Cape Peninsula
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A FRAMEWORK TO ENHANCE THE MANAGEMENT AND ADMINISTRATION OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGE-INDUSTRY PARTNERSHIPS IN SOUTH AFRICA

by

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DECLARATION

I, Tuletu Ntombomzi Njengele, declare that the contents of this thesis represent my own unaided work and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my opinions, not necessarily those of the Cape Peninsula University of Technology.

T.N. Njengele

Signed

17 September 2025

Date

ABSTRACT

Technical and Vocational Education and Training (TVET) college programs in South Africa incorporate Work-Integrated Learning (WIL) to combine classroom-based activities with real-world experience in industry environments. This study addresses the need for effective management and administration of TVET college-industry partnerships, which are crucial for providing quality WIL opportunities. The research output is a model to enhance the management and administration of these partnerships in the South African TVET sector.

A qualitative research approach, using an interpretive paradigm, and Activity Theory framework was employed. Data was collected from a survey of TVET college websites, from structured focus group survey interviews with participant teams from 21 TVET colleges, and from semi-structured individual interviews with 11 participants. The findings underwent two levels of analysis: an activity analysis and a contradiction analyse were applied to the environmental scan data, the focus-ground individual interview data.

The findings indicate that while TVET colleges establish partnerships, the management and administration of these partnerships often lack a structured framework, leading to inconsistencies and challenges. The proposed TVET College-Industry Partnerships (CIP) Management Framework offers a systematic approach to initiating, sustaining, and maintaining effective partnerships. The study concludes that the implementation of this framework can significantly enhance the management and administration of TVET college-industry partnerships in South Africa.

Keywords: Technical and Vocational Education and Training (TVET), industry partnerships, partnership management and administration, work-integrated learning (WIL).

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DEDICATION

This thesis is dedicated:

Firstly, to God Almighty, who continues to be the source of my strength and the pillar of my life, for without Him, I could not have accomplished this journey.

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ABBREVIATIONS AND ACRONYMS

Acronyms/Abbreviations	Explanation
APP	Annual Performance Plan
BCC	Buffalo City TVET College
CET	Continuing and Further Education and Training
CETA	Construction Education and Training Authority
CIP	College-Industry Partnerships
CoE	Centre of Excellence
DHET	Department of Higher Education and Training
ECD	Early Childhood Development
ETD	Education, Training, and Development
FET	Further Education and Training
FLC	Further Learning Committee
HEI	Higher Education Institution
HEQC	Higher Education Quality Committee
HEQSF	Higher Education Qualifications Sub-Framework
MERSETA	Manufacturing, Engineering, and Related Services Education and Training Authority
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
MTSF	Medium Term Strategic Framework
NATED	National Accredited Technical Education Diploma
NCV	National Certificate (Vocational)
NLRD	National Learners' Records Database
NQF	National Qualifications Framework
NSFAS	National Student Financial Aid Scheme
ODL	Open Distance Learning
PESTEL	Political, Economic, Social, Technological, Environmental and Legal
PFMA	Public Finance Management Act
PQM	Program Qualification Mix

PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis.
PSET	Post School Education and Training
QAP	Quality Assurance Provider
QCTO	Quality Council for Trades and Occupations
SA-EU	South Africa-European Union
SAQA	South African Qualifications Authority
SD	Skills Development
SDL	Skills Development Levies
SETA	Sector Education and Training Authority
SoOT	School of Occupational training
STATS SA	Statistics South Africa
SOP	Standard Operating Procedure
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TVET	Technical and Vocational Education and Training
UNISA	University of South Africa
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VET	Vocational Education and Training
WBE	Workplace-Based Learning
WIL	Workplace Integrated Learning
WRSETA	Wholesale and Retail Sector Education and Training Authority

GLOSSARY

Term	Explanation
Administration	Refers to two distinguishable but closely related activities: A professional practice (vocation, occupation, field of activity) and an academic field that seeks to understand, develop, criticise, and improve that professional practice and train individuals for that practice (Shafritz, 2018).
Framework	A more comprehensive and often qualitative structure that provides a broad conceptual perspective for organising and understanding various elements within the field of public administration. Frameworks guide thinking about and analysing different components of public administration, including the roles of government, organisational structures, administrative processes, and policy issues.
Industry	A formal production of goods or related services within an economy, resulting to a sector or business that has economic activity and work-placement opportunities. In this study industry referrers to
Management:	Management functions and tools such as planning, organising, leading and controlling (Botha, 2019; Henrico and Visser, 2017; Ile, Eresia-Eke, and Allen-Ile, 2022).
TVET College:	A public institution that offers post-school Technical and Vocational Education and Training that prepares students for their careers of choice from NQF Level2 of the National Qualifications Framework in South Africa (Western Cape Government, 2019).
Work Integrated Learning (WIL)	is "an approach to career-focused education that integrates classroom-based and workplace-based forms of learning that are appropriate for the qualification" (Cavanagh, 2013). WIL is described by the South African Council on Higher Education (CHE) as "an umbrella term for innovative curricular, pedagogical and assessment practices that are responsive to concerns about graduateness, employability, and civic responsibility. Examples of WIL practices include action-learning, apprenticeships, cooperative education, experiential learning, inquiry learning, inter-professional learning, practicum placements, problem-based learning, project-based learning, scenario learning, service-learning, team-based learning, virtual or simulated WIL, work-based learning, work experience, workplace learning" (CHE, 2011:4).

CHAPTER ONE:
INTRODUCTION TO THE STUDY

1.1 Introduction: An interdisciplinary study

This thesis is an interdisciplinary study at the intersection of public administration and education. The study focus is the management and administration of between TVET colleges and industry partners, for the enhancement of educational outcomes as well as improved management practices. The research question guiding the study is: How could TVET college and industry partnerships be strengthened and structured for the benefit of students, colleges, and industry? Addressing this research question needed an interdisciplinary approach that understood both the educational value of such partnerships and the value offered by the field of public administration. There is a gap in the literature in this regard. Public administration studies of educational institutions tend to address issues in general management, such as efficiency (e.g., Motsoeneng & Sithole, 2022) while education studies focus on partnerships for educational purposes (e.g., Remington, 2018). This study is novel as it applies public administration concepts to enhance educational outcomes.

This chapter provides contextual and historical (Section 1.2) and general background (Section 1.3) information that is important for this study on TVET college and industry partnerships, as well as a rationale for undertaking the study (Section 1.4). Following these contextual sections, the real-world problem (Section 1.5), the problem-statement (Section 1.6), and the research questions (Section 1.7) are explained. These sections are followed by the aim and objectives of the study (Section 1.8), and its significance and contribution to knowledge (Section 1.9). Section 1.10 provides an outline of the study chapters and concludes the chapter.

1.2 Contextualising the study: TVET and industry collaboration

TVET colleges and related industries have been collaborating since the first colleges were founded, but changes in global and local economies have intensified the need for strategic partnerships to address training and employability needs in the 21st century.

1.2.1 What we know about TVET-industry partnerships

College-industry partnerships matter in South Africa for achieving "demand-led skills development" as this requires "linkages and coordination between firms and education and training organisations" (Petersen et al., 2016: 407). Strong partnerships enable TVET colleges to be responsive to new technologies and new practices across

occupations and fields and to maintain relevance in a time of rapid technological, social, and economic change (Seddon et al., 2009). Partnerships between colleges an industry can enhance colleges' "organisational capability" as well as introducing and developing innovative practices (Beddie & Simon, 2017: 8). Enhanced student employability is an expected outcome of successful partnerships, but several factors need to be in place, such as "student involvement in WIL, mentorship by industry practitioners, collaborative learning in capstone projects, participation in entrepreneurship initiatives", and so on (Saleem, et al, 2025: 247). It is not only students and colleges that benefit from partnerships, employers, businesses, and industries gain from "internship programmes" by having access to a pool of well-educated and trained potential "future employees". (Smith & Green, 2021: 572). Thus partnerships between colleges and industry enhance graduates' employability, and also provide opportunities for innovation and the improved competitiveness of all partners (Engel-Hills, et.al., 2024).

1.2.2 Gaps in our knowledge of TVET college-industry partnerships

Partnerships between TVET colleges and companies has increased over time (Petersen et al., 2016), but there are gaps in our knowledge of how these partners can be made more efficient and better aligned with national imperatives. Ensuring the updating and upgrading of skills is a key concern in a time of rapid "technological advancement" (Okoye & Chijioke, 2014: 55), and partnership offer a solution to this.. However, aligning the interests of colleges, industry needs, and national priorities poses challenges. Without alignment, there is likely to be a "skills mismatch between what employers want and what the [college] teaches" (Wedekind & Mutereko, 2016: 384). To address the mismatch, many countries, including the United States, Russia, and China, have adopted certain elements of the German dual education model to improve the ways in which colleges and industry relate to each other (Wiemann & Fuchs, 2018). For TVET to achieve its objectives of preparing students for employment in a "fast growing technological world" there is agreement that TVET "must be strengthened through public-private partnerships" because the colleges "cannot singlehandedly shoulder this enormous task" (Oviawe, 2018: 73).

There has been limited understanding of the nature and challenges associated with establishing long-term, sustainable TVET-industry partnerships internationally and in the South African context (McGrath & Akoojee, 2009). Internationally, the sustainability of partnerships has been found to be enhanced through a strategic, "whole community" approach to partnerships between colleges, business and industry, parents, and community groups that involve partners in many college activities (Klatt et al., 2018).

South African has similarly recognised the need for a "collaborative project" involving he DHET, firms, universities, colleges and other bodies (Petersen et al., 2016). There is evidence that competent management of partnerships can assist with learners' transition arrangements from TVET college to the world of work, and that industry partners can help colleges to develop more industry-relevant curricula and pedagogies (Kemmis & Green, 2013).

1.2.3 A brief history of South African TVET colleges

TVET colleges, previously known as technical colleges have a long history, going back to the nineteenth century (Fisher & Scott, 2008). Many colleges were established in the colonial period (1884 – 1945) for the purpose of supplementing the training of mine workers and railway constructers. During the apartheid era (1945 – 1994) colleges were segregated and students were trained for the jobs that were "reserved" for racial groups. In the years leading up to the first democratic elections, the National Education Coordinating Committee established the National Education Policy Investigation (NEPI) that proposed changed to the technical college system, aligned with democratic values and national reconstruction and development needs (NEPI, 1993). Thus, like most institutions in South Africa, colleges underwent significant changes following the end of apartheid in 1994, including the desegregation of colleges. The NEPI proposals were consolidated in law, following White Paper No. 4 in 1998. Technical colleges underwent a name change to Further Education and Training (FET) Colleges, in FET Colleges Act of 2006 (Republic of South Africa, 2006). This oversaw mergers between FET colleges, resulting in 52 large public colleges, with the intention that these would be more efficient institutions.

Up until 2009 there was one department of education that oversaw, primary education, secondary education and tertiary education. However, in 2009 two education departments were established: the Department of Education (DoE), with oversight over primary and secondary general education, and the Department of Higher Education and Training (DHET), with oversight over higher education and FET colleges. The creation of the DHET was intended to better align post-secondary educational systems. In 2013, FET colleges were renamed as Technical and Vocational Education and Training colleges in the White Paper for Post-School Education and Training, (DHET, 2013). The intention of the new legislation was to greatly expand the post-school system, as well as to integrate education and training elements in TVET. The Post-School Sector was expected to expand significantly with universities, TVET colleges, Sector Education and

Training Authorities (SETAs), the National Skills Authority (NSA), the National Skills Fund (NSF) and community colleges (still to be established).

These changes impacted the management and administrations of TVET college-industry partnerships as TVET colleges did not have the autonomy to enter into partnerships or design new qualifications for local, regional and national industry needs. The DHET had to ensure that partnerships were established in the TVET sector (although in practice this was often devolved to the colleges). The new policies were expected to improve TVET quality, access, and relevance in South Africa, in line with the country's socio-economic needs.

The laws that currently regulate TVET colleges in South Africa are listed chronologically below:

1. The National Qualifications Framework (NQF) was established in the South African Qualifications Authority (SAQA) Act, 1995 (Act No. 58 of 1995); this act regulates all the qualifications offered by TVET colleges.
2. The National Education Policy Act of 1996 (Act No. 27 of 1996) established the foundation for formulating national policy for education in South Africa, what was then known as FET colleges.
3. The Higher Education Act, 1997 (Act No. 101 of 1997) concerns universities, but also colleges as TVET college lecturers are trained by universities, and should a college grant a higher education certificate, this will be a matter for collaboration with universities.
4. The Skills Development Act, 1998 (Act No. 97 of 1998) established Sector Education and Training Authorities (SETAs), which directly affect TVET colleges, the planning, curricula and funding.
5. The Department of Education's Green Paper on Further Education and Training (1998) highlighted the need for a new framework for FET, covering funding, governance, curriculum, learning programs, qualifications, quality assurance, institutional development, and legislation.
6. White Paper 4 (1998), with the title "Programme for the Transformation of Further Education and Training", established the framework for the transformation of TVET colleges into institutions founded on democratic values..
7. The Skills Development Levies Act, 1999 (Act No. 9 of 1999) directly impacted TVET colleges, who can receive funding for training thought the new arrangements bround about by the Act.

8. Act No. 31 of 2000, the South African Council for Educators (SACE) Act, regulates the qualifications as well as professional ethics for TVET lecturers.
9. Act No. 16 of 2006, the Further Education and Training Colleges Act of 2006 guided the merger of colleges into 50 public TVET colleges. This Act had many implications for the management and administration of the new, and very larger, TVET colleges.
10. The National Qualifications Framework (NQF) Act, 2008 (Act No. 67 of 2008) was important for the formal international and national recognition of TVET qualifications; it also set standards for TVET qualifications, in particular the National Curriculum (Vocational) or NCV.
11. White Paper for Post-School Education and Training (PSET), (DHET, 2014) expanded the post-school system, which has had implications for the management and administration of TVET colleges and their relationship the other institutions in the wider PSET system.

The establishment and continuance of partnerships in the TVET sector have been heavily influenced by South Africa's colonial and apartheid past, which has left lasting legacies that continue to affect performance (Needham, 2019). The above legislation has overseen the growth and transformation of TVET sector and have many implications for the management and administration of the work done in TVET colleges.

The TVET sector was established to increase the number of employable young people by allowing them to acquire practical knowledge and requisite skills needed in the job market or for self-employment (Akoojee, 2003; UNESCO, 2004; Afeti, 2012; Amedorme & Fiagbe, 2013). There are increasing calls for the TVET sector to transform and expand its role to respond to the challenges of unemployment, inequality and poverty (King & McGrath, 2004; UNESCO, 2004). In South Africa, there is growing interest in strengthening the TVET sector (Fraser, 2014) to enable the sector to provide access to high-quality technical vocational education for youth and adults without losing sight of the TVET's special relationship with the world of work (McGrath, 2012). Due to the orientation of the TVET sector towards the world of work, the South African government encourages the sector to partner with industry so that young people and adults acquire employable skills that will facilitate their integration into the workplace.

The South African Constitution gives everyone a right to education and training, including TVET, which the state must make available and accessible (Republic of South Africa, 1996). In alignment with the Constitution, the National Development Plan (NDP) 2030,

also known as Vision 2030, focuses on improving education, training, and innovation. To realise Vision 2023, TVET colleges will need to strengthen their industry partnerships as many students have not benefitted from industry-based training, in fact approximately 65 percent of TVET college students have not been able to find workplace experience (Du Plooy & Du Preez, 2022).

To address issues in student employability, the DHET directed TVET colleges to initiate and extend partnerships with industry. The White Paper for Post-School Education and Training (PSET) (Chapter 3, 2014) specifies that TVET colleges' primary purpose is to prepare students for the workplace and/or self-employment. It also emphasises the need for colleges to cultivate and sustain close working relationships with employers within their fields of study. However, this same White Paper for PSET (DHET, 2014: Chapter 3: 16) simultaneously points out that TVET colleges lack autonomy, being directly governed by the DHET. This governance structure consequently affects the colleges' ability to forge partnerships with industry at local, regional, and national levels (although, in practice, colleges tend to initiate partnerships).

The objectives of the PSET policy, as stipulated in the White Paper (DHET, 2014) include, amongst others, establishing: stronger relationships between TVET colleges and workplaces; a PSET system that is responsive to the needs of students, employers (public and private), as well as broader socio-economic and developmental objectives; and a PSET system that assists in building a fair, equitable, non-racial, non-sexist and democratic South Africa, by addressing inequality, poverty, and unemployment. This legislation provides a framework for establishing, maintaining, and managing TVET college-industry partnerships in South Africa.

1.3 Background: unemployment in South Africa

South Africa has the highest unemployment rate in Africa in 2023, with 29.9% of the potential work force being unemployed (STATS SA, 2023). A survey undertaken by Statistics SA in April 2023 identified unemployment as the top of of the main five challenges in South Africa. According to the report, all provinces (except for the Western Cape, at 9.4% unemployment) have cited unemployment as the "main challenge in their municipalities, with the Eastern Cape rated the poorest province" (Stats SA, 2016:58), making youth unemployment in South Africa a critical concern (Wakefield et al., 2022). While the national unemployment rate is (at the time of writing) close to 30%, unemployment in the Eastern Cape is 34%. As a result of global and local factors (including the pandemic and general economic downturns) unemployment is increasing,

and the numbers of employed people are dropping, meaning that many people lost their jobs. In all these losses, black people suffer the highest unemployment rate (STATS SA, 2023).). When seen against these overwhelming statistics, it is unsurprising that, despite significant state investment, the TVET sector has struggled to contribute to reducing unemployment (Needham, 2019). This is highly concerning for the economy.

Of the total number of unemployed persons in South Africa, about 63,4% are youth (aged 15–34 years), posing a huge burden of unemployment. About 40% of young people in the labour force were unemployed, with an unemployment rate of 39.6% at the end of the first quarter of 2019. Just under 30% of the youth were employed, while approximately 48.8% of young people participated in the labour market, including both those who are employed and those actively seeking employment. Historical data show that youth unemployment tends to increase during the first quarter of each year. Youth unemployment is thus a critical issue in South Africa, and TVET colleges should be part of the strategy to address this important issue (Potwana, 2017).

1.4 Rationale for the study on TVET college-industry partnerships

The government has strategically positioned the TVET college sector in South Africa to respond to South Africa's unemployment challenges and resultant poverty (DHET, 2014). Consequently, there are increasing calls to strengthen the TVET system through robust partnerships with industry to provide high-quality technical vocational education for both for school leavers and mature students (McGrath, 2012; Fraser, 2014). An important feature of the SA TVET system is training young people and adults for self-employment and entrepreneurship (DHET, 2013). It is important that TVET colleges develop a stronger orientation to the world of work. Thus, the curriculum should emphasise students' employability for the purpose of integrating TVET students into the world of work (King & McGrath, 2004; Dasmani, 2011).

Currently, all 50 public TVET colleges and their approximately 200 campuses that are spread across rural and urban areas of South Africa's nine provinces, are expected to have partnerships with industry partners who could potentially provide opportunities for TVET students to undertake workplace-based learning (DHET, 2014). The planning and implementation of WIL, which is broadly understood as education and training to prepare students for the world of work, is central to the role of TVET Colleges. WIL prepares TVET students for workplace readiness, as is usually the general purpose of TVET college-industry partnerships.

This study has a specific focus on how partnerships between TVET colleges and industry are managed and administered. This study, although interdisciplinary, was conducted within the department of public administration as an academic field of inquiry. The topic is important in the discipline of public administration because TVET colleges, as public institutions, must be effective in creating a skilled workforce for the labour market and a cohort of leaders that can create employment for a sustainable economy. It is against this background that this study will evaluate the management and administration of TVET college and industry partnerships. Although there are some studies (Flynn et al., 2015; Duncan, 2017; Suroto & Hung, 2018; Bonoli & Wilson, 2019) that show the relevance and increasing importance of TVET college-industry partnerships, less is known about how to initiate, maintain, manage and enhance these partnerships in ways to benefit students, college and industry. Based on the importance of the topic, and the shortage of literature in this field, this topic can be justified as a critical gap to investigate.

1.5 The real-world problem

The TVET college curriculum mandates TVET colleges to forge partnerships with industry because most qualifications in TVET colleges require that students must have workplace learning as a key component of the qualifications. For example, all National Diplomas require 18 months of theory at the college and 18 months of practical learning at the workplace. Partnership between colleges could hold additional value for student development, curriculum development, lecturer development, and institutional development. However, TVET college partnerships are not adequately conceptualised, and their potential has not been fully developed in the South African context. Generally, partnerships in TVET colleges in South Africa are for student placements. This is a narrow view of TVET college-industry partnerships management. Also, how these TVET college-industry partnerships are administered and managed in each TVET college is not known; but what is known is that many TVET college students do not obtain a work placement, yet it is mandatory in the TVET college curriculum (Wedekind & Watson, 2016).

This real-world problem calls for an evaluation of the nature and quality of college-industry partnerships for the purpose of improving TVET provision. The study is premised on the concept that strong and sustainable industry partnerships are required if TVET colleges are to address their mission of producing employable graduates. The achievement of educational goals in the TVET college sector depends on many factors; however, in this study, the focus is on how TVET managers and lecturers plan, initiate, and support TVET-industry partnerships.

1.6 The research problem

Many students fail to complete their required workplace learning component because most TVET colleges in South Africa find it difficult to form and maintain productive partnerships with industry. This makes it more difficult for graduates to find employment, which is one of TVET colleges' main goals. The issues raised by this problem statement are as follows: 1) existing partnerships prioritise student placements over wider potential benefits; 2) a lack of a systematic approach to partnership management results in inconsistent and difficult implementation; and 3) students who do not complete required workplace learning face difficulties developing their employability and practical skills. The need to comprehend how TVET colleges can better manage partnerships in order to guarantee that students obtain the required workplace experience and graduate with promising job prospects is emphasised by this targeted problem statement.

1.7 The research questions

The research question for the study is: How could TVET college and industry partnerships be strengthened and structured for the benefit of students, colleges, and industry? This guiding question focuses the study on building knowledge to strengthen TVET-industry partnerships to enhance TVET educational provision while considering the needs of students, TVET colleges and industry partners in South Africa.

With an emphasis on their administration and management, the research sub-questions examine particular facets of TVET college-industry partnerships:

1. How are TVET college-industry partnerships managed and administered in South Africa?

Establishing the current status of partnership management and highlighting areas for improvement are the goals of the first research sub-question.

2. What can we infer regarding the formation, upkeep, and continuation of TVET-industry partnerships during the previous three years years?

Existing practices are examined in the second research sub-question. By determining what works well, what needs to be addressed with regard to current approaches, and how partnerships can be strengthened and structured, the insights may help answer the research question.
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3. What has been the outcome of the TVET-industry partnership management and administration over the past three years?

Research sub-question 3 focuses on the impact of current practices. Analysing past outcomes (positive or negative) will help identify how partnerships can be strengthened and structured.

4. How can TVET college-industry partnership management and administration be improved and structured?

The final research sub-question is posed to lay the groundwork for the specific steps and recommended best practices by exploring improvement strategies.

Investigating the sub-questions yielded valuable insights that contributed to developing and implementing the framework for managing TVET college-industry partnerships. A detailed discussion of is presented in section 8.2.1.

1.8. Research aim and objectives of the study

1.8.1 Research aim

This research study aims to improve students' employability by acknowledging the role that TVET college and industry partnerships can play in this regard. The study also aims to build knowledge on the enhancement of existing partnerships between TVET colleges and their associated industry partners and to guide the identification of potential productive new partnerships.

1.8.2. Research objectives

Research Objective 1: To understand the current landscape

From the viewpoints of colleges and industry partners, this goal entails determining the perceived advantages and difficulties of the current TVET college-industry partnerships.

Research Objective 2: To identify areas that need to be strengthened and improved

This study aims to identify the components that make TVET college-industry partnerships successful and long-lasting.

Research Objective 2: To identify areas for improvement and strengthening

To identify key factors that contribute to successful and sustainable TVET college-industry partnerships, this study seeks to pinpoint the elements that make partnerships effective and long-lasting.

Research Objective 3: To explore potential strategies and approaches for strengthening the management and administration of TVET college-industry partnerships

To address this objective, the study will generate ideas and methods for improving how partnerships could be strengthened. To determine the specific needs and expectations of colleges and industry partners regarding the management and administration of these partnerships, it will be necessary to understand what each stakeholder group requires and expects from the partnership management processes.

Research Objective 4: To develop a conceptual model

To identify key components and relationships for a conceptual model of strengthened TVET college-industry partnership management and administration, the essential elements that should be included in the model and how they interact will be defined. Proposing a conceptual model that outlines strategies and structures for enhanced management and administration of TVET college-industry partnership is the core objective of the thesis and will be based on the findings emerging from Research Objectives 1-3 previously mentioned. This objective aims to ensure the practicality and relevance of the developed model by seeking input from those who will be directly affected by it.

1.9 Contribution to knowledge and significance of the study

TVET-industry partnerships have not been extensively evaluated in the South African context, with the result that not much has been written on the nature and the extent of partnerships between TVET colleges and industry partners. For this reason, a TVET college-industry database was developed to select relevant participants to provide responses to research questions that address the identified problem. The study thus intends to contribute to knowledge in public administration, theoretically and methodologically. It also intends to contribute to practice and policy in the field of public administration, which is an expected contribution to the professional domain (De Vos et al., 2018; Durdella, 2019). As this study focuses on the management of WIL partnerships between TVET colleges and industry, it benefits both the TVET colleges and the industries that partner with TVET colleges. TVET college lecturers will benefit from

improved industry partnerships that will, in future, include the placement of TVET college lecturers in industry, as stated in the Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training Colleges (2013). It will also help to inform the TVET college sector whether there is a need for improvement interventions, additional resources, or alternative mechanisms to support partnerships. Strong partnerships between TVET colleges and industry will also inform policies, strategies, and action plans for the improvement of educational goals. Therefore, it is intended that the findings of this study will contribute to knowledge in the field, provide tools, and act as a guide to assist TVET colleges and industries to effectively develop, manage, sustain, and enhance TVET-industry partnerships.

Apart from the framework that this study has developed, the research outputs, such as a TVET Partnership Database, will enable the DHET, TVET colleges, and existing and potential partners to quantify the state of TVET partnerships to display partnerships, as well as for purposes of gap analysis and partnership enhancement. It is expected that the existence of a user-friendly database that is regularly updated and has good web visibility will attract additional partners, as well as encourage existing partners to become more involved in the aspects of the college to which they are linked. The TVET partnerships database could be hosted on the DHET TVET college website[1] where it can be updated and kept relevant to the DHET, TVET colleges, and existing and potential partners inside and outside South Africa. The indicators on the database will provide the DHET and TVET colleges with a strategy for maintaining, managing, and enhancing existing partnerships (Flynn et al., 2015). This study recommends a framework for the overall management and administration of partnerships in the TVET college sector.

The future-oriented Database will provide the DHET, TVET colleges and potential partners with information to assist them in making research-informed and strategic decisions about partnerships and the strategic direction of partnerships. A future-oriented approach to partnerships creates a long-term vision for the types of partnerships necessary for future trends in South Africa and globally and could result in building long-term sustainability in partnerships. Implementing recommendations from this study is expected to have a positive spin-off for economic growth and development which is directly influenced by the deliverables of the TVET college sector, which, in turn, rely

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[1] http://www.tvetcolleges.co.za

directly on the effective management and administration of TVET college-industry partnerships.

1.10 Outline of the thesis and conclusion to Chapter One
This section provides a brief introduction to thesis.

Chapter One: Introduction to the study
Chapter One introduces the research study, giving the context and explaining why it was necessary to conduct it in the Technical and Vocational Education and Training sector in South Africa at large.

Chapter Two: A systematic review of the literature on TVET-industry partnerships
This chapter reviews international and South African empirical studies that addressed the stated or similar problem.

Chapter Three: Activity Theory: The theoretical frameworks
In this chapter, the study's theoretical framework, which is applied to the management of TVET college and industry partnerships is presented.

Chapter Four: Methodology
This chapter reports on the research methods, research design, sampling methods, data collection methods, and data analysis methods used and gives reasons for their selection for this study.

Chapter Five: Presentation and discussion of findings from an environmental scan
Chapter Five presents, analyses and discusses findings from an environmental scan of 14 TVET college websites.

Chapter Six: Presentation and discussion of findings from survey interviews
The chapter presents, analyses and discusses the findings from survey interviews of structured focus groups across 21 colleges.

Chapter Seven: Presentation and discussion of findings from semi-structured individual interviews
In this chapter findings from semi-structured individual interviews, conducted with 6 college TVET practitioners and 5 industry partners, are presented, analysed and discussed.

Chapter Eight: Contribution, recommendations, and conclusion

Based on the empirical findings of this study, a framework for TVET college-industry partnerships is proposed to improve the management and administration of partnerships in this chapter. This chapter also proposes recommendations for faculties of education at universities with TVET qualifications, TVET colleges; TVET college industry partners; and the Department of Higher Education and Training as key role-players in the TVET sector. The chapter culminates in a conclusion.

A SYSTEMATIC REVIEW OF THE LITERATURE ON TVET COLLEGE-INDUSTRY PARTNERSHIPS[2]

2.1 Introduction to Chapter Two

In this chapter, the methodology of the systematic literature review is explained (Section 2.2). The literature on empirical studies on TVET college-industry partnerships found through the systematic review process and studies is grouped into categories in Section 2.3. The literature review addresses Research Objective 2: To examine how the TVET-industry partnerships have been established, maintained, and sustained over the past three years.

2.2 Methodology of the literature review

In reviewing the literature the "Preferred Reporting Items for Systematic Reviews and Meta-Analysis" (PRISMA) methodology for systematically and critically reviewing the literature was followed (Evans et al., 2012). A critical review is a form of systematic review, but goes further than a systematic review because it synthesises "a variety of literature, identifies the knowledge that is well established, highlights gaps in understanding, and provides some guidance regarding what remains to be understood" (Eva, 2008:853). A critical review expects scholars to hold different views, as is the case regarding the purposes, benefits, and challenges of college-industry partnerships. What differentiates a critical review from a systematic review is that the results "should give a new perspective of an old problem, rather than simply paraphrasing what all other researchers and scholars in the field have shown or said in the past" (Eva, 2008:853).

