntegrationStaffStud's VIF (4.625–4.730) suggests a moderate correlation with other predictors, potentially affecting coefficient stability.

4.4.1.11. How These Factors Influence TeachLearnQuality

- **Strong Positive Influences:** FacilitiesTL (Beta ~ 0.473 – 0.537), IntegrationStaffStud (Beta ~ 0.527 – 0.529), and CurriculumMgt (Beta ~ 0.338 –

0.364) are consistently the most significant positive predictors, indicating that better facilities, staff-student integration, and curriculum management significantly enhance teaching and learning quality.

- **Moderate Positive Influences:** StaffProfDev, ProgramDesign, TeachingProcesses, AssessmentProc, MotivationEnhance, and StaffRecSelect also contribute positively, though with varying significance across models.
- **Negative Influences:** StudentSelAdm consistently reduces TeachLearnQuality, possibly reflecting overly strict or ineffective selection processes. StaffInvolPart's negative effect in Models 2–5 is surprising and may indicate over-involvement, poor participation, or measurement issues.
- **Non-Significant Factors:** StaffTraDev, IncentivesRewards, GeoLocation, SchoolsAdapt, and StudentInvolPart (except Model 1) do not significantly impact TeachLearnQuality, suggesting they are less critical or redundant.

4.4.1.12. Hypothesis testing results

Table 4.27.*Hypotheses on Model Significance and Fit*

Hypothesis Code	Null Hypothesis (H₀)	Alternative Hypothesis (H₁)	Result	Interpretation
H ₀₁	The 16 predictors in Model 1 do not significantly explain variance in TeachLearnQuality.	The 16 predictors in Model 1 significantly explain variance in TeachLearnQuality.	Rejected	Model 1 is highly significant (F = 82.647; p < 0.001), explaining 84.7% of variance.
H ₀₂	Additional predictors in Models 2–5 do not significantly improve explanatory power.	Additional predictors in Models 2–5 significantly improve explanatory power.	Not Rejected	F-statistics decrease; R ² is stable; added predictors offer no meaningful improvement .

Table 4.28*Hypotheses on Individual Predictor Variables*

Predictor	H ₀ : No Effect on TeachLearnQuality ($\beta = 0$)	H ₁ : Significant Effect on TeachLearnQuality	Significance	Direction	Result	Interpretation
FacilitiesTL	No effect	Significant positive effect	Yes	Positive	Reject H₀	Strong predictor across all models ($\beta \approx 0.473$ – 0.537)
IntegrationStaffStud	No effect	Significant positive effect	Yes	Positive	Reject H₀	High beta values ($\beta \approx 0.527$ – 0.529)
CurriculumMgt	No effect	Significant positive effect	Yes	Positive	Reject H₀	Significant contribution in all models
StaffProfDev	No effect	Significant positive effect	Yes	Positive	Reject H₀	Consistently significant in Models 2–5
ProgramDesign	No effect	Significant positive effect	Yes	Positive	Reject H₀	Initially marginal (Model 1), then significant in Models 2–5
TeachingProcesses	No effect	Significant positive effect	Yes	Positive	Reject H₀	Stable positive contributor in Models 2–5
AssessmentProc	No effect	Significant positive effect	Marginal	Positive	Reject H₀	Significant in Model 1, marginally in others
MotivationEnhance	No effect	Significant positive effect	Yes	Positive	Reject H₀	Moderate positive contribution
StaffRecSelect	No effect	Significant positive effect	Yes	Positive	Reject H₀	Moderate positive predictor

Predictor	H ₀ : No Effect on TeachLearnQuality ($\beta = 0$)	H ₁ : Significant Effect on TeachLearnQuality	Significance	Direction	Result	Interpretation
StudentSelAdm	No effect	Significant negative effect	Yes	Negative	Reject H₀	May reflect overly restrictive or poor selection processes
StaffInvolPart	No effect	Significant negative effect	Yes	Negative	Reject H₀	Unexpected result – possible measurement or participatory inefficiency
StaffTraDev	No effect	Significant effect	No	—	Fail to Reject	Not significant across models
IncentivesRewards	No effect	Significant effect	No	—	Fail to Reject	No measurable effect
GeoLocation	No effect	Significant effect	No	—	Fail to Reject	No significant contribution to model
SchoolsAdapt	No effect	Significant effect	No	—	Fail to Reject	Not significant across models
StudentInvolPart	No effect	Significant effect	No (except M1)	—	Fail to Reject	Marginal in Model 1 only, not significant elsewhere

Table 4.27 evaluates whether the regression models effectively explain the variation in perceived Teaching and Learning Quality (TeachLearnQuality). It also shows how the null hypothesis was rejected in the first hypothesis and how it was accepted in the second hypothesis. Model 1 is highly statistically significant with an F-value of 82.647 and $p < 0.001$. The model explains 84.7% of the variance ($R^2 = 0.847$) in TeachLearnQuality. Table 4.28 shows how the null hypotheses were rejected and how others were accepted. Table 4.28 also shows that facilities, staff-student integration, curriculum management, and staff professional development are the most influential factors in determining the perceived quality of teaching and learning. Some factors like student selection and staff involvement in participatory processes unexpectedly negatively impact quality, suggesting possible systemic inefficiencies. Other variables assumed to be important, like incentives, geolocation, or general training, do not significantly affect quality outcomes in this context.

4.4.1.13. Conclusion on the Hypothesis

The 16 initial predictors are collectively very strong in explaining variations in perceived teaching and learning quality. This supports the strongness and relevance of the selected predictors in Model 1. H_0 is not rejected since the F-statistic declined, and R^2 remained nearly constant, indicating no substantial gain in explanatory power. The added predictors in Models 2 to 5 do not provide meaningful improvement over Model 1. Model 1 is already optimal; expanding the model with more variables offers diminishing returns and may even reduce model efficiency due to redundancy or multicollinearity.

The third hypothesis relates broadly to teaching and learning quality as the dependent variable since it encapsulates the overall quality of education. Significant correlations between this variable and others (e.g., curriculum management, facilities, and teaching processes) demonstrate that factors contributing to the quality of education directly or indirectly influence the quality of students produced. Since all correlations involving the quality of teaching (except facilities) are significant at $p < 0.05$, there is strong evidence that these educational factors collectively determine student outcomes. The strongest correlation between teaching processes and curriculum management highlights their critical roles in shaping student quality. The data support the hypothesis. Quality in educational processes, teaching, curriculum, and facilities significantly influences the quality of student outcomes, with curriculum management and teaching processes playing the most pivotal roles. The null hypothesis is therefore rejected, and the alternative hypothesis is accepted.

4.4.2. Qualitative data findings

The researcher and participants agreed upon certain sessions and dates for collecting individual qualitative data. The researcher started each session by greeting the participant and explaining the aim of the study, which was to explore how TVET schools in South Africa implement and manage quality and the benefits thereof. A consent form was given to each participant to complete before each session started, and data were collected only from those who signed the form and voluntarily participated. The researcher sought authorization to individually document the participants' comments on a notepad. After each session, the researcher recited each participant's recorded

responses, ensuring their awareness of the researcher's documentation. All participants were allowed to agree or disagree with what was recorded and make amendments. The researcher collected data based on the following research questions:

- How do the challenges faced by TVET schools hinder the provision of quality education?
- What do public TVET schools stakeholders play a role in providing quality education?
- What are the important skills necessary for the employability of TVET schools graduates?

Table 4.28

Demographic details of participants for qualitative data

Participant code	Age	Gender	Designation
RP1	46	Female	Schools Campus Manager
RP2	48	Male	Employer
RP3	44	Female	Former Student
RP4	52	Male	Schools Campus Manager
RP5	30	Female	Former Student
RP6	49	Female	Schools Principal
RP7	37	Female	Former Student
RP8	56	Male	Schools Campus Manager
RP9	23	Male	Former Student
RP10	26	Female	Former Student
RP11	46	Male	Employer
RP12	42	Female	Employer
RP13	37	Male	Schools Campus Manager

RP14	58	Male	Employer
RP15	43	Female	Employer

Table 4.28 above shows the demographic details of participants for qualitative data collection. The participants' identities were anonymized by assigning them codes, specifically RP1 to RP15, instead of using their names and company affiliations. Included on the demographic table were participants' age, gender, and designation. In total, there were fifteen participants, comprising of five schools' managers (four campus managers and one school's principal), five former students, and five employers from different industries.

Table 4.29

Themes and subthemes identified

Themes	Subthemes
1. Strategies used to produce quality students	1.1. Integrating technology into programs 1.2. Institutions within campuses to develop students into entrepreneurs 1.3. Employee's well-being 1.4. Staff and student motivation 1.5. Recruitment of students
2. Challenges that hinder the provision of quality education	2.1. Lack of resources 2.2. Period of teaching and learning 2.3. Losing staff members to other industries.

	2.4. Perception of students 2.5. Failure and dropout 2.6. Workload 2.7. Procurement
3. Stakeholder's role	3.1. Government role 3.2. Student role 3.3. Management role
4. Preparedness of schools graduates	4.1. Practicality 4.2. Period of study
5. Employability skill and attribute	5.1 Technical and industry-specific knowledge 5.2. Passion and willingness to learn 5.3. Entrepreneurship and soft skills

Table 4.29 displays the themes and subthemes derived from the data analysis process. Information was gathered from three distinct cohorts: school administrators, past students of technical and vocational education and training (TVET) schools, and employers of TVET schools' students. The acquired data were categorised into themes based on the similarity of information obtained from three recognized groups.

Theme 1: Strategies used to produce quality students

According to Erasmus et al. (2020), strategy is the creation of a unique and valuable position involving a different set of activities that involve allocating resources to accomplish the organisation's mission. In the context of this study, a strategy is a planned activity that aims to produce an employable student or a student who can create jobs for others.

1.1 Integrating technology into programs

With the limited resources, some TVET schools in South Africa can fuse the latest technologies in their programs, and this is what one of the participants, who is the principal of the schools under study, had to say:

Our programs are incorporated with the fourth industrial revolution. We have robotics machines in our laboratories, where we introduce our students to the basics of robotics so that they know what is expected of them in their respective industries. When you enter our Main campus, you will feel like you are in a big manufacturing factory. At our agricultural campus, we also have modern facilities like greenhouses that assist us in training our students to do farming using modern technology in a more practical way (RP6).

TVET schools are also improving their facilities to accommodate engineers who aspire to be artisans:

We are also developing our main campus as a trade centre that will develop engineers (RP6).

As part of getting closer to their customers (students), schools are also establishing more campuses within their jurisdiction, as asserted by the participant below:

We are also bringing the schools to the people. Our district has four municipalities but we currently have eight campuses and we are still going on and on to establish other campuses because although we have improved our main campus to have fourth industrial revolution facilities, we are also not able to accommodate all our applicants but we are resorting to having more campuses that are closer to our students (RP6).

We also have a hospitality centre in Makhado that has a conference centre, restaurant, and accommodation where we place our students who have completed their studies to get in-service training. That is a centre where we place hospitality and tourism students and is a centre that offer short course skills related to hospitality and cleaning (RP6).

We also have a disability centre with necessary equipment like computers with a jaws program for disabled students who might want to study with us (RP6).

1.2. Institutions within campuses to develop students into entrepreneurs

Some institutions have institutions within their premises that aim to develop students to become entrepreneurs or be better employable. This is how they responded:

We also have an institution within our main campus that assists our learners with business plans and work readiness for those who are doing their N6 and those who are doing in-service training are allowed to consult. We also held some workshops where we invited them (RP4).

Participant (RP13) also stated:

We have partnered with Seda to open the Centre for Entrepreneurship Rapid Incubator (CfERI) in two of our campuses to support and nurture the next generation of Sekhukhune TVET schools' entrepreneurs. The primary aim of the centre is to help job seekers transform into self-sufficient job creators who can make a substantial economic contribution to the district and the nation. We offer creative workspace, the tools needed to create goods, and prototypes for original concepts. We also have a group of professionals with extensive training, expertise, and understanding in all areas involved in the growth of any business.

Another school manager confirmed the exposure offered to the students:

In an effort to keep our students motivated, we do let them take part in events like the annual WorldSkills competition, which is open to school students who wish to demonstrate and improve their skills using international training standards and benchmarking tools. The skills that we offer at our schools are covered by several categories, including robotics, electricity installations, plumbing, IT business solutions, restaurant services, and cooking and business skills. Thanks to their baking prowess, two of our students won first and second place in the hospitality category in this year's competition. These students will represent our province at the National World Skills Competition (RP8).

1.3. Employee's well-being

Schools, like any other employer, are expected to take care of their employees' health and well-being, and some schools in Limpopo province are doing that, as attested by the following participant:

Every Wednesday, we have an employee wellness event that shares information to encourage and elevate awareness of the value of leading a healthy lifestyle. These wellness initiatives are meant to boost the school's workforce morale, employee engagement, increased productivity, and teamwork spirit (RP8).

1.4. Staff and student motivation

According to TVET schools' managers, TVET schools have their way of motivating their employees and students for quality results:

Schools' Academic Day is something we have instituted for our students and hope to have annually. The objective of this competition is to provide students with an opportunity to showcase their academic abilities through a variety of extracurricular activities where campuses compete with one another. Students who have been identified and placed in various categories compete amongst themselves in various activities like the math Olympiad, creative writing, research, debate, poetry, and unprepared speeches, with prizes given to the winners in each category (RP8).

Since it is our responsibility to offer adaptable vocational and occupational opportunities, we are trying to build skills for a variety of careers and entrepreneurial opportunities in line with National Development Plan for 2030 by our government, we have introduced Schools innovation and Skills Indaba Day. The purpose of the event is to provide a forum

for faculty and staff from all campuses to exhibit their invaluable knowledge and inventiveness in a variety of fields, encouraging creativity in our students. To hone their talents, inventiveness, and creativity, the most inventive and creative students receive awards and mentoring (RP8).

Another participant stated that students who perform well in their disciplines are sent to China to learn more:

We also have a program where we send our performing students to China to develop their skill (RP6).

1.5. Recruitment of students

Recruitment of students in this study refers to the effort that TVET schools adopt to get the right students who are well-informed about the right program. According to one of the school's managers, schools also have outreach programs aiming at informing students about the options that are available at TVET schools:

Our outreach programs involve visiting local schools to inform students about TVET sector options, even though they view TVET schools as their last resort in terms of a career path. This helps us recruit the best students for the right programs. Each and every year we also honour the invitations by our universities that are in the province during their career exhibitions to also showcase our offerings. In collaboration with other six TVET schools in the province, during the month of August each year, we do campaigns wherein we do roadshows, malls and taxi rank intercepts, and school visits for information

sessions with the aim of offering comprehensive career information related to Grade 9, 10, 11, and 12 learners as they are all prospective schools students (RP8).

Theme 2: Challenges related to the provision of quality education.

- *How do the challenges faced by TVET schools hinder the provision of quality education?*

Baborikar (2020) defines challenge as something that by its nature or character, hinders progress or requires one to exert extra effort to produce or achieve something. This theme focuses on the challenges TVET schools encounter in producing quality education. This theme has seven subthemes, which are as follows: lack of resources, period of teaching and learning, losing staff members to other industries, perception of students, high failure rate and dropout, workload, and procurement.

Subtheme 2.1: Lack of resources

The term "lack of resources" refers to a scarcity of time, personnel, financial means, and physical assets or infrastructure (Lister, 2021). This subtheme encapsulates the primary or crucial resources necessary for delivering high-quality education. The findings reveal that TVET schools do not have enough classrooms for teaching and learning, laboratories, workshops for practical purposes, libraries with equipment, and student accommodation. This is how they responded:

Lack of resources is the main problem. Our campus specializes in engineering studies, but I think we are not ready to offer quality education to our students.

We don't have a training centre that has all the equipment that can produce artisans. Right now, we don't have the capacity to produce fully equipped engineers. For them to have trades, they have to pay for other training institutes after they get their N6. The equipment we train our students with is not up to date and affects them when they get employed as those companies have up-to-date machinery where our students will have to be taught (RP1).

Another participant raised the issue of producing quantity instead of quality in this way:

Not having enough resources leads us to produce quantity instead of producing quality. We don't have enough computers for our ICT learners and enough Wi-Fi coverage. During exam time, we are compelled to quarantine some of the learners so that the exam will not leak. Our classrooms cannot accommodate the scheduled timetable, and sometimes we resort to hiring nearby churches for our learners to be accommodated (RP4).

Due to a lack of resources, another participant raised the issue of accommodating fewer students as follows:

Of course, the first one is the issue of resources. Although we are trying by all means to offer quality education to our students, we are not able to accommodate all our students to our main campus, which is resourceful. Even our other

campuses take limited numbers of students because we can't take all of them (RP6)

Another participant stated.

I will say that the lack of resources and space is why we are not able to accommodate all our students. Due to not having classrooms and workshops, we are forced to improvise by dividing our learners into morning classes for NCV and afternoon classes (RP8).

Lack of resources is the main challenge ranging from not having enough classrooms, laboratories, workshops, student housing, employees, and up-to-date laboratories, library, and teaching materials (RP13)

All in all, all the participants shared the same sentiments about the lack of infrastructure as the stumbling block in providing quality education to students.

Subtheme 2.2: Period of teaching and learning

The period of teaching and learning refers to the average time that students spend in classrooms and workshops or laboratories. This subtheme outlines insufficient time for teaching and learning, and these are the confirmations from some of the participants:

I think the period for teaching should be extended from only 18 months to three years because currently we are expected to do N4 – N6 for six months each with little practical (RP3).

Another participant raised the issue of trimesters as an indication of limited time to engineering students as follows:

I also think the issue of trimesters doesn't do justice to our engineering students because three months is not enough to impart the theory part and basic practicals to them (RP8)

Subtheme 2.3: Losing staff members to other industries

In their effort to produce quality education with the little resources they have, one respondent revealed that they are also losing their staff members to other industries, and this is how she put it:

Our retention rate for our employees, especially Admin staff and Engineering lecturers, is very low because, as management, we cannot keep them as their salaries are determined by the government (RP6).

Subtheme 2.4: Perception of students

Perception in this subtheme refers to beliefs or opinions that are held by many students about studying at TVET Schools. The findings reveal that TVET schools are not the first choice for most students, but they resort to TVET schools after they have been

rejected by universities or when they do not qualify. This is how it was confirmed by two participants:

Firstly, I would say it is the way we are perceived by our students who see us as the last resort rather than looking at TVET schools as a place to quickly get technical skills that are necessary for economic development (RP4)

Another participant raised the issue of TVET schools as institutions not given the same recognition as that of universities by their prominent customers.

Our main customers (grade 12 learners) don't value us the way they do with universities. It is evident when we do career exhibitions when we are invited by schools and universities (during their career exhibitions). They don't show more interest in our courses, and it's only after not getting admission to universities that they start to seek information. I think that for them not to be ready for us leads to them not doing well in our schools (RP13).

Theme 2.5: High failure and dropout

Three participants indicated that a high failure rate is a challenge that affects other learners who are on the waiting list, not to be accommodated due to limited space occupied by those who are failing. Dropout is also a challenge that prevents schools from having measurable throughput rates and is a waste of resources. This is how three participants revealed it:

Our learners don't take education seriously as we have a high failure rate and that affects the intake of other learners on a waiting list because we can't take more students if those who are at entry levels are not progressing. For us to take other learners, there should be some movement and graduation of course (RP4).

The following participant raised the issue of failure rate and dropout rate as follows:

The failure rate and drop-out rate are very high. Our learners don't seem to take advantage of opportunities given to them by the government. We hardly have students who can pass on record time and that also limits the space for new students' intake (RP6).

Another participant also shared the same sentiment about the issue of students who are not passing and some ending up dropping out as follows:

Failure rate and dropout are very high. It seems like these kids don't care much because NSFAS is the one funding them, not their parents whom they can account for. They don't use their money to buy books but instead, they use money for other things. Most of our students, especially engineering students, don't do N3 up to N6; they usually drop out at N4 and N5, and as a school, we also like to see them study up to N6 and graduate with diplomas so that we know that we are able to have measured throughput. It's not only in our schools but in all TVET schools (RP8).

Theme 2.6: Workload and shortage of skills

The study results show that lecturers are exposed to too much workload as they are expected to teach NCV courses in the morning and Nated courses in the afternoon. The findings also reveal that there is a shortage of artisans, and this is how it was confirmed:

We also don't have enough artisans or well-trained lecturers to teach our students (RP1).

The following participant raised the issue of staff who are not fully trained as follows:

We also have teaching staff who are not fully trained to teach and provide practicals to our students. You will find that some are good at giving practical knowledge to our students, not theory while some teaching staff are teachers by profession, but they cannot give proper practical skills to our students and sometimes that leads to less pass rate. We also don't have enough lecturers to teach both NCV learners and Nated learners and as such we use the same lecturers for both NCVs and Nated programs and that leads to longer working hours (RP13).

Another participant raised the issue of employees not being given competitive salaries that can attract experienced people on board as follows:

Our government should also offer our employees competitive salaries because right now we cannot attract well-trained and experienced teaching staff especially engineers who can fully train our student engineers (RP6).

The following participant raised the issue of workload in terms of teaching lecturers expected to teach both NCV and nated learners as follows:

We also don't have enough lecturers and the same lecturers who teach NCV learners are also teaching Nated courses learners (RP8).

Subtheme 2.7: Procurement

Procurement is the act of acquiring goods or services by commercial entities. The data indicate that universities employ third-party entities through a tender process to procure various items, ranging from stationary supplies to construction infrastructure. However, this approach is deemed too expensive. This is how one participant confirms the finding:

I think the issue of tender is taking our money more than it should because everything is bought and supplied through tender, from stationery to infrastructure. I think our government should do away with the tender issue and employ people who will be under the Department of Public Works like before. I think we are paying three to four times what we could if we could have our buyers who will buy straight from the factories. We are producing different types of engineers, including plumbers and electrical engineers and if I could have my way, I could make sure

that the students we are training are the ones who are helping in infrastructure development under the supervision of experienced artisans (RP13).

- What are the roles played by public TVET schools' stakeholders in providing quality education?

Theme 3: Stakeholders' Role

A stakeholder is a person or a party that has an interest in an entity and can either affect or be affected by an entity's decisions. This theme centres on the responsibilities of many stakeholders in delivering high-quality education at TVET schools. The following are the subthemes that have been identified as part of stakeholder roles: government role, student role, and management role.

Theme 3.1: Government's role

The government, in the form of the Department of Higher Education and Training, is the owner or employer that pay wages, and funding to the schools, and designs policies, guidelines, and regulations that should be followed. The findings on this subtheme call for the government to invest more in TVET Schools and monitor their investments so that they will be able to provide quality education. This is how some participants confirm their findings:

The government should invest in training our teaching staff (RP1).

The following participant raised the issue of the central government led by the ruling party as an important stakeholder that should invest more in TVET schools as follows:

It should start with the political will of the ruling political party. They should know that TVET schools are the hubs of skills development, as most students from high schools don't pass with a bachelor's, which is the requirement to be admitted in most South African Universities. As such, the government should invest more in building infrastructure and providing resources because right now we are overcrowded and even the student intake is not even half of the applications we receive from our learners (RP4).

The above opinion was also supported by the following participant in this way:

Our government should invest more in TVET Schools's infrastructure so that our students can have enough teaching facilities to enhance the quality of education that we offer. Just like in universities, those who can pay their fees should not necessarily get free education because the government is not able to provide funds to all students. We are trying with the little we have (RP6)

The response by the following participant suggests that the government as the main shareholder, should also monitor how its investment is being utilized:

Our government should invest more in TVET schools and check if we are really utilizing the investment. They should invest in us even more than they do in universities because we are the hub for skills development (RP8).

The following participant has indicated that the government or the Department of Higher Education should play their part by reviewing TVET schools' employee salaries:

Our government should also offer our employees competitive salaries because right now we cannot attract well-trained and experienced teaching staff, especially engineers who can fully train our student engineers (RP6).

Theme 3.2: Student role

Students are the main stakeholders of TVET schools because without them, schools cannot exist, and if they do exist, they would not be able to serve their purpose. Two participants indicated that students should play their part by being serious with their education and be psychologically ready to learn and this is how they have put their responses:

Our students need to take education seriously because as schools we can do everything, we can put all our energy trying to train them but if the people we serve are not serious, it will be a waste of resources (RP8).