The PRISMA critical review methodology comprised four steps: 1) identification of the studies through a transparent and replicable search strategy; 2) screening of the studies for duplications and for relevance to the topic; 3) checking the eligibility of the data extracted against justifiable quality criteria; and 4) critically analysing the data extracted (Evans et al., 2012). It is the last step, the critical analysis of the study data, which distinguishes a critical review from a systematic review. In a critical review, the data extracted is coded and thematically analysed, drawing on a theoretical framework (in this case, Activity Theory) to provide new perspectives and theoretically-informed insights into the studies reviewed.

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[2] An earlier version of this chapter was previously published as Appendix A to the following report: Engel-Hills, P., Winberg, C. & Njengele, T. (2023). *TVET College Industry Partnerships. DHET/TVET Division. Technical Report 2.4.* https://www.dhet.gov.za/SitePages/Reports.aspx [15 October 2023].

2.2.1 Identification of a search strategy

The search strategy, firstly, required the development of appropriate search terms. These terms were refined through initial pilot searches. International literature describes many kinds of partnerships between colleges and industry partners. Searches for "college-industry partnerships" resulted in many studies on higher education and was thus excluded higher education as a search term as these partnerships tend to be research-based. When searching in general databases, the search term "vocational education" was included; but when cross-checking in vocational education journals, this term was unnecessary as it was not specific to partnerships, and only "industry partnerships" was used as a search term. Generic terms such as "internships" or "mentoring" were not used as these resulted in many studies that did not specifically address college-industry partnerships. Six academic databases were searched and cross-checked by searching within ten individual journals. Two journals that were not linked to academic databases were also searched. Table 2.1 is a schematic representation of the search strategy.

Table 2.1: The search strategy

SEARCH TERMS	*DATABASES SEARCHED*	*CROSS-CHECKED IN*
"Industry partnerships" AND ("vocational education and training" OR VET OR "technical and vocational education and training" OR TVET)	Elsevier	*Journal of Vocational Behavior*
	Emerald	*Education + Training*
	IEEE Xplore	*IEEE Transactions on Education*
	SABINET	*Journal of Vocational, Adult and Continuing Education and Training*
		Journal of Education
	SCOPUS	*International Journal for Research in Vocational Education and Training (IJRVET)*
	Springer	*Empirical Research in Vocational Education and Training*
	Taylor and Francis	*Journal of Vocational Education & Training*
		Journal of Education and Work
		International Journal of Training Research
JOURNALS NOT LINKED TO DATABASES (ALSO SEARCHED)		
Search terms as above	-	*Nordic Journal of Vocational Education and Training*
	-	*Journal of Technical Education and Training*

2.2.2 Screening

The application of the search strategy identified 144 articles, book chapters and conference proceedings. An additional 18 items were found by following up references of the identified texts. This resulted in an initial database of 132 records. All items in the database were read and duplicates as well as articles that were not relevant to the topic (n=53) were excluded, resulting in 79 studies. Titles and abstracts were not helpful in judging a study's relevance to the topic as many terms used to describe industry and higher education partnerships are similar to those used in college-industry partnerships. Consequently, all articles, chapters and conference proceedings were read to determine their eligibility for inclusion in the study.

2.2.3 Eligibility

Articles were included on the basis of relevance, that is, if they were research studies on partnerships between TVET colleges and companies. Following screening, all 79 items in the database were re-read and included on the basis of quality criteria. The intention was to include only empirical research studies and research-based evaluation studies. Thus, articles that were position papers, reviews, opinions, shorter than two pages, or lacking a methodology section, were excluded, resulting in a final database of 68 studies.

2.2.4 Inclusion

Inclusion was an iterative process of identifying emergent themes by consensus. Finally, a synthesis of the findings was produced, paying particular attention to commonalities across studies. The researcher coded and analysed the studies. The literature was managed in an Excel database.
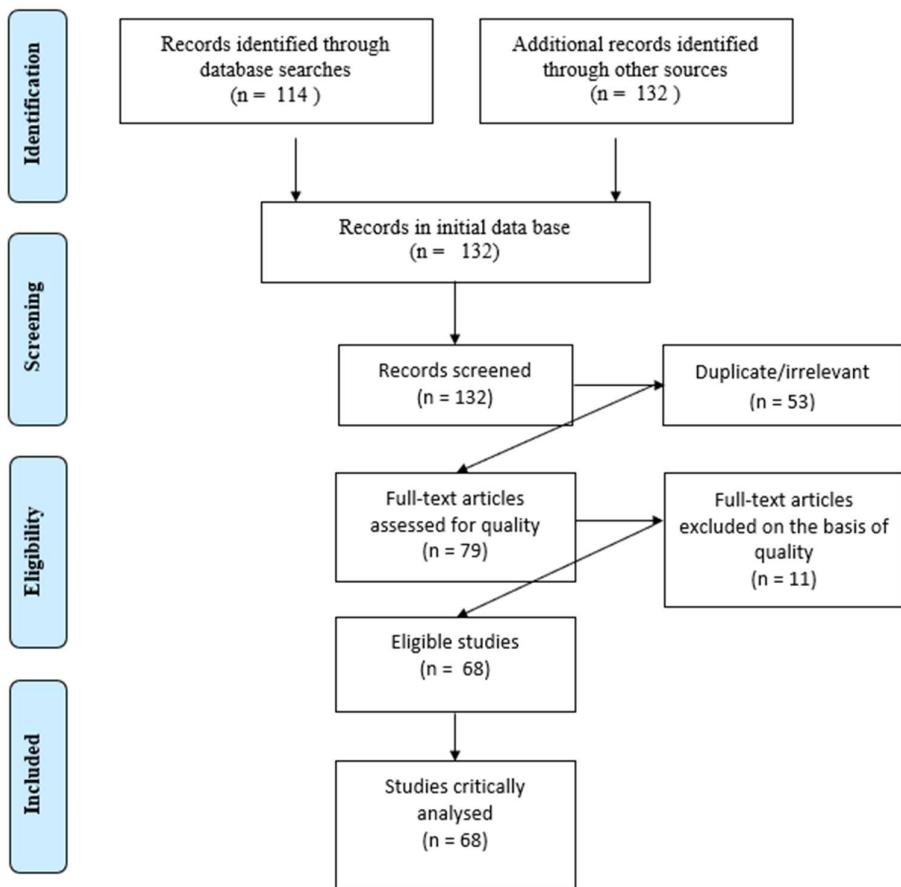
Figure 2.1: PRISMA Flow Chart for the critical literature review

(Adapted from Evans et al., 2012)

2.3 Empirical studies on TVET college-industry partnerships

The studies included in the literature review cover a range of technical and vocational areas: the traditional trades (e.g., carpentry), engineering trades (e.g., automotive), industries (e.g., manufacturing), commerce (e.g., banking), and service (e.g., hospitality). Twenty-eight countries are represented in the studies, including Australia, Austria, Canada, China, Denmark, Egypt, Finland, Germany, India, Indonesia, Ireland, Malaysia, Mexico, the Netherlands, Nigeria, Norway, Poland, Russia, Saudi Arabia, Spain, South Africa, Sweden, Switzerland, Thailand, Uganda, the UK, the US and Zimbabwe. The studies used various methodologies: case studies, document analyses, evaluations, interview-based studies, observational studies, quasi-experiments, statistical analysis, and surveys. The studies are underpinned by a range of theories, including learning theories, critical theories, organisation theories, social practices theories, and labour market intelligence approaches.

The research studies in the literature are presented according to the main purpose of the partnership, that is, whether the partnership was intended for student development, teacher development, curriculum development, and so on. The key benefits and challenges of the partnerships are brief examples, and concentrate mainly on specific partnership arrangements and structures that were identified by the researcher as relevant in the South African context.

2.3.1 Partnerships for student development

Nine studies (13%) focused on arrangements made by college and industry partners to support student development. The studies identified two main types of college-industry partnership, namely internships (e.g., Smith et al., 2011; Klatt et al., 2018:224-227) and industry-based training within a college programme and environment (e.g., Abdullah, 2013), as well as mentoring (Ogbuanya & Chukwuedo, 2017).

Student internships have long been recognised as effective in developing "both propositional and procedural knowledge" (Smith et al., 2002:9), as well as in building professional and social skills "through multi-directional and reciprocal boundary crossing among education, training, and work systems" (Harreveld & Singh, 2009:92). Most studies found that internships had a positive impact on students' career pathways and employment outcomes (Smith et al., 2002; Harreveld & Singh, 2009). Field experience serves a crucial role in equipping students for the workplace, which, unlike the training institution, can be a hostile environment, a 'red zone' that requires adequate training.

Industry training within vocational educational programmes has become increasingly common, with commercial training certifications being particularly highly valued by employers (Olagunju & Zongo, 2011; Abdullah, 2013). Including such certification within a college programme can strengthen the alignment of college education with industry standards and enhance graduates' employability.

The key challenge identified in college-industry partnerships that was intended to enhance student learning was that educational provision in colleges and workplaces was guided by different "logics". Researchers expressed concerns about employer-driven approaches to student development, both in terms of the sustainability of the programme and in terms of the quality of learning provided to students (Harreveld & Singh, 2009; Smith et al., 2011). Billet and Seddon (2001) pointed out that, in the Australian context, the lack of government incentives and resultant unwillingness of employers to invest in training made the "sustainability and transferability of [employer-led] programs

questionable" (Billett, 2001:69). Sappa and colleagues showed how combining college education and industry placements resulted in "separate" rather than "complementary" learning experiences (Sappa et al., 2014:271). In this regard, colleges that served "a very diverse range of students" needed to pay particular attention to how to their needs would be addressed by industry partners (Klatt et al., 2018:217). Abdullah (2013) argued that, in employer-led training provision, companies generally wanted to see a "return on training investment" (2013:7). In a study of college-industry partnerships, he found that industry training within college programmes was primarily for purposes of "customisation" (2013:13); and, while this was beneficial to the industry partner, it was not always beneficial to students. Factors such as "the track records and reputation of the partners" impacted the quality of students' work experiences (Abdullah, 2013:7).

A well-documented form of TVET college-industry partnership is the "dual-education system" that is practised in several European countries, particularly in Germany (Taylor, 2009). It is a system that many countries, including the United States, Russia, and China, have tried to adopt in an attempt to better align TVET colleges with their related industry partners (Remington, 2018; Wiemann & Fuchs, 2018). The dual education system follows the principle of alternating periods of theory-based classroom learning with block periods of supervised work experience and workplace learning. Dual education systems have changed since they were first introduced, and changes are ongoing as discussions and negotiations occur "between employers, unions … government, and schools over control of training … and the value of that training in the labour market" (Taylor, 2009:146). The success of the dual education system has been widely acknowledged in the literature, but the literature also points out that it is difficult to replicate in contexts other than those in which industry partners value work-based learning. In most contexts a dual education system is "dependent on employer engagement" (Smith et al., 2011:365) – and even enthusiastic industry partners are impacted by economic conditions (Smith et al., 2011:374).

Taylor argues that "corporatism", while inevitably present in vocational education, is "not a substitute for national coordination" (2009:148). Consequently, it is important for both partners to achieve consensus on "the key drivers for training" and the extent to which "customization could be accommodated" (Abdullah 2013:8). Because there are many commercial products available, a "multidisciplinary approach" in which principles are learned and applied across a wide variety of technologies and products is generally recommended (Felder & Brent, 2003). Clear policies regarding partners' roles, responsibilities, and expectations are essential for enabling student development across

different learning sites (Sappa & Aprea, 2014:264). Harreveld and Singh's study found that "appropriate internships" were key to student development "at multiple levels" (2009:101). To sustain such partnerships, they argued that it was important for colleges not only to "capitalize on opportunities as they occur[red]", but to build long term and strategic alliances with potential industry partners (2009:99). Klatt et al. found that arrangements for industry provision varied considerably, even within a single region (2018:368). Their study describes different types of partnerships that were "established to respond to the specific needs of students" (Klatt et al., 2018:217). "High school apprenticeship programs ideally offer students opportunities to explore and possibly gain access to a particular workforce because they have acquired specific occupational skills and knowledge" (Watt-Malcolm & Barabasch, 2010:61). In this regard, the match between student and company is key (Watt-Malcolm & Barabasch, 2010:68). Sappa and colleagues propose mechanisms such as matching students with companies and providing internships at multiple levels to enable a shift from a more "dualistic and unconnected view" of student development across college and industry sites toward a "more integrated and connective conception" of student development (2014:284).

2.3.2 Partnerships for lecturer development

Despite the key importance of college lecturers in vocational education, only five (7%) of the studies focused specifically on lecturer development. Vocational educators who deeply understand the relevant industry are an important resource for vocational education (De Paor, 2018). Duncan's study found that spending time in industry enabled lecturers to achieve a "better understanding of industry needs and of the strengths and weaknesses of the college curriculum in relation to these"; consequently, teachers were better able to link "the theory and practice specified in the curriculum to their application in industry and to provide relevant examples of this during teaching" (Duncan, 2017:68-69). College lecturers' engagements with industry were found to be useful in updating their prior industry experience (Duncan, 2017:67). According to Duncan, spending even a little time in the industry was a source of "professional pride and status" for many college lecturers, who became key figures in fostering "broader and deeper relationships between college and company" (Duncan, 2017:71). Thus, lecturers' engagements with industry could be seen in curriculum revision and in changed pedagogical practice (Duncan, 2017:70). Longer-term engagements with industry, such an industry sabbatical, enabled college lecturers to develop "two professional identities", that is, as lecturers and as practitioners (Farnsworth & Higham, 2012:475).

The key challenges associated with college-industry collaboration for lecturer

development were teachers' sometimes vulnerable positions between education and occupation (Andersson, 2015). There is thus a need to ensure that their 'hybridised identities' are strengthened as resources for vocational education (Farnsworth & Higham 2012:475).

The nature and length of the lecturers' industry engagements should fit their purpose (Duncan, 2017: 70). Both short-term and long-term partnerships helped college lecturers align educational and work practices. Short-term industry mentoring was a recommended strategy for college lecturers without industry experience (Andersson, 2015; Stephens, 2015). Through mentoring and short industry visits, lecturers were able to reconceptualise vocational pedagogies from the perspective of the actual work tasks (Andersson, 2015:37). In conceptualising partnerships for vocational educators, it is recommended that lecturers should take responsibility for planning and organising their industry engagements as part of their own professional development (Stephens, 2015).

2.3.3 Partnerships for curriculum development

Twelve studies (18%) focused on partnerships for curriculum development across various disciplines and fields. Vocational curricula typically "select a range of theoretical concepts from their disciplinary field and practical concepts from workplaces, then decide how to combine them to support vocational formation" (Guile, 2011:455). Sustainable college-industry partnerships greatly facilitate these curricular arrangements (Guile, 2011:462). Industry involvement in curriculum development provides authentic representations of workplace practices (Watters & Christensen, 2014), including contributing concrete examples of how concepts learned in the classroom "are put into practice" (Armatas & Papadopoulos, 2013:61). The co-development of vocational curricula provides early opportunities for students to identify with their preferred careers (Watters & Christensen, 2014). Depending on the extent of the industry partner's curriculum involvement, collaborative curriculum development could result in students obtaining a dual certification from the college and the industry (Suroto & Hung, 2018:51).

The key challenges identified were, firstly, the unwillingness of teachers whose backgrounds were in traditional disciplines to achieve a change in perspective (Watters & Christensen, 2014); and, secondly, the limited capacity of industry representatives regarding curriculum development. Including work-related projects in the curriculum was found to be challenging "because of the heterogeneity of employers" and the lack of "anything like consensus in terms of employer voice" (Huddleston & Laczik, 2018:264). The industry is necessarily attuned to local labour market demands, not general

educational requirements (Bolli et al., 2018:544). Thus, there is always a need for "adequate piloting and evaluation" of vocational qualifications, particularly employer-led qualifications (Huddleston & Laczik, 2018:272). Moreover, curriculum development was a "substantial request made of employers … within the context of voluntary participation" (Huddleston & Laczik, 2018:266).

Regarding specific partnership arrangements, studies found that industry partners needed to be involved from the very early stages of the qualification (Huddleston & Laczik, 2018) and that the partnership should be sustained throughout key curricular stages, such as planning, student selection, preparation of facilities and infrastructure, teacher development and teaching materials (Suroto & Hung, 2018:46). All potential points of linkage across a curriculum should be identified (Bolli et al., 2018) and employers should be involved in deciding the timing of curriculum updates, workplace training and workplace visits (Bolli et al., 2018:524). Of particular importance was the involvement of the industry partner in students' formative and summative assessments (Watters & Christensen, 2014).

2.3.4 Partnerships for TVET college development

Twelve studies (18%) focused on the ways in which partnerships with industries had impacted colleges at micro and macro levels. At the micro level of administration and management, industry partnerships assisted colleges in addressing issues of "efficiency and productivity" (Lee, 2010:46). Kruss et al. found that partnering with a company "challenged [colleges] to be more flexible, adaptable and responsive" (Kruss et al., 2014). A practice noted in South African college-industry partnerships, was that some colleges took on the "codes of conduct" of their partners, which led to changed behaviours and policies (Flynn et al., 2015:317). At the macro level, industry partners opened possibilities for colleges to better meet the changing needs of industry (Juul & Jørgensen, 2011), such as improving the alignment between "supply and demand in the labour market … reducing serious mismatches between both outcomes of education as well as skill demands and insufficient quality as well as infrastructure at TVET institutions" (Lee, 2010). In the Nigerian context, strong college-industry partnerships succeeded in "revamping TVET for technological advancement and economic growth" (Okoye & Chijoke, 2014:51). Therefore, college partnerships with businesses and community organisations provided a "leadership perspective" on the challenges faced in the establishment and management of such partnerships (Polesel et al., 2017:284).

The formation and maintenance of a TVET-industry partnership was found to pose challenges. While industry partners had the potential to improve college efficiency and

effectiveness, there was no evidence that this was addressed systematically (Pillay et al. 2014). While college-based training was often perceived to be too generic, inflexible, and unresponsive to rapidly changing industry needs, most industry partners were not able or willing to offer systematic or sustainable training provisions (Gekara et al., 2014:489).

The German dual system was often held up as an example of successful college-industry collaboration, but successful examples of institutional transplantation outside of Europe are "rare" because of "geographic asymmetries" (Polesel et al., 2017:294). TVET colleges generally lacked the infrastructure and "central-level coordinating and bargaining mechanisms" to align with industry standards (Remington, 2018:497). At the same time, employers generally did not have a sense of ownership or control over college provision (Juul & Jørgensen, 2011:300).

Gadara and colleagues proposed a variety of models for college development, for example, colleges being able to access the partner company's "workplace systems and equipment" (Gekara et al., 2014:499), as well as draw on the partner company's skills to develop systems and training programmes (Gekara et al., 2014:500). College-industry partnership could adapt elements of dual education, such as including government entities in the upgrading of college provision (Remington, 2018:497).

Whatever arrangements were made, each partner's governance arrangements, roles and responsibilities, and objectives needed to be clarified. Also important was the partners' understanding of respective objectives, constraints, and expectations. Colleges needed to appreciate the operational and productivity demands of the industry as well as time constraints and procedures for accessing worksites and key personnel (Flynn et al., 2015:317).

The challenges posed to college development were underpinned by the different objectives and "logics" of industry and colleges (Polesel et al., 2017:296). Colleges could engage in what Gessler (2017) calls "conceptual borrowing" (Gessler, 2017:94), that is, the creation of structures in the college that align it with related industry practices. Ensuring a balance between the need to create flexibility and responsiveness to industry's skill demand, as well as meeting the requirements for the quality of training, required changes to structures, regulations and mechanisms for ongoing monitoring (Gekara et al., 2014:503).

2.3.5 Partnerships for company development

In most studies, it was taken for granted that the industry partner was the stronger, consequently there were not many studies that understood college-industry partnerships as beneficial to the industry partner in terms of improving organisational structures and competencies. Nevertheless, six studies (9%) focused on the benefits of partnerships for companies, particularly smaller companies (Brunet Icart & Rodriguez-Soler, 2017; Baumeler & Lamamra, 2019). Baumelar and Lamamra found that college collaborations with SMMEs were well-supported by the college (2019:478), while Pfeifer and Backes-Gellner similarly found that college-SMME partnerships generally left the company with "a higher inventory of skills" (Pfeifer & Backes-Gellner, 2018:1).

In Davis's (2004) study, TAFE teachers visited bakeries with a view to involving the companies more in the training process. The study found that the partnership improved labour relations, as the companies took on roles of "mentor and coach" in addition to that of "employer" to their own staff (2004:124). In the context of industrial SMEs in two Spanish industrial regions, Brunet Icart and Rodríguez-Soler similarly found changes in the roles of employers, including "high levels of experimental cooperation between VET centres and SMEs" (Icart and Soler, 2017:596).

Hodge and Smith's research showed how students could 'play a direct role in small-scale innovation in the practice of organizations' (2019:519). Hodge and Smith warn, however, that "employers, training provider staff, and students themselves are influenced by stereotypes that may make it difficult to anticipate and acknowledge such innovation" (2019:519).

The emergence of similar 'virtuous circles' was noted in a range of college and company partnerships. In Li and Sheldon's study, it was noted that companies' association with colleges extended their 'geographic reach' as they expanded their VET collaborations (2014:328).

2.3.6 Partnerships for regional development

Twelve studies (18%) demonstrated an interest in the role of vocational education in regional development and responsiveness to regional needs. College-industry partnerships matter at the regional level because "economic geographies" (Wiemann & Fuchs, 2018:373) and "innovation and labor markets differ widely between regions and sectors" (Van der Meer et al., 2017:57). Regional concerns, such as widening participation in post-school education (Dhillon, 2005) or youth unemployment (Sager,

2008) are often best addressed at the local level, for example, extending college-industry partnerships to include the informal sector creates opportunities to reconceptualise the role of college-industry collaborations for regional development and economic integration (Baryamureeba & Nahamya, 2014:10). Research conducted by Remington showed that institutional innovation in one region may then spur neighbouring regions to emulate and adapt successful practices to their own needs" (2018:516). Thus, change at a regional level can have benefits beyond the original intervention. Moreover, there are often financial incentives for both colleges and industry partners to address capacity building "in regions away from the centre" (Billett & Seddon 2004:63).

A primary challenge identified for colleges was shifting from a "learning" to a "development" paradigm (Cheng, 2016). An additional challenge was the inclusion of small, regionally-based companies that did not always have the capacity to become involved in "extending the reach and improving the quality of education provision through established institutions" (Billett & Seddon, 2004:64).

Collaboration for regional development requires particular kinds of partnerships. Allison et al. argue for strategic partnerships that "link more appropriately to the regional landscapes within which they are located", including "priorities and targets which align with regional development' and which need to be "matched by an investment strategy" (2006:33). Morgan et al. found that "community consortia" (2004:230), that is, multiple institutional collaboration, was necessary for effective regional interventions. Allison et al. (2006) found that a mediating structure was important to link colleges, companies, and local government; and that colleges and companies with existing strong partnerships were likely to have the "social capital and experience" for "a more overtly regional approach" (Allison et al., 2006:33). Hooge described the Dutch system of "'regional VET colleges" that connect with multiple feeder schools, industry partners, municipalities and regional governments (Hooge, 2015:488).

Several studies pointed out the need for "anchor firms" (Remington, 2018:506) or "parental firms" (Persson & Hermelin, 2020:17), that is, larger companies that are stable and have the necessary capacities, because "less robust" firms are susceptible to changes in their "economic situations [which] may affect their ability and motivation to participate in VET training" (Rusten & Hermelin, 2017:813).

2.3.7 Partnerships for national development
Twelve studies (18%) focused on college-industry partnerships in support of national

development goals. National initiatives to establish or revitalise industries can result in a "mutually useful" partnership strategy for colleges and companies regarding the provision of "workforce training and in maintaining knowledgeable employees" (Ahmed & Bodner, 2017:1). This is the case with the "ongoing policy of Saudisation to try to encourage employment of Saudi workers rather than expatriates" (Baqadir et al., 2011:551). Alignment with national strategies and national partners is key to sustainable TVET partnerships, and the "hope of developing countries" (Baryamureeba & Karukuza Nahamya, 2014:15).

There are considerable challenges in meeting ambitious national-level goals, such as "building a skilled workforce" (Chalapati & Chalapati, 2020) or solving the "supply side of education and the demand side of working life" (Svensson et al., 2009:771). A key challenge is the aspirational or rhetorical nature of many national goals and the lack of commitment to the work that needs to be done (Chalapati & Chalapati, 2020:84). Bonoli and Wilson found that national goals are generally not attainable if they do not address key educational issues, such as the "social inclusion of disadvantaged youth" (Bonoli & Wilson, 2019:9-10). Svensson et al. found that a long-term political strategy based on the reflective understandings of experts and practitioners was necessary to address national goals (2009:784).

National development entails the co-construction of "public infrastructure", "monitoring and expert evaluation", as well as "risk management" (Meng et al., 2018:2945). Strategies that mobilise "candidates, training infrastructure, curriculum and key aspects of partnership with industry and employers" are essential for "scaling up and sustainability" (Meethal, 2014). The studies that reported on successful national-level interventions comprising multiple partners emphasised the need for supportive national level structures and advisory networks, such as "industry associations and … industry coordinating commissions" (Comyn, 2007:68). Svensson and colleagues (2009) argue for a "bottom up" approach, starting at the local level, and including change at all levels, combining employer, employee and service-user perspectives.

2.4 Implications for college-industry partnerships in South Africa
The literature review highlights several implications for South African TVET college-industry partnerships. These implications are synthesised in this section.

2.4.1 Purposes of the partnerships
The primary purposes of partnerships internationally, including student, teacher, and curriculum development, are relevant to South Africa. There is, however, a particular

need for partnerships to address national development goals, such as improving the alignment between supply and demand in the labour market and addressing skills mismatches, which is a critical concern in the South African context.

2.4.2 Arrangements for the partnerships

The importance of various partnership arrangements, such as internships and industry-based training, is echoed in the South African context. Furthermore, the need for clear policies regarding partners' roles, responsibilities and expectations, as well as the importance of understanding each partner's objectives, constraints, and expectations, is particularly salient in South Africa to ensure effective collaboration.

2.4.3 Benefits of the partnerships

The potential benefits of partnerships, including improved student outcomes, enhanced lecturer capabilities, and curriculum relevance, are applicable to South Africa. Additionally, at the college level, partnerships can drive efficiency, productivity, and responsiveness, which is especially important for South African TVET colleges seeking to improve their effectiveness.

2.4.4 Challenges of partnerships

South Africa faces challenges similar to those identified in the literature, such as the different "logics" guiding educational provision in colleges and workplaces and the difficulties in ensuring sustainable and quality training. A significant challenge in the South African context is the need for TVET colleges to have improved infrastructure and coordination mechanisms to align with industry standards.

2.4.5 Recommendations for partnerships

Recommendations from the literature, such as building long-term and strategic alliances, involving industry partners from the early stages of curriculum development, and clarifying governance arrangements, are crucial for South Africa. In addition, there's a strong need for national coordination and supportive structures to facilitate successful partnerships and address national development goals.

Table 2.2 below summarises key concepts from the literature that are relevant to college-industry partnerships in the South African context.

Table 2.2: Conceptual framework emerging from the literature

PURPOSE	ARRANGEMENTS	BENEFITS	CHALLENGES	RECOMMENDATIONS
STUDENT DEVELOPMENT	Internships	- Propositional and procedural knowledge; - Social skills; - Employability outcomes.	- Student learning needs; - Sustainability of partnerships.	- Match student with company; - Provide internships at multiple levels; - Build long-term, sustainable partnerships.
	Industry training within college programmes	- Industry certification; - Alignment of college and industry standards; - Employability outcomes.	- Conflation of industry and student needs.	- Achieve consensus on the purpose of the training; - Take a 'multidisciplinary' approach to commercial training.
TEACHER DEVELOPMENT	Shorter engagements	- Aligned curricula and pedagogies; - Linking theory and practice; - Up-to-date industry knowledge/skills; - Mentoring.	- Complexity of positions between education and occupation; - Logistical challenges (e.g., timetabling).	- Align nature and length of the industry with the purpose; - Draw on the skills acquired by teachers to update curricula and pedagogies.
	Longer engagements	- Broader and deeper relationships; - Networking; - Developing two professional identities.	- Time and funding constraints; - Hybrid identities can be vulnerable.	- Ensure teachers plan their own industry programme/sabbatical; - Draw on teachers' new expertise for curriculum and pedagogy.
	Long-term sustained involvement	- Linking theory and practice;	- Teachers' attitudes;	- Establish the partnership at an early stage of qualification development;

CURRICULUM DEVELOPMENT		- Authentic tasks/ problems; - Skills development; - Identity development; - Dual (college-industry) certification.	- Industry capacity for curriculum development work; - Industry time constraints; - Heterogeneity of employers and lack of employer consensus.	- Map the key stages requiring industry input; - Sustain the partnerships through key stages; - Involve industry partners in student assessment; - Involved industry partners in feedback and curriculum review and renewal.
COLLEGE DEVELOPMENT	Industry partners who have prior experience in working with colleges.	- College efficiency and productivity; - Alignment of college structures and processes with industry needs; - Conceptual borrowing and contextual adaptation.	- Different 'logics' of the partners; - College development is not systematically addressed.	- Systematic and sustainable approach to college development; - Balancing college autonomy with industry 'ownership'; - Government support.
INDUSTRY DEVELOPMENT	SMME Industry partners	- Social integration; - Enhancing companies' skills inventories; - Improved labour relations.	- Perceptions of colleges as weak organisations.	- Greater college support required;
REGIONAL DEVELOPMENT	Strong existing college-industry partnerships, regional colleges; Intermediaries, consortia.	- Contributing to local communities and regional development; - Incentive funding.	- Moving from a 'learning' to a 'development' paradigm.	- Strategic approach, including an investment strategy; - Mediating structure to coordinate the multiple partnerships.

NATIONAL DEVELOPMENT	Strong existing regional and national inter-institutional networks that can be scaled up.	- Addressing labour supply–demand mismatch; - Improved national competitiveness.	- Perceived status of colleges; -	

2.5 Managing partnerships

In this section of the review of the literature, the focus shifts to the management of partnerships for productive collaboration, including the specific arrangements or mechanisms used, where these were identified by authors. The systematic review findings have several implications for TVET college practice in seeking, establishing, maintaining, and extending partnerships. There was no single form of college-industry partnership that would enable TVET colleges to give shape to their external orientation and connectivity. Partnerships are necessarily co-configurations that occur across divided multi-organizational terrains and are likely to require continuous re-configuration as needs and requirements change (Flynn et al., 2015). Partnerships between colleges and industry have been show to enhance graduates' employability, but partnerships offer many other possibilities, which can enhance and support the work of TVET colleges.