Students also must be psychologically ready to acquire knowledge from TVET schools as echoed by this participant:

Students who decide to enrol with us should be psychologically ready and not just come to us because they have nowhere to go (RP13)

Theme 3.3: Management role

TVET schools' managers are important stakeholders as they are the ones whom the government entrusts with its investment, which should be utilized accordingly. From the findings, it shows that schools managers have a lot to do to make sure that infrastructure is built and maintained and involve employers or have a partnership with them in the provision of quality education. This is how participants confirmed the findings:

Lecture halls should be built to accommodate students because right now, our teaching staff are forced to work overtime in the afternoon to accommodate NCV and native learners. Our library should be provided with books as it is small and has old books. There should be a training centre that should be built so that our engineering learners can also be trained to be artisans rather than having to pay other private companies to train them afterward (RP1).

There is a need for TVET schools to form or strengthen relationships with industries or employers, as echoed by this participant who is an employer:

I don't think there is any skill that should be added, but schools should work with us from the beginning when students start with their courses so that students will understand what we currently expect from them when they are done with their studies (RP2).

The same suggestion was also shared by the following participant who is a former student but added that partnership will also help them get in-service training without struggle:

I think schools should have partnerships with employers so that when we finish, they will just place us to easily do in-service training for us to get our diplomas. It is not easy to find places to do our in-service training, and some students end up giving up (RP5).

According to the suggestions shared below, employers have certain expectations from schools' graduates, and it is through partnerships that they can raise their expectations:

We are the ones who know what is expected of our future employees, schools should sometimes invite us when assessing their practical skills, that is if they also assess their practicality (RP11).

As employers, we should have good partnerships with the schools, and it should be initiated by them. Our relationship should not start when they send students to us for practical, err... I think they should also involve us when they are designing their curriculum. Well, I don't know if they invite representatives of big companies, but as for me, I would like our input to be part of the curriculum design (RP14).

- *What are the important skills necessary for the employability of TVET schools' graduates?*

Theme 4: Preparedness of school graduates

For school graduates, readiness is the key to entering the world of work, and this theme focuses on the readiness of TVET school graduates from their own perspective and that of their employers. Two subthemes were identified from this theme, which are as follows: practicality and curriculum, and period of study.

Theme 4.1: Practicality

Practicality in this study pertains to the educational activities that a student engages in to acquire practical knowledge, hence improving their job-related skills and enabling them to fulfil workplace expectations. From this subtheme, the findings reveal that Nated programs lack enough practicality as compared to NCV courses, and this makes TVET schools' students not fully ready for the world of work. This is how the responses confirm the findings:

I think they should also add more practicality in our programs, just like for those who are doing NCVs, because when we finish our programs at the schools, we are not fully equipped (RP4).

The voice of the former participant was also supported by an employer participant, adding that practicality would also help graduates to start their own business:

Farming is not about theory but practicality because as farmers we encounter different challenges, and I need people who are problem solvers not only focus on what they know. They should focus more on practicality than theory so that when those students come out of schools, they will be ready to start their own things

because, as farmers, we always employ ordinary people whom we will teach and only employ two or three people who come from the schools (RP2).

The issue of TVET schools' infrastructure also contributes to some graduates to be not fully prepared as alluded to by this former student:

Well, no. The problem that led me not to be fully prepared was the workshops. We did little at the workshops. When we were assigned to do some of the projects, we sometimes did not have the tools and the parts to finish the project on time. Especially in electrical works, there were shortages of equipment, especially for heavy current. I am just hoping that maybe I will get into a good electrical company where I could learn a whole lot about electricity (RP9).

Subtheme 4.2: Curriculum and period of study

The findings show that TVET schools should be reviewed, especially Nated programs, while NCV programs should be upgraded so that they will not be necessarily equivalent to Grade 12 but have an NQF level that is above Grade 12. Other participants also indicated that there is a need to add modules in business studies that will empower students to have at least one technical skill that will enable them to know a specific industry or product. This is the confirmation of the findings:

I think the period for teaching should be extended from only 18 months to three years because currently we are expected to do N4 – N6 for six months each with little practical. For us to be given our diplomas, we are expected to look for our own training centre for an apprenticeship. It is not easy to get the place and some

of us end up going to work for a shop that sells agricultural materials. Our schools should have their own big farms where we can learn about everything about vegetables and animals (RP3).

The following participant suggested that extending Nated programs beyond N6 or merging business programs with engineering programs may increase the chance of being employable:

If TVET schools' programs can be extended beyond N6, it is then that we can be taken seriously by the public and learners. Our business programs like business management program, human resource management, financial management, and human resource management, etc, should be incorporated into other programs like tourism management, hospitality, and fashion design or incorporated with other engineering courses to give our students a boost in finding employment or starting their businesses with the core skill they have gained from us (RP4).

The following participant maintained that TVET schools should fully train the students as it is not easy to get in-service training.

I think if whoever is responsible for the curriculum should add more workshop time just like for those who are doing NCVs because it is also hard to get a place for in-service training even when you are doing it for free (RP9).

Technical and industry-specific knowledge

Theme 5: Employability skills and attributes

There are certain skills and attributes that are required by employers and that are necessary for one to have a good chance of being employed. Those skills, according to participants, range from technical skills, business skills, creativity, problem-solving, innovation, and knowledge about the industry to which one is applying.

5.1. Technical and industry-specific skills

Evaluating the curriculum for business students is crucial to ensuring they are adequately prepared for the professional world. The participant's suggestion highlights the need to integrate specialized skills that align with real-world demands.

I think schools or those who design TVET schools' curriculum should review it and include elective modules for business studies learners. For instance, they can develop modules that can allow learners to know about education, hospitality, tourism, agriculture, and food processing so that they can understand the industries on which they choose to focus (RP12).

The participant below indicated that one should have technical skills to be considered employable:

The know-how of the industries that you are interested in can increase the chance of being employable (RP3).

5.2. Passion and willingness to learn

Passion and willingness to learn are some of the attributes that were revealed from the findings as some of the important aspects that increase the chance of being employable, and this is how the respondents confirmed them:

As a farmer, I will only focus on agriculture. Err, if as a student you decide to do farming, you should have a passion for both animal and crop farming. Doing agriculture when you don't even have a small garden, at least during the winter season, planting some vegetables will not make you a good student. For you to be employable, you should have passion so that you won't take long to understand farming and its dynamics. For me to employ you from the schools, I expect you to know all the science about animal farming, ranging from breeding, vaccination, and understanding animal diseases and treatment. I also expect someone who can present to me what I can do to improve my farming to generate more income, not me teaching him or her about everything (RP3).

Having an attitude of wanting to learn more from experienced people who are already on the job is also a prerequisite for employers, as suggested by this employer participant:

I would also like to give advice to the new graduates to not only boost their qualifications but also be willing to learn from those who are already in the industry. More of our employees don't have qualifications, but we are working well with them, and they are more committed to their jobs than school graduates..... they can learn because less education in our industry does not necessarily mean (RP14).

5.3. Entrepreneurship and soft skills

The inclusion of business skills and soft skills in engineering programs is increasingly recognized as essential for preparing graduates to navigate both technical and entrepreneurial challenges in the professional world. A participant emphasized the need to integrate business insight into engineering curricula, particularly for those aspiring to become self-employed or start their own businesses.

Well, they should add business skills for people like me who will want to be self-employed or to start a business (RP9)

Soft skills like creativity, innovation, customer service and problem-solving are also required for one to be employable, as suggested by this participant:

They should add creativity, innovation., customer service, and problem-solving skills. We need employees who are creative and innovative. Our customers need people who can fix cars. They should not only teach them how to fix cars but customer service management should be blended into their curriculum (RP11).

Additionally, communication, leadership, and risk-taking skills were also suggested by this participant, who is an employer:

I will say communication skill is the key in our industry. For them to fit well in our industry, graduates should have leadership skills, be able to take risks and have good customer service (RP15).

4.5. Merged Results

Table 4.30 presents the comparison of results collected using quantitative and qualitative methods. The results were collected from four groups of participants, which

were school staff (quantitative data), former students, employers, and school managers (qualitative data). Both methods complemented each other, were weighted equally, and provided useful insight into participants' perceptions of quality management strategies used by TVET schools in producing employable graduates. From quantitative results, significant results, and major themes from qualitative results were compared to identify similarities, differences, and inconsistencies. Five primary themes were identified in this study: strategies used by TVET schools to produce quality students, obstacles that impede the delivery of high-quality education, the role of stakeholders in providing quality education, the readiness of school graduates, and employability skills and qualities.

Table 4.30*Merged results*

Theme	Quantitative (n= 256)	Qualitative (n= 15)	Interpretation
Strategies used by TVET schools to produce quality students	1. Recruitment of students • Most respondents agree that their schools have strategies to recruit students and staff members to their schools.	1. Recruitment of staff students • The findings revealed that TVET schools have outreach programs that are aimed at recruiting the right students and raising awareness about the programs they offer.	1. Both quantitative method and qualitative method had an agreement in terms of having recruitment strategies to recruit the right students.
Challenges that hinder the provision of quality education	2. Staff members' remuneration and retention • Most participants agreed that they are remunerated fairly. • Most participants disagreed that their employers are able to retain them. 3. Availability of facilities for teaching and learning including	2. Staff members' remuneration and retention • The findings revealed that salaries are determined by the government, and they are unable to retain staff members as the salary is low. 3. Availability of facilities for teaching and learning. • The findings revealed that lack of resources is the main	2. The quantitative and qualitative methods do not agree on the fairness of remuneration, but they agree on the inability to retain staff members. 3. Both quantitative and qualitative methods had an agreement in terms of the

	classrooms, laboratories, and libraries. • Most participants disagreed that there are enough facilities for teaching and learning. 4. Maintenance of facilities in response to changing environment • Most participants disagreed that their schools have strategies to maintain their facilities in response to the changing environment. 5. High production of quality grades • Most participants agreed that their schools are producing quality grades	problem that hinders the provision of quality education. 4. Maintenance of facilities in response to changing environment. • The findings revealed that some schools have robotics in their laboratories in response to offering learners quality education related to the fourth industrial revolution. 5. Failure and dropout rate • The findings revealed that failure and dropout rate is very high which limits the enrolment of new students	lack of facilities for teaching and learning. 4. There is no agreement between quantitative and qualitative methods. 5. There is no agreement between quantitative and qualitative methods.
Stakeholder's role	6. Acceptance of feedback from employers and overall	6. Stakeholders' role • The findings revealed there is a need for schools to initiate relationships or have a	5. There is agreement between quantitative and qualitative that there is a need for

	relationship with external stakeholders • Most participants disagreed that their schools accept feedback from employers of the students, but they agreed good relationships with external stakeholders	partnership with employers so that schools will know what employers want from student graduates.	schools to initiate relationships with external stakeholders by accepting feedback from employers of student graduates from TVET schools.
Preparedness of student graduates	7. High-quality programs and curriculum • Most participants agreed that their schools offer quality programs with quality curricula.	6. Practicality • The findings revealed that there is a need to add practicality to Nated programs as it is hard to get place for in-service training.	6. There is no agreement between quantitative and qualitative methods.

4.5.1. Staff remuneration and retention

A conflict emerged between quantitative and qualitative findings regarding perceptions of staff remuneration and retention efforts within schools. Quantitative data gathered from teaching and administrative staff revealed that most respondents felt their remuneration was fair, suggesting a level of contentment with their current compensation packages. However, the same group also expressed dissatisfaction with the employer's retention efforts, implying that while pay may be deemed acceptable, other factors such as career development opportunities, job security, and workplace conditions might not be sufficiently addressed to encourage long-term commitment. On the other hand, qualitative data provided by school administrators painted a different picture. Administrators acknowledged that the compensation offered by schools was inadequate, particularly compared to other sectors. They highlighted that this disparity in pay often led to the loss of highly skilled personnel, such as engineers and key administrative staff, to better-paying industries. These insights suggest that the issue extends beyond mere salary fairness; it reflects systemic challenges in competing with external sectors that offer more lucrative packages and benefits, thereby making retention a persistent issue.

The contrasting findings may be attributed to staff and school management's differing perspectives and knowledge levels. Teaching and administrative staff might perceive their remuneration as fair within their limited understanding of broader market trends or in comparison to peers within the same institution. However, they might lack access to detailed information about how salaries and benefits in other sectors compare. On the other hand, school managers are likely to have a more comprehensive view of the labour market and firsthand knowledge of employee turnover patterns. They know why skilled staff, especially those in high-demand roles like engineers, frequently leave for better opportunities in other sectors. This divergence highlights a need for greater transparency and dialogue between staff

and management regarding compensation and retention strategies. Schools must evaluate their pay structures to remain competitive and develop holistic retention strategies that address professional development, workplace satisfaction, and long-term career prospects. Bridging this gap between staff perceptions and management realities is essential for fostering trust and stability within the workforce, ultimately benefiting both employees and the institution.

4.5.2. Availability of facilities for teaching and learning

There is significant consensus between the results of quantitative and qualitative methodologies concerning the sufficiency of facilities for teaching and learning. The quantitative data reveal that a substantial majority of participants opposed the assertion that sufficient facilities exist for effective teaching and learning. This discovery corresponds strongly with the qualitative data, wherein several citations from participants, including educators, pupils, and administrative personnel, underscored the urgent necessity for supplementary facilities and equipment. These narratives emphasized the necessity of preserving the current infrastructure to satisfy the requirements of high-quality teaching and learning. The convergence of these findings demonstrates collective recognition among stakeholders regarding the difficulties arising from insufficient facilities. Both datasets indicate that this issue impacts multiple facets of the educational process, encompassing student involvement, instructional efficacy, and overall academic performance. Participants identified particular needs, including larger classrooms, contemporary laboratories, upgraded technology, and enhanced library resources. Others emphasized the significance of routine maintenance to avert the deterioration of current facilities, which could further impede the educational experience.

The concordance between quantitative and qualitative data indicates a strong agreement on the necessity of investing in physical and technological infrastructure. It underscores the necessity for strategic planning and resource allocation to rectify these

deficiencies. Institutions must prioritize the extension and modernization of facilities as essential elements for enhancing educational quality. Policymakers and administrators should incorporate the insights from these studies when formulating budgets and pursuing financing to improve the teaching and learning environment. The concordance between the two methods signifies a shared acknowledgement of the infrastructural obstacles encountered by educational institutions. Resolving these difficulties necessitates cooperative endeavours from all stakeholders, guaranteeing that students and educators are equipped with the requisite resources and facilities to attain educational success.

4.5.3. Maintenance of facilities in response to changing environment

There is a clear lack of agreement between the findings derived from quantitative and qualitative methods concerning the state of school's infrastructure and its alignment with the changing environment. The quantitative data indicates that strategies are in place to effectively maintain and adapt schools' infrastructure. This suggests that, at least on paper, schools have systems, plans, or frameworks designed to address environmental changes and sustain their facilities. However, this perspective is sharply contradicted by the qualitative findings, which reveal significant challenges through several quotes from stakeholders. These narratives highlight a pervasive lack of resources or funding, which prevents schools from upgrading or maintaining infrastructure to meet modern standards and demands. The discrepancy between these findings could stem from the distinct approaches of the two methods. Quantitative research relies on structured and standardized questions that may simplify or obscure complex realities. In contrast, qualitative methods use open-ended, probing questions that allow participants to share deeper and more contextual insights. These probing questions may uncover hidden issues, such as financial constraints, inadequate policy implementation, or mismatches between institutional plans and actual practices.

Another potential explanation for this divergence is inconsistency in participant responses. Participants might have provided contradictory answers due to varying interpretations of the questions or their differing levels of awareness about institutional strategies and challenges. For instance, some participants may be familiar with strategic plans but less informed about their execution, while others may be more focused on the day-to-day realities of resource shortages. The researcher can conclude that while the quantitative data portrays a surface-level optimism about infrastructural strategies, the qualitative findings paint a more complex and concerning picture of unfulfilled plans and resource inadequacies. This inconsistency suggests a gap between planning and implementation, emphasizing the need for a more integrated and transparent approach to infrastructure management. Future research should aim to reconcile these discrepancies by combining quantitative and qualitative insights to capture both the strategic intentions and the operational realities of maintaining schools' infrastructure.

4.5.4. Production of high-quality grades

A significant disparity exists between the results of the quantitative and qualitative methodologies, highlighting divergent views on the performance and consequences of universities. The quantitative data suggest that universities are generating high-quality grades, potentially indicating the existence of students attaining distinctions and excelling academically in particular fields. Nonetheless, this favourable quantitative depiction starkly contrasted with the qualitative data, wherein several citations from stakeholders, including students, professors, and other observers, indicated disturbingly elevated rates of failure and attrition. These issues adversely affect the continuity of students' academic pursuits and substantially constrain schools' capacity to register new students, consequently hindering overall growth and sustainability. The discrepancy in results may be ascribed to the fundamental variations in data gathering and analytical methodologies. The quantitative technique depends on structured,

closed-ended questions, which may fail to encompass the broader context or difficulties students and institutions encounter. The qualitative method offers greater flexibility and depth via open-ended questions, allowing participants to convey nuanced experiences and thoughts.

Furthermore, the observable output of quality grades indicated in the quantitative study may be affected by the selective admission of students who reach schools with differing levels of achievement from grade 12. Schools may admit students with strong academic histories, who are more likely to excel and enhance the proportion of distinctions in statistical outcomes. Nonetheless, these documented quality results may not inherently represent the total pass rate or the underlying problems contributing to elevated failure and dropout rates. This indicates that whereas quantitative data presents an optimistic overview of academic performance, qualitative data reveals underlying problems that could jeopardize the long-term success and inclusion of the institutions. Addressing this disparity necessitates a more cohesive methodology for data collection and analysis, ensuring that quantitative indicators and qualitative narratives guide actions to enhance student outcomes and institutional efficacy.

4.5.5. Acceptance of feedback from employers and overall relationship with external stakeholders

There was agreement between the findings of the quantitative and qualitative methods, which highlighted a significant insight into the dynamics between schools and the employers of student graduates. Quantitative data revealed that most participants disagreed with the notion that schools actively accept feedback from employers regarding the performance or employability of their graduates. Despite this, there was broad consensus among participants that the relationship between schools and employers is generally positive. This quantitative perspective aligns with qualitative insights gathered through interviews with the participants. Several quotations from former students and employers emphasized the importance of forging

stronger partnerships between schools and employers. Employers highlighted the need for deeper involvement in schools' processes, such as curriculum development, internships, and feedback mechanisms. These stakeholders underscored that employers, as the end-users of graduates' skills, possess a unique understanding of the competencies required in the workforce. Their active participation would help bridge the gap between academic training and industry demands, ultimately enhancing the employability of graduates and aligning educational outcomes with real-world expectations. This finding suggests that while relationships are cordial, schools need to establish more structured and systematic channels for employer engagement to foster a more strong collaboration.

4.5.6. High-quality programs and curriculum

The findings reveal a difference between quantitative and qualitative assessments regarding the quality of programs and curricula in TVET schools. Quantitative data suggest a consensus among most participants that the programs offered are of high quality, featuring strong curricula that meet general academic and vocational standards. This agreement highlights confidence in the theoretical foundation and the structured content provided by the schools. On the other hand, qualitative insights bring to light significant concerns regarding practical application, particularly within NATED programs. Several participants emphasized the need to integrate more practical components into the curriculum to better align with industry needs. These qualitative responses suggest that while theoretical knowledge is well-covered, students might not be adequately prepared for hands-on tasks and real-world challenges. This divergence underscores the importance of adopting a blended approach to curriculum design, where theoretical and practical elements are balanced. It also highlights the necessity for schools to continually engage with industry stakeholders to ensure their programs remain relevant and effectively prepare students for the workforce. Addressing this gap could enhance the overall perception of program quality and better serve students' career readiness.

4.6. Evaluation of Findings

Is there a statistical significance between the quality management strategies used by TVET schools and the quality of students produced?

The objective of this study was to examine whether there is a statistically significant relationship between quality management systems and the resulting quality of students. The questionnaire included quality management strategies such as staff recruitment and selection, staff training and development, staff incentives and rewards, staff involvement and participation, student selection and admission, programme design, teaching processes, assessment processes, curriculum management, geographical location, facilities for teaching and learning enhancement, incentives and rewards for students, student participation and involvement, integration for staff and students, schools adaptation, and overall teaching and learning quality. Processes used to produce quality students were found to be statistically significant in relation to overall teaching and learning quality.

As per the quantitative results of this study, there is statistical significance between the quality of education received by the students at TVET Schools and the quality of the graduates produced. System thinking offers an analytical lens to comprehend such interconnectedness, allowing managers to pinpoint leverage points for quality improvement, according to recent research by Mingers and White (2020). The best way to improve educational quality, according to Jackson (2019), is to implement integrated quality management systems that guarantee feedback loops between graduate outcomes, industry demands, and instruction. Thus, Systems Theory provides a theoretical justification for the observed statistical relationship in this study, emphasizing that graduate quality is not a singular output but rather the culmination

of coordinated, interdependent processes throughout the institution. Students enter the system as the inputs that are affected by the functions and processes of the system (Schools) for them to be quality outputs that are employable or redundant. The theory emphasizes that the overall quality of the product is due to the interrelationships of the toby Evans and Lindsay (2014) as reviewed in the literature that designing processes that produce and deliver goods and services have a significant impact on cost or profitability, flexibility (producing the required quantity of products needed by customers), and output quality.

- **What strategies are used by TVET schools to produce quality students?**

The purpose of this research question was to investigate the strategies that are used by TVET schools in Limpopo province to enhance the quality of education that is aimed at producing employable graduates.

The findings show that some schools take care of their employees' well-being through wellness days, where employees are informed about the importance of maintaining healthy lifestyles to be productive at the workplace. The findings suggest that some TVET schools have implemented wellness initiatives, such as wellness days, to support their employees' well-being and improve productivity. Wellness days often include educational sessions on the importance of maintaining a healthy lifestyle, covering topics like nutrition, mental health, stress management, and physical activity. According to Rossouw and Rothmann (2020), employee well-being initiatives in educational institutions can lead to increased job satisfaction, reduced absenteeism, and enhanced overall productivity. These wellness programs are part of a broader organisational strategy to promote a healthy work-life balance, essential for sustaining long-term employee engagement and performance.

Recent studies have shown that organisations that prioritize employee wellness see significant benefits not only in terms of productivity but also in employee retention and morale. For instance, Johnson and Johnson (2021) argue that workplace wellness programs are crucial for fostering a positive organisational culture, particularly in high-stress environments like educational institutions. Moreover, wellness days can help create a supportive workplace where employees feel valued and motivated, improving job performance and reducing burnout rates (Grant & Kinman, 2021). Additionally, Cooper and Quick (2022) highlight that wellness programs in educational settings are becoming increasingly important, especially in response to rising mental health concerns among staff. The integration of wellness days into the regular work calendar demonstrates an institution's commitment to the holistic well-being of its employees, helping them manage both physical and mental health challenges that could otherwise impede their ability to perform effectively.

The results also show that teaching staff are motivated and appreciated annually through monetary and non-monetary awards for their outstanding achievements. According to Stachowska and Czaplicka-Kozłowska (2019), Motivating is one of the most important functions of the organisation's management and the ability to motivate is considered one of the most significant managerial skills. Peter (2020) has recommended appreciation, recognition, commendations, award-giving and praise in higher education institutions as strategies that improve staff commitment to work and improve the general performance of the institutions. According to Biswas and Giri (2017), motivational communication, improving workers' job satisfaction, realizing the value of inclusion, and sharing a vision with them can all lead to productive workers and amicable interactions as well as long-term self-confidence, self-discipline, cooperation, increased efficiency, and strengthened bonds. The most frequently

cited intrinsic factors influencing employee motivation, according to Njambi's (2014) research, were things like the organisation's appreciation of employees, the level of skill required, the impact of employee perspectives on their jobs, their ability to develop skills, and their sense of making a positive contribution to the company's expansion.