2.5.1 Initial assessment of the readiness of partners

Considerable effort is involved in identifying potential partners, establishing the partnership, and maintaining industry engagement, all of which is a challenge for college lecturers who are not experienced in working with industry clients (Billet & Seddon, 2004). It is, therefore, essential that the readiness of a college for building a successful industry partnership is assessed. The research literature offers indicators for assessing the readiness of both colleges and their potential industry partners for productive partnerships (Pillay et al., 2014).

2.5.2 Vision, mission and values

Before initiating a partnership, a TVET college needs to clarify the role that the potential industry partner could play in the fulfilment of its mission, vision, and values, particularly how an industry partner could contribute to students' successful transition to working life within their chosen vocational field (Billet & Seddon, 2004). Industry partners should also understand how partnering with a TVET college might contribute to their mission, vision, and values and offer a "return on investment" (Abdullah, 2013). Both partners, while having different concerns in their day-to-day work, should strive for a shared vision, mission, and underpinning values for their partnership (Remington, 2018), building on existing shared interests (Watt-Malcolm & Barabasch, 2010), as well as a commitment "to integrate school- and work-based learning effectively" (Sappa & Aprea, 2014:266). According to Petersen et al. "intermediaries", such as government partners can encourage industry participation in the national TVET system (2014:407). Local or national governments can provide incentives, such as dedicated training funds or tax relief for industry partners. The lack of funding or other incentives is likely to impact employers' decisions to invest in training, thus making the "sustainability and transferability of [employer-led] programs questionable" (Billett & Seddon, 2001:69).

2.5.3 Readiness of the partners

Key indicators of colleges' readiness for partnerships with industry include prior or existing industry linkages, such as regular curriculum reviews "as per the requirements of industry" (Mitiku et al., 2021:558). A company's readiness for partnering with a TVET college (Wiemann & Fuchs, 2018) is indicated by adequate preparation, such as "policy-supported incentive mechanisms for the industry in implementing effective TVET-industry partnership" (Mitiku et al., 2021:558). The absence of up-to-date training equipment and no prior history of industry partner involvement in designing and developing qualifications, for example, could indicate a lack of readiness (Mitiku et al., 2021).

2.5.4 Partners' knowledge and skills

It is important that a college and its potential industry partners are aware of the skills that each brings to the partnership. While TVET college lecturers would be expected to have expertise in their subject areas (Stephens, 2015), successful collaboration largely depends on the extent to which college staff understand the nature of the industry or enterprise for which students are being prepared (Duncan, 2017). The potential industry partner could offer continuing professional development in which academic staff members are placed in the industry or are provided with industry mentors (De Paor, 2018). Similarly, the potential industry partner would be expected to have the necessary expertise for the field of practice (Pfeifer & Backes-Gellner, 2018) but would also be expected to understand and value the importance of initial education for the field of practice (Sappa & Aprea, 2014). Both partners should have expertise in WIL, including knowledge of appropriate WIL modalities for the field and level of training (Harreveld & Singh, 2009).

2.5.5 Leadership

Both the college and the potential industry partner should have identified leaders to drive the collaboration (Davenport & Harding, 2010). The leadership orientations of TVET partners "towards institutional factors, TVET-industry partnership, and acquisitions of employability skills of the TVET graduates" (Mitiku et al., 2021:558) are key indicators for a successful partnership, as are the track records and reputations of the partners (Abdullah, 2013:7). Researchers warn that the initiation of TVET college partnerships should not proceed in the absence of a clear set of policy, legislative and regulatory arrangements (Makgato & Moila, 2019:332).

2.6. Selecting college and industry representatives

Both partners need to select representatives to drive the partnership. Representatives should have the necessary expertise and clear policies to guide partners' roles, responsibilities, and

expectations to enable TVET college-industry collaboration (Sappa & Aprea, 2014:264). This section briefly outlines the various functions played by leaders and other representatives.

2.6.1 Orientation and induction

College educators and counsellors in the career office (or equivalent) play an important role in orienting students to the world of work and field of practice (Mesuwini & Thaba-Nkadimene, 2021). The role of induction to an actual workplace or company is usually the responsibility of the industry partner (Alison, 2017). In the case of work-based learning, it is important that there is a good "match between student and company" (Watt-Malcolm & Barabasch, 2010:68).

2.6.2 Training and supervision

College staff may be called upon to assist with training (Stephen, 2017); or the industry partner could provide all the necessary training and supervision of work practices (Alison, 2017). Larger companies would have skilled trainers able to train and supervise novice employees or interns (Jansen & Pineda-Herrero, 2019), while smaller companies might be more dependent on college staff to assist with work-based training or other WIL forms (Baumeler & Lamamra, 2018).

2.6.3 Support and mentoring

Following a time of orientation and induction and during a period of industry-based training and/or work supervision, ongoing support for the collaboration is required. In the case of work-based learning, it is important that dedicated support staff are available to support students in internships (Farnsworth & Higham, 2012) or to support colleagues who might be engaged in other forms of collaboration (Stephens, 2015). The industry partner should have mentors available to support and guide students in their practice (Ogbuanya & Chukwuedo, 2017) or to support college staff undergoing training or continuing professional development (De Paor, 2018).

2.6.4 Assessment

The assessment of students undergoing work-based training is often a point of contention (Yusop et al., 2023). Colleges wish to be responsible for all assessment task as they will issue the qualification to the student. However, industry partners have the knowledge and skills to assess work practices (Okoye & Chijioke, 2013). Several studies found the involvement of the industry partner in students' formative and summative assessment to be a key aspect of the partnership (e.g., Watters & Christensen, 2014; Pfeifer & Backes-Gellner, 2018). Partnering in assessment can be productive and a form of mentoring for college lecturers (Ogbuanya & Chukwuedo, 2017).

2.6.5 Certification

Including both college and industry certification within a college, programme can strengthen the alignment of college education with industry standards (Olagunja & Zongo, 2011; Abdullah, 2013). Dual certification from the college and the industry can also enhance graduates' employability (Suroto & Hung, 2018:51). Industry certification could also play a role in certifying college teachers in vocational subjects, particularly in regions where there are skills shortages (Stephens, 2015).

2.6.6 Communication

An agreed communication strategy, including the TVET and industry contact persons, along with clear lines of communication, are necessary for maintaining a partnership (Comyn, 2007). The communication strategy should include "carefully documented processes" and a repository for partnership documents, such as minutes of meetings, so that these can be replicated in the future or adapted (Polesel et al., 2017:283). The use of "21st-century communication platforms" (Ramamuruthy et al., 2021:148) has the potential to keep partners well-informed, as well as to enhance their technical communication skills.

2.6.7 Partnership building

The reviewed studies identified the initial stage of establishing contact as being very time-consuming, with many approaches to industry yielding only a small number of contacts that progressed to the next stage (Kruss et al., 2014). It is, therefore, important to protect and build these partnerships. Success indicators for partnership building include ensuring partners are involved in planning the activities, as well as engaging in activities.

2.6.8 Early planning involvement

Several research studies found that industry partners needed to be involved in planning from the very early stages of the collaboration to ensure "buy-in" (Huddleston & Laczik, 2018; Pfeifer & Backes-Gellner, 2018).

2.6.9 Staff development

A key aspect of planning is ensuring that both the TVET college (Suroto & Hung, 2018) and industry representatives (Hussain et al., 2021) are offered the necessary training and support. This is particularly important in contexts of severe skills shortages (Lee, 2010).

2.6.10 Sustaining the partnership

The partnership should be sustained throughout the key activities of planning, student selection, preparation of facilities and infrastructure, teacher development, and teaching materials (Suroto & Hung, 2018:46). It is common for industry to have more up-to-date

equipment than colleges and to make this available for training purposes (Gekara et al., 2014). In successful partnerships, the partners engage in consultation regarding the use of equipment, particularly newly acquired equipment, as well as large infrastructural projects or changes, particularly if these changes are likely to impact training or entail changes to the curriculum or qualification structure.

2.6.11 Future planning

Both partners are likely to have future or long-term plans, such as changes, mergers, new ventures, and skills projections (Gekara et al., 2014; Tjiptady & Yoto, 2019). Future planning, including the identification of future partners and expanding their networks, can usefully build on existing partnerships (Kruss et al., 2014).

2.6.12 Extending the partnership

As the partnership develops, new areas of mutual interest or concern are likely to emerge, such as a need for curriculum changes or additional qualifications for the field of practice (Bolli et al., 2018). The industry partner might identify additional industry representatives that could be involved (Kruss et al., 2014). Joint-decision making is important in deciding the timing of curriculum updates, workplace training, and workplace visits (Bolli et al., 2018).

2.6.13 Monitoring and evaluation of partnerships

Nurturing, and sustaining the engagement is time-intensive for both partners, particularly if the partnership is a new one (Kruss et al., 2014). The partners would typically negotiate the project deliverables, such as agreeing to assign students to projects or placements, and then facilitating, monitoring, and managing the work that this involves. The steps taken in setting up a partnership is similar to setting up client projects, "which include selecting clients with care, designing projects of varying scope, considerable advance planning, setting and managing high expectations, and providing feedback" (Armatas & Papadopoulos, 2013:61).

Successful partnerships, particularly for regional or national development purposes, recommend expert peer review as a best practice (Meng et al., 2018). Partnerships can be built on and extended; and it is inevitable that they will change over time. The literature warns that merely measuring the number of partnerships is less valuable than measuring their outputs (Makgato & Moila, 2019), as the latter are key indicators of their progress (Pillay et al., 2014). Whatever arrangements are made, each partner's governance arrangements, roles, responsibilities and objectives need to be clarified. Also important are partners' understanding of respective objectives, constraints, and expectations. Colleges must "appreciate the operational and productivity demands of the industry", as well as time constraints and "procedures for accessing worksites and key personnel" (Flynn et al., 2015:317).

2.7 Towards a conceptual model for TVET college-industry partnerships

A conceptual model for successful strategic partnering was developed to support the development, maintenance, evaluation, and ongoing improvement of TVET-industry partnerships, drawing on the literature reviewed (Figure 2.2). The partnership building begins before potential partners are selected, with self-assessment of the TVET college and potential industry partner. Once partners have been identified and assessed for readiness, the process of establishing the collaboration starts with the identification of college and industry representatives and progresses through partnership building to evaluation of the progress and outcomes of the partnership.

	TVET College	Common Activities			Potential Partner
	Goals/Priorities	*Common goals/Priorities*			*Goals/Priorities*
Initial self-assessment	1. Vision, mission & values (Billet & Seddon, 2001) 2. Readiness (Duncan, 2017) 3. Skills (De Paor, 2018) 4. Leadership (Remington, 2018)	Shared vision, mission & values Shared interests Complementary skills Joint leaderships Define common projects/tasks			1. Vision, mission & values (Abdullah, 2013) 2. Readiness (Wiemann & Fuchs, 2018) 3. Skills (Sappa & Aprea, 2014) 4. Leadership (Davenport & Harding, 2010)
	Roles & responsibilities	*Shared contribution*			*Roles & responsibilities*
Representative selection	5. Orientation (Mesuwini & Thaba Nkadimene, 2021) 6. Training (Grollmann & Rauner, 2007) 7. Support (Farnsworth & Higham, 2012) 8. Assessment (Yusop et al., 2023) 9. Certification (Abdullah, 2013) 10. Communication (Polesel et al., 2017)	Resources Stipends Time Staff Skills Expertise Advocacy			5. Induction (Watt-Malcolm & Barabasch, 2010) 6. Training & supervision (Jansen & Pineda-Herrero, 2019) 7. Mentoring (Ogbuanya & Chukwuedo, 2017) 8. Assessment (Watters & Christensen, 2014) 9. Certification (Suroto & Hung, 2018) 10. Communication (Comyn, 2007).
		Define level			
		National Regional Local	Collegial Advisory Formal	SETA MoA/U Contract	
	Activities	*Clarify and define*			*Activities*
Partnership Building	11. Initial planning (Huddleston & Laczik, 2018) 12. Teacher CPD (Suroto & Hung, 2018) 13. Sustaining (Suroto & Hung, 2018) 14. Future planning (Tjiptady & Yoto, 2019) 15. Extending the partnership (Bolli et al., 2018)	Expectations Accountability Division of Labour Communication Timeline Conflict resolution *Define outcomes* Short-term Medium-term Long-term			11. Initial planning (Pfeifer & Backes-Gellner, 2018) 12. HR development (Hussain et al. 2021) 13. Sustaining Future planning (Gekara et al., 2014) 14. Extending the partnership (Kruss et al., 2014)
	Assess progress				*Assess progress*
Eval uatio	15. Assess progress (Meng et al., 2018)				16. Assess progress (Meng et al., 2018)

16. Assess outcomes (Makgato & Moila, 2019) 17. Reprioritize, if necessary (Armatas & Papadopoulos, 2013)	Maintenance/Evaluation Feedback Loop	17. Assess outcomes (Makgato & Moila, 2019) 18. Reprioritize, if necessary (Armatas & Papadopoulos, 2013)

Figure 2.2: A conceptual model for strategic partnering

Adapted from: Rogers, M., Kent, L., Lang, J. (n.d.) *Strategic partnering: A guide to the conceptual framework*. US Centers for Disease Control and Prevention. https://www.cdc.gov/dhdsp/programs/spha/roadmap/docs/strategic-partnering-conceptual-framework_ac.pdf [8 May 2023]

The above conceptual model for partnerships was adapted from Rogers et al. (n.d.), a partnership model that was designed for use with both single partnerships and coalitions, for the purpose of guiding partners through the life cycle of successful collaboration.

2.8 Conclusion

This review of the literature on college-industry partnerships was undertaken to identify the benefits and challenges that productive partnerships represent to both the college and the industry partner, as well as their functional arrangements. The review intended to address the following issues: What are the key purposes, challenges, and arrangements for effective college-industry partnerships? Changes in global and local economies have intensified the need for strategic partnerships between technical and vocational education and training (TVET) colleges and industries in order to address training needs and employability in the 21st century. However, there is a limited understanding of the nature and challenges associated with establishing long-term, sustainable college-industry partnerships, and this critical review of the literature addresses this issue. The research question guiding this review is: How could TVET college and industry partnerships be strengthened and structured to benefit students, colleges, and industry? To this end, the benefits and challenges that productive partnerships represent to both the college and the industry partner, as well as their functional arrangements, were studied. The literature revealed that there were many purposes and arrangements for college-industry partnerships. Seven purposes were identified, namely, partnerships for: 1) student development, 2) lecturer development, 3) curriculum development, 4) college development, 5) company development, 6) regional development, and 7) national development. Different purposes required different structures and arrangements for college-industry partnerships. Partnerships are not static, once-off formations created and then forgotten; they are dynamic and changing and require actions to be established, maintained, and extended.

The research studies suggest that the quality of college-industry partnerships is likely to predict the quality of internships, graduate employability, relevance of curricula, pedagogy, and the reach and reputation of the TVET college. Building trust, effective communication, and relationship management are key to success with all partnerships. In terms of long-term, sustainable partnerships, it is necessary for colleges to be clear on the extent of the provision that they require from companies and the demands that such provision makes on the company. Shared goals underpinned by mutual values and trust amongst key people in the partnership constitute the 'social glue' that holds organizations and individuals together to provide the basis of effective and sustained partnerships (Dhillon, 2005).

Establishing and maintaining college-industry partnerships is challenging because each partner has different objectives and their own frames of reference (one educational, the other industrial), which makes partnership building complex. There is thus much work to be done in understanding the histories of partnerships in TVET with a view to uncovering their challenges and potential. The effectiveness of college-industry partnerships depends on how they are structured, established, and managed, including the importance of sharing a common object and combining expertise in processes of common problem-solving. Each partner needs to acquire some of the specialized knowledge of the other partner, as well as contribute to shared problem-solving knowledge. Developing an understanding of each partner's objectives and needs is key to developing respectful collaboration.

The reviewed literature shows that partnerships for student learning enhanced students' knowledge, skills, and employability, while partnerships for lecturer development increased their understanding of industry practices. Consequently, students' quality of learning was enhanced through lecturers' up-to-date, relevant industry knowledge. Industry partnerships were able to address the shortage of sufficiently trained vocational lecturers by supporting the updating and upgrading of lecturers' skills, which are key concerns in a time of rapid technological change and globalization (Okoye & Chijioke, 2014). Disconnections between college curricula and the world of work were addressed through partnerships for curriculum development that enhanced the quality of students' learning through curricula that were better aligned with industry standards. Strong partnerships will enable TVET colleges to be responsive to new technologies and practices across occupations and fields and maintain relevance in a time of rapid technological, social, and economic change (Smith et al., 2011).

College-industry partnerships will improve the functioning of the college, making it more business-like and, in some cases reviewed in the South African context, addressing the issue of insufficient funding and poor college facilities; improvements to the college indirectly contributed to achieving the activity system. The activity system was expanded in the few

cases that saw improvements to the partner companies. In several studies, the object expanded beyond the activity systems of the college and the company to address regional and national needs. The studies suggest, on the one hand, that the expansion of the object will distract colleges from their core object of the quality of student learning and place untenable burdens on college staff. On the other hand, the expansion of the object for regional development can enhance the capacity of the college and strengthen partnerships by including new collaborative arrangements to meet new skills needs (Persson & Hermelin, 2020) – such as the digital competencies required in many fields and occupations. Thus, expanding the object could be seen as having the potential to bring a region together to meet new skills demands.

Internationally, the sustainability of partnerships has been found to be enhanced through a strategic, 'whole community' approach to partnerships between colleges, business and industry, parents and community groups, that involves partners in many college activities (Klatt et al., 2018). The need for a 'collaborative project' involving government, firms, universities, colleges, and other bodies has been similarly recognized in South Africa (Petersen et al., 2016). There is evidence that the competent management of partnerships can assist with students' transfer from college to the world of work, and that industry partners can help colleges to develop more industry-relevant curricula and pedagogies (Lee, 2009).

The primary beneficiaries of partnerships are, therefore, the TVET colleges themselves. Additional beneficiaries include TVET students who are provided with enhanced learning experiences and great life opportunities, as well as the employers, businesses, and industries linked to the partnerships.

Building upon the insights obtained from the literature review on TVET-industry partnerships and the initial conceptual model for strategic partnering, Chapter Three shifts focus to activity theory and the building of a theoretical framework. The activity theory framework provides a lens through which to further analyse and understand the complex interactions and systems at play within TVET college-industry partnerships.

CHAPTER THREE:
ACTIVITY THEORY - THE THEORETICAL FRAMEWORK

3.1 Introduction to Chapter Three

Chapter Three presents the theoretical framework, activity theory, that guides this study on TVET college-industry partnerships. Section 3.2 outlines the complexity of managing partnerships and the kind of explanatory work that would be required of a theoretical framework in this context. The next section (Section 3.3) justifies the choice of activity theory as a framework in the context of public administration and explores concepts in the activity system that are relevant to public administration. The application to this study is explained in Section 3.4 and Section 3.5 provides a reflective conclusion on the theoretical framework.

3.2 Theorising the management of partnerships

Many TVET colleges are undergoing significant transformations, including implementing new policy directives (Buthelezi, 2018), quality enhancement initiatives (Sithole, 2019), becoming more responsive to industry needs (Marock et al., 2016), and many other processes of change. Many of these change initiatives require industry partners to support colleges with the following: improvement of infrastructure for industry-equivalent training facilities (Lee, 2009); facilitating teacher sabbaticals in industry (Duncan, 2017); offering industry training (Abdullah, 2013); certification (Suroto & Hung, 2018); finding student placements (Sappa et al., 2014); providing industry representatives to co-assess practical subjects; facilitating cultural change (Flynn et al., 2015); and leadership development (Badenhorst & Radile, 2018:91). This study extends prior research on understanding the complexity of TVET education and its management (e.g., Wedekind & Watson, 2016; Sithole, 2019) from the perspective of partnership management. In this chapter, issues regarding the benefits and challenges of partnerships that emerged in the literature review are considered at a theoretical level. A theoretical framework is required to explain the complexity of partnerships systemically rather than as a set of disparate individual actions, both to build knowledge on college-industry partnerships and to improve management practice in TVET colleges through better alignment between management practices and the potential benefits of strong and sustainable partnerships.

3.2.1 Activity theory in TVET and industry

Activity theory provides a framework for analysing actions with the intention of revealing historically-rooted contradictions within practices, as well as opportunities for change and development and a vision of how things could be done better. Activity theory thus "enables researchers to analyse complex and evolving professional practices, and practitioners to engage in reflective research" (Foot, 2014:329). Activity theory is well suited to examining how

management practices could be improved. Figure 1 models a generic TVET college activity system of mutually dependent elements. Briefly, the elements refer to 1) who the participants are (subjects), 2) what they are working on (the object), 3) how they are doing this work via tools and other "mediational means", 4) allocations and hierarchies of roles (division of labour), 5) who else is involved with the activity (community), 6) the policies and cultures (rules) under which they operate, and 7) outcome – the result of the interactions of the system elements on the object.

Mediational Means
Lecturers, Managers, Curricula, Facilities, Equipment, Resources

Production

Subject
Students

Object
Quality of learning

Outcome
Academic success and employability of graduates

Consumption

Exchange

Distribution

Rules
Academic and social

Community
Parents, DHET, Regional industries

Division of Labour
Hierarchies, roles, partners
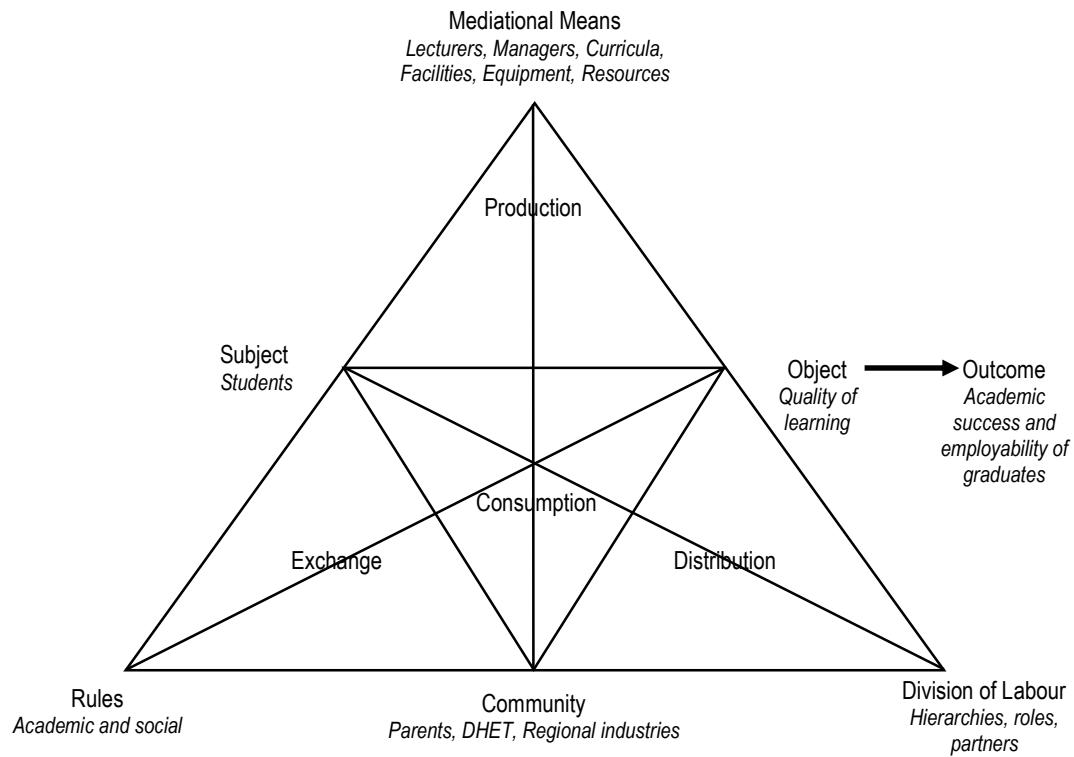
Figure 3.1: A generic TVET college activity system

(Adapted from Engeström, 1999)

In the activity system of a TVET college (Figure 3.1), the people of interest in the system can be identified. In an educational activity system, the subjects are usually the students, whose purpose (or object) it is to learn (Roth, 2004). Lecturers, managers, and industry coordinators constitute the human mediators in the system who also focus on the quality of learning. There are also socio-materials and cultural mediational means, such as curricula, facilities, equipment, and other resources. The focus of the TVET activity system is the quality of student learning. In TVET systems, to work successfully on this object, human and other resources are needed – and these may or may not be sufficient (Engeström, 2001). The staff and students, however, work as part of a much broader system of TVET culture that has rules and hierarchies of decision-making (rules and divisions of labour respectively). The rules and divisions of labour may enhance or inhibit students' and staff's ability to work towards the improvement of student learning. It is important not to conflate the object and the outcome

(Engeström, 2018). An effective activity system must be driven by the object and not the outcome. The outcome flows from the activity. Activity theory tells us that the employability of students, the desired outcome, will improve if the participants do not lose sight of the object, which is the provision of high-quality learning. The necessary tools and resources need to be available, and appropriate rules and divisions of labour should guide the system. The community of an activity system are those who are affected by the systems (parents, industries, professional bodies, etc.) but are not directly involved in the work of achieving the object. The communities are often beneficiaries of the activity.

In contrast to the activity system of a TVET college, in the activity system of an industry (Figure 3.2), the subjects are employees who, through the mediation of technology, managers, and trainers, and with the facilities, equipment, and other resources provided, focus on the achievement of high-quality work, resulting in products and services. The "rules" (usually policies) are determined by legal requirements (e.g., labour law) and by the company's internal culture, processes, procedures, and policies. These rules would be very different from those of a college; and the hierarchy of the division of labour might be more formal, or more informal, depending on the organisational structure and culture. The community of beneficiaries includes clients and customers, and the wider South African economy.
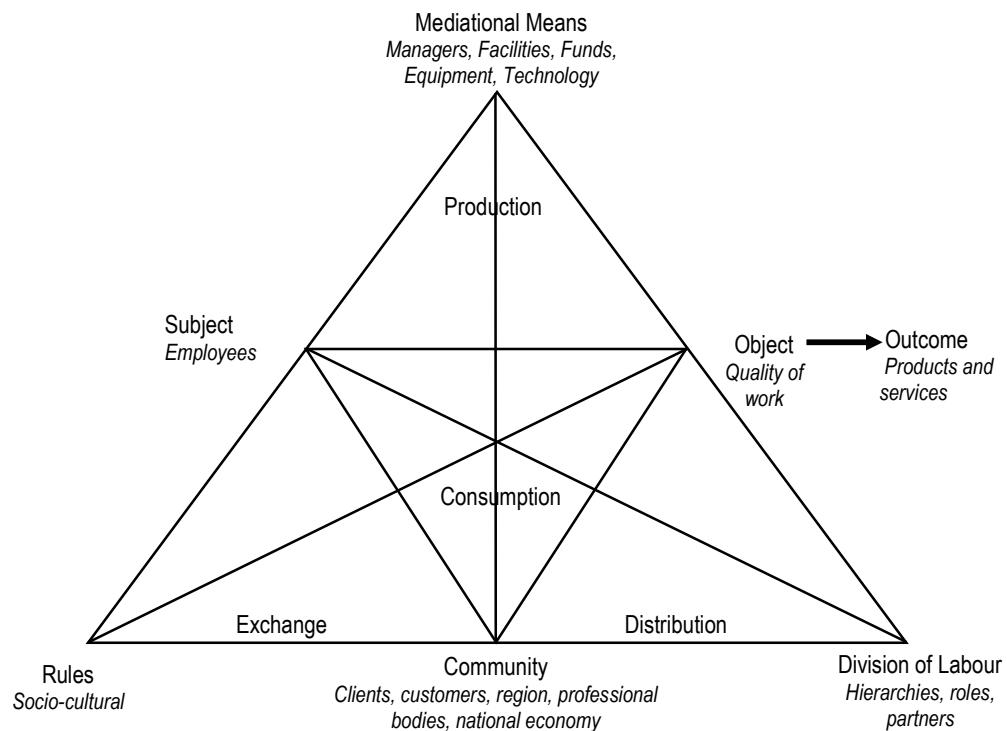
Figure 3.2: A generic industry activity system

(Adapted from Engeström, 1999)

It is important to note that the object of industry is different from the object of a TVET college, and so assumptions that business organisations have the time and resources to participate actively in the training of lecturers and students, or that they share a vision for education and training, could be a challenge; indeed, it has been pointed out that "high-quality vocational training cooperation between training venues which has been thoroughly thought through in didactic and training theory terms represents very much the exception" (Eckert, 2003:113). In seeking a partnership with industry, TVET colleges will be asking an organisation to introduce new objects into their system (students, lecturers, curriculum development, etc.) in pursuit of "a joint and common purpose" (Rauner, 2003:8). In terms of long-term, sustainable partnerships, colleges must be clear on the extent of the provision that they require from companies, as well as the demands that such provision makes on the company (Walden, 2008).

Third-generation activity theory (Engeström, 2000) can be used to represent how the TVET and industry activity systems could interact. The representation also implies potential contradictions and tensions across the two activity systems that would need to be addressed to align the two systems, particularly the industry's "learning affordances" (Taylor, 2009). A key aspect of partnership work involves negotiations among players to explore this contested terrain (Watt-Malcolm et al., 2007). In an activity theory analysis, these "misalignments, contradictions, and other disturbances … hold within them the possibility of the collective propelling themselves forward to search for new ways of doing and achieving what is not yet there" (Engeström, 2018:14).
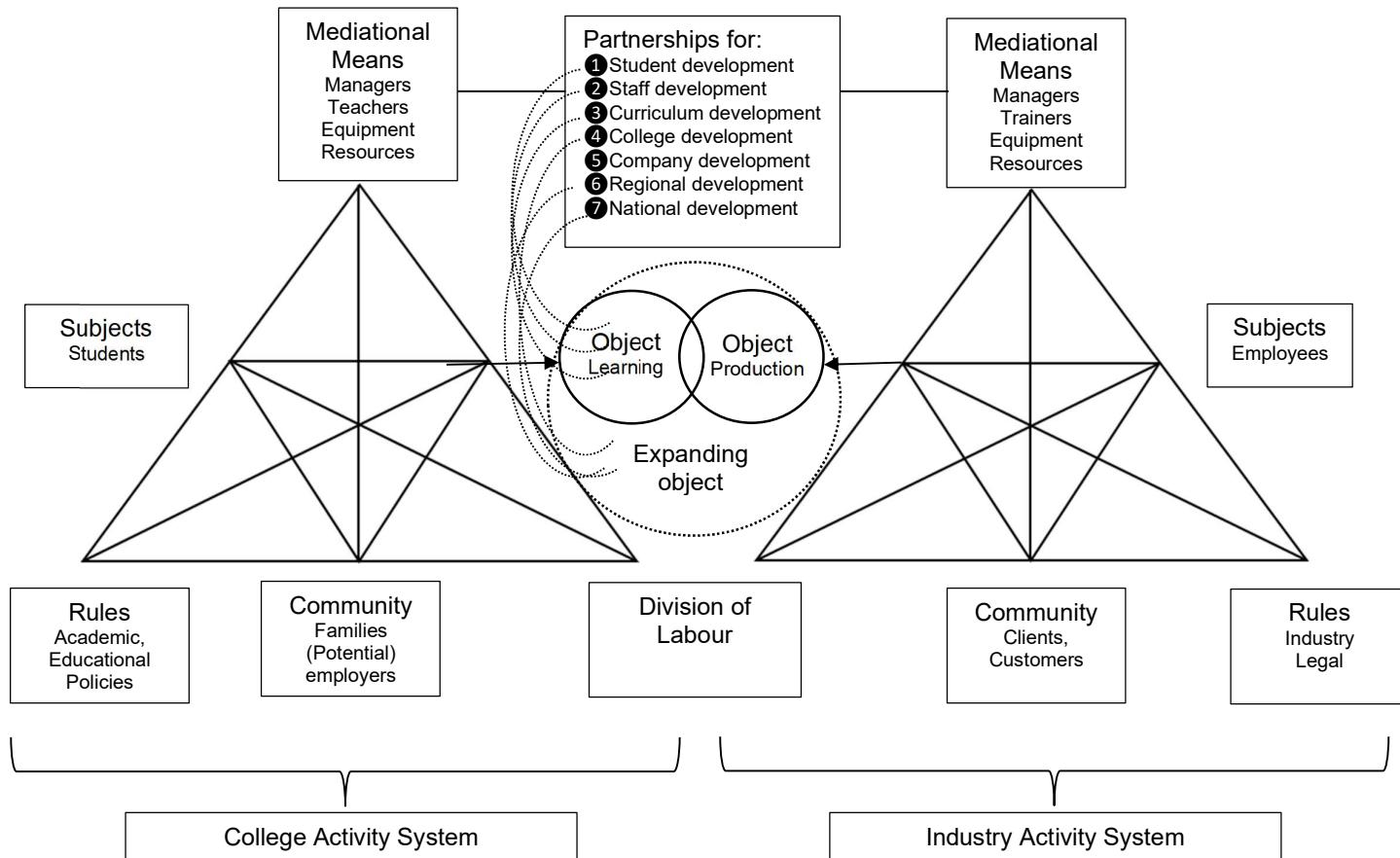
Figure 3.3: A TVET college-industry partnership, using "third generation Activity Theory"

(Engeström, 2000)

3.2.2 Contradictions in and between activity systems

As discussed above, an activity system is made up of the following elements: subjects (people), objects (goals), tools, rules, a community, divisions of labour, and outcomes. Contradictions arise when these elements clash and hinder the smooth functioning of the system. Activity theory adopts a dialectical approach to understanding contradictions (Engeström, & Sannino, 2011). It recognises that contradictions are inherent in social life and drive processes of change and development. Building on Marx's theory of contradictions, in his paper titled "Activity theory and individual and social transformation" (1999), Engeström emphasised the importance of finding the contradictions within activity systems. Contradictions, such as conflicts between different goals, values, or interests, are seen as drivers of change and innovation within activity systems. Different kinds of contradictions result when different elements within an activity system, or across different activity systems, conflict with one another. Contradictions are "accumulated structural tensions within and between activity systems heightened by ongoing transitions and transformations" (Engeström, 2001:133). They are also the "motive force of further change and development" (2001:135). Engeström (2014) identified four levels of contradictions in human activity systems:

1. Contradictions within a single element of an activity system;
2. Contradictions between two or more elements of an activity system;
3. Contradictions between two or more activity systems (usually involving activity systems with different objects or at different levels of advancement);
4. Contradictions between an activity system and its neighbouring activity systems.

Primary level contradictions occur within an element, for example, when a tool is not fit for purpose. Contradictions are secondary when they occur across elements within an activity system, for example, the rules (or policies) of an organisation might not be conducive to efficient practice, thus they might conflict with the object. A tertiary level contradiction can occur when a new tool is introduced into a system, such as a new digital machine that requires a change in many of the elements in the activity system. A quaternary level contradiction could occur when two activity systems attempt to collaborate, but there are conflicts between their values, or ways of working, etc. Figure 3.4 illustrates the four levels of contradictions: 1) within a single elements; 2) between the elements of an activity system; 3) between more advanced activity systems and the central system; and 4) between different activity systems.
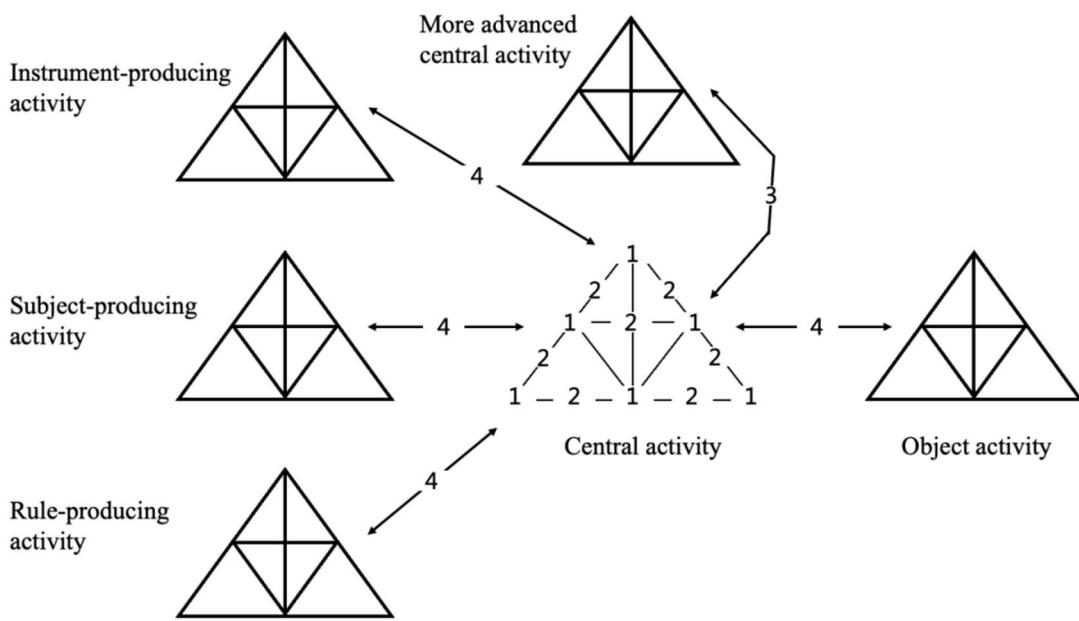
Figure 3.4: Four levels of contradiction within and across activity systems
(Engeström, 2014)

3.2.3 Boundary crossing

Activity theory predicts that every activity system will have contradictions, but it gives more attention to the ways in which contradictions can be collectively addressed. Learning from contradictions can be a transformative process. Engeström explains that "human beings are involved in multiple activities and have to move between them" (2009:313). Thus "boundary crossing" is one way in which contradictions can be resolved. Boundary crossing tends to occur between "collective activity systems and organizations" (2009:314). Boundary crossing could thus be seen as interactions between different activity systems that occur when the different activity systems come into contact and influence each other (Engeström, 2007). It is not only people that move between systesm, tools and ideas can be exchanged or transferred between different activity systems. Typically, boundary crossing occurs when the central activity system (in this case TVET college activity system) needs resources or expertise from another activity system (in this case an industry activity system). Learning from or adopting new practices or new tools from a different activity systems creates learning experiences from which new ideas, improvements and innovations can arise. When two or more activity systems form a partnership, boundary crossing is likely to occur. Boundary crossing can therefore play a role in developing and improving the core activity system.

3.2.4 Knotworking

Knotwork is another strategy to address contradictions within an activity system (Engeström, 2008). It involves a problem-solving approach to leverage collaboration to address contradictions that constrain the activity system's proper functioning. Knotworking is a metaphor used by Engeström that combines two ideas: 1) the idea of something "not working" and 2) the idea of a tangled knot. When subjects engage in "knotworking" they have to work around a problem, usually collaboratively and by sharing expertise. Knotwork can help the subjects of activity systems to find solutions to overcome limitations in the current activity system. In the case of a primary level contradiction, such as a lack of capacity within a subject group, knotworking could involve collaboration with others who possess the necessary expertise. When conflicting rules create a hurdle, knotwork might involve communication and negotiation between workers and managers to find a workable solution. In knotwork, diverse subjects, tools, or even different activity systems are interconnected to achieve the object. It has been pointed out that this collaborative approach is especially useful in situations requiring knowledge from various domains (see, for example, Kerosuo et al., 2015). Knotwork is not a rigid structure, but rather a dynamic and evolving process. Successful knotwork requires support from outside the group to recognise and facilitate the development of these practices. The interconnected and dynamic nature of knotwork allows for quicker adaptation to changing situations that might introduce new contradictions (Engeström, 2009).

3.2.5 Expansive learning

In an early work, *Learning by Expanding* (1987), Engeström introduced the concept of "expansive learning" to describe processes of transformative change within activity systems. This was further elaborated upon in the second edition in 2015. Expansive learning is distinguished from other forms of learning by its focus on learning in diverse contexts (that are often very different from those of formal schools or universities) and with diverse groups of people (Engeström, 2015). Expansive learning could be understood as a way of learning in which diverse subjects bring their different perspectives, experiences and knowledge to an object, a process which enables future-thinking and innovation:

> The metaphor of expansion depicts the multidirectional movement of learners constructing and implementing a new, wider, and more complex object for their activity. This is done with the help of mediating means used and built throughout the design process. Expansive learning can lead to qualitative transformations both at the level of individual actions and at the level of the collective activity and its broader context. Expansive learning occurs when individuals and groups confront and resolve contradictions, leading to the

restructuring of activity systems and the creation of new forms of practice and knowledge, or the exchange of resources, ideas, and practices, potentially leading to innovation, learning, and improved outcomes (Sannino et al., 2018:116).

3.2.6 Transformative agency

Engeström explains that engagement in expansive learning (including boundary crossing and knotworking) can enable the emergence of transformative agency. This means individuals and groups can transform their work practices and adapt to changing circumstances through collaborative learning. Engeström considers expansive learning to be core to transformative agency in wider communities and work settings (Engeström, 2015). Transformative agency emerges from expansive learning. Learning expansively requires deep critical thinking, being open to the ideas of others, and listening to all voices. The process of expansive learning requires questioning existing assumptions, ideas, and practices – and taking the initiative to propose and try out changes. The new concepts and practices generated in an expansive learning process carry "future-oriented visions loaded with initiative and commitment by the subjects" (Sannino et al., 2018:120).

3.3 Activity theory in public administration studies

Activity theory was chosen as a framework for this study of TVET college-industry partnerships as it is a system-level theory of practice (Daniels et al., 2010). The first generation of activity theory was developed by Vygotsky (Bedny & Karwowski, 2004) and further elaborated by Engeström into the second (Engeström, 1999) and third generations of activity theory (Engeström, 2000). Its focus is understanding human activities within their social and cultural contexts. Activity theory is a "system-level" theory that explains (and predicts) how individuals and groups engage in purposeful activities and how these activities are shaped by their environment, tools, and social interactions. Activity theory has been used in many public administration studies, for example, to evaluate a new digital government service in Finland (Jussila et al., 2019). McBride et al. (2013) used an activity theory perspective to examine the managerial decision-making process in information technology-shared services in public sector entities. Canary (2010) used activity theory in a public administration policy study, while Petrucco and Ferranti (2017) designed smart city apps using activity theory. Bedny and Karwowski (2004) drew on activity theory in the journal *Ergonomics* to study work practices. Significantly, in a recent guest editorial for *Public Administration Review*, George et al. recommend that authors submitting to the journal use activity theory as a framework to produce "impactful reviews to rejuvenate public administration" (2023:1517). They claim that activity theory is:

> … a framework to guide review efforts in public administration centered on purpose (why?), object (what?), subject (who?), community (for whom?) and practices (how?) (George et al., 2023:1518).

In this study, activity theory was used to analyse college and industry partnerships and their interactions across activity systems involving multiple subjects (i.e., students, lecturers, industry professionals) engaging in collaborative activities to achieve shared goals, in particular students' skills development for employability. Activity theory helped to identify the different components of these activity systems, including the division of labour, tools/resources used, rules and norms governing interactions, and the roles of various stakeholders. In this study, activity theory provided a deep, systemic understanding of the factors influencing TVET college-industry partnerships and their interconnections. Activity theory was used to identify "contradictions", or challenges in the system, and to formulate more effective partnerships that could ultimately benefit students. TVET college-industry partnerships often rely on various tools and artefacts (e.g., curriculum frameworks, internship programmes, technology platforms) to support collaboration and facilitate learning and skill development. Activity theory helped to identify and analyse how different tools, documents, and resources (including human resources) mediate interactions between different stakeholders and shape the dynamics of partnership activities. Activity theory emphasises the importance of the historical and cultural context within which activities take place. Thus, this framework was useful for considering how historical factors (e.g., policy decisions, economic trends) and cultural norms shape college-industry partnerships, influencing their goals, structures, and outcomes.

Partnerships are always dynamic processes that evolve over time in response to changing external conditions and internal dynamics. Activity theory offered insights into how partnerships develop, adapt, and transform over time, highlighting the role of learning, innovation, and collective problem-solving in driving change. Activity theory thus provided a valuable lens for the study but was not incompatible with other approaches relevant to public administration, such as network theory or stakeholder theory, which were also drawn on in the study.
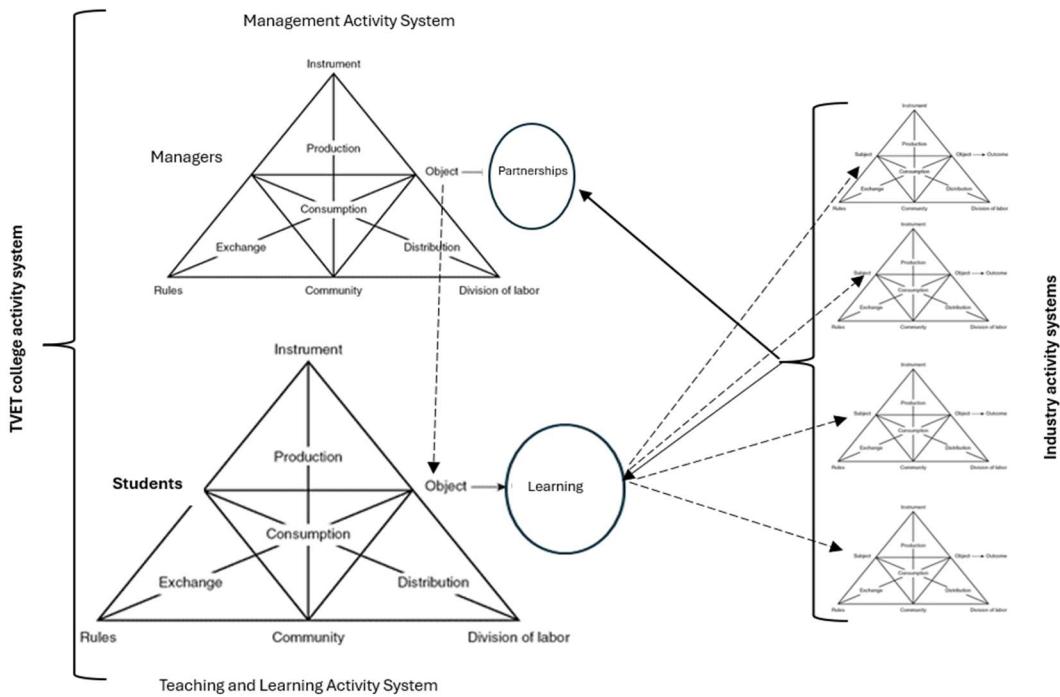
Figure 3.5: A TVET college-industry partnership activity system
(Adapted from Engeström, 2009)

Figure 3.5 is adapted from Engeström's (2009) depiction of a business enterprise interacting with a client to show how a TVET college (comprising a management activity system and a teaching and learning activity system) could interact with industry partners. "Industry" is used as a generic term; the potential partners would include business enterprises, banks, hotels, hospitals and clinics, and so on. Thus, the industry activity systems on the right-hand side of the diagram represent workplaces where students might attain employment.

3.3.1 The teaching and learning activity system

The activity system of a TVET college (bottom left in Figure 3.5) has been explained in 3.2.1. While all public administration and management activities are intended to support the teaching and learning system, this system is not the primary focus of the study.

3.3.2 The TVET college management system

The management activity system shown at the top left in Figure 3.5 is the focus of the study. Its primary object is developing policies and providing a conducive working environment to enable the teaching and learning system to achieve its object of quality student learning. This is represented by the dotted line linking the management and teaching and learning objects. The management activity system also has the object of partnership building. To consider more closely the management activity system that focuses on the object

of partnerships, the management activity system diagram is expanded upon in Figure 3.6. This management activity system represents how TVET college managers might focus on the object of partnerships. The managers who are responsible for the administration and management of TVET-industry partnerships in the TVET college are the subjects of this activity system. These managers might include a deputy principal and director in charge of placements and/or placement and learnership officers. For the subjects to succeed in executing their mandates requires mediational means which include human and material resources, facilities, equipment, as well as memoranda of agreement or understanding, and so on. The object of the activity system is the building of TVET-Industry partnerships, and partnerships that are mutually beneficial and sustainable are the desired outcome. The division of labour involves dividing roles and responsibilities amongst deputy principals that are responsible for partnerships, directors, placement and learnership officers, and workplace mentors. The community is like to includes parents, DHET, industries, students, college officials and workplace mentors, whilst rules include DHET policies, TVET college policies, and all Acts that are relevant to skills development in South Africa.
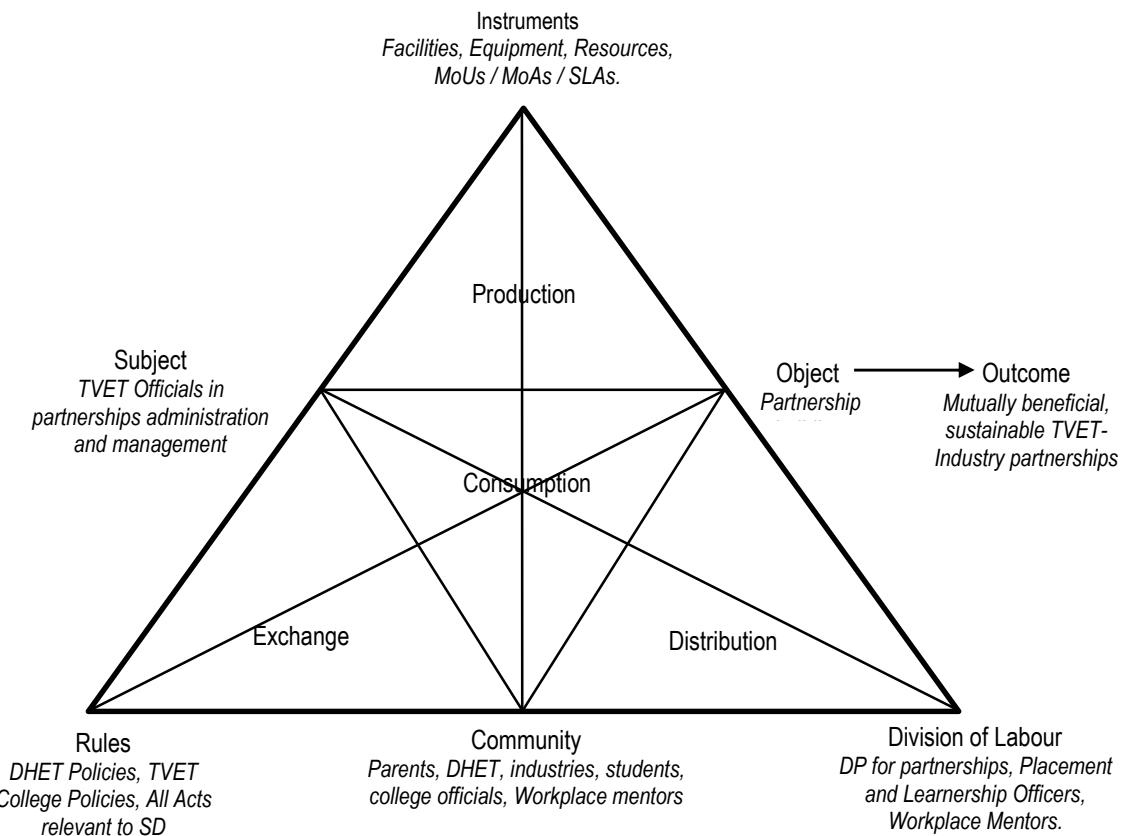
Figure 3.6: The TVET partnership-building activity system

(Adapted from Engeström, 1999)

3.3.3.1 Higher order functions in the management of partnerships

Within the management activity system that is focused on partnership building, there are higher-order functions of production, distribution, exchange, and consumption. These higher-order

functions refer to the more complex or abstract processes and roles that facilitate partnership building.

Within the production function there is likely to be planning and coordination, involving strategic decision-making regarding the kinds of partnerships that are necessary and for what purposes. These higher order functions might involve decision-making regarding investing in new technologies or developing new training facilities or optimising existing resource allocation. Distribution has to do with logistics, for example, the detailed planning of partner meetings, site visits and exchanges. Higher-order functions within exchange might include considerations of how to improve the value of TVET qualifications through partnerships, such as analysing trends, and negotiating with partners to accredit the training. Exchange is likely to involve building and maintaining relationships with partners. Higher-order exchange functions may include drafting contracts, negotiating terms and conditions, and managing contractual relationships effectively. Higher order consumption functions might include understanding partners' needs, preferences, and requesting feedback on students' performance, on curricula, and on the suitability of training venues and equipment.

3.3.3.2 Industry activity systems
Industry activity systems (see Section 3.2) are represented on the right in Figure 3.5.

3.3.3.4 Contradictions
Figure 3.6 represents how the TVET college and industry activity systems could interact. The representation implies potential contradictions and tensions across the different activity systems that would need to be addressed to align the two systems (Taylor, 2009). A key aspect of partnership work involves negotiations among partners to explore this contested terrain (Watt-Malcolm et al., 2007). Primary contradictions are contradictions that arise within the elements of the activity system. With reference to partnerships, a primary contradiction may arise within subjects if there is insufficient capacity or willingness amongst the subjects to maintain or sustain a partnership. Secondary contradictions are often caused by instruments not being appropriate for the attainment of the object. In the TVET college activity system, there could be insufficient resources or no budget for partnership building. Tertiary contractions could arise between a TVET management activity system and its historically evolving trajectory. This could involve conflicts between the current practices or norms of the activity system and its future developmental path as set out in policy documents. Overcoming this contradiction is challenging as it requires subjects to embrace new approaches and technologies for the future. Quaternary contradictions often arise between multiple activity systems, as there is likely to b conflicts between the goals, norms, or

practices of different activity systems that are interconnected or interdependent. In contradiction analysis, misalignments, challenges, and other disturbances hold within them the possibility of the collective propelling themselves forward to search for new ways of doing and achieving "what is not yet there" (Engeström, 2018:14).

Partnerships are always dynamic processes that evolve over time in response to changing external conditions and internal dynamics. Activity theory offers insights into how partnerships develop, adapt, and transform over time, highlighting the role of learning, innovation, and collective problem-solving in driving change. Activity theory thus provided a valuable lens for the current study, as it is well suited to examining how management practices could be improved. This study extends prior research on understanding the complexity of TVET education and its management (e.g., Wedekind & Watson, 2016; Sithole, 2019) from the perspective of partnership management.

In this chapter, issues regarding the benefits and challenges of partnerships that emerged in the review of literature have been considered at a theoretical level. A theoretical framework is required to explain the complexity of partnerships systemically, rather than as a set of disparate individual actions, both to build knowledge on college-industry partnerships, as well as to improve management practice in TVET colleges through better alignment between management practices and the potential benefits of strong and sustainable partnerships.

In this study, activity theory was drawn upon for data analysis (see Chapter Four) to guide the development of a framework to enhance effective TVET college-industry partnerships management and administration. Activity theory enabled a systemic evaluation of the extent to which the management and administration of TVET college-industry partnerships succeeded in their mandate. Activity theory was the lens through which the establishment, maintenance, and sustainability of TVET college-industry partnerships were examined and their outcomes assessed to guide future improvements and to promote better management and administration of those partnerships. Through adaptation of Engeström (1999), a management and administration activity system was developed to show the specific activity system within a TVET college for the management and administration of partnerships (Figure 3.4).

The subjects of this study are the officials responsible for the administration and management of TVET-industry partnerships in the TVET college. These officials include the Deputy Principals and the placement and learnership officers. For the subjects to succeed in executing their mandates, they require mediational means. These means include the curricula being taught; the lecturers that deliver the programmes; managers that must develop policies and provide a conducive

working environment; industries that must provide workplaces for students; facilities at the college and in industry; equipment that must be used to administer and manage partnerships; resources like funding; and signed MoUs, MoAs, and SLAs. The object of this study is the establishment, sustaining, and maintenance of TVET college-industry partnerships to fulfil the outcome of a framework that will guide and promote establishing, sustaining, and maintaining TVET college-industry partnerships. The division of labour involves dividing roles and responsibilities amongst deputy principals who are responsible for partnerships, placement and learnership officers, and workplace mentors. For this study, the community involved includes parents, DHET, industries, students, college officials, and workplace mentors, whilst rules include DHET policies, TVET college policies, and all Acts that are relevant to skills development in South Africa.

3.4 Conclusion: reflections on the theoretical framework

This chapter presented activity theory as the theoretical framework for this study. It explained activity theory as the lens through which data were analysed and as the guide for developing a framework for the management and administration of TVET college and industry partnerships. This chapter explained how activity theory was adapted to model a TVET management and partnership-building activity system within a TVET college. Specifically, it enabled a systemic evaluation of TVET-industry partnership management and administration, examining the establishment, maintenance, and sustainability of these partnerships. Drawing on Engeström's (2001) activity system analysis, with its emphasis on mapping elements, identifying contradictions, and tracing change, provides a framework for analysing actions to reveal historically rooted contradictions as well as opportunities for positive development. As Foot notes, activity theory "enables researchers to analyse complex and evolving professional practices, and practitioners to engage in reflective research" (2014:329).

Chapter Four explains the research design and methodology. Activity theory, with its integration of critical perspectives from various disciplines, was drawn on to guide the exploration of power dynamics, inequalities, and social justice within partnership activity systems, ultimately aiming to promote transformative change and social equity. In this study, activity theory guided both the data analysis (see Chapter Four) and the development of a framework to promote effective TVET-industry partnership management and administration.

<div align="center">

CHAPTER FOUR:

RESEARCH DESIGN AND METHODOLOGY[3]

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4.1 Introduction to Chapter Four

In this chapter, I explain the research paradigm, methodology and research design developed to guide the research activities in studying TVET college-industry partnerships. Section 4.2 describes the importance of aligning research questions, aims, and objectives with research methodology and delineation. The next section explains and justifies the research paradigm and related concepts. This section includes the methodology (Section 4.3), which is a "responsive evaluation" (Stake, 2003) of the management of TVET-industry partnerships. In Section 4.4, I provide detailed information on the research design and the methods used for data collection and data analysis. In Section 4.5, I discuss the trustworthiness of the research methodology and in Section 4.6 I explain some of the implementation issues. The chapter concludes in Section 4.8 in which I provide the ethical framework for the study, and explain the process undertaken and the arrangements made for ethics clearance and permissions.

4.2 Alignment of research questions, aims, and objectives with research design and methods

Clarifying the research focus is a first step towards the research design (Fouché & Delport, 2018; Johnson & Christensen, 2020). Having identified the importance of partnerships in the TVET college sector (e.g., Atwell et al., 2022; Papier et al., 2023), this study focused on building knowledge on the management and administration of TVET-industry partnerships to develop a research-informed framework to promote and guide practice.

4.2.1 "Establishing what needs to be known and why" (Polit & Beck, 2020)

The research questions shaped the research methodology of the study. They determined the approach needed to gather relevant data and achieve meaningful insights. Hence the research questions (as stated in Chapter One) seek to understand how TVET-industry partnerships can be strengthened and structured. The methodology must facilitate an in-depth exploration of existing practices, challenges, and potential improvements.

The research sub-questions further refine this focus by directing attention toward specific aspects, such as the success of current partnership management, the processes of establishing and

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maintaining partnerships, their impact over time, and strategies for improvement. Since the study involves evaluating past and current practices, an evaluation research design is appropriate, ensuring that the framework being developed is informed by evidence-based analysis. Furthermore, an interpretivist approach will allow for a nuanced exploration of stakeholder experiences, making sense of how colleges and industry partners interact within these collaborations.

The methodology should also incorporate stratified random sampling when selecting participants to ensure diverse perspectives from various colleges and industry representatives, reflecting the regional differences in TVET-industry partnerships. Additionally, document analysis – such as reviewing policy documents, partnership agreements, and institutional reports – can complement primary data collection by providing context to the patterns observed.

The research questions structured the methodology so that it would be aligned with the research questions, thereby ensuring that the study generated findings that directly contributed to the development of a practical framework for TVET-industry partnerships.

Developing clarity on the research problem and research questions (Polit & Beck, 2020; Bless et al., 2021) is necessary early in the research design process and the key element of the research process, although it may also be the most difficult step to accomplish (McMillan & Schumacher, 2014). This study's research problem emanated from the official DHET policy that mandates TVET colleges to forge partnerships with industry. Partnerships are necessary because most qualifications in TVET colleges require that students must have workplace learning as a key curriculum component. How TVET managers, administrators and lecturers plan, initiate, and support industry partnerships was not generally known, despite the requirement that the TVET sector must achieve this educational goal. Therefore, this study has built knowledge, provided tools, and acts as a guide to assist TVET colleges and industries to effectively develop, manage, sustain, and enhance TVET college-industry partnerships. This gap in knowledge about TVET-industry partners is the rationale for the study. The main research question guiding the study was: How could TVET college and industry partnerships be strengthened and structured to benefit students, colleges, and industry? The process followed was intended to enable me to address the guiding research question and sub-questions of the study and achieve its aims and objectives.