The results showed that some of the schools are incorporating the latest technology into their curriculum, i.e., considering 4IR and robotics as part of their curriculum. In terms of recruiting students, the results showed that schools have outreach programs where they go to secondary schools, taxi ranks, and in university career exhibitions where prominent students are informed about the programs offered at TVET schools. According to Brown (2015), teachers and students must be able to solve and manage complex tasks using 4IR. According to Ganiyu et al. (2021), 4IR disruptions are said to have brought about an improvement in people's living standards globally and have raised living standards globally. Gleason (2018) asserts that the new frameworks created in reaction to the changes would raise the difficulty level and employment volatility. The study found that new approaches to 4IR education will prepare teachers and students for leadership roles in a world of rapidly accelerating change by fostering both technical competence and a keen understanding of ethical duty toward the human condition. According to McGinnis's (2018) study, higher education institutions should allow their students to experiment with technological systems to prepare them for the future since we can never be sure what the future will bring. Despite the advantages of 4IR technology in teaching and learning, Penprase (2018) stated that higher education institutions still need to concentrate on modifying their curricula to incorporate technological systems in their teaching and learning. The author concluded that faculty members and students would gain from a 4IR education in a way that will enable them to assume leadership roles in a world that is changing quickly.

As part of the initiative to produce quality students who are creative, innovative, and business-minded, the results showed that some TVET schools in South Africa encourage students to participate in organized extracurricular activities, such as the mathematics Olympiad, creative writing contests, debate competitions, and other skill-based events. These platforms provide students with the opportunity to display their talents and develop essential skills beyond the classroom. Winners of these competitions often go on to represent their institutions in inter-school events, fostering a spirit of healthy competition and skill enhancement. According to Shay et al. (2021), extracurricular activities are crucial in developing students' soft skills, such as teamwork, critical thinking, and problem-solving, which are highly valued in the modern workforce.

Furthermore, the findings revealed that students exhibiting high levels of creativity and innovation are not only recognized but also mentored to refine their talents. These students are encouraged to participate in international competitions, such as the WorldSkills Competition, which provides a platform for students from higher education to showcase their technical and vocational skills globally. According to Powell and McGrath (2022), such competitions are vital for exposing students to global training standards and benchmarking systems, ensuring that their skills are competitive on an international scale. Participation in these competitions not only enhances students' confidence and skills but also increases their employability by aligning their competencies with international industry standards. Ndedi (2020) highlights that exposing students to real-world problems through competitions helps them apply their academic knowledge in practical scenarios, thus developing a business mindset. Moreover, such initiatives are in line with South Africa's broader educational goals of promoting entrepreneurship and reducing youth unemployment by equipping students with the skills needed to succeed in both the local and global job markets.

In addition, Cloete (2022) emphasizes that mentorship programs play a critical role in helping students refine their ideas, guiding them through the process of innovation, and preparing them for challenges in the professional world. By entering competitions like WorldSkills, students gain exposure to cutting-edge technologies and methodologies, further enhancing their technical expertise and creativity. Lastly, on this theme, the results of this study showed that schools have outreach programs as part of their recruitment strategies to get well-informed students for their variety of programs. Recent research, including Bhanugopan et al. (2021), indicate that efficient marketing of vocational programs, particularly through the demonstration of successful graduates, increases their appeal and credibility among prospective students and their families.

- ***How do the challenges faced by TVET schools hinder the provision of quality education?***

This research question aimed to investigate how TVET schools challenges affect the provision of quality education. Quantitative and qualitative findings show that TVET schools do not have enough facilities and materials for teaching and learning. Quantitative data shows a mean score of 2.43 (availability of classrooms and laboratories), 1.96 (library facilities and books), and a mean of 1.89 (facilities for student and staff amusement). Participants' responses to this research question generated one theme with seven subthemes for qualitative data. The subthemes were lack of resources, period of teaching and learning, losing staff members to other industries, perception of students, failure and dropout, workload, and procurement. Lack of adequate teaching facilities, failure and dropout rate, perception of learners, and workload of teaching staff were found to be the main challenges that hinder the provision of quality education.

The deficits in technical and vocational education and training schools, as Buthelezi (year?) points out, were not limited to workshops alone. Furthermore, the Technical and Vocational Education and Training (TVET) schools are facing challenges in terms of a lack of furniture, textbooks, libraries, computers, printers, photocopiers, and other essential equipment for vocational education (Buthelezi, 2018). According to Buthelezi (2018), these shortages were stated as one of the contributing causes that led to the high failure rate in TVET schools. The findings are confirmed by Makibanyane and Khumalo (2021) who conducted their study in two schools in Free State (South Africa). Their study found that factors such as poor class attendance due to their perceptions, poor academic support, a shortage of staff, and poor infrastructure are impeding the provision of quality education to students. A study that also confirms the challenges faced by TVET schools in South Africa was conducted by Buthelezi (2016) to understand lecturers' interpretation or perception of post-apartheid TVET schools' reform. He highlighted the need for classrooms and workshops or simulated environments for practical work to be carried out. The findings are also supported by Dlamini (2015), who conducted a study in TVET schools that are based in Mpumalanga province (South Africa) to examine the skills required from TVET students by businesses. The researcher found that poor leadership, management skills, poor performance, and inequitable resources in TVET schools are stumbling blocks to providing quality education. In addition to what other researchers have found, the issue of procurement through the tender system was also found to be a challenge that hindered the provision of quality education in this study. Participants revealed that it was too costly to purchase stationery and other useful equipment using third parties as they could be charged more than three times the actual price if they were to buy on their own. Such a process was found to be taking money that could be used to fund other infrastructure development projects.

- ***What are the roles played by public TVET schools' stakeholders in the provision of quality education?***

The purpose of this research question was to investigate the roles that should be played by different stakeholders in the provision of quality education. The findings of this study found three important roles that should be played by the government, which are: investing more in TVET schools' education, overseeing their investment, and reviewing the salaries of employees of TVET schools. For quality education to be implemented properly, the findings reported that students should play their role by taking education seriously and being psychologically ready for TVET schools' education. According to the findings of this study, school management roles include infrastructure development and initiating and maintaining partnerships with industries or employers of school graduates so that they assist each other in producing quality students or students who are employable. In both qualitative and quantitative data, there is minimal engagement between schools and industries. Plooy and Preez's (2022) study also showed that school-industry engagement is minimal for both students and staff. The study suggested the involvement of industries in syllabus design for training relevance, employability, and work readiness. The above study also calls for lecturers who are actively involved with students to be actively involved in programs that require students to be in touch with the industry, such as work-based placements.

Schools' roles in managing stakeholders were supported by Dess et al. (2012) from the literature reviewed, who stated that all organisations and identified stakeholders should be regarded as strategic partners who should be consulted and involved starting from strategic planning, policy development, and new product/ program development for ultimate success. Saxena (2014) also suggested that for the sake of quality welfare and development of higher

education students, institutions of higher education should consult and involve stakeholders. The findings concerning the working relationship were supported by Edelenbos and Klijn (2006), who stated that stakeholders who are consulted and involved make it easy for the organisation to successfully implement its strategy or plan as they take pride in the plan's design and good governance.

- ***What are the important skills necessary for the employability of TVET schools graduates?***

The purpose of this research question was to find out the skills that are important for graduate students' employability from the employers' perspective. For students to be prepared for the world of work, participants suggested that schools should add more practicals or workshop time, especially on Nated programs just like in NCV programs. These findings justify what Mohammad Shafi et al. (2021) suggested about quality improvement at higher education institutions. According to Mohamad Shafi et al. (2021), teaching methods and practical teaching application approaches should be revised and utilize the space and facilities of factories to teach practical training so that students will be able to learn on the job. Both participants (former students, school managers, and industry representatives) in the qualitative data of this study showed an imbalance between practical and theoretical parts. Both groups show the need for more practical for the technical know-how aspect of the job. This finding is supported by Plooy and Preez (2022), who also found that TVET schools are not able to balance time for theory and practical.

The findings of this study highlight that a combination of technical skills, job-specific know-how, and passion are critical for employability. In addition to these, participants emphasized the importance of leadership, problem-solving, innovation, creativity, and customer service management as vital skills for thriving in today's dynamic job market. This aligns with

recent research by Kearns and Madden (2021), who noted that employers increasingly seek candidates who possess not only technical expertise but also demonstrate strong, soft skills, such as adaptability, critical thinking, and emotional intelligence, to navigate complex workplace environments.

Moreover, the ability to apply acquired skills and adapt to changes within organisations is crucial for sustained employability. According to Jackson (2019), employability is not just about having the right qualifications but also involves the ability to continuously develop new skills and adapt to the evolving demands of the job market. This perspective is echoed by Andrews and Higson (2020), who argue that the most employable candidates are those with a blend of both technical and transferable skills that allow them to transition smoothly across different job roles and sectors.

The study also identified a critical issue regarding the duration of teaching, particularly for engineering programs. Participants expressed concerns that the twelve-week teaching period is insufficient. Extending this period would allow students to gain deeper practical experience and mastery of their subject matter. Papier (2022) suggests that the current duration of technical and vocational education programs in South Africa often limits the depth of practical experience that students can acquire, especially in highly technical fields like engineering.

Additionally, there is growing advocacy for extending Nated programs beyond the N6 level, particularly for students interested in advancing their studies. According to Maringe and Osman (2021), extending the educational ladder in TVET systems can offer students greater opportunities for academic progression, making them more competitive in the labour market. This aligns with the view of Powell and McGrath (2022), who suggest that further specialization

and higher-level qualifications within TVET frameworks can significantly enhance graduates' career prospects and adaptability in a rapidly changing economic landscape.

4.7. Chapter Summary

In pursuit of finding answers to the main research questions in exploring how quality management strategies are used by TVET schools in producing quality students, this chapter presents the findings, analysis, and evaluation of the findings. Before the presentation of the findings, the researcher discussed how the trustworthiness of the data was managed with an emphasis on the confirmability, transferability, dependability, and credibility of the findings in terms of how data were triangulated, the accuracy of the data, and how research biases were managed. Results were presented and analysed based on the method used, which is a mixed method starting with the quantitative data, followed by qualitative data. Quantitative data collected from schools' admin and teaching staff were analysed using SPSS software, and all 256 questionnaire responses were found to be valid. All quantitative variables (excluding biographical questions) were merged into constructs based on their relationships and correlated against each other to find their statistical significance. At $p < .001$, constructs such as teaching processes, curriculum management, teaching and learning quality, and teaching and learning facilities were correlated against each other and were found to have a negligible positive correlation to a highly positive correlation. Other constructs were correlated to each other but did not give enough evidence for statistical significance, or they were constructs that cannot be used to conclude (e.g., recruitment of new staff members and student involvement or staff involvement).

The qualitative data were provided exactly as they were retrieved from the recordings of the participants' interviews. Participants raised numerous challenges, including inadequate teaching and learning facilities, excessive workload, negative perceptions of students, and the

failure of various stakeholders to fulfil their roles. These obstacles are impeding the delivery of quality education to TVET schools' students, resulting in graduates who are ill-equipped for the workforce. The responsibilities of many stakeholders and the essential skills required for employment were also determined. A synthesis of qualitative and quantitative findings was conducted to ascertain commonalities, disparities, and incongruities. Comparable findings were discovered about the absence of enough resources for instruction and learning, as well as the insufficient connection between educational institutions and external parties. Disagreements were found in the retention of employees, maintenance of facilities, production of quality grades, and preparedness of TVET schools graduates for the world of work. Differences were attributed to the knowledge of the participants and, the nature of probing questions as compared to closed-ended questions for a questionnaire which lacks follow-up questions. The results of this study were compared with the empirical evidence of other scholars. The chapter that follows will conclude the study, provide implications and recommendations for application, and give directions for future research.

CHAPTER 5: IMPLICATIONS

5.1. Introduction

Although the government made significant investments in TVET schools, the unemployment rate in South Africa rose from 26% in 2017 to 29% in 2019 (Makgato, 2019). South African TVET schools are responsible for training students to become professionals and fostering entrepreneurship, enabling them to make substantial contributions to the country's economic growth. TVET institutions in South Africa differ from universities in that they focus on offering practical training in certain crafts or professions, tailored to meet the demands of the industry. TVET schools are responsible for moulding persons into highly trained professionals and fostering entrepreneurship, enabling them to make substantial contributions to the country's economic growth. TVET institutions in South Africa differ from universities in that they focus on offering practical training in certain crafts or professions, tailored to meet the demands of the industry. The primary inquiry addressed in this study was whether TVET institutions possess the necessary capacity to generate graduates who can effectively meet the demands of the economy or industry and address the shortage of skilled labour in South Africa. This mixed-method study aimed to explore quality strategic tools used to produce employable quality graduates and the challenges that prevent TVET schools from producing quality graduates. The study employed a convergent parallel mixed method design, in which the researcher gathered both quantitative and qualitative data, analysed them independently, and then compared the findings to ascertain similarities, differences, and inconsistencies. Teaching and staff personnel provided quantitative data, while campus managers and principals provided qualitative data. Quantitative data were gathered using a self-administered questionnaire, while qualitative data were obtained through semi-structured interviews. The previous chapter provided the findings and their evaluations. The following chapter will provide the implications based on both qualitative and quantitative findings.

5.2. Implications of the study

- **What is the statistical significance between the quality management strategies used by TVET schools and the quality of students produced?**

The results of this study highlight important areas affecting educational quality and results. The following ramifications underline the importance of these fundamental areas and offer direction for institutional leaders, teachers, and legislators. According to the study, curriculum management has the largest influence on the degree of educational effectiveness. Prioritizing curriculum preparation, content delivery, and learning resources will help to improve student involvement and academic success. The research emphasises that the quality of institutions in teaching and learning is predominantly influenced by fundamental academic and engagement variables, whereas administrative or contextual features may exert minimal or even paradoxical effects. This necessitates specific quality interventions concentrating on curriculum design, staff development, and teaching facilities rather than broad policies or structural elements. The results imply that the focus should be on Curriculum Management, since it has the strongest impact; improvements in curriculum planning, content delivery, and learning materials should be prioritized. Student selection & admission should also be enhanced because a structured admission process can improve student readiness and learning outcomes.

Institutions should use dynamic and flexible curricula that fit technological developments and industry expectations. Policy or academic actions should prioritise the optimisation of the variables currently present in Model 1, rather than pursuing additional predictors. To create a more inclusive and efficient learning environment, curriculum revisions should include digital tools, interactive teaching strategies, and several learning styles.

In terms of TVET schools' geographical area, the results show that geographical differences much shape educational experiences and results. Underprivileged schools and institutions can battle with fewer resources, poor access to technology, and worse teacher retention rates. Policymakers should thus create focused measures to guarantee a fair sharing of finance, infrastructure, and educational resources over several areas. Using regional assistance programs, teacher training investments, and use of online learning environments, one can help close the distance between urban and rural educational establishments. Ensuring students are sufficiently ready for academic difficulties depends on a well-organized admission process. The study emphasizes the requirement of an evidence-based selection mechanism evaluating student preparedness and matching admission criteria with institutional capacity. Pre-admission academic support programs, competency-based assessments, and standardized testing will help raise student success rates. To promote diversity and inclusivity, schools and universities should also consider comprehensive admission procedures that consider socioeconomic backgrounds, learning aptitudes, and development possibilities.

The results also imply that good teaching and learning depend much on consistent, well-organized assessments. Good evaluation techniques help teachers spot student development areas and modify their instruction. Formative and summative exams should be included in institutions using technology-driven solutions such as online testing, adaptive assessments, and real-time feedback systems. Moreover, ongoing professional development for teachers on creative assessment techniques can help to guarantee that assessments are fair, open, and consistent with learning goals. Dealing with these important areas can greatly improve student results and the standard of instruction. Policymakers and educational institutions should work together to implement reforms emphasizing curriculum improvement, fair distribution of

resources, organized admissions, and efficient evaluation systems. Future studies should investigate the long-term effects of these approaches to create lasting solutions for raising education standards everywhere.

- **What strategies do TVET schools use to produce quality students?**

The results emphasize the importance of motivation and appreciation as key drivers of employee performance, particularly in educational institutions. The findings indicate that monetary and non-monetary incentives play a critical role in enhancing the productivity and commitment of teaching staff. The ability of managers to effectively motivate employees is linked to an institution's overall performance and success, particularly in education, where staff morale directly impacts the quality of teaching and student outcomes. The research implies that higher education institutions, including TVET schools, should adopt a comprehensive motivational strategy that integrates intrinsic and extrinsic rewards. This suggests that HR departments in educational institutions should develop formalized reward systems to acknowledge outstanding achievements regularly. By doing so, institutions can foster a culture of appreciation, which could lead to improved retention rates of skilled staff and overall institutional effectiveness. The findings imply that by offering wellness programs to their employees, TVET schools contribute to their staff's well-being and foster a more engaged and healthier workforce, which directly impacts the institution's overall performance. Therefore, prioritizing employee well-being through wellness days and other related initiatives is critical in enhancing productivity and maintaining a positive workplace environment.

The integration of extracurricular competitions and mentorship programs in TVET schools supports developing well-rounded, innovative, and business-minded students. These initiatives not only improve students' skill sets but also provide them with opportunities to

compete and collaborate globally, positioning them for success in an increasingly competitive job market. The research suggests that by incorporating 4IR technologies into the curriculum, TVET schools can significantly enhance the employability of their graduates. By preparing students for these technological advancements, TVET schools can position their graduates for high-demand jobs in industries increasingly driven by automation, artificial intelligence, and robotics.

The implication is that TVET institutions should align their curricula with current technological trends and the anticipated future demands of the labour market. Integrating 4IR technologies into TVET schools' curricula has profound implications for curriculum design, student recruitment, teacher training, and employability. By embracing these technologies, TVET schools can position themselves as leaders in providing forward-thinking, technology-driven education that prepares students for the future job market.

In terms of motivating students to produce quality results, to be employable, or to be entrepreneurial, this study emphasizes the importance of extracurricular activities and international competition participation in fostering the creativity, innovation, and employability of TVET schools' students. This has several significant implications for managing educational programs, student development, and institutional competitiveness in both national and international contexts. The results highlight that extracurricular activities, such as the mathematics Olympiad, creative writing, debate competitions, and skill-based events, play a critical role in student development by promoting essential soft skills like teamwork, critical thinking, and problem-solving. The implication for TVET schools is that extracurricular programs should be integrated as a formal component of the educational experience. Schools may need to allocate more resources, time, and recognition to these activities, ensuring that they are not

just optional but seen as an integral part of a student's holistic development. The findings and recent studies also emphasize the critical role that innovation competitions, mentorship, and real-world problem-solving play in preparing students for local and global job markets. These implications have significant ramifications for educational strategy, employability, and curriculum development within Technical and Vocational Education and Training (TVET) institutions. The emphasis on mentorship and participation in international competitions such as WorldSkills directly affects student employability and entrepreneurship. This global exposure not only boosts their confidence but also aligns their skills with international standards, making them more attractive to local and international employers.

Furthermore, this focus on practical, real-world problem-solving through competitions fosters an entrepreneurial mindset among students. This is particularly relevant for South Africa, where promoting entrepreneurship is key to addressing youth unemployment. The findings underscore the need for educational institutions to prioritize initiatives that prepare students for employment and entrepreneurship, where they can contribute to local economic development. From a policy perspective, integrating global competitions and mentorship programs into TVET schools' strategies suggests that educational policymakers should support these initiatives at a national level. Competitions like WorldSkills allow students to benchmark their skills internationally, which is critical for maintaining competitiveness in a globalized economy. South African education policy should emphasize creating more opportunities for students to participate in these global platforms, potentially through increased funding, collaboration with industry stakeholders, and the provision of mentorship resources.

- **How do the challenges faced by TVET schools hinder the provision of quality education?**

The results obtained in this study, which are similar to other reports of TVET scholars, suggest that there are insufficient human and material resources, including quality and quantity of teaching and learning infrastructures, amusement facilities, fully trained artisans, student housing, and a timeframe for teaching and learning and procurement process. The results suggest that TVET schools are operating under a scarcity of infrastructure, laboratories, and library equipment. TVET schools are not capacitated enough to produce quality graduates ready to face the world of work or bring meaningful impact to the economy. TVET schools are expected to produce engineers, yet they do not have training centres or qualified artisans with industry and academic knowledge and experience. The procurement model used by government institutions, including TVET schools, is also not benefiting TVET schools. Buying and contracting everything through a tender system is not doing any good to TVET schools because they buy things like stationery at a very high price, thus consuming funding that can be utilized in other needy areas. This implies that providing quality education in Technical and Vocational Education and Training (TVET) schools faces numerous challenges that significantly hinder their effectiveness. One of the primary obstacles is inadequate funding, which severely limits the resources available for infrastructure and instructional materials. Many TVET institutions operate with budgets that are insufficient to maintain modern facilities or to acquire up-to-date technology essential for hands-on training. As revealed in this study, students are finding themselves working with outdated equipment, which does not adequately prepare them for the demands of the job market.

For students who are the main customers or the main stakeholders, they are not valued for money. In line with the system theory as outlined diagrammatically in this study, students enter the system of higher education and learning as inputs, hoping to be transformed through the processes and functions of the institutions to be outputs that are employable or quality

graduates that can create opportunities for others after starting their viable businesses. Conversely, through the Department of Higher Education and Training (DHET), the government acts as an investor to facilitate the involvement of TVET schools in the execution of the National Skills Development Strategy, National Development Plan, and other related plans. As an investor, the government also enters a system to enable the TVET schools to take part in alleviating poverty and reducing the country's unemployment rate by providing students with quality responsive programs and developing skills with a special focus on artisan development.

In conclusion, the findings imply that TVET schools in South Africa face several challenges that limit their ability to provide quality education and training. Issues such as inadequate funding, poor quality of education, skills mismatch, administrative inefficiencies, and negative perceptions continue to hinder the effectiveness of these institutions. Addressing these challenges requires a multi-faceted approach that includes increasing funding, aligning curricula with industry needs, improving teacher training, and building stronger partnerships with the private sector. Without these changes, TVET schools will struggle to fulfill their mandate of providing skills and education that contribute to economic growth and reduce unemployment.

- **What are the roles played by public TVET schools' stakeholders in the provision of quality education?**

The findings from both quantitative and qualitative methodologies in this study indicate the necessity of involving many stakeholders by embracing their input and establishing strong relationships. This implies that stakeholders, including educators, industry representatives, students, and government bodies, play a pivotal role in ensuring the curriculum remains relevant, responsive, and aligned with national objectives and market demands. Their active

participation fosters a collaborative environment that enhances educational outcomes and prepares students for the workforce. Involving stakeholders in curriculum management allows for integrating diverse perspectives that enrich the learning experience. For instance, industry representatives can provide insights into trends and skill requirements within specific sectors. This information enables TVET schools to tailor their programs to meet employer expectations while addressing skills shortages in the labour market. Such alignment is crucial for enhancing employability among graduates often faced with high unemployment rates.

Various stakeholders should be granted the opportunity to contribute to the attainment of quality education in TVET schools. This proposal aligns with stakeholder theory, which asserts that a company should generate value for all its stakeholders and establish a mutually beneficial relationship with investors, suppliers, customers, and anyone interested in the company. To achieve this, it is important to cultivate strong relationships with all stakeholders of TVET schools (Freeman et al., 2020). Quality education lies in the cooperation or working relationships among qualified teachers, trained managers, engaged industries, and students who are ready and prepared to learn. Diminishing the influence of one or more stakeholders hinders the provision of high-quality education and learning at TVET schools. Following one of the strategic priorities of DHET (Department of Higher Education and Training) in South Africa, TVET must establish strong partnerships with businesses, industries, NGOs, and government departments. This ensures that the curriculum is adequately supported and that students are offered work placements during their in-service training and after graduation. Effective collaboration between TVET schools and companies enables TVET schools to offer students pertinent curricula and high-quality instruction, enhancing the students' employability prospects. Those in positions of power or who regulate TVET schools have a role to play in fostering relations between all stakeholders without compromising or undermining the role of another.

Considering the significant roles that should be played by different stakeholders in TVET schools, the results were expected.