4.2.2 Delimitation of the study
The study was delimited to the 50 registered and accredited South African public TVET. Private TVET colleges were excluded. The justification for the delimitation has to do with the availability

of policy documents and data for public colleges and the fact that the public TVET colleges are directly influenced by government policies and regulations (Wedekind & Watson, 2016). Public TVET colleges typically serve a broader and more diverse student population and offer similar programmes. Focusing on public colleges could enhance the transferability of the findings to similar public institutions within the same or similar educational systems. In this case, comparisons with private colleges would introduce additional variability and complexity that could limit the applicability of the study findings (Stough & Elliott, 2024).

4.3 Research paradigm: Interpretivism

Every study is conducted within a research paradigm (Cresswell, 2016). Given the research questions, aims and objectives, an interpretative research paradigm was chosen. Interpretivism required me, as the researcher, to understand that participants might have different interpretations of events, which Delport et all describe as "the subjective meaning of social actions" (Delport et al., 2018). Interpretivism encourages participants' views on the events or situations being studied (Cresswell, 2016; Delport et al., 2018). Documents and participants' responses to questionnaires and interview questions were studied within an interpretivist paradigm. Interpretivism implies that the meanings that others have (in this case about the TVET-industry partnerships management and administration) can be used to generate or inductively develop a theory or pattern of meanings in the field of study (Creswell, 2016). As the researcher, my intention was to interpret the meanings that participants ascribed to events or situations, and, through analysis, to generate pattern of meaning, and to interpret these meanings through the lens of Activity Theory. The differences between positivist and interpretivist approaches are summarised in Table 4.1.

Table 4.1: Comparison between positivist and interpretivist approaches

ISSUE	POSITIVIST	INTERPRETIVIST
Philosophical base	Realism: The world exists and is as knowable as it is.	Idealism: The world exists, but different people construe it differently.
The role of research	To discover universal laws and generalization.	To reveal different interpretations of the world as made by people.
The role of the researcher	Neutral observer.	Part of the research process.
Theoretical approach	Rational, using deductive and scientific methods and value-free data.	Subjective, using inductive methods and value-laden data.
Methods	Experiments or mathematical models and quantitative analysis to validate, reject, or refine hypotheses.	Surveys and observations with qualitative analysis to see meaningful relationships and the consequences of their interactions. Analysis of language and meaning.

Analysis of society	Search for order. Society is governed by a uniform set of values and made possibly only by acceptance of these values.	Search for dynamics. A multitude of values leads to complex interactions. Society is made possible by negotiations.

(Source: Walliman, 2018)

The interpretivist paradigm was suitable for this study as it posits that researchers do not presume a singular, unified reality, but rather acknowledge multiple realities that are socially constructed by individuals from their viewpoints (Li et al., 2018). The means that research participants are likely to possess varying perceptions regarding actions or concepts, in this case, TVET college and industry partnerships. As a researcher I have identified the philosophical framework guiding this study, which was formulated within the interpretivist paradigm.

4.3.1 Methodological implications of interpretivism

Interpretivists tend to examine a relatively small sample and are concerned with generating theories and the production of rich, subjective data. Methods associated with interpretivism, such as interviews, produce considerable amounts of data. To generalise from these data, and to ensure the trustworthiness of the data, there should be triangulation, that is, data should be obtained from different sources and through different data collection methods (Cresswell, 2017). It is also important that researchers use theoretical tools as they to seek to understand the different perspectives on what might be happening in a particular context (Collis & Hussey, 2017). The interpretivist method is usually qualitative, inductive, and naturalistic as it searches for patterns (Cresswell, 2017). This does not, however, exclude quantitative data, such as surveys, as these are often necessary to provide baseline information or overviews (De Vos et al., 1998). In this study, data came from various sources (see Section 4.4), but the main source of data was the interviews held with participants about the management and administration of TVET-industry partnerships. The interpretative approach foregrounded their experiences, views, and practices regarding their approach to the management and administration of TVET-industry partnerships.

4.3.2 interpretivism as a meta-theory

While interpretivism is usually understood to be a research paradigm, but it is also a meta-theory, that is, a high level theory or philosophy about how researchers discover novel insights into the research phenomena (Du Plooy-Cilliers et al., 2021). Unlike positivist research, which is characterised by hypothesis-testing, and constructs of reliability and validity in terms of correlations and causal relationships, interpretative-based research "tells a story" (Du Plooy-Cilliers et al., 2021) While statistics and other quantitative approaches can be useful in framing the research problem, interpretative research methods usually require detailed descriptions (often

called "thick descriptions") of the research participants and their context, as well as direct quotations from the research participants, to enable their voices to emerge. This is because researchers in the interpretivist paradigm to seek to understand the perspectives and values of the research participants for the purpose of attaining insights from those who are directly involved or impacted by the events, actions or phenomena that constitute the research study. Reliability, particular in the form of a replicable study, is important to positivists who will only consider a study to have validity if different researchers can replicate the study and achieve the same results (Du Plooy-Cilliers et al., 2021). Interpretivists, however, argue that the criterion of trustworthiness, which comprises credibility, transferability, dependability, and confirmability, is qualitative researchers' alternative to reliability and validity. This is because interpretivists want understand the experiences and contexts of those involved or impacted by the events studied. Interpretivists will often use a theoretical framework to guide the study and, in particular to guide the analysis (Du Plooy-Cilliers et al., 2021). This is because a highly respected theory, such as Activity Theory, can not only provide explanatory power, but can also help interpretivist to move beyond the immediate research contexts, towards generalisation, or other forms of transferability.

4.3.3 Ontological position of interpretivism

Interpretivists' ontological position is that while they acknowledge reality in the form of the physical world as well as the reality of social, economic and cultural forms of power, they also believe that there are individual interpretations of the real world, depending on their experiences, ideas and values (Ertmer & Newby, 2013). Thus several realities could coexist, for example, the researcher, the research participants, and the reader of the research study might have different interpretations of the phenomena under investigation (Creswell, 2017). As an interpretivist researcher, it is my duty to understand these different perspectives, without necessarily achieving consensus across them. Ontologically, as a researcher, I sought to understand the nature of reality regarding the management and administration of TVET-industry partnership for the purpose of contributing to knowledge building in public administration and to improving practice and outcomes through the construction of a partnership management model. As an interpretivists, I understand that reality is multidimensional, that is, it is perceived differently by different individuals or groups. Moreover, individuals' understanding are not static but can change as events unfold, or when they take actions, or shift mindsets through learning and engaging with others (Patton, 2017; Creswell & Plano Clark, 2018). It is for these reasons that I took a predominantly qualitative approach to obtain participants' views and experiences on partnership building.

4.3.4 Epistemological position of interpretivism

Ontological assumptions align with researchers' epistemological beliefs (Bakkabulindi, 2015). How we come to know and what constitutes knowledge are important concerns for researchers. As an interpretivist researcher, I am required to reflect on how my position influences how I understand how knowledge on a particular topic is build, as well as the relationship between "the knower [in this case the researcher] and that which is known" (Carson, 2001). As an interpretivist researcher, I am expected to be perceptive and empathetic when considering the views of research participants. Epistemologically, I understood that, to build knowledge on the management and administration of TVET college-industry partnerships, I needed to interact with the participants involved in the management of partnerships – both at the college and in industry. In that way, I would be able access, and understand, why the research participants might have attributed different meanings to their partnership-building experiences. Furthermore, interpretivist researcher, I valued hearing the participants' voices and experiences and appreciated their contribution to constructing knowledge on the management and administration of partnerships. In this study, the researcher interpreted different meanings constructed by participants regarding their experiences of partnerships. Adopting an interpretivist framework for this study, I was required ask open-ended questions that encouraged participants to share their different understandings of their experiences in establishing and developing college industry partnerships.

4.3.5 Axiological position of interpretivism

From an interpretivist perspective, I am guided by Bakkabulindi's (2015) principle that a study's axiological dimension comprise the values embedded within its participants and context as well as the means whereby the researcher's own values and potential biases could influence a study. To mitigate against this, and to ensure my research adheres to the values of interpretivism (and Activity Theory), that is, inclusiveness and collaboration, I approached all study participants both personally and in writing to transparently explain my intentions for this study. I assured them that their names and all information shared would be kept confidential and anonymous during the data-gathering process. Furthermore, as a sign of my commitment to being a fair, sympathetic, and empathetic researcher, I promised the participants the opportunity to review and provide comments on the final findings, thereby establishing a strong foundation of trust in our collaboration.

4.3.6 Rhetorical dimension of interpretivism

In addition to the ontological, methodological, epistemological, and axiological dimensions of interpretivism, researchers in this paradigm are also concerned with the rhetorical dimension, that is, the kinds of texts and verbal data that they select to study (Collis & Hussey, 2017) as they

consider that the texts selected and analysed should be aligned with the research paradigm. This usually means that the rich data collected captures different voices and perspectives (Heracleous et al., 2020).

4.3.7 Activity theory and interpretivism

Activity theory is well aligned with an interpretivist research paradigm. Interpretivism is a research paradigm that recognises objective reality but also recognises the role that individual perception and individual experience plays in constructing the perceived reality. It also recognises that the meanings that individuals and groups ascribe to their experiences are shaped by their cultural, social, and historical contexts. activity theory has several key principles that align with these interpretivist principles. First, the focus is on meaning and interpretation. Both activity theory and interpretivism value the subject nature of the meanings that individuals or groups attribute to their life experiences. In activity theory, the focus on activity systems involves understanding how participants engage in sense-making around their goals, the tools they use to achieve them, how labour is divided among participants, and other interactions within the activity system. Second, both perspectives highlight the significance of the social and cultural context in shaping individuals' experiences and behaviours. Activity theory emphasises the role of cultural and historical factors in shaping activity systems, while interpretivism similarly emphasises the influence of socio-cultural norms, values, and structures on individuals' interpretations and meanings. Third, both perspectives recognise that individuals' realities are subjective and context dependent. Fourth, interpretivism emphasises that social reality is socially constructed; and individuals' interpretations may differ based on their unique perspectives and experiences. Similarly, activity theory acknowledges that individuals' perceptions and interpretations of their activities may vary based on their cultural background, personal experiences, and social context. Fifth, both perspectives often employ qualitative research methods to explore and understand the complexities of human experiences and social phenomena. Qualitative methods such as interviews, observations, and document analysis are well-suited to capturing the rich, contextualized data necessary to understand activity systems and their meanings. Similarly, from an interpretivist perspective, rich sources of data are necessary to enable the researcher to understand participants' different positions and views.

4.4 The research design: Responsive evaluation

The discussion in Section 4.3 showed how the researcher's paradigm underpins a study and guides the researcher towards aligned methodologies in their research study (Creswell, 2017; De Vos et al., 2018). In this case, subscribing to an interpretivist paradigm and a relativist ontology, which accepts both objective reality and constructed understandings of reality (Dieronitou, 2014),

led me towards qualitative research approaches Therefore, my paradigmatic and ontological viewpoints determined the choice of a research approach for this study. Research practices are likely to encompasses a variety of methods (Bougie & Sekaran, 2020) that should be systematic in addressing the research questions (Leedy & Ormrod, 2021). It was necessary to provide a descriptive account of how the research was been carried out in order to allow for external assessment of the findings (Bartley & Hashemi, 2022) as well as for the purpose of knowledge-building (Delport & Fouché, 2018), in this case about the management of partnerships.

Evaluation research was the selected approach as it can both build knowledge (Stark & Lattuca, 1997) and contribute to the improvement of practice in a field (Simon, 1987). In the TVET context, the findings from an evaluation research study can support meaningful change toward improved outcomes for TVET colleges, lecturers or other staff, and the students enrolled in vocational and technical programmes. The intention of evaluation research in this study was both to build knowledge about the management of partnerships and to provide a guiding framework that educational managers could use to improve their practice in the administration and management of partnerships.

There are many different approaches to, and types of, evaluation research. Evaluation research can be formative (Nieveen & Folmer, 2013) which would identify areas for improvement; or summative (Cashin & Downey, 1992) which would involve assessing the effectiveness of a practice or intervention. The approach selected for this study was "responsive evaluation" (Stake, 1983). Responsive evaluation is an approach that pays particular attention to "the needs of those involved in the evaluation" (Savin-Baden & Howell Major, 2013:277). Responsive evaluation design can include both formative and summative elements (Cavanagh, 1996). The responsive evaluation approach was taken as suited to improving how TVET college and industry partnerships are managed, considering Dunn and Mulvenon's (2009) caveat that there are no simple answers to the typical formative evaluative questions of: What works in this context? What does not work? Which groups are effective? and How can it be improved? Trying to identify the merit of existing practices, distinguishing all the parts of the whole, such as the geographical location of the college, the availability of industry partners, and the needs of the participants, while also assessing their worth and making constructive recommendations towards improvements, are complex in evaluation research, and particularly so in responsive evaluation (Stake, 1983). There are always complications in implementing an evaluation but despite the many complexities in formative evaluation, in this case the formative evaluation of management practices in establishing and maintaining partnerships, there is a strong need to monitor and evaluate existing practices as

well as their outcomes to improve existing practices and provide an evidence base for novel interventions.

4.4.1 The macro-framework

Monitoring and evaluation are common practices, making evaluation research the most widely used type of applied research (Bless et al., 2021). Responsive evaluative should be "rooted in the cultural norms of the community" whose needs or concerns it is attempting to assess (Kushnier, et al., 2023). This case the researcher was familiar with the "cultural norms" of TVET management practices, which as Bertram & Christiansen (2020) suggest can clarify the issues raised by participants. In this case, the researcher could the facilitate the process of helping participants to find their own solutions to the specific problems associated with managing the partnerships between TVET colleges and related industries. Appreciating participants' efforts, and being constructive in evaluating existing policies and practice is necessary for transformative change (Davis, 2021). Responsive evaluation should attempt to determine how well a practice, in this case the TVET-industry partnerships, was working or reaching their goals and objectives (Ile, 2018; Saunders et al., 2019a; Johnson & Christensen, 2020; Bless et al., 2021; Davis, 2021b; Nicholas & Steyn, 2021; Ile et al., 2022; Nieuwenhuis, 2022). Responsive evaluation, as its name suggests, focuses on responding to real-world practical issues and providing relatively immediate solutions, since topics are driven by current problems facing practitioners and policymakers' concerns (Fox & Bayat, 2013; Johnson & Christensen, 2020).

Responsive evaluation usually requires a qualitative research approach, which was used for the study. This approach was chosen because qualitative research is fundamentally concerned with the subjective nature of the phenomena under investigation. Consequently, the researcher, while acknowledging their involvement with participants (Bryman et al., 2021), adopted a stance that recognised the subjective collection of data (Creswell & Plano Clark, 2018; Bless et al., 2021; Cohen et al., 2019) and embraced what Patton (2017) calls a "value-laden" and "reflexive", or critically reflective, inquiry. As a qualitative researcher working within an interpretivist paradigm, I explored how participants' meanings were deeply embedded in their "actions" (Denzin & Lincoln, 2018), "events" (Miles et al., 2014), and "phenomena" (Patten & Newhart, 2018), and I sought to connect these meanings to their broader social contexts (Kelly, 2021). Ultimately, the study emphasised understanding participants' lived experiences (Miles et al., 2014; Chase, 2018; Creswell & Plano Clark, 2018; Dane, 2018; Denzin & Lincoln, 2018; De Vos et al., 2018; Erikson, 2018; Li et al., 2018; Patten & Newhart, 2018; Cohen et al., 2019; Bless et al., 2021).

Figure 4.2 explains the macro-framework for the research design, showing how the paradigmatic (interpretivist), the methodological (responsive evaluation) and epistemological (activity theory) dimensions are aligned.

Interpretivist Paradigm

Ontology: Subjective, multiple realities

Epistemology: Subjective understanding, social construction of knowledge

Axiology: Value-laden, acknowledging researcher's values and biases

Rhetorical approach: Emphasis on rich contextualized data and

Responsive Evaluation

Emphasises ongoing dialogue and collaboration between stakeholders throughout the evaluation process

Focuses on context, multiple perspectives and emergent outcomes

Values participatory approaches and empowering stakeholders in the evaluation process

Activity Theory

Analyses human activities within social and cultural contexts

Focuses on activity systems and their components

(i.e., object, subject(s), tools, division of labour, community, rules, outcomes)

Considers historical and cultural influences on activities

Figure 4.1: Macro-framework for the research design

Figure 4.1 illustrates how the interpretivist paradigm, characterised by its ontology, epistemology, axiology, and rhetorical approach, integrates with responsive evaluation and activity theory. Responsive evaluation emphasises ongoing dialogue, collaboration, and participation among stakeholders (Stake, 2002), aligning with the interpretivist emphasis on subjective understanding and social construction of knowledge. Activity theory provides a theoretical framework for analysing human activities within social and cultural contexts, complementing the focus on context and multiple perspectives in responsive evaluation. Together, these approaches offer a comprehensive and participatory approach to research and evaluation, acknowledging the complexity and subjectivity inherent in understanding human activities and social phenomena.

The research design was guided by the macro-level framework, which is summarised in Figure 4.1. A logical research design enables the research to engage in "learning and knowing things about the world around us" (Babbie, 2007:1) in order "to advance knowledge, to make discoveries and to acquire facts" (Heppner et al., 1992:80). Irrespective of what one wants to learn, what one wants to discover or what facts one wants to acquire, "there is a systematic process of inquiry that is involved in the form of a standard sequence of steps to increase one's understanding of the world around us" (Fouché & Delport, 2018:61). While some authors believe that it is important for the researcher to "conventionally follow a set of traditional steps in the course of executing a research project" (Matshabaphala, 2017:310), other authors offer different descriptions of research processes and argue for novelty in the research design (Fouché & Delport, 2018).

4.5 Meso-framework for data collection and analysis

Since this research was primarily qualitative, I focused on systematically collecting textual data (e.g., from college websites) and verbal data (from individual and focus group interviews), and, following the coding and transcription processes (see e.g., Bless et al., 2021), I drew on the theoretical framework to discover patterns and understand participants' statements. Qualitative data is usually coded and grouped into categories (Johnson & Christensen, 2020), after which patterns emerge (Salkind, 2019), and can be identified. The activity theory framework played a key role in each step of the analysis. It was used both for coding and categorising the data (Pattern & Newhart, 2018; Waliman, 2018; Cohen et al., 2019; Bryman et al., 2021), extracting participants' narratives (Chase, 2018; Denzin & Lincoln, 2018; Eller et al., 2018), using quotes to illustrate concepts in activity as applied to the study (Henning, 2022), and applying a theoretical analysis (De Vos et al., 2018; Leedy & Ormrod, 2021). I chose short, eye-catching quotations, focussing on the three different types of quotations identified by Creswell (2017); quotations were used to enable the reader to directly hear participants' voices, as well as my interpretation of the data, a key characteristic of rigorous qualitative research (Bless et al., 2021). Through this process, what Leedy and Ormond (2021) describe as the researcher's "personal voice and literary style" (Leedy & Ormrod, 2021) also emerged.

Figure 4.2 represents the meso-framework for data collection and analysis, which has been logically arranged in the shape of a funnel, starting with the collection of broad information on partnerships from the TVET college websites, then conducting focus group survey interviews, and finally homing in on a particular TVET site and its industry partners.
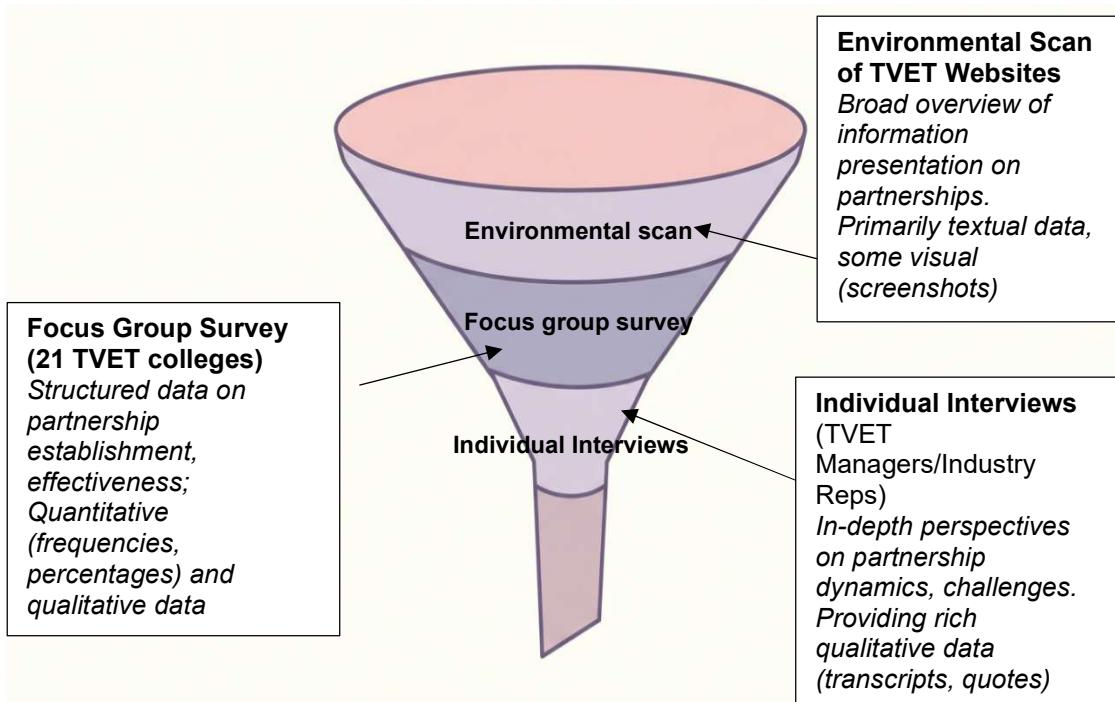
Figure 4.2: Meso-framework for the research design

As Figure 4.2 shows, there were three sources of data for this study: (1) An environmental scan of TVET college websites; (2) Structured survey questionnaires; and (3) Semi-structured individual interviews. The site and participant selection criteria are explained in 4.5.1 below. To achieve the study objectives, environmental scanning and interviews occurred concurrently within an interpretivist framework (De Vos et al., 2011) that incorporated a responsive evaluation research design to facilitate an in-depth exploration of meaning (e.g., Denzin & Lincoln, 2018).

4.5.1 Data collection for an environmental scan of TVET college websites

Partnership-related data on the websites of 14 randomly chosen colleges spread across South Africa's nine provinces were studied. The sample included two colleges each from the Eastern Cape, Gauteng, KwaZulu Natal, Limpopo, and the Western Cape, and one college each from the Free State, Mpumalanga, Northern Cape, and North West provinces, as shown in Table 4.2. A random sampling method with stratification ensured representation from all provinces, with each province having at least two TVET colleges. In provinces with two to four colleges, one was chosen randomly, while in provinces with six to nine colleges, two were randomly selected, resulting in 14 colleges. The sample consisted of two colleges from each of the Eastern Cape, Gauteng, KwaZulu-Natal, Limpopo, and Western Cape provinces, and one college each from the Free State, Mpumalanga, Northern Cape, and North West provinces, as shown in Table 4.2.

Data was obtained through a review of the websites of 14 TVET Colleges as shown in Table 4.2 below:

Table 4.2: Data obtained through an environmental scan of TVET college websites

Data collection 1	Type of data	Tool	Target population	Sampling method	Sample criteria	Sample size	Timing
Environmental Scan (website survey)	Textual	Table	All 50 TVET colleges	Stratified random sampling	1-2 from each province 1 of 3-4 colleges 2 from 6-9 colleges	14	Preceding survey

A random sampling method was used, with stratification to ensure representation from all provinces. It was evident that each province had at least two TVET colleges. Stratified sampling reduces sampling error by controlling for differences per stratum, making comparisons between groups more meaningful (Taherdoost, 2016). By systematically accounting for these variations, researchers obtain more reliable and generalizable insights. Furthermore, stratification supports the study's objectives by refining data collection and enhancing analytical accuracy, thereby strengthening the validity of the research (Taherdoost, 2016). One was randomly chosen in provinces with two to four colleges, while in provinces with six to nine colleges, two were randomly selected. This process resulted in a total sample of 14 colleges, as shown in Table 4.3 below:

Table 4.3: The TVET college websites surveyed

Province	No. of colleges	No. of college websites reviewed
Eastern Cape	8	2
Free State	4	1
Gauteng	8	2
KwaZulu-Natal	9	2
Limpopo	7	2
Mpumalanga	3	1
Northern Cape	2	1
North West	3	1
Western Cape	6	2
TOTAL	**50**	**14**

The publicly accessible website of each selected college was searched for information on college-industry partnerships and any information related to work placements or work-integrated learning. A table was used to record the information available on partnerships, partners, and work placement of students (and lecturers, in rare cases).

To retain confidentiality, modified screenshots of a sample of a college website were taken and summarised to demonstrate how the information was presented. The colleges where no information on partnerships or WIL/WPL was found on the website, were not included in the screenshots.

4.5.2 Data collection for structured focus group survey interviews

To address the research questions, a "full sample" (Cohen et al., 2019), that is all 50 TVET colleges, was required for the study in order to ensure that data was captured from all nine provinces and from a variety of rural and urban contexts. Thus, the study sites were the 50 registered and accredited public TVET colleges in South Africa. Private TVET colleges were excluded.

Within each college, there was a target population comprising principals, deputy principals of partnerships (or equivalents), industry liaison officers and/or placement officers. The study used a data collection method called 'survey interviewing' (Singleton & Straits, 2012; Fowler, 2014). As the name implies, this method merges elements of surveys or questionnaires with individual or focus group interviews. The questionnaires included predetermined questions that were based on concepts from activity theory, including fixed response options (e.g., multiple choice, yes/no, and rating scales) or open-ended questions that allowed participants to share their opinions or provide detailed responses (Singleton & Straits, 2012).

The study participants were management teams from 21 different public colleges, totalling 70 individuals. Survey interviewing tends to yield richer data than standard questionnaires because it involves interviewers who can address clarification questions, prompt participants, and encourage reflection (Singleton & Straits, 2012). Additionally, it ensures consistent data collection across different sites (Fowler, 2014). This structured interviewing technique is widely used in various fields such as research, market research, public health studies, and social sciences, particularly when collecting quantitative data and ensuring comparability is crucial (Fowler, 2014). Partnership management teams, included college principals, deputy principals of partnerships managing partnerships, and industry liaison officers or placement officers from all 50 public TVET

colleges in South Africa were invited to participate in the partnership survey. The TVET division of the Department of Higher Education and Training (DHET) facilitated the arrangements for the survey focus group interviews. However, only 21 colleges from eight provinces agreed to participate. The final sample size represents 42% of college sites, which can be regarded as an appropriate sample (Mooi et al., 2018). Although not all invitees participated, the participants who did were representative of the partnership management teams typically found in most public TVET colleges (Engel-Hills et al., 2024). The provinces where these colleges are based, the number of members in each management team, and the designation of team leaders are shown in Table 4.4:

Table 4.4: Partnership management teams

	Province/region of TVET college	Management team	No. of team members	Team leader
1	Eastern Cape	Team 1	4	Placement Officer
2	Eastern Cape	Team 2	4	Deputy Principal: Partnerships
3	Eastern Cape	Team 3	4	Learnership Officer
4	Eastern Cape	Team 4	4	Placement Officer
5	Eastern Cape	Team 5	4	Placement Officer
6	Eastern Cape	Team 7	4	Deputy Principal: Partnerships
7	Eastern Cape	Team 8	3	Deputy Principal: Partnerships
8	Eastern Cape	Team 20	3	Placement Officer
9	Free State	Team 10	3	Placement Officer
10	Free State	Team 12	3	Placement Officer
11	Free State	Team 17	3	Learnership Officer
12	Free State	Team 18	3	Deputy Principal: Partnerships
13	Gauteng	Team 14	3	Deputy Principal: Partnerships
14	Gauteng	Team 16	3	College Principal
15.	Kwazulu-Natal	Team 13	3	Learnership Officer
16	Limpopo	Team 6	4	College Principal
17	Limpopo	Team 15	3	Placement Officer
18	Mpumalanga	Team 21	3	College Principal
19	Northern Cape	Team 19	3	Placement Officer
20	Western Cape	Team 9	3	Deputy Principal: Partnerships
21	Western Cape	Team 11	3	College Principal

The participants, listed in the table above, were selected because they directly administered and managed TVET-industry partnerships as part of their core function in the college. To address the research questions, it was necessary to select participants based on their expert knowledge of

the college partnerships. The logic of the sample size and selection is to enable the researcher to make inferences about the larger population from a smaller one (Lune & Berg, 2017), therefor the sample of participants approximates to what Henning refers to as a "criteria of desirable participants" (2018:51).

4.5.3 Data collection for semi-structured individual interviews

To focus more deeply on understanding how TVET colleges establish and manage partnerships with industry, a single college was selected for individual interviews. Both college staff and industry staff were interviewed to obtain data on how partnerships worked in a particular context. I specifically targeted both a typical college, and the college officials who played a key role in managing and administering these partnerships, from the level of placement officers upwards, including college deputy principals. Key industry partners were also invited to an individual interview. This approach, that is, the specific college, the WIL officials, and the industry partners, enabled me to gather the insights from the group of individuals directly involved in partnership management. Such as approach enables the researcher to make inferences about the broader population of college officials involved in similar contexts (Lune & Berg, 2017). By choosing participants who meet the "criteria of desirable participants" for this study (Henning, 2022:51), the researcher aimed to achieve data saturation, ensuring that enough information was gathered to understand fully the complexities of managing these partnerships.