- **What are the important skills necessary for the employability of TVET schools' graduates?**

The results suggest employers prefer prominent employees with more industry experience than academic experience. Besides the theory part provided to students, graduates are expected to have technical skills, a passion for the job, innovative and creative ideas, customer service management, communication skills, and a willingness to learn from experience. This implies that Technical and Vocational Education and Training (TVET) schools play a crucial role in preparing graduates for the workforce by equipping them with technical competencies and essential soft skills. To enhance employability, TVET graduates must develop a diverse skill set that aligns with industry demands. Among these, critical thinking and problem-solving abilities stand out as foundational competencies. Employers increasingly seek individuals who can analyze complex situations, devise effective solutions, and adapt to rapidly changing environments. This also implies that TVET schools have the responsibility not only to teach theory to their students but also to train and teach them to develop soft skills to increase their chances of being employable. From the participants' point of view, the period of teaching and learning or the issue of trimester, which is applied to engineering students, is a stumbling block for schools to produce quality graduates. It is not only problematic for students who are expected to master both theoretical and practical knowledge in three months for each Nated programme, but also a stumbling block to teaching staff who are expected to teach, give practical training, and provide assessments in such a period. The trimester is very short, and lecturers can only give more attention to the provision of the theory part because the practical component also demands more attention, thus, only testing students through written

assignments. This leads to the majority of TVET school graduates being unemployed due to a lack of relevant skills needed for their respective industries and being unable to compete globally with their peers. Considering the level of education offered to TVET schools students, the researcher did not expect that students (represented by former students' participants) and schools' teaching staff who participated in this study could agree on the need to scrap the issue of trimester for engineering programs to add more workshop time. The study findings indicate that students and teaching personnel in engineering programs face significant pressure to balance academic and practical instruction within a limited timeframe, resulting in degraded quality.

Therefore, these findings reinforce the need for a curriculum that not only focuses on technical expertise but also promotes soft skills development, while allowing students more time for in-depth learning, especially in demanding fields such as engineering. Additionally, extending Nated programs could open new pathways for students wishing to further their education and improve their employability.

5.3. Contribution of the study to the body of knowledge

From quantitative study, the researcher find statistical significance in processes that are used for producing quality students and the overall teaching and learning quality. Part of continuous improvement in higher education is to continuously review their programs/curricula so that they always align with industry standards and technological development. Quality management theories prioritize customer happiness, as well as the factors that enable it (such as people, policy and strategy, and partnerships and resources). These theories also focus on achieving results that benefit both customers and society and emphasize the importance of continual improvement, investing in human capital, and involving stakeholders. The results of this study contribute slightly to the existing literature on quality management in higher

education. The study considers TVET schools as a system where students as customers and the government as investors or owners enter the system as inputs, affected by functions and processes for the desired output. The findings suggest that the difficulties faced by TVET schools in South Africa are negatively impacting the operations and functions of these institutions, making it challenging to achieve the desired outcomes. That is quality graduates who are ready for the world of work and the return on the investment for the government when schools are taking part in poverty alleviation through skills development.

CHAPTER 6: RECOMMENDATIONS AND CONCLUSION

6.1. Introduction

This study has highlighted several critical areas where TVET colleges' quality management could be improved. Issues such as a lack of resources for teaching and learning, high failure and dropout rates, excessive workloads for teachers, ineffective procurement procedures, low stakeholder involvement, and a mismatch between the skills taught and those needed by the industry were all included in the findings. These issues must be resolved if TVET institutions are to produce graduates who are both practically and intellectually skilled, increasing their employability. This section describes areas for future research and provides suggestions for the application of findings in practice. The application recommendations place a strong emphasis on efforts to improve staff capacity, diversify revenue streams, strengthen industry partnerships, improve curriculum relevance, and upgrade infrastructure. The recommendations for future research highlight the need for larger, more representative studies conducted in different provinces and private institutions to enable a comprehensive understanding of quality management in the TVET industry.

6.2. Recommendations for application

The study established that TVET schools lack adequate facilities and equipment for teaching and practical training, have high failure rates and dropout, have a workload for teaching staff members where they are expected to teach both NCV and Nated learners, and have a procurement system that makes them buy goods at higher prices. These findings suggest that TVET institutions should prioritise expanding and improving teaching and learning facilities to generate high-quality and employable students. The schools might consider other modes of funding, like fundraising from the private sector in exchange for training their staff or providing their expertise and knowledge, rather than waiting for the government to allocate

funding. TVET institutions can also consider having their third income stream. They can develop their experimental farm, workshops or any other training centres and commercialize them to generate income. In that way, students will benefit by getting in-service training in-house, the community will benefit by getting products and services from experts, and the schools can generate money for infrastructure development. Those who are in decision-making should also consider reinforcing teaching staff to decrease the workload and bringing in more experts in the field of engineering studies. More investment should be directed into building training centres so that students can do their trades at their respective schools rather than doing them in other private institutions because it becomes too costly for them. Thus, schools can measure the quality of the engineers produced when they have trained them up to being artisans trained by experts under proper training facilities.

In terms of stakeholders' role, the study established that TVET schools are not fully involving their stakeholders in their activities. The study also established that the government is not fully overseeing its investment, and students are not taking their education seriously. According to this discovery, this research suggests that there should be a greater engagement and participation of all stakeholders in TVET schools, particularly collaborations between TVET schools and industry. TVET schools should see fostering relationships with industry stakeholders as a strategy that enhances the curriculum and align the programs with real world demands. This will increase the practicality and sustainability of engineering programs as teaching and learning are expected to be aligned with the latest technology and innovations. Those who are entrusted with engineering campuses should understand their roles and be able to support departments within the campus with the necessary human and equipment resources aimed at producing quality artisans. Such partnerships enable students to gain practical experience through internships and co-op programs, ultimately improving employability upon graduation. The Department of Higher Education and Training should not only entrust TVET

schools leadership to fulfil the purpose of TVET schools because some leadership may be incompetent. The department should have continuous evaluation, not only focusing on the quantity of students who can pass their programs but also on the quality of students produced, the quality of teaching staff members, and the state of facilities that are used to produce those quality students.

In terms of skills and attributes required for the employability of the students, the study established that employers require candidates who have technical skills, a passion for a specific job, leadership skills, problem-solving skills, creativity, innovation, and customer service management. The study also established that TVET colleges are not doing enough to nurture and mould the skills and attributes employers need due to the timeframe given for engineering courses (trimester). Based on these findings, this study recommends that the TVET schools' curriculum should be reviewed in each program so that other important skills may be nurtured and moulded. Just like NCV programs that have Life Orientation and pure Mathematics, which are compulsory for each program, the Nated curriculum should be reviewed to include modules that will allow students to be problem solvers, creative, and customer-oriented. Engineering studies should include business subjects like entrepreneurship so that graduates will not only resort to finding employment after finishing their studies but will be able to start sustainable businesses. By including business subjects in engineering programs, students will be able to be innovative and identify opportunities for them to become business owners rather than wait for government or private companies to employ them. Business studies should include one elective subject that will give them basic knowledge of a certain industry to be employable in that industry. In that way, graduates will be able to have a broad understanding of the industry they are interested in, even if their area of study leads them to become human resource practitioners or marketing practitioners. The study also recommends that decision-makers at TVET schools consider expanding NCV programs beyond level 4 as level 4 is equivalent to

Grade 12, making it difficult for graduates to be employable. For students to have technical skills, the study also recommends that summative assessment be reviewed so that students will not only be assessed using a formal written examination but also a practical examination, especially those in the engineering field. By passing both theory and practical, students will be confident enough to apply their blended learning experience to their respective industries and know their capabilities in terms of starting their own thing.

6.3. Recommendations for future research

Education is always at the centre of developing human capital, and the quality of education offered by higher education institutions should always be evaluated. This study explored quality management strategies in public TVET schools based in the Limpopo province of South Africa, and only three out of five with their different campuses were considered. The researcher utilised a sample of 281 individuals and stated that the discussion focused on a limited number of TVET schools. Therefore, it may not be suitable to extrapolate the study's findings to all TVET schools in South Africa. If the researcher had sufficient resources, they would have included a larger sample of TVET schools and conducted a more comprehensive analysis of various industries to assess the readiness of schools graduates for the workforce. It is necessary to undertake a comparable study in other provinces to gain a comprehensive picture of the educational offerings provided by other TVET schools. Given that this study was done in public TVET schools, it is necessary to undertake a similar study in private TVET schools to determine whether they have similar challenges in delivering high-quality education or if they can generate employable graduates.

6.4. Conclusions

Higher education, more precisely TVET schools, are widely recognized as the primary catalyst for technological advancement and socio-economic progress, and they play a crucial part in a country's development (Afeti, 2010). To achieve national development through Indigenous efforts, it is imperative to maintain the high standards of skill development centres (TVET institutions). This would enable them to generate highly skilled students who can compete at a global level. The primary issue that greatly influenced this study was the persistently high unemployment rate in South Africa, particularly among the youth, despite many of them having pursued education at TVET institutions, which cater to a larger proportion of students compared to universities. South Africa has a problem of not producing enough engineers as compared to other developed and developing countries yet having 26 universities and 50 TVET schools with more than 200 campuses around the country not forgetting more valuable mineral resources and enough land for agriculture. There was a need to initiate a study that would not only involve students or TVET staff members or TVET school's managers, but a study that involves both parties to get a holistic picture from different stakeholders on how the quality of education is being kept at par. To produce enough engineers or artisans, the study recommended prioritizing the extension and upgrading teaching and learning facilities using other modes of generating income from their workings and partnering with other private institutions in exchange for their services (training their people in different fields) and not only waiting for government funds as they are not enough. The study found that there is a need to extend the timeframe for trimester courses to give enough time for the theoretical part to be blended with practical training. Although the study was restricted to three TVET schools with multiple campuses in Limpopo province, which is just one of the nine provinces, it is expected to provide valuable insights into the educational approach to prepare students to become employable individuals or future entrepreneurs. These insights are relevant not only for South

Africa but also for other countries, particularly developing nations. The current study enhanced comprehension of the difficulties encountered by TVET schools in South Africa in meeting their given mandate, which involves contributing to poverty reduction, skill enhancement, and involvement in the execution of national development plans. The study will contribute to the body of knowledge of quality management theories. The study's findings indicate that TVET schools can be seen as systems, according to system theory. In this framework, students and the government are treated as inputs influenced by the system's processes and functions, resulting in various outputs. To continuously improve, it is suggested that TVET schools regularly assess their programs to ensure they align with the industry's needs. This recommendation is based on quality management theories, such as Total Quality Management (TQM). The findings of this study indicate that there is a significant amount of work that TVET Schools must undertake to make a meaningful contribution towards poverty reduction, the enhancement of skills, active involvement in national development objectives, and the implementation of other strategic initiatives. The findings of this study can provide valuable guidance to policymakers in creating and shaping policies and strategies that aim to enhance the availability of high-quality education. This, in turn, will enable average students to become experts in their field, thereby altering the perception of exceptional students and ensuring a positive return on investment. A similar study needs to be conducted in other TVET schools from other provinces and other private schools using different research designs to explore the strategies that are used to produce employable quality students.

7. REFERENCES

- Abbas, J. (2020). Impact of total quality management on corporate sustainability through the mediating effect of knowledge management. *Journal of Cleaner Production*, 244, 118806.
- Abbas, J. and Kumari, K. (2021). Examining the relationship between total quality management and knowledge management and their impact on organizational performance. *Journal of Economics and Administrative Sciences*, [Preprint]. doi: 10.1108/JEAS-03-2021-0046.
- Abbas, J. and Sagsan, M. (2019). Identification of key employability attributes and evaluation of university graduates' performance: instrument development and validation. *Higher Education, Skills and Work-Based Learning*, Vol. 10 No. 3, pp. 449-466, doi: 10.1108/HESWBL-06-2019-0075
- Abbas, J., Kumari, K., & Al-Rahmi, W. M. (2021). Quality management system in higher education institutions and its impact on students' employability with the mediating effect of industry–academia collaboration. *Journal of Economic and Administrative Sciences*.
- Abbas, J., Kumari, K., & Al-Rahmi, W. M. (2021). Quality management system in higher education institutions and its impact on students' employability with the mediating effect of industry–academia collaboration. *Journal of Economic and Administrative Sciences*.
- Abdullah, F., Kamal, S. B. M., & Rahman, S. A. (2021). Measuring service quality in higher education: A study of student satisfaction. *Quality Assurance in Education*, 29(2), 165–181. <https://doi.org/10.1108/QAE-05-2020-0065>

- Abu-Doleh, J. (2020). The role of quality management practices in improving service quality: The moderating effect of stakeholder involvement. *TQM Journal*, 32(6), 1175–1195.
- Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, 4(2), 330-333.
- Adebayo, F. A., & Aliyu, O. A. (2023). "The Influence of Economic Factors on Students' Choices of Technical and Vocational Education. *Journal of Vocational Education & Training*, 75(1), 88-102.
- Adom, D., Hussein, E. K., & Joe, A. A. (2018). Theoretical and conceptual framework: Mandatory ingredients of quality research. *International Journal of Scientific Research*.
- Afeti, G. (2010). Technical and vocational education and training for industrialization. Retrieved October, 4, 2022.
- Akinyode, B.F. & Khan, T.H. (2018). Step by step approach for qualitative data analysis. *International Journal of Built Environment and Sustainability*, 5(3):163 – 174.
- Akoojee, S. (2016). Developmental TVET rhetoric in-action: The white paper for post-school education and training in South Africa. *International journal for vocational education and training research*, 3(1), 1-15.
- Akoojee, S. (2021). Challenges and prospects for TVET in South Africa. *Journal of Vocational Education and Training*.
- Akoojee, S. (2008). FET schools lecturers: The devolving link in the South African skills development equation. *Journal of Vocational Education & Training*, 60(3), 297-313. doi: 10.1080/13636820802305645
- Ali, F., & Hussein, A. (2023). The impact of blended learning on curriculum delivery in higher education. *Journal of Educational Technology*, 35(2), 123-145.

- Al-Khouri, A. (2021). Standardization and Quality Improvement in Organizations: A Systematic Review. *International Journal of Quality & Reliability Management*, 38(5), 1167-1185.
- Amin, M. E. K., Nørgaard, L. S., Cavaco, A. M., Witry, M. J., Hillman, L., Cernasev, A., & Desselle, S. P. (2020). Establishing trustworthiness and authenticity in qualitative pharmacy research. *Research in social and administrative pharmacy*, 16(10), 1472-1482.
- Anderson, R., & Taylor, J. (2024). The role of adaptive learning spaces in supporting student-centred teaching approaches. *Journal of Educational Facilities Research*, 18(2), 39-56.
- Andrea, I. and Benjamin, S. (2013). University students' needs and satisfaction with their host city. *Journal of Place Management and Development*, Vol. 6 No. 3, pp. 178 -191
- Andrews, J., & Higson, H. (2020). Soft skills and employability: The role of transferable skills in the modern labour market. *Journal of Vocational Education and Training*, 72(3), 315-330.
- Ankrah, S., & AL-Tabbaa, O. (2015). Universities-industry collaboration: A systematic review. *Scandinavian Journal of Management*, 31(3), 387-408.
- Anupama, K. (2018). Hypothesis types and research. *International Journal of Nursing Science Practice and Research*, 4(2), 78-80.
- Arfo, E. B. (2015). A comparative analysis of technical and vocational education and training policy in selected African countries (*Doctoral dissertation, University of KwaZulu-Natal, Edgewood*).
- Armour, W. (2012). Emotional intelligence and learning & teaching in higher education: Implications for bioscience education. *Investigations in university teaching and learning*, 8, 4–10.

- Autor, D., Dube, A., & McGrew, A. (2023). The unexpected compression: Competition at work in the low wage labor market (No. w31010). *National Bureau of Economic Research*.
- Azeem, M., Zulu, T., & Ibrahim, S. (2022). TVET in South Africa: Challenges and future prospects. *Journal of Vocational Education and Training*, 72(4), 251-268.
- Baatjes, I., Baduza, U. & Sibiya, A.T. (2014) Building a transformative pedagogy in vocational education in South Africa. *pp. 81-102, in S.A. Vally (ed.), Education, society and economy, UNISA Press, Pretoria*
- Babbie, E. R. (2020). The practice of social research. *Cengage Au*.
- Badenhorst, J. W., & Radile, R. S. (2018). Poor performance at TVET Schools: Conceptualising a distributed instructional leadership approach as a solution. *Africa Education Review*, 15(3), 91-112.
- Baker, J., & Lewis, A. (2021). Interaction between admission criteria and teaching methods in higher education. *Journal of Educational Research*, 45(2), 150-166.
- Baker, M., & Adams, R. (2021). Curriculum management as a predictor of teaching effectiveness. *Teaching and Learning Quarterly*, 42(3), 67-84.
- Baker, R., & McCulloch, M. (2020). Strategies for Success in Higher Education: Navigating Challenges Through Innovation. *Journal of Higher Education Policy and Management*.
- Baldrige Performance Excellence Program. (2022). The Baldrige Framework for Performance Excellence in Education. *Retrieved from [Baldrige website]*.
- Baldwin, J. (2022). Fostering Lifelong Learning Through Integrated Curriculum: A Case Study. *Journal of Higher Education Research*, 15(3), 210-223.
- Baldwin, R., Collins, J., & Watson, S. (2022). Building Autonomy Through Integrated Learning: A Path to Lifelong Education. *Journal of Higher Education Pedagogy*, 34(3), 219–234.

- Banerjee, A., Galiani, S., Levinsohn, J., McLaren, Z., & Woolard, I. (2008). Why has unemployment risen in the new South Africa? 1. *Economics of Transition*, 16(4), 715-740.
- Baporikar, N., (2020). Sustainability of social enterprises. *In senior entrepreneurship and aging in modern business*. IGI Global.
- Barkhuizen, N., Rothmann, S., & Van der Vyver, C. (2022). The impact of psycho-social support on employee well-being and productivity in higher education institutions. *South African Journal of Industrial Psychology*, 48(1), 21-33.
- Barkley, S., & Miller, A. (2023). Digital libraries and their impact on teaching methodologies: A case study. *Higher Education Teaching Journal*, 30(3), 82-97.
- Barnett, R. (1992). *Improving higher education: Total quality care*. Open University Press, 1900 Frost Rd., Suite 101, Bristol, PA 19007.
- Barrett, A., Chawla-Duggan, R., Lowe, J., Nikel, J., & Ukpo, E. (2018). The concept of quality in education: A review of the 'international' literature on the concept of quality in education. *Oxford Review of Education*, 44(1), 33-45.
- Bauer, W., & Gessler, M. (2016). Dual vocational education and training systems in Europe: Lessons learned from Austria, Germany, and Switzerland. *Vocational Education and Training in Sub-Saharan Africa*, 48–66. doi:10.3278/ 6004570w.
- Baughman, R. (2018). Employment in long-term care: the role of macroeconomic conditions. *Journal of Economic Analysis and Policy*, Vol. 18 No. 4, pp. 22-38
- Bayraktar, E., Tatoglu, E., & Zaim, S. (2008). An instrument for measuring the critical factors of TQM in Turkish higher education. *Total Quality Management*, 19(6), 551-574.
- Beckford, J. (2016). *Quality: A Critical Introduction*. Routledge.
- Beers, B., & Sutherland, H. (2022). The Impact of Interdisciplinary Learning on Graduate Employability. *Journal of Higher Education*, 48(2), 160-178.

- Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods*. Oxford University Press.
- Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford University Press.
- Beyers, C., & Hay, A. (2022). Professional development and talent retention in TVET schools: A South African perspective. *Journal of Vocational Education & Training*, 74(3), 259-276.
- Bhanugopan, R., et al. (2021). Marketing Vocational Education: A Study of Perceptions and Influences. *International Journal of Educational Management*, 35(4), 691-703.
- Bhorat, H., & Kanbur, R. (2023). Labor Market Challenges in South Africa. *Journal of African Economies*.
- Bhorat, H., Oosthuizen, M., & Stanwix, B. (2022). Labour market dynamics and unemployment in South Africa: An evolving challenge. *South African Labour Journal*, 15(2), 23-41.
- Biswas, W., & Giri, A. (2017). Effectiveness of motivational management on employee performance in higher educational institutions of West Bengal. *International Journal for Research in Engineering Application & Management*, 3(9), 2454-9150.
- Blazquez, M., Herrarte, A. & Llorente-Heras, R. (2018). Competencies, occupational status, and earnings among European university graduates. *Economics of Education Review*, 62(1), 16-34.
- Bless, C., Higson-Smith, C., & Kagee, A. (2006). *Fundamentals of social research methods: An African perspective*. Juta and Company Ltd.
- Boonzaaier, D. (2020). Quality Assurance in Higher Education: The South African Context. *Journal of Higher Education Policy and Management*, 42(3), 249-263.

- Bosma, N., Hill, S., & Wright, M. (2022). GEM Global Report 2022: Entrepreneurship Trends in Developing Economies. *GEM Consortium Report*.
- Botha, M., Erasmus, J., & Stevens, N. (2022). Socioeconomic disparities and student performance in South African higher education. *South African Journal of Education*, 42(3), 455-468.
- Brackett, M. A., Rivers, S. E., & Salovey, P. (2011). Emotional intelligence: Implications for personal, social, academic, and workplace Success. *Social and Personality Psychology Compass*, 5(1), 88–103.
- Braun, V., & Clarke, V. (2021). Thematic analysis: A practical guide.
- Brewster, C., Chung, C., & Sparrow, P. (2016). Globalizing Human Resource Management. *Routledge*.
- Bridgstock, R. (2017). The university and the knowledge network: a new educational model for twenty-first century learning and employability. *Research and Debate, Macmillan, London*, 339-358.
- Bridgstock, R. and Tippet, N. (2019), “A connected approach to learning in higher education chapter one”, in Bridgstock, R. and Tippet, N. (Eds.), Higher Education and the Future of Graduate Employability: A Connectedness Learning Approach. *Edward Elgar, Cheltenham*, pp. 1-20.
- Bridgstock, R., Jackson, D., Lloyd, K. & Tofa, M. (2019). Social connectedness and graduate employability: exploring the professional networks of graduates from business and creative industries. *Higher Education and the Future of Graduate Employability. Edward Elgar Publishing, Cheltenham, United Kingdom*, 70, 112-142.
- Brown, P., & Taylor, J. (2022). Open-access admissions and learning outcomes: A case for flexibility. *Education and Society*, 12(3), 67-89.

- Brown, P., Green, & Lauder, H., (2000). High skills: Globalization, competitiveness and skill formation. *Oxford University Press, New York*.
- Bryanard, D.J., Hanekom, S.X. & Bryanard, P.A. (2014). Introduction to Research (3rd ed).
- Bryman, A. (2016). Social Research Methods. *Oxford University Press*.
- Burger, R. (2023). Structural Barriers to Employment in South Africa. *Development Southern Africa*.
- Cabrera, A. F., Nora, A., & Castaneda, M. B. (2020). Determinants of persistence: The influence of academic and social integration on school students' departure decisions. *The Review of Higher Education, 13(1), 55-72*.
- Calvo, R. & D'Amato, G. (2015). A collaborative method of enhancing internship evaluation through stakeholders' alignment. *The Manufacturing Engineering Society International Conference, MESIC*
- Candy, P. C. (2020). Self-Direction for Lifelong Learning: A Comprehensive Guide to Theory and Practice. *Jossey-Bass*.
- Carbone, A., & Hamilton, M. (2016). Pizza with university ICT students: What do students expect employers to want from them? In Proceedings of the Australasian Computer Science Week Multiconference. *ACM*.
- Carney, R., Thompson, M., & Phillips, J. (2023). The Impact of Integrated Learning on Student Engagement: A Cross-Disciplinary Study. *Journal of Educational Research, 51(3), 225-239*.
- Chaudhary, S., & Dey, N. (2013). Assessment in open and distance learning system (ODL): A challenge. *Open Praxis, 5 (3), 207–216*.
- CHE (2008), Coordinating Quality Assurance in Higher Education. *Council on Higher Education, Pretoria*

- Chen, S., & Kwan, S. (2022). Parental Influence on Students' Career Choices in Vocational Education. *Journal of Career Development, 49*(2), 345-361.
- Chen, Y. (2017). Graduate employability: The perspective of social network learning. *Eurasia Journal of Mathematics, Science and Technology Education, 13*(6), 2567-2580.
- Chinomona, R., & Sandada, M. (2022). Career Aspirations and the Role of Technical Vocational Education and Training. *South African Journal of Education, 42*(1), 124-138.
- Chinyama, T. (2022). Leveraging ICT for education quality in developing countries.
- Chisholm, L. (2022). Quality of Education in TVET Schools: The Role of Qualified Educators. *Journal of Vocational Education and Training, 74*(1), 85-100.
- Choy, L. T. (2014). The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *IOSR Journal of Humanities and Social Science, 19*(4), 99–104.
- Clarke, C., Thorpe, R., & Gold, J. (2020). Leadership Skills Through Entrepreneurship Education. *Journal of Business Leadership, 14*(3), 201-219.
- Cloete, N. (2016), Free Higher Education: Another Self-Destructive South African Policy. *Centre for Higher Education Trust, Pretoria.*
- Cloete, N. (2022). Mentoring innovative students in South African TVET schools: A critical approach. *Journal of Vocational Education and Training, 74*(3), 456-471.
- Cloete, N. (2022). The employability challenge in South African TVET schools: A student perspective. *African Journal of Education and Work.*
- Coetzee, M., & Beukes, C. J. (2010). Employability, emotional intelligence and career preparation support satisfaction among adolescents in the school-to-work transition phase. *Journal of Psychology in Africa, 20*(3), 439–446.

- Coetzee, M., & Harry, N. (2014). Emotional intelligence as a predictor of employees' career adaptability. *Journal of Vocational Behavior, 84*(1), 90–97.
- Cohen, A. (2021). Exploring parental expectations for children's educational degree attainment and its relationship with a child's actual educational degree, parental involvement in the school search process, and a child's overall well-being. *In The International Young Researchers' Conference*.
- Continuing Education Act No. 569 (2006). *Government notices, 38924*.
- Cooper, C., & Quick, J. C. (2022). Well-being and mental health in the workplace: A resource for educators. *Oxford University Press*.
- Cope, D. G. (2014). Methods and meanings: credibility and trustworthiness of qualitative research. *In Oncology nursing forum, 41*(1)
- Council on Higher Education (CHE). (2021). Quality Assurance and Accreditation in Higher Education: *2020 Report. Pretoria: CHE*.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research. Sage Publications*.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approach. Sage Publications*.
- Creswell, J. W., & Creswell, J. D. (2022). Research design: Qualitative, quantitative, and mixed methods approach. *SAGE Publications*.
- Creswell, J. W., & Plano Clark, V. L. (2018). Designing and Conducting Mixed Methods Research (3rd ed.). *Sage Publications*.
- Cumming, J. (2010). Contextualised performance: reframing the skills debate in research education, *Studies in Higher Education, 35*(4), 405–419.
- Curtis, E., & Drennan, J. (2013). Quantitative Health Research: Issues and Methods, Open University Press, McGraw-Hill Education, Berkshire, 320

- Darling-Hammond, L., Wilhoit, G., & Pittenger, L. (2021). Promoting Professional Readiness Through Project-Based Learning. *Journal of Education Policy*, 39(3), 101–120.
- Davies, K., & Patel, M. (2024). Aligning higher education teaching with industry needs: A path to employability. *Journal of Educational and Industry Research*, 22(1), 15–32.
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Online Submission*, 2(2), 25-36.
- De Andreis, F. (2019). The principles behind a strategic plan. *Open Journal of Applied Sciences*, 9(4), 240-245. Available at: <https://doi.org/10.4236/ojapps.2019.94020>.
- de Villiers Scheepers, M. J., McIntyre, J., Crimmins, G., & English, P. (2019). Connectedness capabilities of non-traditional students: pedagogical implications. *In Higher Education and the Future of Graduate Employability*. Edward Elgar Publishing.
- DeCenzo, D. A., Robbins, S. P., & Verhulst, S. L. (2016). *Fundamentals of human resource management*. John Wiley & Sons.
- Deming, W.E. (2018). *The New Economics for Industry, Government, Education*. MIT Press.
- Department of Education (1997), A Programme for the Transformation of Higher Education, White Paper 3, Government Gazette, Pretoria.
- Department of Higher Education and Training (DHET). (2021). TVET Schools Improvement Project. *DHET Report*.
- Department of Higher Education and Training. (2018). *Delivery Agreement 5: A skilled and capable workforce to support an inclusive growth path*. Pretoria: DHET
- Department of Higher Education and Training. (2019). *White Paper for Post-School Education and Training*.
- Department of Higher Education and Training. (2020). *Strategic Plan 2020-2025*. Pretoria: Government Printer.

- Department of Higher Education and Training. (2023). Report on the State of TVET Schools. *Pretoria: Government Printer.*
- Department of Higher Education and Training. (2023). Skills Development Strategy 2030. *Pretoria: Government Printer.*
- Dess, G.G; Lumpkin, G.T; Eisner, A.B; McNamara, G and Kim, B. (2012). Strategic Management: creating competitive advantages. *6th edition. Irwin, McGraw-Hill.*
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method. *Wiley.*
- Dobni, C. B., & Luffman, G. (2003). Determining the scope and impact of market orientation profiles on strategy implementation and performance. *Strategic management journal, 24(6), 577-585.*
- Douglas, J., McClelland, R. & Davies, J. (2008). The development of a conceptual model of student satisfaction with their experience in higher education, *Quality Assurance in Education, 16 (1), 19–35.*
- Drydakis, N. (2016). The effect of university attended on graduates' labour market prospects: A field study of Great Britain. *Economics of Education Review, 52, 192–208.*
- Du Plessis, C. & Bezuidenhout, G. (2023). Mental health challenges and academic performance in higher education: The role of student counselling services. *Journal of Student Affairs in Africa, 11(1), 57-74.*
- Du Plessis, C., & Bezuidenhout, G. (2023). Mental health and psycho-social support for students in South African higher education. *Journal of Educational Psychology and Counselling, 16(2), 49-64.*
- Du Plooy, B., & Du Preez, K. (2022). Perceptions of staff and students about the NC (V) model of workplace engineering artisan training offered by South African TVET schools. *South African Journal of Higher Education, 36(1), 98–114.*

- Dweck, C. S. (2006). *Mindset: The New Psychology of Success*. Random House.
- Ebert, K., Axelsson, L., & Harbor, J. (2015). Opportunities and challenges for building alumni networks in Sweden: A case study of Stockholm University. *Journal of Higher Education Policy and Management*, 37(2), 252-262.
- Edelenbos, J. and Klijn, E-H. (2006). Managing Stakeholder Involvement in Decision Making: A Comparative Analysis of Six Interactive Processes in the Netherlands. *Journal of Public Administration Research and Theory*, 16(3), 417-446.
- Edelenbos, J. and Klijn, E-H. (2006). Managing Stakeholder Involvement in Decision Making: A Comparative Analysis of Six Interactive Processes in the Netherlands. *Journal of Public Administration Research and Theory*, 16(3): 417-446.
- Elliott, M., & Dawson, R. (2015). Can personal development fire the "Silver Bullet" in IT delivery?
- Enosh, G., Tzafrir, S. S., & Stolovy, T. (2014). The development of a client violence questionnaire (CVQ). *Journal of Mixed Methods Research*, 9(3), 273–290.
<https://doi.org/10.1177/1558689814525263>
- Erasmus, B., Rudansky-Kloppers, S., & Strydom J. (2019). *Introduction to Business Management. 11th edition*. Oxford University Press, South Africa.
- Erasmus, J., & van Zyl, R. (2020). Enhancing employability outcomes in TVET schools through quality management. *Education as Change*.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
- European Association for Quality Assurance in Higher Education (ENQA). (2020). *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)*. Retrieved from [ENQA website].

- Evans, J. R. & Lindsay, W. M. (2014). *Managing for Quality and Performance Excellence (8th ed.)*. Cincinnati, OH: South-Western.
- Evans, N., Mujtaba, T., & Reiss, M. (2021). Flexibility in higher education: Enhancing student integration and success. *Journal of Educational Research*, 48(2), 110-125.
- Evers, H., & Rush, D. (2021). Preparing for the Future: Interdisciplinary Education and Workforce Success. *Journal of Workforce Development*, 29(3), 305-320.
- Farahmandian, S., Minavand, H., & Afshardost, M. (2013). Perceived service quality and student satisfaction in higher education. *Journal of Business and Management*, 12(4), 65-74.
- Feldman, L., Johnson, R., & Wooten, P. (2022). Student-centred teaching and its effects on learning outcomes. *International Journal of Educational Research*, 58(1), 112-128.
- Fernando, S., & Lawrence, S. (2014). A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1), 149-178.
- Fernando, S., & Lawrence, S. (2014). A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1), 149-178.
- Fetters, M. D. (2016). Haven't we always been doing mixed methods research? Lessons learned from the development of the horseless carriage. *Journal of Mixed Methods Research*, 10(1), 3–11. <https://doi.org/10.1177/1558689815620883>
- Finance & Fiscal Commission. (2013). Annual report. *Nationalgovernment.co.za*
- Flick, U. (2015). *Introducing research methodology: A beginner's guide to doing a research project*. Sage.
- Floyd, D. L. (2022). Integrating Sustainability into Entrepreneurship Education: A Global Perspective. *Journal of Business Venturing Insights*, 17, 100302.

- Floyd, D., McManus, R., & Payne, A. (2022). Sustainability in Entrepreneurship Education: Bridging Ethical and Market Needs. *Journal of Business Ethics Education*, 19(3), 201-219.
- Freeman, R. E., Phillips, R., & Sisodia, R. (2020). Tensions in stakeholder theory. *Business & Society*, 59(2), 213-231.
- Frey, B.B. ed., (2018). The SAGE encyclopedia of educational research, measurement, and evaluation. *California: Sage Publications*.
- Froehlich, E. D., Beusaert, S., Segers, M., & Gerken, M. (2014). Learning to stay employable. *Career Development International*, 19(5), 508–525.
- Gaffoor, A., & Van der Bijl, A. (2019). Factors influencing staff retention in South African TVET schools. *Journal of Technical Education and Training*, 11(4), 34-47.
- Gaffoor, A., & Van der Bijl, A. (2019). Perceptions of TVET in developing countries: A comparative analysis. *Global Journal of Technical Education*, 23(2), 122-135.
- Galloway, L., & Brown, W. (2021). Financial Literacy in Entrepreneurship Education: Impacts on Career Outcomes. *Journal of Vocational Education and Training*, 73(1), 45-62.
- Garcia, L., & Adams, M. (2023). Evaluating the impact of student selection on teaching quality in higher education. *Teaching and Learning in Higher Education*, 29(1), 102-118.
- Garcia, R., & Lewis, K. (2023). Teaching processes and curriculum alignment in higher education. *Journal of Curriculum Studies*, 47(4), 220-239.
- Garira, E. (2020). A comprehensive theoretical framework for understanding quality in education. *Educational Review*, 72(4), 1-16.
- Gibb, A. A. (2022). Creating Entrepreneurial Ecosystems in Education: A Guide for TVET Institutions. *Entrepreneurship Education Review*, 15(2), 134-149.
- Gibbons, A., Moya, E., & Richards, P. (2022). Admission standards and student performance: A multivariate analysis. *Journal of Academic Performance*, 36(1), 40-55.

- Goetsch, D.L., & Davis, S.B. (2006). *Quality Management for Organizational Excellence: Introduction to Total Quality*. Pearson.
- Golele, R., & Mnisi, T. (2023). The role of psycho-social support in managing work-related stress in higher education institutions. *International Journal of Educational Development*, 43(1), 189-203.
- Goleman, D. (1998). *Working with emotional intelligence*. New York City, United States: Bantam Books.
- Gonzalez, A., & Kallio, K. (2021). Enhancing Critical Thinking Through Interdisciplinary Learning. *Educational Research Review*, 26, 100-115.
- Govender, N., & Mpofu, N. (2022). Employee wellness and psycho-social support in the South African higher education context. *Journal of Human Resource Management*, 19(2), 101-113.
- Govender, R. & Mpofu, N. (2022). Blended learning as a pedagogical approach in higher education: Impacts on throughput rates. *South African Journal of Higher Education*, 36(4), 210-227.
- Graham, L., & Mlatsheni, C. (2015). Youth unemployment in South Africa: Understanding the challenge and working on solutions. *South African child gauge*, 2, 51-59.
- Grant, C., & Kinman, G. (2021). Employee well-being in higher education institutions: Strategies for supporting staff. *Journal of Education and Work*, 34(2), 145-160.
- Griffin, M. & Coelhoso, P. (2019). Business students' perspectives on employability skills post internship experience: lessons from the UAE. *Higher Education, Skills and Work-based Learning*, 9(1), 60-75.
- Gulua, E. (2020). Management of process and infrastructure in a higher education institution. *European Journal of Interdisciplinary Studies*, 6(1), 31-57.

- Gustafsson, A., Nilsson, L., & Johnson, M. D. (2003). The role of quality practices in service organizations. *International Journal of Service Industry Management*, 14(2), 232-244.
- Habib, M., Abbas, J. and Noman, R. (2019), Are human capital, intellectual property rights, and research and development expenditures really important for total factor productivity? An empirical analysis. *International Journal of Social Economics*, 46(6), pp. 756-774, doi: 10.1108/IJSE-09-2018-0472.
- Hallinger, P., & Nguyen, V. T. (2021). Sustainability Literacy and the Role of Higher Education in Promoting Green Entrepreneurship. *Journal of Environmental Management*, 278, 111432.
- Hanssen, T. E. S., & Solvoll, G. (2015). The importance of university facilities for student satisfaction at a Norwegian University. *Facilities*, 33(13/14), 744-759.
- Harris, L., & Worrell, A. (2023). Adapting to the Workforce: The Role of Integrated Education. *Journal of Educational Leadership*, 58(4), 67-84.
- Harris, R., & Worrell, M. (2023). Workforce Preparedness: The Role of Integrated Learning in Higher Education. *International Journal of Training and Development*, 27(1), 45-59.
- Hartley, J., Alford, J., & Hughes, O. (2015). Political astuteness as an aid to discerning and creating public value. In *Public Value and Public Administration*, edited by. J. M. Bryson, B. C. Crosby, and L. Bloomberg (pp. 25–38). Washington, D.C: Georgetown University Press
- Harvey, L., & Green, D. (2020). Defining Quality. In *Quality in Higher Education: The Routledge Companion*, 15-29 Routledge.
- Hassanbeigi, A., & Askari, J. (2010). A study of the most important risk factors of motivational deficiencies in university students. *Procedia-Social and Behavioral Sciences*, 5, 1972-1976.

- Hassanien, M. A. (2017). Strategic planning in higher education, a need for an innovative model. *Journal of Education, Society and Behavioural Science*, 23(2), 1-11. Available at: <https://doi.org/10.9734/jesbs/2017/37428>
- Hayward, F.M. & Ncayiyana D.J. (2003). Strategic Planning: A Guide to Strategic Planning for Higher Education Institutions. Wynberg, South Africa: Centre for Higher Education Transformation.
- Hernández-Linares, R., Kellermanns, F. W., & López-Fernández, M. C. (2021). A note on the relationship between learning and quality management: The role of stakeholder engagement. *International Journal of Quality & Reliability Management*, 38(3), 872–889.
- Heublein, U. (2014). Student dropout from German higher education institutions. *European Journal of Education*, 49(4), 497-513.
- Hill, Y., Lomas, L., & MacGregor, Janet. (2003). Students' perceptions of quality in higher education. *Quality Assurance in Education*, 11(1), 15-20.
- Hillage, J., & Pollard, E. (2018). Employability: developing a framework for policy analysis. *Research brief*, 85. London: Department for Education and Employment.
- Hinton, K. E. (2012). A practical guide to strategic planning in higher education, 7, Ann Arbor, MI: Society for Schools and University Planning.
- Hollander, A. & Mar, N.Y. (2009). Towards Achieving TVET for All: The Role of the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. In *International Handbook of Education for the Changing World of Work*, 41-57.
- Hosain, M. S., Mustafi, M. A. A., & Parvin, T. (2021). Factors affecting the employability of private university graduates: an exploratory study on Bangladeshi employers. *PSU Research Review. employability def*

- Hossain, M. M., Alam, M., Alamgir, M., & Salat, A. (2020). Factors affecting business graduates' employability—empirical evidence using partial least squares (PLS). *Education+ Training*, 62(3), 292-310.
- Housserman, M. (2016). The Educational System of South Africa: An Overview. Retrieved 2 April 2022, from http://www.nafsa.org/Professional_Resources/Browse_by_Interest/International_Students_and_Scholars/Network_Resources/International_Enrollment_Management/The_Educational_System_of_South_Africa,_An_Overview
- Ian, K. A., & Hjortsø, C. (2019). Sources of complexity in participatory curriculum development: An activity system and stakeholder analysis approach to the analyses of tensions and contradictions. *Higher Education*, 77, 1–22.
<https://doi.org/10.1007/s10734-018-0274-x>.
- Iliyasu, R., & Etikan, I. (2021). Comparison of quota sampling and stratified random sampling. *Biom. Biostat. Int. J. Rev*, 10, 24-27.
- Imran, M. & Abbas, J. (2020).). Theole of strategic orientation in export performance of China automobile industry. *Handbook of Research on Managerial Practices and Disruptive Innovation in Asia*, IGI Global, 249-263.
- International Labour Organization (ILO). (2021). World Employment and Social Outlook: Trends 2021. *International Labour Review*, 159(1), 45-68.
- International Labour Organization (ILO). (2022). Global Employment Trends.
- Jackson, D. (2013d). The contribution of work-integrated learning to undergraduate employability skill outcomes. *Asia-Pacific Journal of Cooperative Education*, 14(2), 99–115
- Jackson, D. (2019). Enhancing employability: Development and application of a conceptual model for assessing student employability. *Journal of Education and Work*, 32(4), 374-391.

- Jacob, W.J. and Gokbel, V. (2018), Global higher education learning outcomes and financial trends: comparative and innovative approaches. *International Journal of Educational Development*, 58, 5-17.
- James, S., Andrew, R., & Wilson, P. (2019). Challenges in global TVET: Resource allocation and outcomes. *International Journal of Vocational Education*, 28(3), 99-112.
- Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. *Handbook of mixed methods in social and behavioral research*, 297-319.
- Johnson, D. W., & Johnson, F. P. (2022). *Joining Together: Group Theory and Group Skills*. Pearson.
- Johnson, P., Smith, D., & Lawrence, M. (2022). The effect of learning resources on inquiry-based teaching in STEM courses. *Journal of Science Education*, 24(1), 55-70.
- Johnson, R. B., & Christensen, L. (2020). Educational research: Quantitative, qualitative, and mixed approaches (7th ed.). *Sage Publications, Inc.*
- Johnson, R., & Clark, T. (2023). The impact of practical-based teaching on graduate employability: A multivariate analysis. *Journal of Education and Employment*, 34(4), 104-118.
- Johnson, S., & Johnson, M. (2021). Workplace wellness programs and organizational outcomes: Evidence from educational institutions. *Journal of Human Resource Development*, 18(4), 122-134.
- Jones, A., & Smith, B. (2022). Enhancing Learning Through the Application of Theory in Practice. *Educational Research Review*, 31(2), 150-165.
- Jones, B., & Smith, D. (2023). The role of selection processes in academic success: A comparative study. *Higher Education Review*, 58(4), 240-256.
- Jones, M., & White, R. (2023). Technology-enhanced classrooms: The future of teaching processes. *International Journal of Smart Education*, 29(4), 15-32.

- Jones, T., & Smith, L. (2022). Real-World Applications of Integrated Curriculum in Higher Education. *Journal of Curriculum Studies*, 54(4), 483-499.
- Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher education*, 56(3), 303-324.
- Kahu, E. R., & Nelson, K. (2018). Student engagement in the educational interface: Understanding the mechanisms of student success. *Higher education research & development*, 37(1), 58-71.
- Kamarudin, N. (2022). Enhancing quality TVET graduates through three integrated curriculum models—the DPCCE experience. *International Journal Of Technical Vocational And Engineering Technology*, 3(1), 1-14.
- Karna, S. & Julin, P. (2015). A framework for measuring student and staff satisfaction with university campus facilities, *Quality Assurance in Education*, 23(1), 47-61.
- Karna, S., Julin, P. & Nnonen, S. (2013) User satisfaction on a university campus by students and staff. *Intelligent Buildings International*, 5, 69-82
- Kearns, P., & Madden, C. (2021). Skills for the future: The role of soft skills in employability. *International Journal of Lifelong Learning*, 40(2), 213-230.
- Kelley, D. J. (2023). The Role of Entrepreneurship Education in Reducing Unemployment Among Graduates. *International Journal of Entrepreneurial Behavior & Research*, 29(1), 12-29.
- Kelley, D., Singer, S., & Herrington, M. (2023). Entrepreneurship Education: A Pathway to Economic Inclusion. *Journal of Developmental Education*, 48(1), 12-25.
- Kezar, A., & Gehrke, S. (2020). The Future of Higher Education Quality Assurance: Recommendations for Change. *Journal of Higher Education Management*, 35(1), 42-55.

- Khambule, I. (2015). The Role of the Higher Education Act in Promoting Quality Education. *South African Journal of Higher Education*, 29(2), 30-45.
- Khan, A., & Naidoo, R. (2023). Psycho-social support for vulnerable student populations in higher education: An equity-focused approach. *International Journal of Higher Education Research*, 42(4), 125-139.
- Khan, M. A. (2021). Bridging the gap between theory and practice in technical education. *Journal of Vocational Studies*.
- Khuluvhe, M., & Netshifhefhe, E. (2022). Gender Parity in Post-School Education and Training Opportunities. *Access and Completion*.
- Kigwilu, P. C. (2016). TVET teacher further education program: Practice, experiences, and reflections of stakeholders in Catholic Sponsored Community Schools in East Africa. *VET Development Symposium, Namibia University of Science and Technology, Aug. 23rd-25th, 2016*.
- Kisida, B. (2021). The Role of Vocational Education in Promoting Equity: Insights from Nordic Countries. *International Journal of Educational Development*, 84, 102396.
- Kisida, B.(2022). Competency-Based Training in Australia: Implications for Skills Development. *Journal of Vocational Education and Training*, 74(1), 85-100.
- Kisima, K., & Makoni, D. (2023). Integrating Sustainability into TVET: A Pathway to Resilient Economies. *Journal of Vocational Education and Training*, 75(1), 15-30.
- Kivilu, M. & Sibanda, P. (2021). Factors influencing student throughput in STEM programmes: An analysis of South African universities. *Higher Education Research & Development*, 40(2), 255-272.
- Kivunja, C. (2014). The Role of Interdisciplinary Learning in Enhancing Student Engagement. *Journal of Education and Practice*, 5(8), 13-19.
- Klaus, P. (2010). Communication breakdown. *California Job Journal*, 28(1248), 1–9

- Knapp, H. (2018). Intermediate statistics using SPSS. *Sage Publications*.
- Knowles, G. (2011). *Quality management*. Bookboon.
- Koirala, R., & Pant, S. (2020). The Role of Networking in Entrepreneurial Success: Lessons from TVET Programs. *Journal of Business and Entrepreneurship*, 10(4), 56-70.
- Kolb, D. A. (2015). Experiential Learning: Experience as the Source of Learning and Development. *Pearson*.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
- Kumar, M., Singh, R.K., & Bansal, A. (2020). Stakeholder Engagement in Quality Management: A Case Study Approach. *Total Quality Management & Business Excellence*, 31(3-4), 351-366.
- Kumar, R. (2018). Research methodology: A step-by-step guide for beginners. Research methodology.
- Kumar, V., & Gupta, A. (2019). Process Management in Higher Education: A Systematic Review. *International Journal of Educational Management*, 33(6), 1180-1195.
<https://doi.org/10.1108/IJEM-01-2019-0003>
- Kvale, S., & Brinkmann, S. (2015). InterViews: Learning the Craft of Qualitative Research Interviewing. *SAGE Publications*.
- Laal, M., & Ghodsi, S. M. (2012). The Significance of Interdisciplinary Education for Knowledge Integration. *Contemporary Engineering Sciences*, 2(1), 29-37.
- Labanauskis, R., & Ginevičius, R. (2017). Role of stakeholders leading to the development of higher education services. *Engineering Management in Production and Services*, 9(3).
- Lee, J., & Jones, M. (2022). Exploring the relationship between curriculum management and teaching quality. *Educational Leadership Review*, 34(2), 91-105.