Table 4.5: Biographical data of participants for semi-structured individual interviews

Participant	Designation / Position	Function/Responsibility in Partnerships	Institution
Participant-A	Deputy Principal: Managing partnerships	Managing TVET college-industry partnerships	TVET College
Participant-I	Acting Assistant Director: Partnerships and linkages	Establish and manage partnerships and WIL for students and lecturers	TVET College
Participant-K	Acting Assistant Director: Occupational Programmes	Establish and manage partnerships and WIL for students and lecturers	TVET College
Participant-F	Placement/Learnerships Officer	Student and lecturer placement officer	TVET College
Participant-H	Placement Officer	Placement of students in industry for WIL	TVET College
Participant-D	Programme Enrichment Officer	Administration of programme accreditation	TVET College
Participant-E	Project Manager: Occupational Programmes	Management and administration of occupational programmes	Partner-1 Institution
Participant-J	Executive Director	Manage and provide strategic direction	Partner-2 Institution

Participant-G	Relationship Manager: Work-link Intervention	Establishment of partnerships and monitoring and evaluation	Partner-2 Institution
Participant-B	Work-Link Coordinator	Programme and stakeholder management	Partner-2 Institution
Participant-C	College Council Member	Provide governance support in college donor-funding initiatives	Partner-3 Institution

Table 4.6 provide a tabular summary of the data collection methods used in the study.

Table 4.6: Summary of data collection

Data set	Research instrument	Participants	No. invited to participate	No. of participants
1.	Environmental scan	TVET colleges websites	50	14
2.	Survey interviews	TVET colleges: Represented by – College Principals or/and	50	21
		Deputy Principals managing partnerships or/and		
		Placement Officers or/and		
		Learnership Officers		
3.	Semi-structured individual interviews	TVET-industry partnership management practitioners: Represented by practitioners from the college, and	6	11
		TVET-industry partnership management practitioners: Represented by practitioners from the industry and in partnership with the same college	5	

4.6. Data analysis methods

A similar process of data analysis was adhered to for each of the three data sets. After initial coding and categorising, following Saldaña's (2021) systematic approach to theoretical analysis, the broad, overall findings were presented. After the presentation of the findings, there were two levels of analysis: 1) an activity analysis in which the findings were examined through the lens of activity theory; and 2) a contradiction analysis in which possible sticking points or challenges were identified, as well as possible solutions suggested by the participants.

4.6.1 Analysis of environmental scan data

The environmental scan data, consisting of information gathered from TVET college websites, were analysed using a combination of descriptive statistics and theoretical analysis. Descriptive statistics were used to quantify the presence or absence of specific information on partnerships, such as the types of partnerships mentioned or the level of detail provided. The theoretical analysis involved systematically reviewing the website text to identify recurring concepts in activity (e.g., subjects, tools, object) related to TVET-industry partnerships. The second level analysis searched for contradictions within and across the implied activity systems. This analysis aimed to provide a broad overview of how colleges present information about their partnerships and to identify any common trends or gaps in reporting.

4.6.2 Analysis of structured focus group survey interview data

The survey interview data collected from structured focus group interviews was analysed using both quantitative and qualitative theoretical analysis methods. Quantitative analysis involved calculating frequencies and percentages to summarise responses to closed-ended questions, providing an overview of the prevalence of different partnership practices and outcomes. The theoretical analysis involved a study of the responses to open-ended questions through the lens of activity theory, identifying key concepts and patterns in participants' experiences and perspectives on partnership effectiveness and challenges. A second level contradiction analysis was then applied. This approach allowed for both an overview of the data and a deeper level understanding of the nuances and complexities of TVET-industry partnerships.

4.6.3   Analysis of semi-structured individual interview data

The individual interview data, gathered from semi-structured interviews with TVET managers/coordinators and industry representatives, was primarily analysed using theoretical analysis. Applying Saldaña's (2021) approach to theoretical analysis, I adhered to a systematic process of coding and categorising the interview data to identify key concepts related to partnership management. The findings were further analysed through the lens of activity theory to explore the systemic nature of TVET-industry partnerships and identify contradictions within and between activity systems. A contradiction analysis was then conducted to identify key challenges and tensions in the partnership activity system, as well as potential solutions suggested by participants. This multi-layered analysis aimed to provide a detailed and in-depth understanding of the complexities of TVET-industry partnerships and to inform the development of a framework for their effective management and administration.

4.7 Ethical considerations

The Five-Year Research Programme on TVET had authority from the DHET/TVET Division to conduct research at the 50 public TVET colleges in South Africa. Ethical clearance for the entire project was provided by the University of the Western Cape (UWC) and for this doctoral study research ethics clearance was provided by the Faculty of Business and Management Science's Research Ethics Committee, Cape Peninsula University of Technology (Clearance Certificate No | 2020FOBREC832). The necessary site permissions were obtained through the official approach to the TVET colleges by the TVET Directorate of the South African Department of Higher Education and Training (DHET). The study was conducted with the intention of transparency, and it is anticipated that the TVET College sector will benefit from the findings that offers relevant and transferable knowledge for the future management and administration of college-industry partnerships.

The online survey included information on the study for all participants to make an informed decision; and the purpose of the study was also aired during the focus group sessions when further participation in the survey was encouraged. Proceedings to complete the questionnaire constituted informed consent by the respective participants of colleges. Participants were informed that it was their right to end their participation in the study at any time or at any stage of the study, without any penalty.

Although some personal information was obtained from the participants and their participating TVET colleges, this report endeavours to maintain the ethical standard of confidentiality and, where possible, anonymity. The key ethical dimensions of the study were therefore informed consent, confidentiality, protection of personal information and secure data storage.

Should any human or juristic personal details be recognisable in this report, these should be treated as confidential information, as the intention is that the researchers honoured the ethical standard of confidentiality and/or anonymity and complied with the Protection of Personal Information Act (POPIA) with regard to the interview and survey data gathered and analysed. The completed database is provided as an attachment and not within the report due to the naming of persons and colleges. The survey responses were safely stored during the research process and have been de-identified during transcription and collation. Aligned to the CPUT open access policy, the anonymised data transcripts are stored on the Esango repository of CPUT and will be accessible to the DHET.

4.8 Conclusion

This chapter discussed the research methods; research design; sampling methods; data collection methods; and data analysis methods used in this study. It also explained in depth the reasons why these methods were selected for this study. The three chapters that follow present the research findings and discussion.

CHAPTER FIVE:
AN ENVIRONMENTAL SCAN OF TVET COLLEGE WEBSITES[4]

5.1 Introduction to Chapter Five

The previous chapter dealt with the study research design and methodology. Chapters Five, Six, and Seven focus on the presentation and analysis of the study findings. This chapter presents the findings from an environmental scan of TVET college websites (DHET Report, 2023) and concludes with a summary. In this sub-study, an environmental scan of fourteen TVET websites was conducted as the first step in identifying existing TVET-industry partnerships and evaluating their effectiveness. This facilitated the main aim of the study: to build knowledge to enhance existing partnerships between TVET colleges and their associated industry partners and to guide the identification of potential, productive new partnerships. The knowledge that would be built would be the driving force behind achieving the main research objective: to generate a framework to promote the management and administration of TVET-industry partnerships.

In the following sections of the chapter, the findings are presented, analysed and discussed. Section 5.2 presents the findings from the environmental scan; Section 5.3 provides an activity analysis and discussion of the findings; Section 5.4 offers a contradiction analysis and discussion; and Section 5.5 concludes the chapter.

5.2 Findings from an environmental scan of TVET college websites

As explained in Chapter Four to maintain confidentiality, modified screenshots of sample college websites were used to analyse how partnership and Work-Integrated Learning (WIL) or Workplace Learning (WPL) information was presented. Colleges were excluded from the environmental scan when they did not have a functional website, or no partnership or WIL/WPL information was found on their website. The key findings from the website scan are presented below:

5.2.1 Lack of partnership information

A general lack of information regarding industry partnerships was observed across many college websites. For instance, some websites provided only broad statements indicating the existence of partnerships with industry leaders to facilitate internships and WIL opportunities for students. As a typical example, one of the websites focused on the support services offered to enrolled students by the WIL department. These services included work readiness programmes, assistance with

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[4] This chapter expands on a section of Engel-Hills, P., Winberg, C. & Njengele, T. (2023). TVET College Industry Partnerships. DHET/TVET Division. Technical Report 2.4. https://www.dhet.gov.za/SitePages/Reports.aspx [15 October 2023].

securing work experience for qualification completion, and support for connecting students with employment and further study opportunities.

Similar college websites guided students who would secure their own WIL opportunities, where the WIL department would ensure the relevance of the internships to their field of study. There was a list of requirements for accessing that kind of WIL support, and these included that the student: must be enrolled in full-time studies at a TVET college; must be in the final phase of their academic programme; must register for WIL support with the WIL department; must attend all Work Readiness Workshops; must complete a WIL registration form; must provide current contact details, including phone and email; and must meet the academic pass requirements of their programme. Although this is valuable information, it was silent about the TVET-industry partnerships that empower the college to offer that kind of WIL support. This absence of partnership information limits an understanding of the collaborative structures underpinning these student support services.

5.2.2 Limited partnership information

In the partnership information provided by some colleges, the data was often limited to lists of industry partners categorised by type. On a particular website (second example), such long lists included these college partners: Government Departments listed as Department of Economic Development and Tourism (DEDAT), South African National Defence Force (SANDF), Western Cape Education Department (WCED), Department of Transport and Public Works, South African Oil and Gas Alliance (SAOGA), War on Leaks (DWAS – Rand Water), WCED (Early Childhood Development), City of Cape Town (Specialised Technical Services), City of Cape Town (Electricity Services), City of Cape Town (Water and Sanitation), Transnet, and City Health. Similarly, Sector Education and Training Authorities (SETAs) were listed as Manufacturing, Engineering and Related Services SETA (MERSETA), Chemical Industries Education and Training Authority (CHIETA), Health and Welfare SETA (HW SETA), Wholesale and Retail SETA (W&RSETA), Transport Education and Training Authority (TETA), Education, Training and Development Practices SETA (ETDP SETA), Insurance Sector Education and Training Authority (INSETA), Culture, Arts, Tourism, Hospitality and Sport SETA (CATH SETA), and Services SETA.

In some cases, in addition to SETAs, larger and smaller companies were included as listed partners. These partnerships enhance the college's ability to provide students with valuable industry connections and practical experience. However, detailed information about the nature and duration of these partnerships was not published on any of the college websites. The lists merely indicate a breadth of partnerships, not specifics about the nature and duration of the

collaborations. This approach does not offer insights into the depth or strategic intent of the partnerships.

5.2.3 Detailed partnership information

A few websites provided more detailed information. A third example is a college website that presented comprehensive information about access to the world of work and workplace-based experience (WBE) across various TVET programmes (from National Certificate in Vocational Education (NCV) to Report 191 programmes (NATED), internships, learnerships, and apprenticeship programmes. Over and above publishing what students should know about college programmes, similar websites published information on lecturers' workplace-based learning and advantages for businesses that open their doors for students' placement. The presence of college websites with comprehensive information on partnerships, work placement, and WIL demonstrated the potential for best practice sharing amongst TVET colleges. These websites are aligned with the recommendation that WIL be incorporated as a pedagogy, with workplace learning (WPL) as a central component of all offerings within the Post-School Education and Training (PSET) system, as stressed by Batholmeus and Pop (2019). On the college websites with detailed partnership information, the published information cut across a range of programmes, internships, learnerships, and apprenticeships. The incorporation of WIL as a central component was evident from the information published. In support of this, the literature identified two main types of college-industry partnership, namely internships (e.g., Klatt et al., 2018:224-227; Smith et al., 2011) and industry-based training within a college programme and environment (e.g., Abdullah, 2013), as well as mentoring (Ogbuanya & Chukwuedo, 2017).

5.2.4 Disparities across TVET college websites

Findings from the review of college websites demonstrated that there were considerable differences across institutions. In some cases, there was no mention of partnerships; and in other cases there was detailed information of different kinds of partnerships. Similarly, there were disparities regarding information on WIL and WIL requirements for different programmes.

5.3 Activity system analysis and discussion

An activity system analysis was applied to understand the interactions and relationships among different components within the TVET partnership building system (see Figure 3.6: The TVET partnership-building activity system). The analysis involved examining the subjects, tools, object, rules, community and division of labour, either showing that there was adequate provision of website information, or a lack thereof.

5.3.1 Subjects: who builds partnerships?

The subjects in a TVET partnership-building activity system are the senior managers responsible for the college's strategic partnership development strategy and the managers and coordinators, such as the WIL coordinators, who implement this strategy. In many cases, the websites suggest a lack of strategic partnership development, as well as the practical implementation of WIL and similar activities.

5.3.2 Tools: the resources needed

The tools needed for partnership-building include resources (physical, human and financial), as well as guiding documents, such as various memoranda and agreements. Websites would normally not be expected to provide specific details about confidential issues, such as personal details, finances, and so on. The lack of partnership information on many websites could be a result of insufficient resources. For example, there might be a lack of technical expertise to communicate partnership strategies and implementation processes on the websites.

5.3.3 Object: the purpose of partnership bulding

The object of a TVET partnership-building activity system is, unsurprisingly, partnership-building. Some websites demonstrate evidence of partnership-building for student placement in the lists of various Sector Education and Training Authorities (SETAs) and government departments; and the presence of these SETAs and government departments suggests that the colleges have access to specialised training and educational resources (although the exact nature of these tools is not explicitly detailed on the websites). Some websites describe various services offered by the colleges. These include support for students in securing relevant internships and work experience opportunities through work-integrated learning (WIL) and workplace-based experience (WBE) programmes. These services show a focus on the object of partnership building to provide students with work placements – with the expected outcome for students being enhancing employability and practical industry experience.

5.3.4. Rules: what guides partnership building?

The partnership-building activity system is guided by DHET policies, TVET college policies, signed memoranda and agreements, and so on. While some of these documents might be confidential, more public documents that guide partnership could be made available. For example, following the release of DHET Numbered Circular 0091 on February 27, 2023, from the Office of the Deputy Director-General for Technical and Vocational Education and Training, could help the community (see below) to understand formal requirements. This circular outlines the findings from the summit on Strategic Industry Partnerships and TVET Colleges that took place in July 2022. The contents

of the circular emphasize the need for colleges to ensure that they regularly update their information on strategic industry partnerships. Enabling students and the broader community to download this document would highlight the changing landscape of TVET colleges, in particular, the critical role of industry partnerships for student placement and other opportunities.

5.3.5. Community: who benefits?

The broader community and beneficiaries of partnership-building, as implied by the websites, are the college itself, the DHET, the industries in which students are placed, and their associated sections, such as human resources departments or training department, and other industry collaborators with the college, the students, their parents or guardians, and so on. Because websites are predominantly for communication purposes, the question to be asked is Who are they communicating with? In many cases, the listing of SETA, government, or industry partners seems largely a compliance exercise, rather than an attempt to inform the broader college community about the college partnerships.

5.3.6 Division of labour: who does what?

In partnerships, the work is shared, with each partner playing a role. The specific details of Wil coordinators, placement or learnership officers, and workplace mentors would not be expected. However, some suggestions of the partners involves would be appropriate, such as links to the company websites, which students and community members could visit to find out about the partners and the kinds of companies that might provide employment opportunities.

5.4 Contradiction analysis and discussion

The activity analysis reveals several potential contradictions in the partnership-building activity system.

5.4.1 Primary contradictions: the nature of the object

Primary contradictions occur within a single element of the activity system. For the partnership-building activity system, there is a primary contradiction in the object arising from the differing objectives of educational institutions and profit-driven industries. The college's primary goal is to provide education and training, often prioritising long-term projects that contribute to societal knowledge. This focus on education can sometimes clash with industry's emphasis on short-term projects that promise immediate financial returns. While the college may invest in partnerships with long-term educational benefits, companies might be more interested in projects that quickly enhance their market position and profitability (Engeström, 1987). The strong SETA and government presence on the websites suggests that the colleges are comfortable with a shared

object of partnership-building for student development. This primary conflict is related to the different priorities of public benefit versus client satisfaction. The college serves a broad community, including students and the public, focusing on public service and societal advancement. In contrast, industry partners focus primarily on satisfying their clients and stakeholders, which may not always align with the public interest. This historical tension is rooted in goals that are – and seem to be perpetually – different. This divergence can lead to tensions, especially in collaborative projects where the college's aim to benefit the wider community might conflict with the companies' goal to meet specific client needs (Spinuzzi, 2013). For instance, a company might prioritize a project that benefits its clients but does not contribute significantly to the public good. This misalignment can create tensions and challenges in collaborative efforts as each entity strives to fulfil its own object (Foot, 2014).

5.4.2 Secondary contradictions: rules and tools

Secondary contradictions arise between different elements of the activity system. One significant secondary contradiction is between the college's tools and rules – or resources for partnership-building vs the policies and agreements governing collaboration. For example, the resources might be insufficient for partnership-building or misaligned with industry expectations. The college operates broadly under academic regulations, ethical guidelines, and educational policies that emphasize transparency, academic excellence, and public accountability. These rules are designed to uphold the integrity of the educational process and ensure that the college's activities benefit society as a whole.

5.4.3 Tertiary contradictions: new technologies and practices

Tertiary contradictions may occur when new elements are introduced into the activity system, leading to conflicts with existing elements. For example, introducing new rules into the college system, such as memoranda of understanding with industry partners, many cause contradictions. Industry partners are governed by corporate policies, market regulations, and business ethics that prioritize efficiency, confidentiality, and profitability. These business-oriented rules are aimed at maximizing operational effectiveness and financial success, which can sometimes be at odds with the college's quality assurance processes. The tools used by each entity could also differ significantly. The college relies on educational technologies and academic resources to achieve its objectives. These tools are geared towards enhancing learning and advancing knowledge. Industry, however, utilizes business tools such as market analysis, financial instruments, and proprietary technologies. These tools are designed to optimize business operations and drive innovation. The differences in these tools can create challenges in partnerships, as each entity may have different standards and expectations regarding the use of resources and methodologies

(Spinuzzi, 2013). Introducing new technologies and new practices can enhance learning, but they may also require significant investment and training, leading to conflicts with existing resources and practices (Foot, 2014). Introducing new market regulations can create contradictions with existing business practices in companies. Industry partners may need to adapt operations to comply with new rules, which can lead to conflicts with established procedures and profit margins (Spinuzzi, 2013).

5.4.4 Quaternary contradictions: the worlds of education and work

It is important to examine the conflicts between an activity system and its potential partners' activity systems. Quaternary contradictions involve conflicts between the activity system and its broader environment. For a college, a quaternary contradiction might be the tension between its educational mission and external pressures from industry partners, government policies or societal expectations. The college aims to maintain its educational quality and integrity, but it also needs to comply with government regulations and meet societal demands, which can create conflicts (Engeström, 1987). For industry, a quaternary contradiction could be the tension between their business objectives and broader societal issues such as social responsibility and environmental sustainability. Industry focuses on maximizing profits and market success, but they also face increasing pressure to adopt social responsibility practices and sustainable practices and reduce their environmental impact. This can create conflicts between business goals and societal expectations (Foot, 2014).

The academic and business communities also exhibit distinct values and priorities, leading to further contradictions. The academic community values knowledge dissemination, critical thinking, and intellectual growth. These values are reflected in the college's commitment to education and training. In contrast, the business community values innovation, market success, and customer satisfaction. These priorities drive companies to focus on developing new products and services that meet market demands. When these two communities interact, particularly in joint ventures or partnerships, their differing values can lead to contradictions.

5.5 Conclusion: reflections on the environmental scan

This study of college websites revealed differences across institutions. It became evident that detailed information on partnerships was not commonly published on TVET college websites and, in cases where some information was published, detailed information on partnerships, work placement, and WIL was missing.

The presence of cases with comprehensive information on partnerships, work placement, and WIL on college websites demonstrated the potential for best practice sharing amongst TVET colleges. An example is an alignment with the recommendation that WIL be incorporated as a pedagogy with workplace learning (WPL) as a central component of all offerings within the Post-School Education and Training (PSET) system, as stressed by Batholmeus and Pop (2019). Across a range of programmes, from internships to learnerships and apprenticeships, the incorporation of WIL as a central component is evident from the information that is published on the college website.

A scan of the information available on industry partnerships on the websites of a sample of TVET colleges allowed the emergence of some generalisations and enhanced the conclusions that could be drawn relating to TVET college-industry partnerships. This study focused on the perspective of a search for the effectiveness of current partnerships.

The findings of the environmental scan confirm the evolving and varied landscape of TVET-industry partnerships, with substantial disparities in how colleges communicate these collaborations on their websites. While some institutions provide detailed insights into their partnerships and work-integrated learning (WIL) initiatives, many lack transparency, leaving gaps in accessible information for students and stakeholders. This inconsistency highlights the need for standardized reporting to improve clarity and accessibility. Industry partnerships play a crucial role in enhancing students' practical experience and employability. However, the study has shown that colleges must adopt best practices in presenting partnership information to strengthen engagement with industry and provide students with meaningful career opportunities. By improving how these partnerships are communicated, institutions can better support students and foster stronger collaboration within the sector.

Additionally, the activity analysis has revealed contradictions stemming from the differing priorities, rules, and objectives of TVET colleges and industry partners. Addressing these challenges through structured reporting, enhanced collaboration frameworks, and strategic alignment could strengthen TVET-industry partnerships and improve student employability.

By examining the information on industry partnerships available on the websites of a sample of TVET colleges (see 5.3 above), it was possible to identify some general trends and draw more informed conclusions about these partnerships.

From this review of college websites, the findings that TVET colleges do not publish detailed information about partnerships and that the landscape of partnerships across the TVET sector is diverse are very explicit. It must be noted that partnerships are dynamic and constantly changing.

To assist the researcher in capturing critical information for this study, a database was created to include the names and contact details of all TVET College Principals, Deputy Principals responsible for partnerships, and Placement Officers overseeing Work-Integrated Learning (WIL) and Work Placement (WP). These officials play a crucial role in coordinating and compiling data on partnerships, workplaces, and WIL, which is published on the college websites. The information in this database is organized according to the headings in Annexure B, as of November 2022. However, it should be pointed out that the TVET landscape is continuously evolving due to changes in staff, programmes, and industry partners. Therefore, the information in these websites may be affected by these changes.

It is important to note that the ministerial notice dated February 27, 2023, requests that TVET colleges report on their partnerships and provides a template spreadsheet for this reporting. The data to be provided is:

- The number of strategic industry partnerships established
- The name of the (each) industry the college is partnered with
- The geographical area, whether it is at the provincial, national, or international level
- A short description of the nature of partnerships (to show student, staff, and/or institutional development)
- The date on which the protocol or Memorandum of Understanding (MoU) was signed
- The duration of the agreement.

The requested information is relevant and will assist the execution of tasks across the TVET sector to enhance the management and administration of industry partnerships. The phrases in brackets aim to clarify how the information required aligns with data collected during this study, emphasizing the importance of having clear criteria for describing the nature of each partnership and ensuring this information is obtained through direct reporting.

The results that have emerged from examining the industry partnerships information on the websites of a sample of TVET colleges can therefore incorporate the line items suggested in the TVET-Numbered Circular 0091 from 27 February 2023. These findings reveal some generalizations and enable conclusions to be drawn regarding these partnerships.

It is to be expected that expansive details on partnerships would not appear on the college website of an institution. However, the discrepancies in these college websites are large and best practice appears to be something that could be shared. The information on work placements and industry partnerships is central to the operations of a college and creates a good impression on this public platform. On the other hand, it is appreciated that certain details, such as the signing of MOUs and the duration of a partnership, are not necessarily appropriate on a website (except possibly in rare occasions when this is presented as a noteworthy news item) but these are needed for the reporting database to the DHET.

It is noted that all college websites reviewed had information on industry partnerships, student placements, or education for employability. On some sites, the information was difficult to find, while on others the importance of industry partnerships was upfront and obvious. Evidence of good practice appears to lie on a continuum along which a college may present, for example, the ethos of building relationships with industry for placements and quality education for employment; a strong portrayal of industry connections, innovation, and entrepreneurship; a well-described focus on WIL and work experience; and, where possible, a reassurance that all students will be placed. The range and depth of such information on the existence of industry partnerships could be improved for those colleges where little information is available and/or where the information is hidden, requiring an extensive and time-consuming search to uncover its existence.

Overall, the findings indicate that, while some TVET colleges provide valuable information about their services and partnerships, there is a need for more transparency and detail across the sector. The review highlights considerable disparities in the amount and type of information published across different college websites, suggesting that best practices could be shared among TVET colleges to improve the quality and accessibility of information on their websites. The document emphasises the importance of regularly updating information on strategic industry partnerships and suggests that colleges should provide more detailed and accessible information about their partnerships and the support services they offer to students. This would not only enhance transparency but also provide a better impression of the college's industry connections and the opportunities for practical experience available to students.

6.1 Introduction to Chapter Six

The previous chapter presented findings from an environmental scan of 14 TVET college websites. This chapter focuses on presenting findings from structured focus group survey interviews. This is followed by the second section of this chapter which focuses on the analysis and discussion of findings.

6.2 Findings from the structured focus group survey interviews

The structured focus group survey interviews addressed these research questions:

1. Has your institution established partnerships with industry in the last three years?

2. If yes, which industries/companies has your institution partnered with?

3. To what extent are the current industry partnerships effective? State reasons for your answer.

4. If no, what is stopping your institution from establishing industry partnerships?

6.2.1 Establishment of partnerships (addressing Questions 1 and 2)

All participants confirmed that their institutions had established partnerships with industry in the last three years. Participants reported on several methods of establishing partnerships, including: 1) direct contact with industry (electronic communication, walk-ins); 2) business-breakfast events; 3) signing of Memoranda of Understanding (MoU) (19% of teams); 4) networking sessions (9,5% of teams); 5) expression of interest (9,5% of teams); 6) proposals (28,5% of teams); 7) letters of intent (4.8% of teams); 8) responses to adverts or formal requests (14,3% of teams); 9) colleagues' relationships (14,3%); 10) setting up meetings with SETAs; 11) invitation of industry representatives to stakeholder engagement events; 12) ender-bidding processes; 13) the college's good name and reputation (word of mouth); and 14) opening campuses near industries.

The processes followed to establish partnerships were varied: 1) some teams used different processes (9,5% of teams); 2) MoUs (47,6% of teams); 3) expressions of interest (9.5% of teams); 4) proposals (14,3% of teams); 5) Service Level Agreements (9,5% of teams); 6) physical and

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[5] A version of this chapter was previously published as: Njengele, T., Engel-Hills, P. & Winberg, C. (2024). Technical and vocational education and training (TVET) colleges and industry: Strengthening partnership-building practices. *Journal of Vocational, Adult and Continuing Education and Training*, 7(2):53-74.

telephonic engagements (14,3% of teams); and 7) meetings among key industry personnel (52% of teams).

Evidence of established partnerships varied. Some teams reported that there were several forms of evidence (9,5% of teams); many teams had signed MoU (47,6% of teams); while others had signed Memoranda of Agreement and Service Level Agreements (9,5% of teams). The teams reported on generally good working relations with their partners (9,5% of teams), which included adherence to set procedures and protocols (47,6% of teams). Teams were generally satisfied with the outcome of the partnership (i.e., placement of learners or funding).

Teams reported that each party tended to deliver on its mandate. There were consultations, engagements, apprentice contracting, and monitoring and evaluation.

The teams had partnered with a number of different industries and sectors, as listed below:

- o   Insurance sector (14,3%)

- o   Banking and Financial services sector (28,5%)

- o   Government and the public service (66,7%)

- o   Non-Governmental Organisations and Non-Profit Organisations (14,3%)

- o   Wholesale and Retail sector (19%)

- o   Services SETA (28,5%)

- o   Automotive and engineering sector (42,8%)

- o   Tourism and Hospitality sector (14,3%)

- o   Agricultural (14,3%)

- o   Private sector (47,6%)

- o   Water and energy (Electrical Engineering) (4,8%)

- o   ICT (4,8%)

- o   Education and Training sector (14,3%)

- o   Construction (9,5%)

- o   Manufacturing (4,8%)

- o   Mining sector (4,8%)

- o   Telecommunications sector (14,3%)

- o   Maritime sector (4,8%)

Partnerships had thus cut across a significant number of sectors and industries.

6.2.1   Effectiveness of partnerships (addressing Question 3)

The teams considered most of their partnerships to be effective. Partnerships were described as "functional and active", "very effective" and "particularly effective". One team rated partnerships 8/10 in effectiveness. Partnerships worked in different ways, as confirmed by 81% of teams: through college operations; through work-integrated learning, internships, bursaries, skills programmes, and learnerships. Teams felt that the college could provide students with industry exposure only through its partnerships (thus industry provided services the college could not offer). Industry partners were valued when they provided workplace training and development. Some industry partners provided funding, funding opportunities, and some sponsored college activities.

The teams offered many suggestions on good practice in partnership-building, such as constant communication and dealing with issues as they arose. It was also important for colleges and their industry partners to work towards shared goals through an agreed division of labour (57%).

It was suggested that agreements should be based on roles, responsibilities, and deliverables (23,8%), after which adherence to their MoU/MoA/SLA was vital (33%). It was also important that skills programmes were completed within agreed timeframes (14,3%) for both student and the lecturing staff (9,5%). Training should proceed according to a specific roll-out plan, quality assurance standards should be met, and students should be awarded competency certificates on completion of training. Proper project monitoring and evaluation of the partnership was needed. Regular stakeholder engagement meetings (33%), regular communication (28,5%), and ethical behaviour (23,8%) were essential components of good partnerships.

Teams felt that it was important for both colleges and industries to benefit from the partnership. Several suggestions for measures to maintain partnerships were offered by the teams. It was felt that the college policies – as well as provincial monitoring and evaluation processes – should be adhered to. There should be quarterly meetings for monitoring and evaluation, as per the MoU/SLA. Quarterly reports and financial accountability were important in this regard. Regular

stakeholder engagements and meetings, as well as regular interactions involving key personnel, should be implemented to maintain regular contact and interaction. The need for regular and consistent communication was stated repeatedly.

The teams took a variety of measures to sustain their partnerships, including regular stakeholders' engagement forums and meetings, continuous monitoring, lecturer visits to students at workplaces, regular checks of the implementation plan, regular meetings and reporting, and open communication channels.

Partnerships were mainly measured by the outcome (14,3%), the general performance through monitoring and evaluation (19%), successes or failures in achieving objectives, deliverables being outlined and defined, review sessions (14,3%), and an increase or decrease in lecturer/student placement numbers. There was only one team in which there was no partnership performance measurement.

Almost all the teams (90%) felt that most partnerships were positive for both the college and the industry partner. For example, host employers received additional labour and workforce, and this concomitantly increased productivity. Employers received current and updated information from the college, as well as networking opportunities – which meant that more companies were opening doors to place students. Ultimately, companies benefited from a supply of well-trained potential employees.