- Leshem, S., & Trafford, V. (2007). Overlooking the conceptual framework. *Innovations in Education and Teaching International*.
- Letseka, M., & Kutu, M. (2021). The influence of financial aid on throughput rates: A case of the University of South Africa. *Journal of Student Affairs in Africa*, 9(1), 23-40.
- Li, F., & Zhang, Q. (2023). Blended learning and its effects on employability outcomes: A statistical analysis. *Higher Education Research Journal*, 29(2), 67-83.
- Lopes, R. P., Álvarez-García, J., & González-Vázquez, E. (2018). Integration of information in higher education institutions for quality evaluation. *In Achieving Competitive Advantage through Quality Management*, 191-203, Springer, Cham.
- Lopez, J., Alvarez-Garcia, J., & Gonzalez-Vazquez, E. (2018). Quality in Higher Education: A Review of Research and Practices. *Journal of Higher Education Policy and Management*, 40(4), 392-406.
- Macmillan, L., Tyler, C. & Vignoles, A. (2015). Who gets the top jobs? The role of family background and networks in recent graduates' access to high-status professions. *Journal of Social Policy*, 44(3), 487-515.
- Maharaj, P., & Moodley, K. (2021). Exploring the impact of work environment on employee retention at TVET institutions in South Africa. *South African Journal of Human Resource Management*, 19(1), 1-10.
- Mahlalela, S. (2023). Enhancing Pedagogical Skills Among TVET Lecturers: A Framework for Professional Development. *South African Journal of Higher Education*, 37(2), 134-149.
- Mahlangu, S., & Mtshali, T. (2024). A deflating quality TVET education in Gauteng Technical, Vocational Education and Training Schools. *International Journal of Research in Business and Social Science* (2147-4478), 13(3), 441-447.

- Makgato, M. (2019). STEM for Sustainable Skills for the Fourth Industrial Revolution: Snapshot at Some TVET Schools in South Africa. *Theorizing STEM education in the 21st century*, 144-159.
- Makibinyane, J. M., & Khumalo, S. S. (2021). Exploring factors that impede student support services and throughput rate: the case of TVET schools in South Africa. *International Journal of Education Economics and Development*, 12(4), 397-411.
- Malik, M.E., Danish, R.Q. & Usman, A. (2010). The impact of service quality on students' satisfaction in higher education institutes of Punjab. *Journal of Management Research*, 2(2), 1-11.
- Manatos, M.J., Rosa, M.J., & Sarrico, C.S. (2018). Quality management in universities: towards an integrated approach. *International Journal of Quality and Reliability Management*, 35(1), 126-144.
- Maringe, F. & Osman, R. (2020). Improving institutional support for students in South African higher education. *Higher Education Policy*, 33(2), 169-189.
- Maringe, F. & Osman, R. (2020). Inequalities in student preparation for higher education: Addressing the gap. *Journal of Higher Education in Africa*, 18(1), 33-45.
- Maringe, F., & Osman, R. (2021). Advancing student progression in South African TVET schools: Challenges and opportunities. *South African Journal of Education*, 41(1), 1-14.
- Martin, D., & Jones, R. (2022). Collaborative learning and its impact on graduate employability. *International Journal of Teaching and Learning*, 35(1), 45-62.
- Martirosyan, N. (2015). An examination of factors contributing to student satisfaction in Armenian higher education", *International Journal of Educational Management*, 29(2), 177 -191.

- Marzuki, N. A., Mustaffa, C. S., & Saad, Z. M. (2015). Emotional Intelligence : It's Relationship with Communication and Information Technology Skills. *Asian Social Science*, 11(15), 267–274.
- Maseko, S., & Letseka, M. (2023). Psycho-social interventions and academic success: The impact of support services in South African universities. *Journal of Student Affairs in Africa*, 11(1), 27-40.
- Masoabi, T., & Alexander, L. (2020). Youth unemployment and the TVET sector in South Africa: Revisiting the skills mismatch debate. *Journal of Vocational Education and Training*, 72(3), 198-216.
- Matabane, M. E., Matabane, R. B., Moloi, T. J., & Sibaya, K. T. (2022). The Exploring Factors that Teachers View as Hindering Quality in Teaching and Learning at a TVET Schools. *Research in Educational Policy and Management*, 4(1), 51-64.
- Maxwell, J. A. (2016). Expanding the history and range of mixed methods research. *Journal of Mixed Methods Research*, 10(1), 12–27. <https://doi.org/10.1177/1558689815571132>
- Mbatha, J. T., Buthelezi, A. B., & Ajani, O. A. (2024). Exploring the campus managers' challenges in managing educational resources in a TVET schools. *International Journal of Business Ecosystem & Strategy (2687-2293)*, 6(3), 204-213.
- McBride, T., et al. (2009). Lecturer Qualifications in TVET: A Study of the Western Cape Province. *South African Journal of Vocational Education and Training*, 1(1), 25-42.
- McEwan, D., Ruissen, G. R., Eys, M. A., Zumbo, B. D. & Beauchamp, M. R. (2017). The Effectiveness of Teamwork Training on Teamwork Behaviors and Team Performance: A Systematic Review and Meta-Analysis of Controlled Interventions. *PLoS ONE*, 12(1), 169-184.
- McGrath, S., & Powell, L. (2022). Work-based learning and employability in South African TVET schools. *Journal of Vocational Education and Training*.

- McGrath, S., & Powell, L. (2023). Global TVET systems and their response to youth unemployment: Lessons for South Africa. *Journal of International Education Development*, 50(4), 104-119.
- McGrath, S., Akoojee S. (2012). Vocational education and training for sustainability in South Africa: the role of public and private provision. *International Journal of Educational Development* 29 (2): 149–156.
- Mchunu, N. (2016). The Role of Constitutional Principles in Education Management. *Journal of Public Administration*, 51(1), 52-67.
- Mertens, C., & Flowers, J. (2023). Teaching strategies and student success: A statistical analysis. *Education and Society*, 29(3), 90-105.
- Mhlongo, P., & Letsoalo, M. (2022). Psycho-social support as a coping mechanism for students and employees in higher education. *Journal of Counselling and Development*, 30(3), 211-224.
- Miller, J. (2022). Engagement and Motivation in Integrated Learning Environments. *Higher Education Quarterly*, 76(2), 193-206.
- Miller, S., Turner, A., & Phillips, D. (2023). The role of curriculum coherence in student performance. *Journal of Higher Education Research*, 44(1), 15-30.
- Miller, T., Green, D., & Cooper, E. (2022). Student Engagement and Motivation in Integrated Learning Environments. *Educational Psychology Review*, 34(1), 65-84.
- Mingers, J., & White, L. (2020). A review of the recent contribution of systems thinking to operational research and management science. *European Journal of Operational Research*, 282(1), 1–15. <https://doi.org/10.1016/j.ejor.2019.05.014>
- Mohammad Shafi, M., Neyestani, M. R., Jafari, S. E. M., & Taghvaei, V. (2021). The Quality Improvement Indicators of the Curriculum at the Technical and Vocational Higher Education. *International Journal of Instruction*, 14(1), 65-84.

- Mohammad Shafi, M., Neyestani, M. R., Jafari, S. E. M., & Taghvaei, V. (2021). The Quality Improvement Indicators of the Curriculum at the Technical and Vocational Higher Education. *International Journal of Instruction*, 14(1), 65-84.
- Mokhele, M. (2021). Institutional barriers to quality education in South African TVET schools. *Journal of Education and Work*.
- Moleleki, N. (2023). Guidance and Support in Schools: Influencing Factors for TVET Participation. *Journal of Educational Psychology*, 115(3), 215-229.
- Moodley, K., & Singh, P. (2020). Leadership styles and employee motivation in TVET schools. *Journal of Educational Administration*, 58(4), 517-535.
- Moodley, T., & Singh, P. (2020). Challenges in the management of TVET schools in South Africa. *Journal of Vocational Education & Training*.
- Morse, J. M. (2016). *Mixed method design: Principles and procedures*. Routledge.
- Motala, S. & Walker, M. (2022). Financial aid and higher education access: Understanding the dynamics in South Africa. *South African Journal of Higher Education*, 36(3), 400-417.
- Mothapo, M. (2014). The Impact of the White Paper on Post-School Education and Training on TVET Schools. *South African Journal of Vocational Education and Training*, 3(1), 26-38.
- Mthembu, M., & Ndlovu, S. (2023). Addressing mental health and its impact on student retention in South African universities. *African Journal of Higher Education*, 7(2), 102-119.
- Mthethwa, P., & Mbatha, N. (2022). Exploring the impact of financial support on student retention and success in higher education. *Journal of Student Affairs in Africa*, 10(2), 14-27.

- Mtshali, M., & Singh-Pillay, A. (2024). Assessing the Impact of Lecturer Qualifications on TVET Outcomes in South Africa. *Education as Change*, 28(1), 45-62.
- Mtshali, T., & Moloi, T. (2022). Enhancing success among disadvantaged students: The role of psycho-social support in South African universities. *Journal of Student Development in Higher Education*, 8(1), 88-100.
- Murphy, P., & Wolfenden, F. (2021). Developing contextualized responses to support learning in marginalized contexts: The case of sub-Saharan Africa. *International Review of Education*, 67(1), 37-58.
- NACE. (2015). Career Readiness Meets Institution-Wide Outcomes Measures. *NACE Centre for Career Development and Talent Acquisition*.
- National Planning Commission. (2012). National Development Plan 2030: Our Future - Make it Work. *Pretoria: Government Printer*.
- National Planning Commission. (2012). National Development Plan 2030: Our Future - Make it Work. *Pretoria: Government Printer*.
- National Planning Commission. (2023). *Review of South Africa's Employment Policies*.
- National Student Financial Aid Scheme. (2023). *Annual Report 2022*. *Pretoria: NSFAS*.
- Navarro, M.M., Iglesias, M.P. and Torres, P.R. (2005). A new management element for universities: satisfaction with the offered courses. *International Journal of Educational Management*, 19(6), 505 -526.
- Ndedi, A. A. (2020). Entrepreneurial education and its impact on youth unemployment in South Africa. *South African Journal of Education*, 40(1), 1-12.
- Ndlovu, S., & Sithole, M. (2023). Addressing mental health challenges in higher education: The role of psycho-social support. *South African Journal of Higher Education*, 37(2), 112-126.

- Neck, H. M., & Corbett, A. C. (2022). The Practice of Entrepreneurship Education: Building Problem-Solvers for the Future. *Entrepreneurship Education Review*, 10(2), 78-95.
- Neck, H. M., & Greene, P. G. (2019). Teaching Entrepreneurship: A Practice-Based Approach. *Edward Elgar Publishing*.
- Needham, S., & Papier, J. (2019). Student perceptions of vocational training: A South African case study. *Southern African Review of Education*, 25(1), 67-84.
- Ngure, S. W. (2021). Competency-based training in TVET: Enhancing skills for employability. *Journal of Technical Education and Training*, 13(2), 1–14.
- Nguyen, H., & Tran, K. (2023). Teaching facilities and their effect on student engagement: A quantitative analysis. *Journal of Learning Spaces and Education*, 19(1), 28-44.
- Nguyen, L., Carter, S., & Moore, T. (2023). Collaboration and Communication in Integrated Learning Environments. *International Journal of Educational Development*, 42(1), 123-136.
- Nguyen, T. (2023). Collaboration and Teamwork in Integrated Curricula: Student Perspectives. *Journal of Educational Psychology*, 115(1), 25-38.
- Nguyen, T., Singh, R., & Patel, N. (2022). Curriculum innovation and student outcomes in STEM education. *Journal of Educational Innovation*, 27(4), 199-214.
- Nguyen, T., Singh, S., & Patel, R. (2021). Statistical correlation between admission criteria and academic performance: An international perspective. *International Journal of Educational Statistics*, 25(3), 177-190.
- Nina, B. & Maureen, B. (2006). Analysing quality Audits in higher education. *Journal of learning and teaching*, 1 (2) (2005), 1–11
- Njambi, C. (2014). Factors influencing employee motivation and its impact on employees of *Higher Education Policy and Management*. 37:2, 252-262,
DOI:10.1080/1360080X.2015.1019117

- Nkomo, L., & Mohale, T. (2020). Remuneration challenges in the South African TVET sector. *African Journal of Human Resource Management*, 38(2), 112-123.
- Nkosi, N., & Naidoo, P. (2022). Assessing leadership and governance in South African TVET schools. *South African Journal of Education*.
- Nkosi, N., & Naidoo, P. (2022). Assessing the leadership capacity in South African TVET schools. *South African Journal of Education*.
- Nkosi, Z. & Motsepe, S. (2023). The role of institutional support in promoting student retention and success in higher education. *Journal of Educational Studies*, 49(1), 11-29.
- Noble, H., & Heale, R. (2019). Triangulation in research, with examples. *Evidence-based nursing*, 22(3), 67-68.
- Nowell, L.S., Norris, J.M., White, D.E. & Moules, N.J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1):1 – 13.
- Nyirenda, D. (2021). The role of schools councils in governance and decision-making in South African TVET schools. *Journal of Education Governance*.
- Nzimande, B., & Mkhize, N. (2020). Skills development and TVET transformation in South Africa: Policy implications. *South African Journal of Higher Education*, 34(6), 94–111.
- O'Connor, P., & Murphy, S. (2021). Curriculum management and its influence on learning outcomes. *International Journal of Higher Education*, 33(1), 70-85.
- Oakland, J. S. (2014). *Total quality management and operational excellence: text with cases*. Routledge
- Oakland, J.S. (2016). Total Quality Management. Routledge.
- O'Connor, H. & Nancy, G. (2003). A step-by-step guide to qualitative data analysis. Pimatisiwin: *A Journal of Aboriginal and Indigenous Community Health*. 1, 63 – 90.

- OECD (2016), Enhancing Employability, pp. 1-34 of *Higher Education Policy and Management*. 37(2), 252-262, DOI:10.1080/1360080X.2015.1019117
- Okechukwu, W. (2017). Influence of training and development, employee performance, and job satisfaction among the staff. *Journal of Technology Management and Business*, 4(1).
- Olivier, D., Freeman, B., Young, C., Yu, S., & Verma, G. (2014). Employer satisfaction survey. Australia: *The University of Sydney Business School, Report for the Department of Education*.
- Olojuolawe, R. S., Amin, N. F., Latif, A. A., & Arsath, M. (2019). Employability skills of higher education graduates: A review and integrative approach. TVET Towards Industrial Revolution 4.0: *Proceedings of the Technical and Vocational Education and Training International Conference (TVETIC 2018), November 26-27, 2018, Johor Bahru, Malaysia*, 113.
- Ömer, A. V. C. I., Emily, R. İ. N. G., & Mitchell, L. (2015). Stakeholders in US higher education: An analysis through two theories of stakeholders. *Bilgi Ekonomisi ve Yönetimi Dergisi*, 10(2).
- Otoo, I. C., Assuming, J., & Agyei, P. M. (2018). Effectiveness of recruitment and selection practices in public sector higher education institutions: Evidence from Ghana. *European scientific journal*, 14(13), 199-214.
- Papantymou, A., & Darra, M. (2017). Quality management in higher education: Review and perspectives. *Higher Education Studies*, 7(3), 132-147.
- Papier, J. (2022). The impact of extended teaching periods on student outcomes in engineering education: A South African perspective. *Journal of Technical and Vocational Education and Training*, 28(2), 145-160.

- Papier, J., & Powell, L. (2020). Teacher quality and its impact on employability in South African TVET. *South African Journal of Higher Education*.
- Parahoo, K. (2014). *Nursing research: principles, process and issues*. Bloomsbury Publishing.
- Paraschivescu, A. O., & Şavga, L. (2016). Quality Education. *Economy Transdisciplinarity Cognition*, (2), 7-13.
- Pavlin, S. (2010). Higher Education and Employability Issues. *DECOWE Working Papers Series*.
- Pavlova, M. (2014). TVET and Sustainable Development: International Perspectives. *International Journal of Training Research*, 12(3), 227-241.
- Peacock, N., & Ladkin, A. (2002). Exploring relationships between higher education and industry: A case study of a university and the local tourism industry. *Industry and Higher Education*, 16(6), 393–401. <https://doi.org/10.5367/000000002101296568>
- Perry, L., & Skiba, D. (2021). The Dual System of Vocational Education and Training in Germany: A Model for Success? *European Journal of Education*, 56(1), 68-81.
- Peter, R. (2017). Motivational strategies and Higher education staff. *Lagos. Nigeria*
- Petersen, A., & Roberts, R. (2021). Capacity building in TVET schools management: A strategic imperative. *Journal of Higher Education*.
- Pitso, T. & Jacobs, M. (2023). Curriculum relevance and student engagement: Addressing the mismatch in South African higher education. *Journal of Curriculum Studies*, 55(3), 321-339.
- Pittaway, L., & Cope, J. (2021). Entrepreneurship Education: A Systematic Review of the Evidence. *International Small Business Journal*, 39(4), 249-270.
- Pittaway, L., & Cope, J. (2021). Entrepreneurship Education: A Systematic Review of Educational Outcomes. *International Small Business Journal*, 39(5), 462-482
- Plano Clark, V. L., & Creswell, J. W. (2015). Understanding research: A consumer's guide.

- Polit, D.F., & Beck, C.T. (2017). Nursing research: Generating and assessing evidence for nursing practice. *10th Edition, Wolters Kluwer Health, Philadelphia*
- Porter, M. E., & Lee, T. H. (2015). Why strategy matters now. *New England Journal of Medicine, 372(18), 1681-1684*
- Potgieter, I., & Coetzee, M. (2013). Emotional intelligence as a predictor of postgraduate students' psychosocial employability attributes. *Journal of Psychology in Africa, 23(2), 187–194.*
- Powell, L., & McGrath, S. (2022). Pathways to employability in technical and vocational education: Extending the Nated framework. *Journal of Vocational Education and Training, 74(1), 89-105.*
- Powell, L., & McGrath, S. (2022). WorldSkills and global vocational standards: Preparing students for a competitive workforce. *Journal of International Education and Vocational Training, 33(4), 345-360.*
- Powell, L., & McGrath, S. (2023). The role of TVET in developing economies: The case of South Africa. *Journal of International Education Development, 51(1), 104-119.*
- Prasad, V. S. (2006). Quality assurance of distance education. *Garg, SC et al. Pretoria: Van Schaik publishers.*
- Pucciarelli, F., & Kaplan, A. (2016). Competition and strategy in higher education: Managing complexity and uncertainty. *Business horizons, 59(3), 311-320.*
- R Gay, L., E Mills, G., & W Airasian, P. (2021). Educational Research: Competencies for Analysis and Application. *Pakistan Journal of Educational Research and Evaluation (PJERE), 3(2).*
- Rae, D. (2020). Opportunity-Centered Entrepreneurship Education. *Journal of Small Business and Enterprise Development, 27(4), 605-620.*

- Rahman, A., Singh, J., & Chan, H. (2023). Virtual learning environments and their impact on teaching efficiency: A pandemic perspective. *Journal of Online Education Research*, 17(2), 63-79.
- Ramrathan, L. (2016). Post-apartheid educational reforms in South Africa: Progress and challenges. *South African Journal of Education*, 36(4), 123-140.
- Ramsaroop, A., & Naicker, D. (2022). Crisis management in higher education: The role of psycho-social support during the COVID-19 pandemic. *Journal of Crisis Management in Education*, 11(3), 147-160.
- Rasool, H., & Mahembe, B. (2014). Governance in TVET Schools. *Journal of Vocational Education & Training*, 66(1), 12-25.
- Rasool, H., & Mahembe, E. (2014). FET colleges purpose in the developmental State: imperatives for South Africa. *Human Resource Development Council of South Africa*, 45.
- Rea, L. M., & Parker, R. A. (2014). Designing and Conducting Survey Research: A Comprehensive Guide. *Jossey-Bass*.
- Republic of South Africa (RSA), (2008). National Plan for Further Education and Training Schools in South Africa. Government Gazette No. 31712. Pretoria: DHET. Retrieved from <http://www.dhet.gov.za/LinkClick.aspx?fileticket=kSBofaoMsQw%3d&tabid=473>
- Republic of South Africa (RSA). 2012, The National Development Plan 2030: Our Future – make it work. Retrieved on 5 April 2018 on https://www.gov.za/sites/default/files/NDP-2030-Our-future-make-it-work_r.pdf
- Republic of South Africa. (2012). National Development Plan: Vision 2030. *Resource Development Council of South Africa*, 45.
- Roberts, J., & McNeese, M. (2021). Mentorship and student retention: The role of peer programs in enhancing integration. *Student Success Journal*, 36(3), 58-72.

- Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*, 75(4), 453–465.
- Rodzalan, S. A., & Saat, M. M. (2012). The effects of industrial training on students' generic skills development. *Procedia - Social and Behavioral Sciences*, 56, 357–368.
- Rombe, E., Allo, P. L. D., Tolla, M. A., & KusumaDewi, S. (2016, December). What Are the Current Quality Issues in Higher Education?. In 2016 international Conference on education, management Science and Economics (pp. 98-101). Atlantis Press.
- Rovai, A. P., Baker, J. D., & Ponton, M. K. (2014). Social Science Research Design and Statistics. *Chesapeake, VA: Watertree Press LLC*.
- Russell, M. (2005). Marketing education: a review of service quality perceptions among international students. *International Journal of Contemporary Hospitality Management*, 17(1), 65-77.
- Sabtu, N. Z., Noor, S. M., & Isa, A. (2016). The persistence of students in higher education: Student and institutional factors. *International Journal of Educational Research*, 35(2), 78-90.
- Safdar, B., Habib, A., Amjad, A. and Abbas, J. (2020). Treating students as customers in higher education institutions and its impact on their academic performance. *International Journal of Academic Research in Progressive Education and Development*, 9(4), 176-191.
- Sallis, E. (2014). Total quality management in education. *Routledge*.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students. *Pearson Education Limited*.
- Saxena, A. (2014). Workforce diversity: A key to improve productivity in higher education institutions. *Procedia economics and finance*, 11, 76-85.

- Schalkwyk, R.D.V. and Steenkamp, R.J. (2016). The exploration of service quality leadership for private higher education institutions in South Africa, *JHEA/RESA*, 14(2), 85-105.
- Schoonenboom, J., & Johnson, R. B. (2017). How to construct a mixed methods research design. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 69(2), 107-131. <https://doi.org/10.1007/s11577-017-0454-1>
- Schreuder, A. M. (2023). Transferable Skills in Entrepreneurship Education: A Pathway to Enhanced Employability. *Journal of Education and Work*, 36(2), 125-144.
- Schreuder, J., Van Aarde, L., & Smith, R. (2023). Entrepreneurship Education and Employability: A Multi-Sector Analysis. *Journal of Education for Business*, 98(1), 15-29.
- Seekings J & Nattras N (2005). *Race, Class and Inequality in South Africa*. New Haven: Yale University Press.
- Senthilkumar, N., & Arulraj, A. (2011). SQM-HEI- determination of service quality measurement of higher education in India. *Journal of Modelling in Management*, 6(1), 60–78
- Shange, P., & Molefe, D. (2023). Resilience in higher education: How psycho-social support mitigates the impact of crises on student and employee well-being. *Journal of Higher Education Management*, 9(2), 122-136.
- Sharma, P., & Kumar, S. (2023). Active learning strategies and their relationship with business graduate employability. *Journal of Business Education*, 18(3), 101-114.
- Shay, S., Wolff, K., & Wilson-Strydom, M. (2021). Engagement beyond the classroom: The role of extracurricular activities in developing employability skills in higher education. *Journal of Education and Work*, 34(5), 382-399.
- Shorten, A., & Smith, J. (2017). Mixed methods research: expanding the evidence base. *Evidence-based nursing*, 20(3), 74-75.