From the college perspective, partnerships enabled the college to meet its skills needs. College partners offered training programmes tailored to industry needs. About half the teams (52,4%) believed that partnerships contributed to the colleges in several ways. They felt that their partners played a role in helping students to acquire the practical training component of their qualifications. They boosted student morale and provided clearer career direction. They offered colleges funding, staff development opportunities, enhanced the college's reputation, helped colleges to improve their workshops and other facilities. The partners were instrumental in enabling colleges to reach their goals regarding human capital capacitation, infrastructure development, and financial benefits. Some teams expressed a desire for more entrepreneurial partnerships.

6.2.3 Factors affecting partnership establishment (addressing Question 4)

Partnerships were, however, not without challenges, as many teams reported (71%). Colleges located in a semi-urban area (14,3%) struggled to find partners due to a shortage of host employers. Some colleges experienced resource constraints (9,5%) for partnership-building. In

some cases, students were frustrated at delays in the payment of stipends (42,8%), the lack of communication, and being unsure about prerequisite skills. Other negative factors included companies closing due to COVID-19 (28,5%), electricity instability, and companies' lack of suitable projects.

Teams spoke about sustainability issues and complained that industries only participated with financial gain in mind. Some industries set the initial outcomes too high. Teams also felt that there was a need for more rigorous and extended partnerships, as well as a need for increased resources.

About half the team (52,4%) felt that the challenges could be addressed by: 1) updating college curricula; 2) open and robust communication; 3) the establishment of more partnerships; 4) proper budgeting; and 5) appropriate project planning and execution. Some teams felt that colleges could not solve all partnerships challenges alone (38%) and that DHET intervention was needed. In addition, the SETAs should prioritise internships. There should also be a national drive to address stereotypes around TVET colleges.

6.2.4 Summary of the findings of the focus group survey interviews

These findings are summarised here in Table 6.1:

Table 6.1 Summary of findings from focus group survey interviews

(Engel-Hills et al., 2023)

	Benefits	**Challenges identified**
INSTITUTIONAL	• Enable accreditation • Employee development • Guest lecturing	• Colleges in peri-urban areas or some more economically challenged provinces have low access to host employers. • The capacity of many industry partners falls way below the placement numbers required. • Nationally, there is a shortage of industry partners to meet the needs. • Poor partnerships end prematurely. • The COVID-19 pandemic caused many companies to downscale or close. • Lacks in the curriculum were highlighted as not always meeting industry needs. • Many (if not most) colleges need many more partnerships to make the WIL system effective. • Some partners do not communicate regularly and are unwilling to work with the colleges in the partnership's best interest.

STUDENT	• Host employers • Placements (relevant workplace) • Practical knowledge • Internships • Learnerships • Skills Development/ Programmes • Mentoring while on placement • Psychosocial support • Enable competency certification • Post-qualification employment	• Challenges with placements in some sites. • Lack of stipends causes social challenges e.g., transport problems. • Need enhancement of entrepreneurial skills. • Lack of computer skills identified.
FUNDING	• Bursaries • Learnerships • Placements • Short Skills Training	**By far, the most frequent challenge mentioned was funding:** • Limitations of available funds results in employer hesitancy. • Stipends problematic and payment delays cause instability in the partnerships. • Delay of SETA tranche payment for stipends. • Equity goals are challenged by inadequate student funding and non-standardized stipend allowances.

6.3 Activity analysis and discussion of findings

The findings from the survey, reported on above, were analysed through the lens of activity theory (see Figure Figure 3.6).

6.3.1 Subjects: dedicated partnership management teams

The subjects were management teams comprising college principals, deputy principals in charge of partnerships and learnership and placement officers. Each partnership had a project team, sometimes called an "implementation team" (Team 7) that was "responsible for the partnership" (Team 16). The teams had varying levels of experience: Team 3 had "been working with TVET - Industry partnerships for about 12 years", while Team 21 had been working with partners for a year and only "10% of their key performance [was] weighted towards this objective" (Team 21).

The target population in this study was the TVET college sector within South Africa, as represented by College Principals, College Deputy Principals responsible for Partnerships or equivalents, and Industry Liaison Officers or Placement Officers in each of the 50 TVET colleges in all nine (9) provinces of South Africa. As this empirical study is concerned with initiating, establishing, managing, maintaining, improving, and promoting TVET college-industry

partnerships, the focus was college officials responsible for the management and administration of partnerships, from the level of administrative officers responsible for partnerships and above. Thus, the sampled population moves from Industry Liaison Officers or Placement Officers up to College Principals. The logic of using a sample of subjects is to make inferences about a larger population from a smaller one (Lune & Berg, 2017); thus, the sample needs to fit what Henning (2022:51) refers to as the "criterion of desirable participants" to reach data saturation.

These study participants were management teams from 21 different public colleges (of the intended sample of 50 TVET colleges), totalling 70 individuals. This translates to a forty-two percent (42%) success rate or participation rate There were no participants in the age category of 18-24. Two teams (9,5%) had participants in the age category of 25-34 years; whilst eighteen teams (85,7%), which is the majority of the participants in this case, were in the age category of 35-55 years. Only one team (4,8%) had participants in the 56-64-year age category. The data is represented in Figure 6.1 here:

D.1. Indicate the age group that you fall into
21 responses
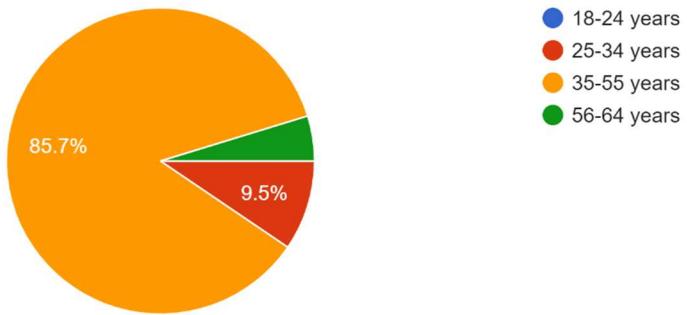
Figure 6.1: Participants' biographical data

Regarding the participants' educational levels, four teams (19%) had participants with a diploma as their highest qualification; four teams (19%) had participants possessing a bachelor's degree; a further eight (38%) had an honour's degree; and the last five (24%) held a master's degree. The population group of questionnaire responses was a representative distribution of experience in the management and administration of partnerships. In this regard, three (14.3%) had between one and two years of experience in the administration of TVET partnerships, with the other three (14.3%) in the 3-5 years' experience category. A further nine (43%) had between 6 and 10 years, with three (14,3%) having between 11 and 15 years of experience. The last three teams (14.3%) had participants with 16 or more years of experience.

D.3. For how long have you been an administrator, working with partnerships?

21 responses

Legend:
- ● 1-2 years
- ● 3-5 years
- ● 6-10 years
- ● 11-15 years
- ● > 16 years

Pie chart values: 14.3%, 14.3%, 14.3%, 14.3%, 42.9%
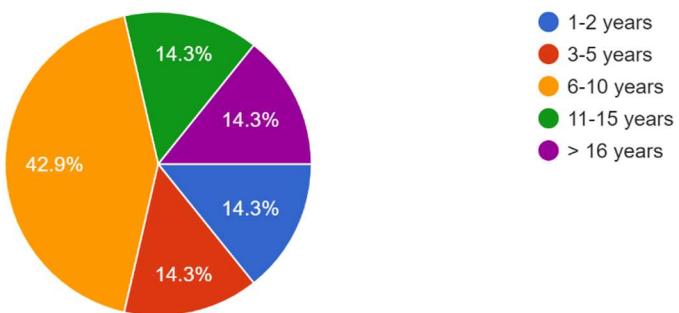
Figure: 6.2: Participants' years of service

The following portfolio-representatives formed part of the semi-structured interviews, as shown in Table 6.2.

Table 6.2: Participant portfolio frequency

College Principals	DP-Managing Partnerships	Placement Officers	Learnership Officers
4	6	8	3

From the data, it can be ascertained that, in descending order, the participants were eight Placement Officers (38%), followed by six Deputy Principals Managing Partnerships (28%), with College Principals and Learnership Officers accounting for four (19%) and three (14%), respectively across teams.

The general responses about partnerships fall into six broad categories: (1) sourcing/initiating partnerships; (2) maintaining such relationships; (3) establishing and maintaining the administration of MoUs (Memoranda of Understanding); (4) fund sourcing; (5) placement and monitoring of students; and (6) the implementation of Work-integrated Learning (WIL)/team resource allocation for students.

D.4. What is your portfolio or function in the institution?

21 responses

- College Principal
- DP-Managing Partnerships
- Placement Officer
- Learnership Officer
- Industry Representative
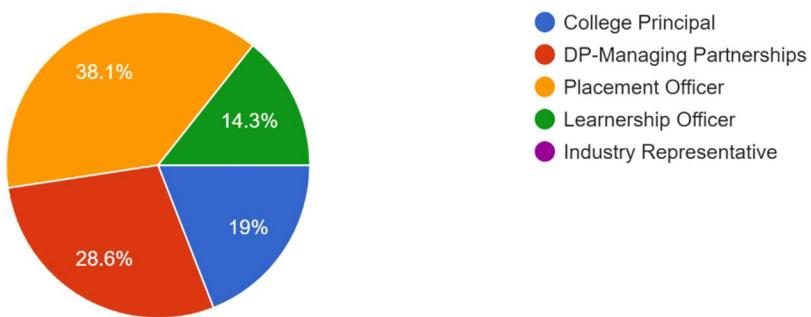
Figure 6.3: Participants' portfolios

6.3.2 Tools for finding and sustaining partnerships

A variety of tools were implemented for seeking and consolidating partnerships. Initiating partnerships usually happened informally, as Team 5 explained:

> By contacting industry directly via means of electronic communication, walk-ins and we also conducted a business breakfast event in which we invited potential partners and current stakeholders.

Team 6 similarly described a "face-to-face approach and presentation, breakfast meetings".

To consolidate a partnership, teams used various means, such as: 1) questionnaires to assess the relevancy of the partnership; 2) an expression of interest letter to the partner; 3) a partnership agreement; and 4) a register of all partnerships concluded. A team member elaborated that, "with each MoU or agreement, there are clear deliverables with specified timeframes for each deliverable" (Team 20). Standard partnership contracts had a starting and an end date, with quarterly reports monitoring the progress of the partnership against key deliverables.

6.3.3 Object: partnerships to serve a wide range of purposes

All teams were seeking, or working on, partnerships, for many different reasons. Many partnerships were sought for the purpose of providing work-based learning for college students:

Some of the partnerships under my unit deal with placement of learners for workplace-based experience or for experiential learning, internships, others deal with funding of the placement and also for psychosocial support (Team 4).

As Team 20 explained, placing students in workplaces required funds, so partnerships also had to be found for "funding purposes - Bursary, WIL, Learnerships, institutional Development, etc." Some partnerships had the purpose of institutional development, in which an industry partner provided a "workshop upgrade" (Team 4) or "infrastructural development" (Team 7). Fewer partnerships were for lecturer development; in fact, Team 5 was "not aware of any" partnerships for this purpose. There were, however, teams working with SETAs and industry partners for the purpose of obtaining industry experience for lecturers (Team 18) and, in one case, providing "international exchange" experiences (Team 7).

6.3.4 Rules: partnership governance

Partnerships were regulated via several official 'rules', emanating from both the DHET and the partners, as Team 3 explained in detail:

> TVET Institutions are mandated amongst other things to provide training interventions in a form of learnerships, apprenticeships, internships, and skills programmes. The aforesaid interventions necessitate that the TVET Institutions forge partnerships with the industry. Appointments were made with key personnel of the industry to discuss the need for the partnerships and a memorandum of agreement/memorandum of understanding and a service level agreement were signed, depending on the type of partnership.

6.3.5 Community of potential partners

The community of potential and actual industry partners included insurance companies, banks, telecommunications, retail, agricultural, engineering-related industry, automotive, tourism and hospitality sector, human resource (HR) companies, construction, non-governmental organisations (NGOs) and NPSs, universities, as well as national and regional government departments and local municipalities. A wide range of sectoral education and training authorities (SETAs) were named: the AGRISETA, BANKSETA, CATHSSETA, CETA, CHIETA, ETDPSETA, FASSET, FOODBEV, INSETA, LGSETA, MERSETA, MICTSETA, PSETA, SERVICESETA, and WRSETA. The SETAs mainly provided funding and stipends for students engaged in work-based learning but also supported other partnership-related activities.

Table 6.3: Existing partnerships with different institutions from various sectors

Sector	Number of teams confirming the partnership	Percentage
Insurance	3	14,3%
Banking and financial services	6	28,5%
Government and the public service	14	66,7%
Non-Governmental Organisations (NGOs) and Non-Profit Organisations (NPOs)	3	14,3%
Wholesale and retail	4	19%
Services SETA	6	28,5%
Automotive and engineering	9	42,8%
Tourism and hospitality	3	14,3%
Agriculture	3	14,3%
Private	10	47,6%
Water and energy (Electrical Engineering)	1	4,8%
ICT	1	4,8%
Education and training	3	14,3%
Construction	2	9,5%
Manufacturing	1	4,8%
Mining sector	1	4,8%
Telecommunications	3	14,3%
Maritime	1	4,8%

6.3.6 Division of labour: who is responsible for what?

All teams agreed that clarification of each partner's role and responsibilities were crucial for the success of the partnership, and that partnerships were functional when there was clarity. The roles and responsibilities needed to be clearly defined in the founding agreement; and, at the conclusion of a project, meetings are convened (Team 8).

There might be some flexibility regarding the division of labour, as explained below:

> The college is responsible for payment of the stipends while the partners are responsible for the hosting and training of learners. The industry partner provides students with relevant workplace training and development; and sometimes, the industry partner provides funding for necessary training interventions (Team 3).

Whatever arrangements are made, "the purpose of the relationship is working towards shared goals through a division of labour that all have agreed upon" (Team 19).

6.3.7 Outcome: "Mutual benefits for both entities"

Most teams commented positively on the outcomes of partnership-building, which, in some cases, had been "very effective but with a few challenges" (Team 13). Some partnerships had existed for many years. Team 10, for example, had "effective industry partnerships with some partnerships which had been established in 2013". For some teams, effective partnerships were ones that were "still going" (Team 15), or that provided "student and lecturer placement" (Team 6). An example of a partnership that had progressed "quite excellently" enabled "some college learners [to] receive employment" (Team 5). In effective partnerships, as one team member commented, there were "mutual benefits for both entities" (Team 14). Therefore, to some extent, the college-industry partnerships had worked. As one team member said: "On a scale of 10 in terms of effectiveness, I will give it an 8" (Team 12).

6.4 Contradiction analysis and discussion: from challenges to emergent transformative agency

Although attitudes were largely positive towards partnerships, the teams had also experienced challenges which are described in this section in terms of contradictions in the partnership-building activity system.

6.4.1 Contradictions: identifying the challenges

Primary contradictions in the TVET activity system occurred in the form of inadequate resources for sustainable partnerships. As might be expected, secondary contradictions arose from the severe shortage of resources and created a conflict within the ability of the resources to support the object of partnership-building. For example, there was inadequate "funding for WIL and work placement opportunities for students requiring WIL" (Team 19); there were "delays with SETA payment of stipends and limited funds" (Team 5); or simply a lack of "reliable funding" (Team 13) more generally. A team explained that a successful partnership had placed students "every year" but could only "keep going … when the college received funding" (Team 15). Similar views were expressed by other teams, such as the comment that partnerships were "very effective when hosting students [but] stipends are the issue" (Team 10). The lack of resources impacted almost all elements in the activity system. For example, the partners were "hesitant to take interns if there [are] no stipends available for students. This also causes transport challenges" (Team 10).

Tertiary level contractions typically occur when an activity system is expected to incorporate practices and technologies that arise from other activity systems, such as using the 'German Model' (Team 18) in a South African TVET context; or introducing the idea of "students becoming entrepreneurs" into a system that had previously focused on "employment opportunities" (Team

18). Tertiary level contractions are challenging because they usually involve major changes to the system. One team member felt that "industries may initiate projects with initial outcomes set to be too high and not considering successive plans" (Team 13). Such tertiary level contradictions are common when subjects collaborate across activity systems that have different expectations or use different technologies. Also typical in collaborations are quaternary level contradictions, such non-cooperation of partners, which was experienced by teams as "some industries not being open to the TVET college sector" (Team 18), or "companies not responding positively to requests, hence the limited number" (Team 8). A team stated, "We would love to partner with the nearby mines, but mines are reluctant, citing issues of security, etc." (Team 6).

While many industries were able to partner with colleges and provided "good support" for the "placement of learners for work-based experience and to run projects together", others were found to be "very difficult or not supportive" (Team 17). One team member described such conflict as "a lack of communication with some partners and unwillingness to work with colleges" (Team 18). Some of the quaternary contradictions could be ascribed to factors beyond the subjects' control, such as "companies closing because of Covid-19 and lack of projects" (Team 6). In the South African context, the historical location of some colleges disadvantaged them in terms of partnership-building, such as a college being "in a semi-urban area, which means the majority of the host employers are not found within this area" (Team 2); or a college "is situated in a semi-rural area where there is a lack of well capacitated industry partners and, as result, industry partners are likely not to cover all areas that must be covered in the training" (Team 4). Some quaternary contradictions could be caused by conflicting values or priorities, which is suggested by subjects' descriptions of industry partners as "difficult" (Team 17) or not "open" (Team 18) or "poor participation of mentors" (Team 15). One team expressed a conflict of values between the college and industry, claiming that "many industries only participate when clear financial gain can be promoted" (Team 13).

6.4.2 Boundary crossing: "Dovetailing with partners"

Boundary crossing is an indicator of problem-solving when multiple activity systems are involved in the attainment of an object. In this case, the differences between the interests and values of colleges and industry have to do with their different objects. The industry partners were focused on production and services, while colleges were focused on students' education. This is essentially a theory-practice divide, which both partners need to understand before the divide can be bridged. For example, the 'security' issue expressed by the mining company could be negotiated if each partner found out more about the other. Visits to industry partners might initiate boundary crossing activities to address some of the challenges. Teams explained that "the college provides the

industry partner with students to get exposure to how the industry works for a particular period"
(Team 5). Another team reflected that "the partnerships provide services that the college cannot
offer" (Team 7), such as the practical component of the qualification, and, in some cases, "they
sponsor college activities such as graduation and the issuing of performance awards to the best
graduating top ten Financial Management students as an example" (Team 5). Raising awareness
of the value of partnerships could assist partners to collaborate at a deeper level. A team used the
metaphor of "dovetailing with partners" (Team 5), which perfectly expresses the spirit of boundary
crossing. Each partner needs to extend slightly into the territory of the other to strengthen their
connection, much like parts of a seamless interlocking structure.

6.4.3 Knotworking: "nourishing" the partnership

Knotworking occurred when the management teams worked together to address barriers to
partnership-building. One strategy was to "share information" (Team 11), as a participant
explained: "Once the partnership is established then we constantly keep communicating and
nourishing the partnership and also deal with issues as and when they arise" (Team 12).

6.4.4 Expansive learning: a "bigger scope of partnership"

Expansive learning is engaging in transformative practice. A key indicator of expansive learning
was when subjects began to think beyond the constraints of their own activity system, so that, if
local placements for TVET lecturers were not available, then one might provide "international
experiences" instead (Team 7); or when student placements were not available, one might request
industry partners to engage in "guest lecturing" (Team 6). Those engaged in expansive learning
seemed to see the need for new vistas to be opening, as expressed by Team 20: "Fine for now
but there is a room for improvement and development to a bigger scope of partnership". Another
team expressed the need for "much more partnerships to make the colleges more effective" (Team
17). Yet another team member wanted to "expand" the partnerships to "[help] the institution to get
more industry partners and placement of students to the industry for workplace exposure" (Team
3). Another envisioned an "extension of the partnership scope specifically for the [rural college's]
provision of resources such as equipment and buildings" (Team 20).

6.4.5 Emerging transformative agency: "We can still do more"

Transformative agency is the desired outcome of collective problem-solving through expansive
learning. For example, many teams expressed the view that TVET curricula do "not meet industry
needs' (p. 16), but only some participants took action to address the issue. One manager asked
industry partners to "review the college curriculum to respond to the needs of the market" (Team
2). Another included the "DHET and industry engagement when curricula are developed" (Team

16), while another requested the "involvement of business and industry in curriculum development" (Team 21). These are examples of emerging transformative agency in which managers recognise their ability to innovate and improve for mutual benefit. This is a start, but as one team put it: "yes, but we can do more" (Team 19).

6.5 Conclusion: towards enhanced partnership building

The aim of the study was to provide an empirical basis for initiating and sustaining partnerships that are mutually beneficial for colleges and industries. Using the lens of activity theory and the responsive evaluation methodology, the study addressed the research question: How can TVET college-industry partnerships be strengthened to benefit students, colleges, and industry? TVET managers and teams involved in partnership-building were surveyed and interviewed about their practices. In the study, the concepts provided by activity theory, such as 'activity system', 'contradictions', 'boundary crossing', 'knotworking' and 'expansive learning' (Engeström, 2009, 2015) were used to analyse the practices described by the teams and to understand their potential for effective partnership-building. By addressing the research question in this way, the study has contributed to knowledge in the field of TVET college-industry partnership management and administration. It has also contributed to improved partnership-building practices. The study has shown how management teams could effectively engage in collaborative processes of expansive learning through boundary-crossing and "knotworking", even without formally understanding these terms or processes. These intuitive processes enabled partnership management teams, in many cases, to improve the experiences of students, colleges, colleagues, and industry partners. In some cases, there were signs of emerging transformative agency as managers set about innovating and changing practices. We can only imagine the impact on colleges if more management teams engaged in such potentially transformative practices.

Building upon the broad insights provided by the focus group interviews with staff across 21 colleges, the next chapter shifts to a more in-depth examination. In Chapter 7, the focus is a single TVET college and its industry partners, allowing for a more fine-grained exploration of partnership-building practices within a specific context.

CHAPTER SEVEN:
SEMI-STRUCTURED INDIVIDUAL INTERVIEWS

7.1 Introduction to Chapter Seven

This chapter builds on Chapter Six in which the focus group survey interview findings were analysed and discussed. This chapter explores how one multi-campus TVET college, comprising urban, rural and peri-urban campuses, together with its industry partners, engaged in partnership-building activities. Section 7.2 presents findings from the semi-structured individual interviews with campus staff and industry partners. Section 7.3 relates an activity analysis and discusses the findings. Section 7.4 goes more deeply into a contradiction analysis and discussion. Section 7.5 considers the way forward for the college; and Section 7.6 offers a reflective conclusion to the chapter.

7.2 Findings from the semi-structured individual interviews

Below are the findings from the individual interviews. The broad findings are presented in the order in which the participants addressed these interview questions:

1. Has your campus/company established partnerships with industry in the last three years?
2. If yes, which campuses/companies has your institution partnered with?
3. To what extent are the current college-industry partnerships effective? State reasons for your answer.
4. If no, what is stopping your campus/company from establishing industry partnerships?

7.2.1 Establishing and sustaining college-industry partnerships

All participants stated that TVET-industry partnerships had been established, mainly for the purpose of enhancing student employability. From the college perspective, several positions had been created in the campus organisational structure to address partnership-building activities – and many partnerships had been established. From the industry perspective, participants had been collaborating with colleges in different ways. While the interview data show that TVET-industry partnerships are being established for the main purpose of enhancing student employability, it was not always clear how partnerships were being sustained, and whether the partners – whether located at a college campus or at a company – were fulfilling their mission. Thus, regulatory frameworks for TVET-industry partnerships were being developed, but issues around maintaining and growing a partnership, and the outcomes of a partnership, were not yet clear.

7.2.2 Types of college-industry partnerships

The college works with local and national businesses in various sectors, including engineering, automotive engineering, IT, finance, tourism, and education. These partnerships can involve providing equipment, resources, and expertise for specific programmes, as well as offering students the opportunity to gain practical experience through internships and apprenticeships. SETAs and the National Skills Fund also contribute to the college's programmes, offering funding, resources, and mentorship opportunities. Universities and other educational institutions collaborate with Buffalo City TVET College to develop joint programmes, exchange students, and share research resources. Areas of collaboration include: 1) curriculum development in which industry input is incorporated into the curriculum to ensure that it aligns with current industry needs and standards; 2) internships and work placements through which students gain practical experience by working in real-world environments, applying their skills and knowledge under the guidance of experienced professionals; 3) skills training in which industry partners provide specialised training or workshops to enhance students' skills and prepare them for the workforce; and 4) mentorships in which industry professionals mentor students, providing guidance, advice and support as they pursue their careers.

There are several student development interventions that support first year students, including health care services and awareness programmes around gender-based violence (GBV), family planning and HIV testing. Those that support students at the exit level involve building a network of host employers for student placements and collaborating with the college's WIL Office to facilitate student placements. This kind of collaboration was appreciated since it allowed students to obtain industry experience that was essential for their education and graduation (Participant F). In order to provide placement opportunities, partnerships with government agencies, including local municipalities, were essential.

7.2.3 Assessing the effectiveness of college-industry partnerships

The study participants revealed a significant gap in the formal assessment of TVET-industry partnerships, highlighting a lack of assessments to gauge the effectiveness of these partnerships. The fact that formal assessments were not carried out, was confirmed by a number of participants. Participant A pointed out that "none of the MOUs contained anything about partnership assessments". This was confirmed by Participant B, who said that no evaluations of the collaborations they had participated in had been conducted. Participant C added that there had been no follow-up on the partnerships, Participant D pointed out that very few industries offered work placements to the learners, and that indicating a gap in the effectiveness of these

partnerships that should be assessed. Regular monitoring and evaluation of the partnership arrangements are necessary to make sure that partnerships function well and achieve their objectives. Regular formative assessment and feedback from partners is an "early warning system", as Participant I put it, indicating an area or improvement. Thus the success of the college-industry partnerships depends on efficient monitoring and evaluation (Tripney & Hombrados, 2013; Kluve et al., 2017). According to this finding, it is difficult to assess the impact and success of a partnership without formal and ongoing assessments; therefore, these evaluations are necessary to improve the efficacy of partnerships.

7.2.4 Improving college-industry partnership management and administration

Participants drew attention to several challenges in managing TVET-industry partnerships, including both past and current events. Key challenges included: "poor communication" (Participant B), "lack of synergy" (Participant G), and "mismanagement" (Participant E). These issues were attributed to the partners' different goals and purposes, unclear roles and responsibilities, misplaced interests, as well as "politics, and corruption" (Participant E). Some participants felt that their partners as were "not fully committed to the collaboration" (Participant H); in some cases there were "subcontracting issues" (Participant D) and misuse or mismanagement of funds. Participant E explained that partners often "had different priorities", leading to goals that were misaligned. Participants were asked about the establishment and duration of their current partnerships, indicating whether they were long-standing or newly formed. Some partnerships were long-standing (over 20 years), while others were more recent (4-5 years). Several participants mentioned that they play a role in establishing recent partnerships as well as in nurturing longstanding partnerships. Participants who were more recently appointed to their positions noted that most partnerships were already in place when they joined their respective organisations.

In suggesting ways of improving and promoting TVET-industry partnerships, participants focused on communication, visibility, and motivation to change to improve partnership management and administration. Participants rated the effectiveness of partnerships, differentiating them into effective and ineffective categories. Effective partnerships were attributed to adherence to signed agreements, as noted by participants H and J. Participant H noted, for example: "…the partners that we have they deliver according to their agreement, stated on the MOU or MOA." Participant K highlighted that partnerships were effective because colleges had "achieved their targets". Other reasons for effective partnerships included offering industry talks, maintaining open-door policies, adhering strictly to MOUs, providing continuous services, and giving feedback to students.

By contrast, ineffective partnerships were characterised by several issues. Participant G stated that the partnerships between businesses and the college were "not as effective as they could be" and so there was "room for improvement". Participant B noted that a mismatch between "student qualifications with the work given" was a significant issue. Other reasons for ineffective partnerships included ineffective MOUs, as mentioned by Participant A, who noted that some MOUs were "merely collecting dust with no action taken". A lack of "proper coordination" (Participant E), "mutual understanding" (Participant C)", and "appreciation for partnerships" (Participant A) were cited as reasons for their ineffectiveness.

7.2.5 Reflections on the findings

The interview data showed that partnership-building activities were increasingly regarded as important by both college and industry participants. This was evident in the number of partnership-related positions in colleges and college liaison personnel in companies. The data also showed that, over and above the provision of positions for staff who manage partnerships, TVET-industry partnerships have been somewhat sustained by resources to implement the agreed-upon tasks. Participants felt that, in general, MoUs, MoAs and SLAs offered each partner at least some guidance in terms of what they should be doing. The participants also acknowledge challenges with past partnerships, highlighting issues such as mismanagement of funds and poor communication. Management's "lack of understanding and transparency" contributed to these challenges (Participant F). The main challenges in managing partnerships were categorized into several areas. Collaboration and communication challenges were prevalent, with issues like lack of alignment, mismatched placement tasks, absence of MOUs, and poor relationships with host employers. As expressed openly by Participant G, "… the level of communication almost doesn't exist from my point of view". Leadership and management challenges included difficulties in engaging top-level management, lack of commitment, mismanagement, and unstable leadership. Operational difficulties included resistance from several college departments, as well as capacity and staffing issues, funding concerns, and delayed payments. Additional difficulties included power dynamics, host employers' unfavourable opinions of college students, gender bias, work culture differences, and a lack of real benefits for partners. Participants also drew attention to college politics, profit-driven partnerships, and the misalignment of the work and educational environments. These challenges had varying effects, with some participants reporting gradual improvements. But problems remained, such as growing opposition, conflicting viewpoints, and unresolved issues with PPEs and tool kits. When iissues such as the shortage of human resources, accountability concerns, conflicting objectives, and resistance to change are addressed, a better alignment between industry and educational cultures would become possible (Tripney & Hombrados, 2013; Kluve et al., 2017).

7.3 Activity analysis and discussion

Having presented the findings in the section above, this section provides an analysis of the findings through the lens of activity theory.

The TVET college management system is designed to develop policies and create a conducive working environment to support the teaching and learning system in achieving quality student learning (see Figure 3.6). This system also focuses on building partnerships, and this is the focus of this study. The South African TVET colleges sector is undergoing significant transformation due to new policy directives (Buthelezi, 2018) and enhancement initiatives (Sithole, 2019), becoming more responsive to industry needs (Marock et al., 2016). These changes often require industry partners to support colleges in various ways, such as improving infrastructure for industry-equivalent training facilities (Lee, 2010), facilitating teacher sabbaticals in industry (Duncan, 2017), offering industry training (Abdullah, 2013), providing industry certification (Suroto & Hung, 2018), finding student placements (Sappa & Aprea, 2014), co-assessing practical subjects (Pillay et al., 2013), facilitating cultural change and developing leadership (Badenhorst & Radile, 2018). The subsection that follows focuses on the subjects as the officials that are managing and/or coordinating partnerships.