- Shumilova, Y. & Cai, Y. (2011). Towards understanding the factors affecting the employability of international graduates: the case of Finland. *International Conference on Employability of Graduates & Higher Education Management Systems Vienna, 22-23 September 2011*
- Siani, M., & Yarden, A. (2022). Challenges in TVET Lecturer Recruitment and Retention: A South African Perspective. *Journal of Vocational Education & Training, 74(3), 317-332.*
- Sibiya, T., & Nyembezi, Z. (2018). Addressing poverty and inequality through TVET: A South African perspective. *Journal of African Educational Research, 12(1), 59-74.*
- Smith, G., & Lawrence, K. (2023). The role of laboratories in supporting experiential learning in higher education. *Journal of Technical Education and Practice, 26(3), 102-117.*
- Smith, G., & Rao, K. (2023). The role of work-integrated learning in enhancing employability: A longitudinal study. *Journal of Educational Policy and Practice, 41(2), 89-102.*
- Smith, P. E., & Rees, G. (2017). Strategic human resource management: An international perspective. *Strategic Human Resource Management, 1-616.*
- Soria, K. M., & Roberts, B. J. (2021). The benefits of living on campus for low-income, first-generation students' belonging, perceptions of campus climate, and resilience. *Journal of First-Generation Student Success, 1(2), 111-126.*
- South African Human Rights Commission. (2023). Report on the Right to Education. *Pretoria: SAHRC.*
- Spaull, N. (2013). South Africa's Education Crisis: The Quality of Education in South Africa 1994-2011. *Centre for Development and Enterprise, Johannesburg*
- Spaull, N., & Jansen, J. (2021). Education and the labour market: Beyond the skills mismatch. *South African Journal of Education, 41(1), 1-13*

- Stachowska, S., & Czaplicka-Kozłowska, I. (2019). Motivating employees of the higher education institution: case study of academic teachers. *Management Theory and Studies for Rural Business and Infrastructure Development*, 41(4), 589-599.
- Stahl, N. A., & King, J. R. (2020). Expanding approaches for research: Understanding and using trustworthiness in qualitative research. *Journal of Developmental Education*, 44(1), 26-28.
- Statistics South Africa. (2023). Quarterly Labour Force Survey.
- Stats, S. A. (2023). Statistics South Africa.
- Stats, S. A. (2024). Statistics South Africa.
- Suarta, I. M., Suwintana, I. K., Sudhana, I. F. P., & Hariyanti, N. K. D. (2018). Employability skills for entry level workers: A content analysis of job advertisements in Indonesia. *Journal of Technical Education and Training*, 10(2).
- Subedi, D. (2016). Explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research*, 4(7), 570-577.
- Suddaby, R., Bitektine, A., & Haack, P. (2017). Legitimacy. *Academy of Management Annals*, 11(1), 451–478
- Suleman, F. (2016). Employability skills of higher education graduates: little consensus on a much-discussed subject. *Procedia-Social and Behavioural Sciences*, 228, 169–174.
- Suleman, F. (2018). The employability skills of higher education graduates: Insights into conceptual frameworks and methodological options. *Higher Education*, 76(2), 263–278.
- Tahir, N., Yousafzai, I., Jan, S., & Hashim, M. (2014). The impact of training and development on employees' performance and productivity: A case study of United Bank Limited Peshawar City, KPK, Pakistan. *International Journal of Academic Research in*

Business and Social Sciences, 4(2), 200-207. <https://doi.org/10.6007/IJARBSS/v4-i2/693>

Tan, A., & Ng, R. (2022). SkillsFuture: A New Era of Lifelong Learning in Singapore. *Asian Journal of Education and Training*, 8(3), 226-233.

Terreblanche, S. (2017). A history of inequality in South Africa. *States International University-Africa*. 1652–2002

Tessema, M. T., Ready, K., & Yu, W. (2012). Factors affecting college students' satisfaction with major curriculum: Evidence from nine years of data. *International Journal of Humanities and Social Science*, 2(2), 34-44.

Thaler, R.H. (2015). Misbehaving: the making of behavioural economics. *Allen Lane, London*

Theron, L., & Phasha, N. (2021). The role of psycho-social support in student retention: A South African perspective. *Journal of Higher Education in Africa*, 19(2), 45-61.

Thomas, L. (2020). Student retention in higher education: The role of institutional belonging. *Journal of Higher Education Management*, 29(2), 48-61.

Tikly, L. (2013). Reconceptualizing TVET and development: A human capability and Training: Access and Completion. *Department of Higher Education and Training, Pretoria*.

Tikly, L. (2019). Education for sustainable development in Africa: Towards a systemic framework. *Journal of International Development*, 31(6), 1023-1040.

Times Higher Education World University Rankings. (2018). Best universities in Africa 2019. Retrieved from <https://www.timeshighereducation.com/student/best-universities/best-universities>

Tinto, V. (2014). Leaving schools: Rethinking the causes and cures of student attrition. *University of Chicago Press*.

Tlapana, T., & Myeki, N. (2020). Understanding the marketing challenges of TVET schools: Insights from South Africa. *Journal of Educational Marketing*, 14(3), 45-62.

- Tomlinson, M. (2012). Graduate employability: a review of conceptual and empirical themes. *Higher Education Policy*, 25(4), 407-431.
- Tuckman, B. W. (2021). Developmental Sequence in Small Groups. *Psychological Bulletin*, 58(6), 384-399.
- Umalusi. (2014). Report on the Quality Assurance of the Examinations and Assessment of the National Certificate (Vocational) and NATED (N1–N3). *Pretoria: Umalusi*
- UNESCO. (2022). Education for Sustainable Development Goals: Learning Objectives. *Paris: UNESCO*.
- UNESCO-UNEVOC. (2019). UNEVOC TVET leadership programme. UNESCO-UNEVOC global learning forum on advancing learning and innovation in TVET was held on 2nd-3rd December 2019 in Bonn, Germany. Retrieved from: <http://www.unevoc.unesco.org>.
- United Nations. (2019). Sustainable Development Goals Report.
- Van der Bijl, A., & Lawrence, D. (2019). Exploring factors influencing student persistence in TVET schools. *Journal of Technical Education and Training*, 14(1), 39-58.
- Van der Bijl, D. (2020). Professional Qualifications of TVET Educators: Current Trends and Future Directions. *Journal of Education and Work*, 33(2), 146-161.
- Van der Westhuizen, G., & Jansen, J. (2020). Management autonomy and challenges in TVET schools. *South African Journal of Education Research*.
- Van der Westhuizen, J., & Kruger, M. (2021). Job security and employee retention in TVET schools. *Journal of Educational Management*, 9(3), 203-215.
- Rossouw, E. A., & Rothmann, S. (2020). Work beliefs, work-role fit, and well-being of judges in South Africa: Effects on intention to leave and organisational citizenship behaviour. *Journal of Psychology in Africa*, 30(4), 277-288.
- Vogt, W. P., Gardner, D. C., & Haeffele, L. M. (2012). *When to use what research design*. Guilford Press.

- Volkman, C., Tokarski, K., & Ernst, K. (2022). Entrepreneurship Education: Fostering Entrepreneurial Mindsets and Skills. *Springer*.
- Walker, M., & Fongwa, S. (2017). Human development, capabilities, and graduate employability. In Universities, employability, and human development (pp. 215–227). *London: Springer Nature*.
- Wedekind, V. (2016). The Professional Development of TVET Educators: Challenges and Opportunities. *International Journal of Training Research*, 14(3), 204-218.
- Weerasinghe, I. M. S., & Fernando, R. L. S. (2018). Critical factors affecting students' satisfaction with higher education in Sri Lanka. *Quality Assurance in Education*.
- White, A., & Huang, L. (2022). Real-world learning experiences and their effects on employability. *Journal of Professional Education*, 28(3), 72-88.
- White, R., & Green, C. (2022). Student preparedness and its impact on teaching effectiveness. *Educational Leadership and Policy Studies*, 31(2), 121-138.
- Wilkins, S. and Balakrishnan, M.S. (2013), Assessing student satisfaction in transnational higher education. *International Journal of Educational Management*, 27(2), pp. 146-153
- Wilkinson, I. A. G., & Staley, B. (2019). On the pitfalls and promises of using mixed methods in literacy research: Perceptions of reviewers. *Research Papers in Education*, 34(1), 61-83. <https://doi.org/10.1080/02671522.2017.1402081>
- Wilson, A. (2014). Research Methods: A Guide for Students and Researchers. *Palgrave Macmillan*.
- Wilson, J., & Harris, S. (2023). Flexible classroom design and its impact on teaching practices in vocational education. *Educational Design and Practice Review*, 21(2), 33-49.
- Wilson, J., Murphy, C., & Hayes, D. (2022). Project-based learning and employability: The engineering perspective. *STEM Education Review*, 19(2), 50-66.

- Wisdom, J., & Creswell, J. W. (2013). Mixed Methods: Integrating Quantitative and Qualitative Data Collection and Analysis While Studying Patient-Centered Medical Home Models. *AHRQ and PCHM. JPSE 2 (2): 25-36*
- Wolf, A. (2021). Apprenticeships and Skills in the UK: A Review of Policy and Practice. *Journal of Education Policy, 36(2), 161-178.*
- Wong, A., & Chen, L. (2023). Soft skills training in higher education and its impact on employability. *International Journal of Skills Development, 40(1), 10-24.*
- Wong, H.Y. & Sultan, P. (2021). Service quality in higher education: where are we and where to go? *The Marketisation of Higher Education. Marketing and Communication in Higher Education, Palgrave Macmillan, Cham, 343-369*
- World Bank. (2021). Skills for a changing world: National strategy for technical vocational education and training in Tunisia 2021-2030: A roadmap for reforming TVET systems worldwide. *World Bank Publications.*
- World Bank. (2023). South Africa Economic Update: Jobs and Inequality.
- Yusoff, M., McLeay, F. & Woodruff-Burton, H. (2015). Dimensions driving business student satisfaction in higher education. *Quality Assurance in Education, 23(1), 86 -104.*
- Zachariah, T., & Pereira, G. (2021). Bridging the gap between access and quality in education: Challenges in implementing SDG 4 in developing countries. *Development Studies Research, 8(1), 20-31.*
- Zhang, Y., & Lee, S. (2023). Structural equation modelling of teaching facility quality and teaching processes. *Educational Research Methods, 40(2), 25-41.*
- Zhou, M. (2022). Social Networks and Their Impact on Vocational Education Choices. *International Journal of Vocational Education and Training, 30(2), 132-145.*

Zou, P. X. W., Sunindijo, R. Y., & Dainty, A. R. J. (2014). A mixed methods research design for bridging the gap between research and practice in construction safety. *Safety Science* 70, 316-326.

Zulu, T. (2017). TVET education in South Africa: A review of challenges and policy responses. *Journal of Technical Education Research*, 11(2), 88-105.

APPENDICES

Appendix A: Unicaf University Research Ethics Committee Decision



UREC Decision, Version 2.0 ☐

Unicaf University Research Ethics Committee Decision

Student's Name: Ntevheleni Netshisumbewa

Student's ID #: R1807D5589851

Supervisor's Name: Dr Vusumuzi Sibanda

Program of Study: UUZ: DBA Doctoral of Business Administration

Offer ID /Group ID: O46085G48962

Dissertation Stage: 3

Research Project Title: Exploring quality management issues in Technical Vocational Education and Training in South Africa

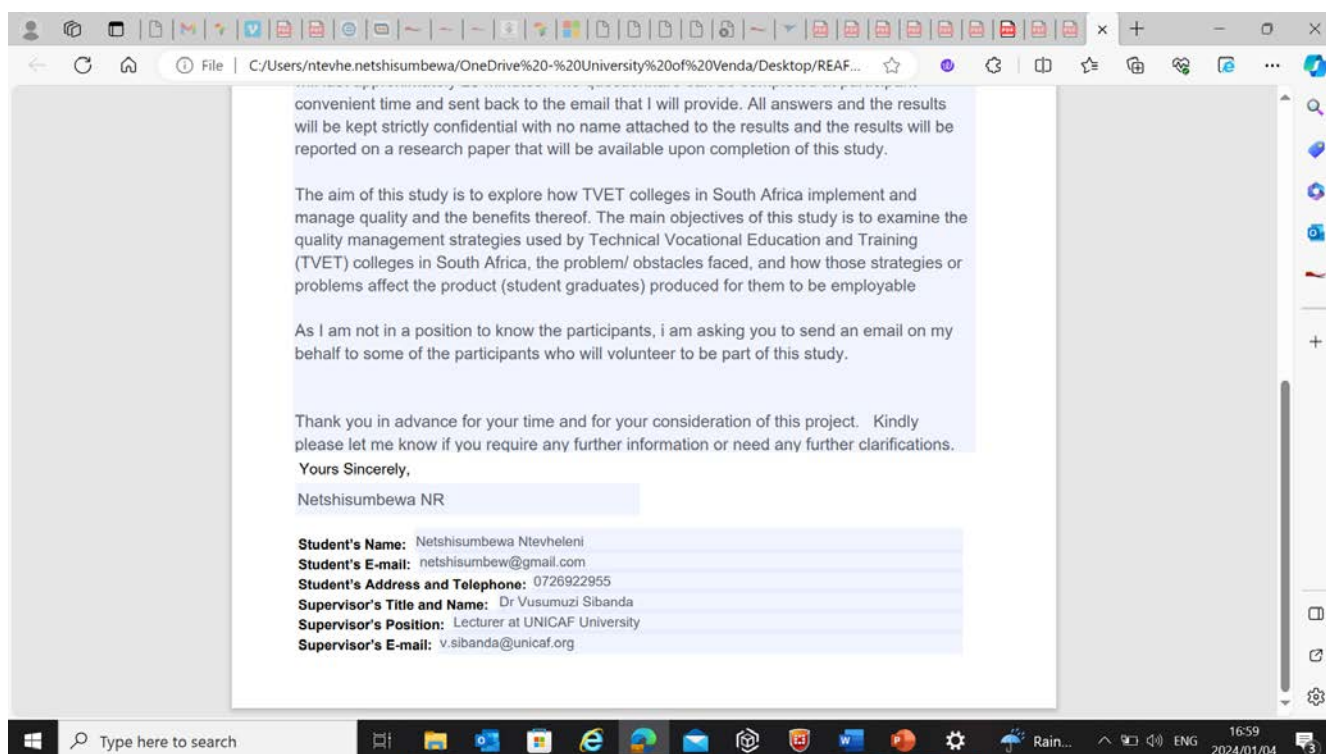
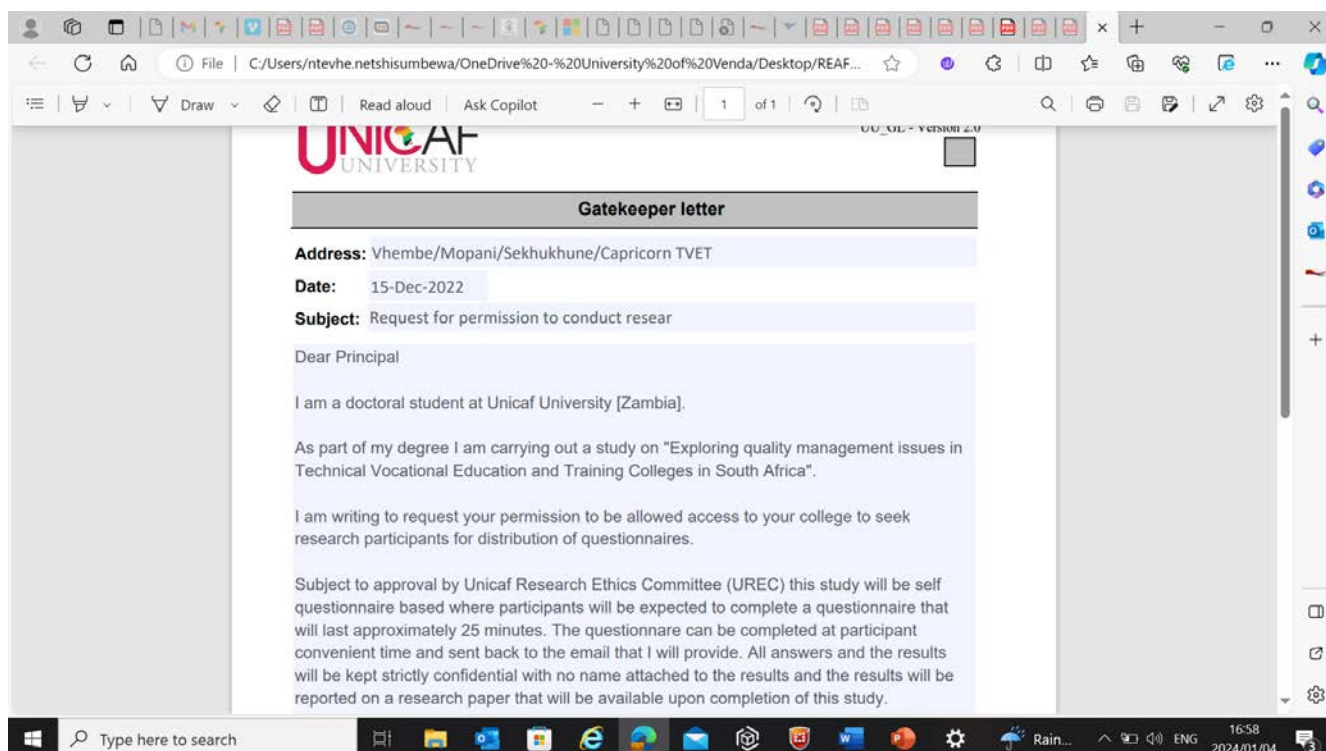
Comments: No comments.

Decision*: A. Approved without revision or comments

Date: 11-Jan-2023

*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

Appendix B: Gatekeeper letter



Appendix C: Approval letters



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

VHEMBE TVET COLLEGE

Central Office

Site 203, Unit A

SIBASA

LIMPOPO, 0970

Tel. (015) 963 7000

Fax (015) 963 3150/4

E-mail: info@vhembecollege.edu.za



Enq: Office of the Deputy Principal Academic Services

015 963 7000/7093

To: Netshisumbewa NR

Contact Number: 0726922955

RE: REQUEST TO CONDUCT A RESEARCH AT VHEMBE TVET COLLEGE

The above matter refers;

After review of the study protocol, Vhembe TVET College hereby grants Netshisumbewa Ntevheleni Robert permission to conduct his study at Vhembe TVET College under the following research topic: **Exploring quality management issues in Technical Vocational Education and Training in South Africa.**

Approval is given with an exception that the research will be conducted without interference in the daily activities of the college.

Kind Regards.

Deputy Principal Academic Services

Mrs. Boo M

Date: 07/02/2023



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES

1. APPLICANT INFORMATION

1.1.	Title (Dr./Mr./Mrs./Ms)	Mr	
1.2	Name and surname	Netshisumbewa Ntevheleni	
1.3	Postal address	P.O.Box 1988 Thohoyandou 0950	
1.4	Contact details	Tel	015 962 8981
		Cell	072 692 2955
		Fax	
		Email	Ntevhe.netshisumbewa@univen.ac.za
1.5	Name of institution where enrolled	UNICAF University	
1.6	Field of study	Business Administration	
1.7	Qualification registered for	Please tick relevant option:	
		Doctoral Degree (PhD)	☒ X
		Master's Degree	☐
		Other (please specify)	☐

2. DETAILS OF THE STUDY

2.1	Title of the study
	Exploring quality management issues in Technical Vocational Education and Training in South Africa
2.2	Purpose of the study
	The purpose of this study is to explore how TVET colleges in South Africa implement and manage quality and the benefits thereof. The main objectives of this study is to

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

examine the quality management strategies used by Technical Vocational Education and Training (TVET) colleges in South Africa, the problems/ obstacles faced, and how those strategies or problems affect the product (student graduates) produced for them to be employable.

3. PARTICIPANTS AND TYPE/S OF ACTIVITIES TO BE UNDERTAKEN IN THE COLLEGE

Please indicate the types of research activities you are planning to undertake in the College, as well as the categories of persons who are expected to participate in your study (for example, lecturers, students, College Principals, Deputy Principals, Campus Heads, Support Staff, Heads of Departments), including the number of participants for each activity.

3.1	Complete questionnaires	Expected participants (e.g. students, lecturers, College Principal)	Number of participants
		A) Lecturers	20 per campus
		b) Admin Staff	20 per campus
		c)	
		d)	
		e)	
3.2	Participate in individual interviews	Expected participants	Number of participants
		a) College management/ Quality Management staff	4
		b)	
		c)	
		d)	
		e)	
3.3	Participate in focus group discussions/ workshops	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	
3.4	Complete standardised tests (e.g. Psychometric Tests)	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

3.5	Undertake observations <i>Please specify</i>		
3.6	Other <i>Please specify</i>		

4. SUPPORT NEEDED FROM THE COLLEGE

<i>Please indicate the type of support required from the College (Please tick relevant option/s)</i>			
Type of support		Yes	No
4.1	The College will be required to identify participants and provide their contact details to the researcher.	X	
4.2	The College will be required to distribute questionnaires/instruments to participants on behalf of the researcher.	X	
4.3	The College will be required to provide official documents. <i>Please specify the documents required below</i>		X
4.4	The College will be required to provide data (only if this data is not available from the DHET). <i>Please specify the data fields required, below</i> As the research progresses data may be requested from DHET		X
4.5	<i>Other, please specify below</i>		X

5. DOCUMENTS TO BE ATTACHED TO THE APPLICATION

The following 2 (two) documents must be attached as a prerequisite for approval to undertake research in the College

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

5.1	Ethics Clearance Certificate issued by a University Ethics Committee
5.2	Research proposal approved by a University

6. DECLARATION BY THE APPLICANT

I undertake to use the information that I acquire through my research, in a balanced and a responsible manner. I furthermore take note of, and agree to adhere to the following conditions:

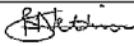
- a) I will schedule my research activities in consultation with the said College/s and participants in order not to interrupt the programme of the said College/s.
- b) I agree that involvement by participants in my research study is voluntary, and that participants have a right to decline to participate in my research study.
- c) I will obtain signed consent forms from participants prior to any engagement with them.
- d) I will obtain written parental consent of students under 18 years of age, if they are expected to participate in my research.
- e) I will inform participants about the use of recording devices such as tape-recorders and cameras, and participants will be free to reject them if they wish.
- f) I will honour the right of participants to privacy, anonymity, confidentiality and respect for human dignity at all times. Participants will not be identifiable in any way from the results of my research, unless written consent is obtained otherwise.
- g) I will not include the names of the said College/s or research participants in my research report, without the written consent of each of the said individuals and/or College/s.
- h) I will send the draft research report to research participants before finalisation, in order to validate the accuracy of the information in the report.
- i) I will not use the resources of the said College/s in which I am conducting research (such as stationery, photocopies, faxes, and telephones), for my research study.
- j) Should I require data for this study, I will first request data directly from the Department of Higher Education and Training. I will request data from the College/s only if the DHET does not have the required data.

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

k) I will include a disclaimer in any report, publication or presentation arising from my research, that the findings and recommendations of the study do not represent the views of the said College/s or the Department of Higher Education and Training.

l) I will provide a summary of my research report to the Head of the College/s in which I undertook my research, for information purposes.

I declare that all statements made in this application are true and accurate. I accept the conditions associated with the granting of approval to conduct research and undertake to abide by them.

SIGNATURE	
DATE	27/01/2022

FOR OFFICIAL USE

DECISION BY HEAD OF COLLEGE

Please tick relevant decision and provide conditions/reasons where applicable		
Decision		Please tick relevant option below
1	Application approved	☒
2	Application approved subject to certain conditions. <i>Specify conditions below</i>	☐
	The research should not tamper with the smooth running of Teaching and Learning activities	
3	Application not approved. <i>Provide reasons for non-approval below</i>	☐
NAME OF COLLEGE	VHEMBE TVET COLLEGE	
NAME AND SURNAME OF HEAD OF COLLEGE	M BOOI	
SIGNATURE		
DATE	07/02/2023	



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

**CAPRICORN TVET COLLEGE
CENTRAL OFFICE**

☎ (015) 230 1800

☎ (015) 291 2767

🌐 www.capricorncollege.edu.za

📍 16 & 18 Market Street, 0699 Polokwane

✉ Private Bag X9674, Polokwane 0700



Enquiries : Personnel Officer: Chokoe MM

To : College Principal: Mr Mamabolo LJ

CC : Deputy Principal Corporate Services: Ms Moja Jk

From : Assistant Director HRD: Mr Mathipa SL

Date : 01 March 2023

Subject : APPLICATION TO CONDUCT RESEARCH IN THE COLLEGE:
NETSHISUMBWEA N.R: EXPLORING QUALITY MANAGEMENT ISSUES
IN TECHNICAL VOCATIONAL EDUCATION AND TRAINING IN SOUTH
AFRICA.

1. PURPOSE

To obtain approval of Mr Netshisumbewa N.R application to conduct research in the College.

2. BACKGROUND

The College received the application letter from Netshisumbewa N.R to conduct research in the College with the purpose of completing his qualification: Doctoral Degree (PhD) with UNICAF University (Zambia).

3. DISCUSSION

Mr Netshisumbewa N.R is requesting the College to offer him an opportunity to conduct the research in the College. The proposed topic of research is: Exploring Quality Management Issues in Technical Vocational Education and Training in South Africa.

The College is expected to give him a full support to make research study a success.

POLOKWANE CAMPUS

C/o Dorp & College Streets
0699 POLOKWANE
Tel: (015) 283 3300
Fax: (015) 297 2183

SESHEGO CAMPUS

1919 Freedom Drive
0742 SESHEGO
Tel: (015) 223 9600
Fax: (015) 223 5187

SENWABARWANA CAMPUS

Senwabarwana Main Street
0790 SENWABARWANA
Tel: (015) 505 3172
Fax: (015) 505 3174

RAMOKGOPA CAMPUS

Next to Mokomene High School
0811 RAMOKGOPA
Tel: (015) 526 2750
Fax: (015) 526 2005

LETTERHEAD: CENTRAL OFFICE

CSO_28A_01

Rev [00]

Issued: 2021-07-01

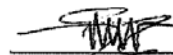
Page 1 of 2

Attached please find the following documents:

- ✓ Application Form for Student to Conduct Research in TVET Colleges.
- ✓ Research Ethics Application Form.
- ✓ Unicaf University Research Ethics Committee Decision.
- ✓ Request for permission
- ✓ to conduct research.
- ✓ Unicaf Confirmation letter.
- ✓ Certified I.D document.

Human Resource Development is making the recommendation for the approval of the researcher's application as per request.

Approved / ~~Not approved~~



PRINCIPAL
MR MAMABOLO LJ

06/03/2023

DATE

POLOKWANE CAMPUS
C/o Dorp & College Streets
0699 POLOKWANE
Tel: (015) 283 3300
Fax: (015) 297 2183

SESEGO CAMPUS
1919 Freedom Drive
0742 SESEGO
Tel: (015) 223 9800
Fax: (015) 223 5187

SENWABARWANA CAMPUS
Senwabarwana Main Street
0790 SENWABARWANA
Tel: (015) 505 3172
Fax: (015) 505 3174

RAMOKGOPA CAMPUS
Next to Mokomene High School
0811 RAMOKGOPA
Tel: (015) 526 2750
Fax: (015) 526 2005

LETTERHEAD: CENTRAL OFFICE	CSO_28A_01	Rev [00]	Issued: 2021-07-01	Page 2 of 2



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES

1. APPLICANT INFORMATION

1.1.	Title (Dr /Mr /Mrs /Ms)	Mr	
1.2	Name and surname	Netshisumbewa Ntevheleni	
1.3	Postal address	P.O.Box 1988 Thohoyandou 0950	
1.4	Contact details	Tel	015 962 8981
		Cell	072 692 2955
		Fax	
		Email	Ntevhe.netshisumbewa@univen.ac.za
1.5	Name of institution where enrolled	UNICAF University	
1.6	Field of study	Business Administration	
1.7	Qualification registered for	Please tick relevant option:	
		Doctoral Degree (PhD)	☒
		Master's Degree	☐
		Other (please specify)	☐

2. DETAILS OF THE STUDY

2.1	Title of the study
Exploring quality management issues in Technical Vocational Education and Training in South Africa	
2.2	Purpose of the study
The purpose of this study is to explore how TVET colleges in South Africa implement and manage quality and the benefits thereof. The main objectives of this study is to	

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

examine the quality management strategies used by Technical Vocational Education and Training (TVET) colleges in South Africa, the problems/ obstacles faced, and how those strategies or problems affect the product (student graduates) produced for them to be employable.

3. PARTICIPANTS AND TYPE/S OF ACTIVITIES TO BE UNDERTAKEN IN THE COLLEGE

Please indicate the types of research activities you are planning to undertake in the College, as well as the categories of persons who are expected to participate in your study (for example, lecturers, students, College Principals, Deputy Principals, Campus Heads, Support Staff, Heads of Departments), including the number of participants for each activity.

3.1	Complete questionnaires	Expected participants (e.g. students, lecturers, College Principal)	Number of participants
		A) Lecturers	20 per campus
		b) Admin Staff	20 per campus
		c)	
		d)	
		e)	
3.2	Participate in individual interviews	Expected participants	Number of participants
		a) College management/ Quality Management staff	4
		b)	
		c)	
		d)	
		e)	
3.3	Participate in focus group discussions/ workshops	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	
3.4	Complete standardised tests (e.g. Psychometric Tests)	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

3.5	Undertake observations <i>Please specify</i>		
3.6	Other <i>Please specify</i>		

4. SUPPORT NEEDED FROM THE COLLEGE

<i>Please indicate the type of support required from the College (Please tick relevant option/s)</i>			
Type of support		Yes	No
4.1	The College will be required to identify participants and provide their contact details to the researcher.	X	
4.2	The College will be required to distribute questionnaires/instruments to participants on behalf of the researcher.	x	
4.3	The College will be required to provide official documents. <i>Please specify the documents required below</i>		x
4.4	The College will be required to provide data (<i>only if this data is not available from the DHET</i>). <i>Please specify the data fields required, below</i>		x
As the research progresses data may be requested from DHET			
4.5	<i>Other, please specify below</i>		x

5. DOCUMENTS TO BE ATTACHED TO THE APPLICATION

The following 2 (two) documents must be attached as a prerequisite for approval to undertake research in the College

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

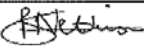
5.1	Ethics Clearance Certificate issued by a University Ethics Committee
5.2	Research proposal approved by a University

6. DECLARATION BY THE APPLICANT

I undertake to use the information that I acquire through my research, in a balanced and a responsible manner. I furthermore take note of, and agree to adhere to the following conditions:

- a) I will schedule my research activities in consultation with the said College/s and participants in order not to interrupt the programme of the said College/s.
- b) I agree that involvement by participants in my research study is voluntary, and that participants have a right to decline to participate in my research study.
- c) I will obtain signed consent forms from participants prior to any engagement with them.
- d) I will obtain written parental consent of students under 18 years of age, if they are expected to participate in my research.
- e) I will inform participants about the use of recording devices such as tape-recorders and cameras, and participants will be free to reject them if they wish.
- f) I will honour the right of participants to privacy, anonymity, confidentiality and respect for human dignity at all times. Participants will not be identifiable in any way from the results of my research, unless written consent is obtained otherwise.
- g) I will not include the names of the said College/s or research participants in my research report, without the written consent of each of the said individuals and/or College/s.
- h) I will send the draft research report to research participants before finalisation, in order to validate the accuracy of the information in the report.
- i) I will not use the resources of the said College/s in which I am conducting research (such as stationery, photocopies, faxes, and telephones), for my research study.
- j) Should I require data for this study, I will first request data directly from the Department of Higher Education and Training. I will request data from the College/s only if the DHET does not have the required data.

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

k) I will include a disclaimer in any report, publication or presentation arising from my research, that the findings and recommendations of the study do not represent the views of the said College/s or the Department of Higher Education and Training. l) I will provide a summary of my research report to the Head of the College/s in which I undertook my research, for information purposes. I declare that all statements made in this application are true and accurate. I accept the conditions associated with the granting of approval to conduct research and undertake to abide by them.	
SIGNATURE	
DATE	27/01/2023

FOR OFFICIAL USE

DECISION BY HEAD OF COLLEGE

<i>Please tick relevant decision and provide conditions/reasons where applicable</i>		
Decision		<i>Please tick relevant option below</i>
1	Application approved	Yes
2	Application approved subject to certain conditions. <i>Specify conditions below</i> The applicant should take into consideration the declaration undertakings	
3	Application not approved. <i>Provide reasons for non-approval below</i> 	
NAME OF COLLEGE		Capricorn TVET College
NAME AND SURNAME OF HEAD OF COLLEGE		Mr LJ Mamabolo
SIGNATURE		L.J Mamabolo
DATE		21/02/2023



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES

1. APPLICANT INFORMATION

1.1.	Title (Dr /Mr /Mrs /Ms)	Mr	
1.2	Name and surname	Netshisumbewa Ntevheleni	
1.3	Postal address	P.O.Box 1988 Thohoyandou 0950	
1.4	Contact details	Tel	015 962 8981
		Cell	072 692 2955
		Fax	
		Email	Ntevhe.netshisumbewa@univen.ac.za
1.5	Name of institution where enrolled	UNICAF University	
1.6	Field of study	Business Administration	
1.7	Qualification registered for	Please tick relevant option: Doctoral Degree (PhD) ☒ X Master's Degree ☐ Other (please specify) ☐	

2. DETAILS OF THE STUDY

2.1	Title of the study
Exploring quality management issues in Technical Vocational Education and Training in South Africa	
2.2	Purpose of the study
The purpose of this study is to explore how TVET colleges in South Africa implement and manage quality and the benefits thereof. The main objectives of this study is to	

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

examine the quality management strategies used by Technical Vocational Education and Training (TVET) colleges in South Africa, the problems/ obstacles faced, and how those strategies or problems affect the product (student graduates) produced for them to be employable.

3. PARTICIPANTS AND TYPE/S OF ACTIVITIES TO BE UNDERTAKEN IN THE COLLEGE

Please indicate the types of research activities you are planning to undertake in the College, as well as the categories of persons who are expected to participate in your study (for example, lecturers, students, College Principals, Deputy Principals, Campus Heads, Support Staff, Heads of Departments), including the number of participants for each activity.

3.1	Complete questionnaires	Expected participants (e.g. students, lecturers, College Principal)	Number of participants
		A) Lecturers	20
		b) Admin Staff	20
		c)	
		d)	
		e)	
3.2	Participate in individual interviews	Expected participants	Number of participants
		a) College management/ Quality Management staff	4
		b)	
		c)	
		d)	
		e)	
3.3	Participate in focus group discussions/ workshops	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	
3.4	Complete standardised tests (e.g. Psychometric Tests)	Expected participants	Number of participants
		a)	
		b)	
		c)	
		d)	
		e)	

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

3.5	Undertake observations <i>Please specify</i>		
3.6	Other <i>Please specify</i>		

4. SUPPORT NEEDED FROM THE COLLEGE

<i>Please indicate the type of support required from the College (Please tick relevant option/s)</i>			
Type of support		Yes	No
4.1	The College will be required to identify participants and provide their contact details to the researcher.	X	
4.2	The College will be required to distribute questionnaires/instruments to participants on behalf of the researcher.	x	
4.3	The College will be required to provide official documents. <i>Please specify the documents required below</i>		x
4.4	The College will be required to provide data (<i>only if this data is not available from the DHET</i>). <i>Please specify the data fields required, below</i> As the research progresses data may be requested from DHET		x
4.5	<i>Other, please specify below</i>		x

5. DOCUMENTS TO BE ATTACHED TO THE APPLICATION

The following 2 (two) documents must be attached as a prerequisite for approval to undertake research in the College

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

5.1	Ethics Clearance Certificate issued by a University Ethics Committee
5.2	Research proposal approved by a University

6. DECLARATION BY THE APPLICANT

I undertake to use the information that I acquire through my research, in a balanced and a responsible manner. I furthermore take note of, and agree to adhere to the following conditions:

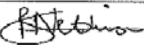
- a) I will schedule my research activities in consultation with the said College/s and participants in order not to interrupt the programme of the said College/s.
- b) I agree that involvement by participants in my research study is voluntary, and that participants have a right to decline to participate in my research study.
- c) I will obtain signed consent forms from participants prior to any engagement with them.
- d) I will obtain written parental consent of students under 18 years of age, if they are expected to participate in my research.
- e) I will inform participants about the use of recording devices such as tape-recorders and cameras, and participants will be free to reject them if they wish.
- f) I will honour the right of participants to privacy, anonymity, confidentiality and respect for human dignity at all times. Participants will not be identifiable in any way from the results of my research, unless written consent is obtained otherwise.
- g) I will not include the names of the said College/s or research participants in my research report, without the written consent of each of the said individuals and/or College/s.
- h) I will send the draft research report to research participants before finalisation, in order to validate the accuracy of the information in the report.
- i) I will not use the resources of the said College/s in which I am conducting research (such as stationery, photocopies, faxes, and telephones), for my research study.
- j) Should I require data for this study, I will first request data directly from the Department of Higher Education and Training. I will request data from the College/s only if the DHET does not have the required data.

DHET 004: APPENDIX 1: APPLICATION FORM FOR STUDENTS TO CONDUCT RESEARCH IN TVET COLLEGES

k) I will include a disclaimer in any report, publication or presentation arising from my research, that the findings and recommendations of the study do not represent the views of the said College/s or the Department of Higher Education and Training.

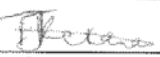
l) I will provide a summary of my research report to the Head of the College/s in which I undertook my research, for information purposes.

I declare that all statements made in this application are true and accurate. I accept the conditions associated with the granting of approval to conduct research and undertake to abide by them.

SIGNATURE	
DATE	27/01/2023

FOR OFFICIAL USE

DECISION BY HEAD OF COLLEGE

<i>Please tick relevant decision and provide conditions/reasons where applicable</i>		
Decision	<i>Please tick relevant option below</i>	
1 Application approved	Yes	
2 Application approved subject to certain conditions. <i>Specify conditions below</i>		
Data collection should adhere with Research ethics submitted. Nobody should be forced in anyway.		
3 Application not approved. <i>Provide reasons for non-approval below</i>		
NAME OF COLLEGE	Sekhukhune TVET College	
NAME AND SURNAME OF HEAD OF COLLEGE	Mr TJ Kekana	
SIGNATURE		
DATE	21/02/2023	

RE: request for permission to conduct research

Tebogo Johannes Kekana <KekanaT@sektvetcol.co.za>

Mon 2023-02-27 08:14

To: Ntevheleni Netshisumbewa <Ntevhe.Netshisumbewa@univen.ac.za>

Mr Ntevheleni Netshisumbewa

Dear Sir

Your request to conduct research a Sekhukhune TVET College is **granted**

KR

Kekana TJ

CEO/Principal

082 323 0255

SEKHUKHUNE TVET COLLEGE



CORPORATE OFFICE

Tel: 013 269 0278 | Fax: 013 269 0450

Stand No. 676, Motetema, 0473

Private Bag X3660, Groblersdal, 0470

www.sekhukhunetvet.edu.za

From: Ntevheleni Netshisumbewa [mailto:Ntevhe.Netshisumbewa@univen.ac.za]

Sent: Tuesday, 21 February 2023 11:29 AM

To: Tebogo Johannes Kekana <KekanaT@sektvetcol.co.za>; kekanat@sektvetcol.edu.za

Subject: FW: request for permission to conduct research

Dear Principal

I am making a follow-up to the email below.

Regards

From: Ntevheleni Netshisumbewa

Sent: Wednesday, January 25, 2023 7:43 PM

To: Kekanat@sektvetcol.co.za

Subject: request for permission to conduct research

Dear Principal

Attached please find a request letter for permission to conduct a PHD research in your institutions (the research will be conducted in all public TVET colleges in Limpopo).

Thanking you in advance

Regards

Mr Ntevheni Netshisumbewa
Administrative Officer
Department of Examinations
Private Bag x5050
Thohoyandou
0950

J +27 15 962 8981/ 0726922 955



+27 15 962 8912



Ntevhe.netshisumbewa@univen.ac.za

 P/Bag X5050, Thohoyandou, 0950, South Africa



University of Venda
Creating Future Leaders

APPENDIX D: Informed Consent



UU_IC - Version 2.1

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Netshisumbewa Ntevheleni

Student's E-mail Address: netshisumbew@gmail.com

Student ID #: R1807D5589851

Supervisor's Name: Dr Vusumuzi Sibanda

University Campus: Unicaf University Zambia (UUZ) ☐

Program of Study: UUZ: DBA Doctorate of Business Administration

Research Project Title: Exploring quality management issues in Technical Vocational Education and Training in South Africa

Date: 15-Dec-2022

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

The aim of this study is to explore how TVET colleges in South Africa implement and manage quality and the benefits thereof. The main objectives of this study is to examine the quality management strategies used by Technical Vocational Education and Training (TVET) colleges in South Africa, the problem/ obstacles faced, and how those strategies or problems affect the product (student graduates) produced for them to be employable. This study will contribute to the improvement of TVET colleges' quality management as the intention is not to criticize the quality management system in place. The principle of quality management involves different facets of the organization like customer, organizational leadership, involvement of the people and continuous improvement.

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Netshisumbewa Ntevheleni, ensure that all information stated above is true and that all conditions have been met.

Student's Signature: Netshisumbewa NR 



UU_IC - Version 2.1

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name: Netshisumbewa Ntevheleni

Student's E-mail Address: netshisumbew@gmail.com

Student ID #: R1807D5589851

Supervisor's Name: Dr Vusumuzi Sibanda

University Campus: Unicaf University Zambia (UUZ)

Program of Study: UUZ: DBA Doctorate of Business Administration

Research Project Title: Exploring quality management issues in Technical Vocational Education and Training in South Africa

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name:

Participant's Signature: _____

Date: 15-Dec-2022

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name:

Witness's Signature: _____

Date:

APPENDIX E: Questionnaire**Dear Respondent**

My name is Netshisumbewa Ntevheleni, student no R1807D5589851, doing a Doctor of Business Administration (DBA) Degree with UNICAF University. As part of DBA Degree fulfillment, I am expected to conduct research titled: Exploring quality management issues in Technical Vocational Education and Training Schools in South Africa. You are invited to complete the following survey which will take approximately 25 minutes. Participation is voluntary and your responses will be anonymous, treated with confidentiality and there is no right and wrong answer. The collected information will only be used for academic purposes and remain private. You are free to withdraw at any stage and you would not be compelled to give a reason. By completing this survey, you confirm that you have understood the above and consent to participate in this study.

Researcher's signature..... 

Date: 02/12/2022

Part A: Personal Information

Please tick (X) on the box that best describes your biographical details. There is no need to put your name on this questionnaire.

1. Schools name:

2. Gender

Male		Female		Other	

3. Age range

20-29		30-39		40-49		50-59		60 and above	

4. Race

African		White		Coloured		Asian	

5. Qualifications

Grade 12		Diploma		Degree		Postgraduate	

6. Designation

Lecturer		Admin staff	

7. Number of years working at TVET schools

0-5		6-10		11-15		16-20		21-25		25 and above	

8.

Department	Tick
Engineering studies	
Business studies	
Human resource	
Finance	
Other (please specify)	

9. If you are a lecturer, please tick the number of modules you teach per semester/ trimester

1	2	3	4	5	>5

Part B: Survey Questionnaire

Based on your experience of working in this schools, kindly indicate with a cross (x) the response that best relates to your opinion on the statements below using the following scale:

1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree

STATEMENTS		1	2	3	4	5
Staff Recruitment and selection						
1.	The schools always looks for required skills when hiring teaching and administrative staff					
2.	Criteria for advertised positions are clearly mentioned					
3.	Previous teaching or administrative experience in schools or higher education institution is taken into consideration when hiring					
4.	Candidates for teaching and administrative staff members positions in the schools appear in a structured/formal interview prior to hiring					
Staff Training and development						
5.	The schools arranges an orientation program for newly hired teaching and administrative staff members to learn about the schools					
6.	The schools provides annual training required by its teaching and administrative staff members to develop the required skills (e.g. problem-solving skills, data analysis skills, lab work skills, analytical skills, communication skills etc)					
7.	The schools invests considerably in the training of teaching and administrative staff members					
Staff Motivation enhancing						
Incentives and rewards						

8.	Schools staff members are remunerated fairly at all levels					
9.	The schools gives recognition awards to its teaching and administrative staff members each Year					
10.	The schools considers the well-being of its staff members					
11.	The schools has a high retention rate					

Staff Promotion and career development					
12.	Staff members with good performance are prioritized during staff promotion				
Staff involvement/participation					
13.	The schools allows its teaching and administrative staff members to make decisions related to their work				
14.	The schools provides the opportunity to its teaching and administrative staff members to suggest improvements in the way things are done				
	Student admission and selection				
15	The schools makes great efforts in selecting the right students for the program				
16	The schools clearly mentions the admission criteria for each program				
17	The schools provides an orientation program for all new students to learn about the schools				
18	There are regular training for (e.g. in-service training, apprenticeship, seminars, workshops, etc) to develop students' skills				
	Program Design				
19	Programs have clear aims and objectives				
20	Objectives of programs regarding skills to be imparted are identified in advance				

21	The subjects' content is related to the program's aims and objectives					
	Teaching Processes					
22	Lecturers understand the aim and objectives of the programs they teach					
23	The delivery methodology is decided in advance					
24	Learning experiences of students are relevant to employment					
	Assessment processes					
25	The student's assessment methodology for each course is determined in advance					
26	The assessment ensures the students attain the required standards					
27	There are students' assessment criteria as well as a grading criterion for each course					
28	Students assessed work is returned on time					
29	The schools encourages lecturers to provide useful feedback on time					
	Curriculum management					
30	There is a systematic and progressive development of assessment and achievement of skills					
31	The quality assurance system ensures curriculum review and development					
32	There are procedures for internal verification and evaluation of all aspects of the assessment process					

	Geographical location					
33	The schools is accessible to all its customers (i.e students and teachers)					
34	There is a frequency of transport to and from the schools					
	Facilities to enhance teaching and learning					
35	The schools has classrooms and laboratories that are conducive and functional					
36	Staff offices have required equipment (e.g. computers, printers, photocopy)					
37	The library has relevant and up-to-date materials for teaching and learning.					
38	Facilities for student and staff amusement are available (e.g. cafeteria, gym)					
39	The schools has technology for E-learning					
40	Sufficient emergency and health services are available at the campus					
41	Teachers have access to relevant and appropriate IT facilities including internet					
Training and development for students						
Motivation enhancement for students						
Incentives and rewards						
42.	There is a non-monetary and monetary reward for students' excellent achievement					
43	Government funding is provided to all deserving students					

Student involvement/participation					
44.	The schools provides the opportunity for students to give feedback on teaching and learning				
45.	The schools provides the opportunity for students to get involved in extra-curricular activities				
Integration of staff and students					
46	The schools provides communication channels for staff and students to exchange ideas (e.g. newsletters, and discussion forums)				
47	Students' needs are attended to promptly (e.g. IT, librarians)				
48	The schools accepts feedback from employers of the student graduates.				
Schools adaptation					
49	The schools always considers the changing environment to reformulate teaching strategies				
50	Facilities are always maintained in response to changing environment				
Teaching and learning quality					
51	The schools offers a high-quality blended curriculum				
52	The schools provides a high-quality learning experience				
53	There is a high production of quality grades				
54	The programs offered by the schools are of high quality and meet the needs of the industry and professional bodies				

55	The schools has a good overall relationship with external stakeholders (i.e. students employers, sponsors and donors)					

Thank you for taking your precious time to complete this questionnaire

Appendix F: Semi-structured Qualitative Interview Schedule

1. Questions for employers of student graduates

Name of the respondent (not compulsory)

Name of organisation

- How many schools graduates do you employ annually and in which fields?
- Do you think the schools graduates you have employed are well prepared for the workplace?
- If you answered no to the above question, what do they lack for them to be fully prepared for the world of work?
- What skills should be incorporated into the TVET schools curriculum?
- Do you have any other suggestions on what can improve the employability of graduates?

2. Questions for former students

Name of schools graduated from.....

- Which program did you do at public TVET schools?
- Are you currently employed, self-employed or unemployed?

- Do you think you were well prepared for the world of work or to start your own business?
- If you answered no to the above question, what should be incorporated for graduates to be fully ready for employment?
- What skills should be incorporated into the TVET schools curriculum?
- Are you happy with the programme of study or you feel you should have done something else?
- If you have regrets, what alternatively do you think you should have done and why?

3. Questions for schools managers/ regulatory bodies

- Who are TVET schools' stakeholders and what roles do they play in quality management of the training programs?
- How do you as a Schools ensure that you offer (a) quality programmes? (b) quality training in those programmes?
- What are the current challenges that your institution has that are hindering the provision of quality education?
- How can these challenges be overcome?
- Do you think your graduates are ready for industry demands?

- What do you think should be done to improve the employability of TVET graduates?