7.3.1 Subjects: those who manage partnerships

The subjects of the activity system comprised five industry partners and six TVET college representatives. The participants had several responsibilities in addition to their roles in the partnership. The college-based participants described themselves as follows:

- Deputy Principal: responsible for initiating new partnerships, as well managing the existing partnerships (Participant A).

- WIL Coordinator: supports the partners both at the college and in external organisations (Participant B).

- Programme Enrichment Officer: reports to the deputy principle on the relevance and quality of training programmes within partnerships (Participant D).

- Lecturer Placement Officer: dedicated to finding industry placements for college lecturers, and supporting lecturers in placement (sometimes assists the Placement Officer) (Participant F).

- Relationship Manager: responsible for the management and support of work-integrated learning programmes (Participant G).

- Placement Officer: dedicated to finding and forming partnerships to facilitate the practical work requirements for students (Participant H).

Industry partners described their roles in two broad categories:

- Company Representative: responsible for liaison between the company and the college, and usually participating in college governance as a member of the council of the college (Participant C).
- Project Manager: was based in a company, and responsible for overseeing the implementation of occupational training programmes at the college (Participant E).

This variety of positions highlights the multifaceted nature of TVET-industry partnership management, requiring coordination and collaboration across different organisational levels and between educational institutions and industry. The literature points out that sufficient human resources are crucial for the success and sustainability of college-industry partnerships (Kluve et al., 2017; Tripney & Hombrados, 2013).

7.3.2 Tools for establishing and maintaining TVET-industry partnerships

"Tools" in activity include equipment, policies, curricula, facilities, as well as human and capital resources. For the partnership activity system to function, it is important to have the necessary resources. Indeed, the partners need effect tools to enable the partnership to function, in particular, the availability of financial resources, human resources and capacity, and operational support is essential for effectively managing partnerships. In this section, the participants describe what Activity Theory would consider tools (i.e., mediational means and resources).

Participant B, a WIL coordinator, had access to "a travel budget" as well as "administrative support" for the work in supporting partners. Participant C, an industry partner, had similar resources in the form of a "partnership budget" and support from the company. In addition, Participant C established communication channels, and provided resources for the partners, such as meeting rooms (for face-to-face meetings) and meeting software (for online meetings). Other participants, such as D, E, F, G and H, cited resources, such as the communication channels (established by Participant C), assessments, online platforms, curriculum documents, budgets, vehicles, venues, and data management systems. To clearly define each partner's roles and

responsibilities and to set clear expectations and accountability, formal agreements like MOUs and MOAs were used by almost all partners. Interviewed participants reported on a range of formal agreements and resources. For instance, Participant A used MOUs, Service Level Agreements (SLAs), budgeting tools, the TVET Management Information System, and college resources. The participants felt that the various "tools" that they were using were helpful and facilitated effective communication, partnership management, although some participants felt that "resource allocation" (Participant G) could be improved.

7.3.3 Object: partnership building with a purpose

The object of TVET college-industry partnerships, according both sets of participants, is to enhance students' employability. Participant C, an industry partner, expressed the object as follows:

> We always receive a warm welcome from the college … in the end, everyone needs to be employed. And seeing a company that is coming to the institution means it sees a chance of employment for the students.

The partners' stated object, student employability, is in alignment with the existing literature that identifies industry-based training, both within industry settings and college programmes as key factor in student employability and facilitating the transition from college to employment (Abdullah, 2013; Ogbuanya & Chukwuedo, 2017). Participant G similarly highlighted the role of partnerships in enabling students to acquire "work experience so that they can be employable", adding:

> For me, that would be great if that opportunity is afforded within the partnership. I think the bigger thing also here is that the more students sit on a database and don't get their WIL experience, the more we will have a high rate of unemployment and students who are educated but not going to get a chance to go and work.

The emphasis placed by partners on student training is supported by the literature, in that industry-based training is widely recognised as a core component of college-industry collaborations (Klatt et al., 2018; Smith et al., 2011). Participant C valued industry training for providing students with the kind of "practical, on-the-job experience" that enhanced their employability. Participant J elaborated on student development-based partnerships, noting that they "operate at both entry and exit levels". Entry-level partnerships may involve providing health care services and on-campus training programmes, such as workshop on preventing gender-based violence. Exit-level partnerships focus primarily on building networks of host employers for student placements and

collaborating with college WIL officers to facilitate these placements, which are "crucial for student qualifications and graduation" (Participant F). Participant H noted that industry partners also assist colleges with "tracking of students" and they collaborate in developing "the tracking system".

Lecturer development partnerships, as Participant F (whose responsibility was lecturer placements in industry) explained, provided lecturers with opportunities "to gain relevant industry experience, which they can then integrate into their teaching". Studies by De Paor (2018) and Duncan (2017) support the value of lecturer placements in industry. Industry partners can help colleges with both curriculum development and programme accreditation. For example, Participant K cited examples in which linked industry representatives were required to accredit training programmes, while Participant D provided described partnerships with car manufacturing companies that provided assisted the college with "updating their curriculum", as well as providing students with workplace exposure. The importance of industry involvement in curriculum development has been shown in the international and South African literature (e.g., Guile, 2011; Watters & Christensen, 2014).

While enhancing students' employability emerged as the primary object, participants identified various types of TVET-industry partnerships, each with specific purposes. These included: 1) student development-based partnerships that focused on providing students with industry training and practical experience; 2) curriculum development-based partnerships, with the aim of programme development and accreditation; and 3) lecturer development-based partnerships that were designed to support lecturers' professional development and industry exposure. While various types of partnerships exist, the primary object of TVET college-industry partnerships, as evidenced by participant accounts and supported by the literature, centred on enhancing students' employability through practical, industry-relevant training and experience.

7.3.4 Community of current and potential partners

The community comprises the social groups that benefit from the college's partnership-building activities. The community who benefit from partnerships includes students and their families, the companies who are potential employers of the students, and local and national economies. To these, Participant B added host employers, training providers, SETAs and students. Participant D added ETQA, lecturers, and mentors. Participant F added funders to the list; while Participant H included government departments, amongst others. According to Smith et al. (2011), every community member who benefits is crucial in supporting and ensuring the success of the partnerships.

7.3.5 Rules: partnership governance

Rules refer to the norms and regulations governing the activity. These were established by regulatory frameworks like the Further Education and Training Colleges Act of 1998 (Act No. 98 of 1998), which specifies the roles and responsibilities of TVET colleges and their partners (Republic of South Africa, 1998). Data provided evidence that management and administration of TVET-industry partnerships were regulated mostly by formal agreements (MOUs, SLAs), MOAs, logbooks, syllabus revision cycles, and cultural norms regarding work, pace and productivity (Participant B). Participant C added internal procedures and company and college policies, whilst Participant D added to the list accreditation standards by the Quality Council for Trades and Occupations (QCTO) and South African Qualifications Authority (SAQA), funding guidelines, curriculum requirements, and unwritten expectations. Participant F included ethical and governance guidelines and resource utilization policies; and Participant G included external industry standards and WIL placement requirements.

7.3.6 Division of labour: who is responsible for what?

Division of labour among participants included dividing roles within the college – such as those of placement officers, lecturers, industry trainers, and college management – as well as the roles offered by the industry partner. Data showed that the division of labour within the management and administration of TVET-industry partnerships was well-defined, with specific roles assigned to different participants: Placement officers managed student placements and industry relations; lecturers provided training and support to students; industry partners offered training, workplace experience, and resources; and the college management oversaw the overall implementation and sustainability of the partnerships. Roles and responsibilities are outlined in the MoUs/MoAs/SLAs, depending on the nature of a partnership.

7.3.7 Outcome: mutual benefit for both partners?

The intended result of the TVET-industry partnership activity is mutual benefit for both partners. Participants' interviews indicated that a primary outcome of the management and administration of these partnerships is improved student employability, achieved through sustainable partnerships and enhanced curriculum relevance. Individual participants provided examples of how partnerships contributed to this outcome. For example, Participant A reported enhanced student learning, work experience provision, and improved college capacity. Challenges included uncoordinated management. Participant B noted successful student placements that benefited both students and partners, with challenges including misaligned expectations. Participant C cited improved student preparedness and curriculum alignment, while Participant D emphasized students gaining practical skills and industry exposure, with benefits for both colleges and partner

companies. Participants E and G highlighted smooth programme implementation and industry engagement respectively, with challenges related to communication and college support. Participant H also noted successful placements and improved student learning.

Collectively, these partnerships aim to improve students' employability by providing relevant skills and experience, enhancing practical skills and workplace experience, ensuring partnership sustainability, and improving curriculum relevance and quality. However, the activity analysis reveals a trend: while TVET colleges establish various partnerships with industry, often focusing on student placement, these partnerships face numerous challenges. Issues such as misaligned objectives, lack of clear communication and commitment, and limited resource allocation complicate partnership management. The following section will analyse these challenges as contradictions within the activity system, providing a deeper understanding of the obstacles to effective TVET-industry partnerships.

7.4 Contradiction analysis and discussion

The previous section presented the activity analysis of findings from the semi-structured individual interviews; this section presents a contradictions analysis of these findings to assist in understanding the depth of the challenges that emerged in the management and administration of TVET-industry partnerships. In any activity system, especially when multiple systems are involved in achieving a shared or partially shared objective, contradictions and tensions are likely to arise and must be addressed to align the systems effectively (Taylor, 2009). This is particularly relevant in partnership-building, where negotiations among partners are essential to navigate the contested terrain (Watt-Malcolm et al., 2007). Such misalignments and challenges present opportunities for the collective to innovate and discover new methods for achieving objectives that have not yet been realized (Engeström, 2018).

7.4.1 Primary contradictions: capacity needed to strengthen partnerships

Primary contradictions, as defined by activity theory, occur within individual elements of an activity system. In the context of the College's partnership-building practices, a primary contradiction related to the 'subject' element emerged as a challenge of insufficient capacity among those responsible for managing and sustaining partnerships. This lack of capacity hindered the effective execution of partnership-building activities and ultimately compromised the intended purpose of these collaborations.

The interviewees indicated that capability constraints manifested in several ways. First, there was a lack of dedicated focus, that is, participants' responsibilities extended beyond partnership

management. As Participant K explained, their duties included securing funding, supporting accreditation services, managing bursaries, overseeing occupational programmes, and providing student support. This wide range of responsibilities is likely to have a negative impact on the time and resources available for effective partnership development and maintenance. Second, there were human resource constraints. Participant J's statement ("... I don't know how the WIL Office functions well with such a lack of capacity ...") directly points to the strain on staff and resources within the Work-Integrated Learning (WIL) office, a key component of TVET-industry partnerships. Third, there were college-level challenges. A case in point is Participant C highlighting broader college-level issues contributing to the capacity problem, including a "lack of commitment from the college, weak internal structures, and unequal power dynamics". These systemic issues create an environment where individuals may struggle to manage partnerships effectively, even with sufficient individual capacity. Fourth, there was a need for enhanced capabilities: Participant D and Participant G emphasized the need to "capacitate the officials or the staff of the college" to "train unemployed youth" effectively. This suggests a recognition that the current capacity is not adequate for the demands of preparing students for the world of work and addressing broader societal challenges like unemployment.

In summary, the primary contradiction of capacity within the 'subject' element is characterized by a combination of overburdened roles, resource limitations, systemic college-level challenges, and a need for enhanced capabilities to support student success. Addressing this contradiction would strengthen the foundation of TVET-industry partnerships and ensure their effectiveness in achieving their goals.

7.4.2 Secondary contradictions: "in terms of budgets, we are still struggling"

Secondary contradictions often arise when elements within the system are misaligned, for example, when the tools used are either inappropriate or insufficient to achieve the desired objective. This could manifest as a lack of resources, or the absence of a budget dedicated to partnership-building activities (Taylor, 2009). Participant 1 felt that the resources of the object of partnership-building were adequate: "… there is a budget which is managed by Finance, so there's an allocation for partnerships". However, other participants felt that resources were inadequate. For example, a Placement Officer explained that she was expected to establish and manage partnerships but lacked essential resources such as transport and a budget. This tension between the Placement Officer's lack of tools and resources created operational challenges and limited her ability to achieve the object. Participant H concurred:

> When it comes to transport, it becomes a problem because we don't have a vehicle designated for the Placement Office …. Also, in terms of budgets, we are still struggling on that side.

This, then, created a tool/object contradiction where the lack of necessary tools and resources impeded the achievement of goals.

7.4.3 Tertiary contradictions: between the old and the new

Tertiary-level contradictions can emerge between a TVET management activity system and what Engeström (2001) refers to as its "historically evolving trajectory". These contradictions often involve conflicts between the activity system's current practices or norms and its future developmental path, as outlined in policy documents. Addressing these contradictions is challenging, as subjects must adopt new approaches and technologies to align with future goals (Engeström, 2001). There is a contradiction between the industry's need for prepared students versus the college's lack of support in work readiness that has evolved over decades of maladministration in the system. While the partnership aims to provide work readiness training, the lack of active involvement from college staff limits the effectiveness of these workshops. Participant G observed: "Sometimes there are colleagues from the college who are there to support, but their role is not as much as it should be … the college can take on a more active role." This contradiction – between what the college was and what it is becoming – means that students may not receive the necessary training and support to meet industry expectations, thereby impacting their employability. Without adequate preparation, students may struggle to perform effectively in their roles, leading to negative feedback from employers and reduced chances of securing permanent positions.

7.4.4 Quaternary contradictions: "finding the right partnership"

Quaternary contradictions, in activity theory, arise from tensions between multiple activity systems, particularly when these interconnected or interdependent systems exhibit conflicting goals, norms, or practices. In the context of TVET-industry partnerships, these contradictions often stem from the differing primary objectives of the respective systems.

A quaternary contradiction is the contradiction between the objects of the educational activity system and the industry activity system. The central purpose of the TVET college is the quality of student learning, while industry's central goal is production and profits. These differences in the objects, for fundamental purposes of the two organisations, creates inevitable tensions within the partnership management activity system, as the industry partners' focus on productive work may

not always align with the college's focus on education and training. Participant I showed his awareness of these contradictions (although not naming them as "contradictions") by explaining the need for "finding the right partnership" and "collaborating with partners who can employ their learners". This observation is pertinent where a college was located in a province with high unemployment rates. Much of the literature on TVET college-industry partnerships recommend securing partnerships that could potentially lead to employment (Harreveld & Singh, 2009; Klatt et al., 2018; Smith et al.,2011). The literature also raises concerns about the quality and relevance of industry-based training (Rauner, 2003; Sappa & Aprea, 2014) , which reinforces the point about selecting industry partners carefully to ensure that they have the capacity, not only for training, but to contribute to student development and meet their needs.

Another quaternary contradiction is that the college and the industry partner are accountable to different communities or stakeholders. While the college is accountable to the DHET and other funders, the industry partner is accountable to its shareholders. These different lines of accountability have implications for the role of colleges in socio-economic development. This creates something of a dilemma for the college. They need industry partners for student employability, but while the industry partners's focus on profit, the college's focus is on alleviating poverty. Participant K expressed this "double bind" (which is a term often used by activity theorists to describe the sometimes impossible situation caused by contradictions in the system):

> We need partners … so that we are able to fight unemployment … so we are able to fight poverty.

Participant K suggests that success of partnerships should align with the Sustainable Development Goals (SDGs). The United Nations (2023) and the United Nations Development Programme (2023) point out the role of multi-stakeholder partnerships in achieving these goals., Collaborations between local and national governments, industry, and communities are requirement for sustainable economic growth, reduction of inequality, and improvement of education (UNDP, 2023).

Beyond the differing primary objectives of the college and industry activity systems, quaternary contradictions also manifest in tensions between the TVET partnership management activity system and other related systems, such as skills-development and economic-development activity systems. For example, participants identified a cultural divide between the college and company, which created a need for active communication that is not met by the infrequency or absence of regular meetings. Participant G noted:

> The frequency of meetings … is not frequent at all. I think that would be the space where we could engage and look at the things that are not working.

Activity theory explains that contradictions show the way to future development. In this case, lack of clarity around the shared object of the partnership, and unresolved tensions between address poverty vs making profits impedes the overall effectiveness of partnerships, ultimately affecting the quality of student placements and their subsequent employability. Quaternary contradictions in TVET college-industry partnerships arose from the inherent tensions between the goals and practices of different activity systems. Addressing these contradictions requires the partners to communicate openly and frequently, to collectively establish objectives and priorities, as well as a commitment to collaborative problem-solving and systemic change.

7.5 The way forward – for one college

This section of Chapter Seven presents participant's elaborations on the implications of the findings on the management and administration of TVET college-industry partnerships, and how those systematic implications affect the primary stakeholders in partnerships initiation and maintenance. These primary stakeholders include students and lecturers as the primary beneficiaries of government initiatives to skill, reskill, and upskill the youths and adults who chose the TVET stream for career development. Common benefits to positive partnerships include skills and technologies transfer through WIL initiatives, whilst a lack of communication and funding and other systemic inefficiencies presented themselves as the biggest stumbling blocks to TVET-Industry partnerships endeavours. The concepts of 'boundary crossing', 'knotworking', and, 'expansive learning' (Engeström, 2009, 2015) were drawn on to analyse the practices described by participants and provided indications of emergent transformative agency to rescue a TVET college from the challenges identified in this study.

7.5.1 Boundary crossing: becoming entrepreneurial

Partnerships are dynamic processes that evolve over time in response to changing external conditions and internal dynamics. Boundary crossing, which involves interactions between different activity systems, can assist the process of innovation to solve problems. Engeström (2009) explains that boundary crossing occurs when individuals, tools, or ideas move between systems, facilitating the exchange of resources and expertise. This interaction can spark new ideas and lead to improvements and innovations, especially when multiple systems collaborate toward a shared goal (Flynn et al., 2015). When Participant H broadened the discussion to include entrepreneurship, noting that, while most students aim to be employed, industry partnerships

should also support those who "want to start their own businesses", she was engaging in boundary crossing. She mentioned that some students had "already started their businesses" but required additional support to succeed and eventually employ others. Although the TVET literature primarily focuses on employability, emerging research in developing economies, particularly those affected by youth unemployment and poverty, advocates for fostering entrepreneurship skills in TVET through multi-stakeholder partnerships (e.g., Remington, 2018; Legg-Jack, 2022).

7.5.2 Knotworking: "a host of different partnerships"

Another strategy to address contradictions within an activity system is knotworking, which involves collaborative problem-solving to overcome obstacles. Knotworking brings together diverse perspectives and expertise to address contradictions, such as a lack of capacity within a subject group or conflicting rules. This dynamic and evolving process often requires external support to recognize and facilitate the development of new practices (Engeström, 2008; Kerosuo et al., 2015). Participants engaged in knotworking by identifying the value of different types of partnerships. Participant C emphasised the value of industry training in providing students with practical, on-the-job experience to enhance employability. Participant F noted that such training helps in "upskilling the students". Some participants focused on finding partners to offer training workshops for students. Participant G mentioned that industry training also included "work-readiness workshops" for colleges. According to Participant J, industry partners worked with colleges for student development at both entry and exit levels.

Lecturer development-based partnerships involve supporting lecturers, ensuring they have relevant industry experience to bring real-world examples to their teaching. Industry partners offered spaces for lecturers to receive training during college holidays and facilitated exposure to industry practices (Participant C). Such partnerships for academic staff development have become more prominent and help bridge the theory/practice gap in TVET education (Participant A). Studies support the effectiveness of lecturer placements in industry (e.g., Duncan, 2017; De Paor, 2018).

The literature emphasises the importance of involving industry partners in curriculum development (e.g., Guile, 2011; Watters & Christensen, 2014). Participants noted partnerships for curriculum development or programme accreditation. For example, Participant K mentioned seeking partners for training programmes not yet accredited at their college, collaborating with accredited partners. Participant D highlighted a partnership with an international car manufacturing company to support a motor mechanic qualification, facilitating workplace exposure for students. Partnerships with

"sister colleges" were also seen as beneficial for addressing gaps in programme accreditation (Participant D).

Funding-based partnerships were valued for providing financial resources for student placements and enhancing college workshops with industry-standard equipment. Support came from entities like SETAs, QCTOs, and relevant businesses. The literature highlights the importance of industry contributions to college development for technological and economic growth (Okoye & Chijoke, 2014).

Some partnerships focused on institutional development and support. For instance, Participant A noted collaboration to improve academic performance. Additionally, industry representatives approached colleges to train their staff or clients, fulfilling the colleges' mandate to train the community (Participant D). TVET colleges were also tasked with implementing programmes in collaboration with local municipalities (Participant E).

7.5.3 Expansive learning: thinking out of the box

Expansive learning describes processes of transformative change and development within activity systems. It focuses on learning in diverse contexts and with diverse groups, enabling innovation by bringing different perspectives, experiences, and knowledge to an object. Expansive learning leads to restructuring activity systems and creating new forms of practice and knowledge, ultimately resulting in improved outcomes (Engeström, 2015; Sannino et al., 2016). During the interviews, participants engaged in expansive learning, offering a variety of ideas for enhancing partnership management and inspiring change. Participant G came up with the idea to "create committees in charge of overseeing partnerships". Such committees would comprise college and industry partners, and could be more effective than individuals with a particular job title and responsibility. Partnerships were multifaced and needed to improve student placements, as well as reconceptualise lecturers' roles in work-integrated learning. Similarly, Participants B and E felt that the work of partnerships "needed a team". Some participants called for "more partnerships" (Participant K) and others call for "more diverse partnerships" (Participant A), such as partnerships for funding (Participant D), infrastructure development and "donated equipment" (Participant I), lecturer development (Participant C), and technological innovation (Participant G). Participant G felt that "online internships" and other technology-enhanced placements "particularly in rural or semi-urban areas" could overcome geographical isolation or distance from the main businesses and industries.

While participants understood and supported value of collaborations that prioritise employability, they also started to see a range other purposes that college-industry partnerships might serve.

Participants recommended a number of practices that might strengthen partnership management. Participant F recommended "sharing practices" that had been effective, such as "visiting and interacting with partners on a regular basis" (Participant J). For Participant F it was important not to "overburden" the partnerships, focuses on priorities, such placement of students, while "streamlining" monitoring and assessment and feedback processes.

7.5.4 Transformative agency: future-oriented visions

In Activity Theory transformative agency refers to the ability of individuals and groups to change both their thinking patterns and their practices (Engeström, 2015; Sannino et al., 2016). By engaging in boundary crossing, knotworking and expansive learning (as describe in the sections above) participants were starting to develop transformative agency, or at least becoming aware of how they might be able to transform partnerships in ways that would be beneficial to students, the college and local communities. Emerging transformative agency became evident when the participants began to think more expansively about partnerships, including sharing their visions for what partnerships might look like and what they might achieve. Their future orientated ideas included forming oversight and management committees (Participant G), forming partnerships to "generate income" (Participant F), and forming partnerships to support a shift from employability to entrepreneurship (Participant H).

Some of the ideas put forward by the participants included novel ways to manage TVET-industry partnerships, such as "dedicated committees" comprising both sets of partners (Participant G). Not everything that the participants proposed was novel. Many confirmed the tried and true elements of good partnership management, such open lines of communication and regular interactions between the partners (Flynn et al., 2015). Some participants Participants share their practices and reflected on the impact of practices, such as regular interaction between the partners. Participant F, the Lecturer Placement Officer, described feeling "valued" by visits to college by the industry partner, who had also provided industry-standard equipment for the college programme and regularly met with lecturers to update them on industry practices. Participant E, an industry representative, commented that she always felt "welcome" when visiting the college. These small, but important encounters between college and industry partners laid the foundation for more substantive changes through transformative agency.

7.6 Conclusion: reflection on Chapter Seven

The activity theory framework, comprising the activity system, contradictions with the system and possibilities for transformative change enabled a system level analysis of college-industry partnerships. The analysis of the individual interview data through the application of the activity

theory framework revealed that colleges and related companies valued their partnerships, and both partners had allocated human and financial resources to the partnership. There were staff appointed in specific roles, both at the college and at the company, to carry out specific duties regarding the partnership. Funds were made available for travel, and resources were provided, not only for the programme, but for the partnership. However, what the analysis also revealed is that while the partnerships were valued, they were not always well-managed. For example, participants point out that there were insufficient interactions, which meant that the partners had not always clarified the object of the partnership. As Engeström (1995; 2001) has repeatedly pointed out: the object drives the activity system. When partners are at cross-purposes, or even only slightly misaligned, this has repercussions on the whole system. Similarly, poor communication and lead to misunderstanding, and even mistrust. The failure to implement formative monitoring and evaluation process meant that some partnerships slipped into bad practices. The participants felt that the formal agreements, that clearly defined roles and responsibilities, and which they had all signed were helpful, but that ultimately regular communication, interaction and trust were more important for partnership management. The challenges described by the partners highlighted the need for collaborative problem-solving strategies in partnership management.

The following chapter, Chapter Eight, is the conclusion to this study. In this Chapter recommendations for the management and administration of college-industry partnership are made, based on the contributions of the search participants, and the data analysis. A model to for the management and administration of TVET college-industry (TIP) partnerships is also presented in Chapter Eight.

CHAPTER EIGHT:
CONTRIBUTION, RECOMMENDATIONS AND CONCLUSION

8.1 Introduction to Chapter Eight

This chapter concludes the study. In the following section (8.2) the research sub-questions are addressed, after which the TVET College-Industry Partnerships (CIP) Management Framework is presented (Section 8.3). As an interdisciplinary study, contributions are made to both the field of public administration and to the field of technical and vocational education and training. The CIP model represents the main contribution to the field of public administration. In Section 8.4 recommendations, supported by the findings of the environmental scan (Chapter Five), the focus group survey/interviews (Chapter Six) and individual interviews (Chapter Seven). The final section (8.5) is a reflection on the study, and a justification of its knowledge contribution to both public administration and to the field of technical and vocational education and training.

8.2 Addressing the research sub-question

This section synthesises data across the three findings chapters (i.e., Chapters 5, 6 and 7), by summaries the relevant findings to address each research sub-question.

8.2.1 Sub-question 1: How are TVET college-industry partnerships managed and administered in South Africa?

Findings from the environmental scan show considerable variation across the partnerships. Some colleges have many partnerships, while others have fewer partnerships. Some colleges have partnerships across many sectors, some focus on one or two sectors. Further investigation through the survey/focus group and the individual interviews revealed that the colleges faced challenges in the management and administration of these partnerships. Participants shared both best practices and challenges. Best practices included: good communication channels and regular contact and interaction between partners (such as regular visits to each others' workplaces). Formal agreements, such as MoUs, MoA, and SLAs were useful, but were insufficient. Key challenges that were pointed out by the research participants include: lack of regular monitoring and evaluation, as well as a need for clear policies and procedures that understand partnership as a process from partnership building and maintenance to partnership development and growth. Participants had varying opinions on the adequacy of the resources provided to them for partnerships management. Thus, where partnership exist, their effectiveness could be enhanced by improved management and administration practices.

8.2.2 Sub-question 2: What can we infer regarding the formation, upkeep, and continuation of TVET-industry partnerships during the previous three years?

This sub-question explored the processes involved in establishing, maintaining, and sustaining partnerships over the past three years. Partnerships were initiated through various methods, including direct contact, formal agreements (e.g., MoUs, MoAs, SLAs), and networking events. Participants found formal agreements important for defining roles and responsibilities. However, they were insufficient to guide the partnership. Participants pointed to some of the underlying factors, such as differences in the object driving the TVET system and the industry system, that that caused contradictions and tensions, influenced how partnerships were formed and how they evolved. While many factors influenced how partnerships were managed, the participant focus group and individual interviews showed the need for clearly defined purposes of the partnership, but also room for flexibility and growth over time. 8.2.3

Sub-question 3: What has been the outcome of the TVET-industry partnership management and administration over the past three years?

The research participants named several positive outcomes of their partnerships with relevant industries and enterprises. The positive outcomes include the following: student' skills development and employability, the provision (often by the industry partner) of industry-standard equipment for training, useful contributions by industry partners to curriculum development and revision, better connections between the college and the related industries, such as on-campus training by industry partners on up-to-date specialized equipment. Many lecturers benefitted from placements in industry which enabled them to include relevant and current examples of practice in their teaching. There were a few negative outcomes, such as: continued mistrust amongst partners and a lack of understanding of each other's cultures and priorities.

8.2.4 How can TVET college-industry partnership management and administration be improved and structured?

The role of managers is to build on the positive outcomes and mitigate the negative outcomes (as pointed out in Section 8.2.3 above). Overwhelmingly, the research participants emphasised the need for improved communication and regular interactions between college and industry partners. They thus highlighted the social connection needed in effective partnerships. While defined roles and responsibilities, the provision of adequate resources, and ongoing monitoring and evaluation are basic, over and above this, social connections were needed and productive spaces created to collectively challenges, such as differences between educational and industry priorities and needs. This implies a need for a more systematic and collaborative approach to partnership management

8.3 The TVET College-Industry Partnership (CIP) Management Framework

This is an interdisciplinary thesis that contributes to the fields of both public administration and education. Knowledge-building in the field of public administration requires a novel contribution to the effective management and administration of public institutions and the services they provide. Based on the ideas of activity theory and the results of this empirical research study, the TVET CIP Management Framework contributes a novel, systemic approach to the administration and management of TVET college-industry partnerships. Models are needed in the field of public administration because they explain the resources and processes needed to enhance management practices in public institutions, in this case in TVET colleges. The CIP model shows how the management of college-industry partnerships can be strengthened, for the benefit for students, colleges, industry, and communities, thereby contributing to more effective use of public resources. In practice, public administration is predominantly involved in policy implementation. The CIP model provides a practical tool for the implementation of TVET policies, in this case focus on policy directive on skills development through college-industry partnerships. The CIP model shows how policy goals can be implemented in a sequence of logical steps. As public administration stakeholder management, the CIP model is inclusive, addressing the diverse needs and expectations of various stakeholders (colleges, industry, students, government, local communities), providing a framework for collaboration and coordination. Finally, public administration emphasises accountability and good governance. The model promotes transparency, clear roles and responsibilities, and monitoring and evaluation, all of which contribute to better governance of TVET college-industry partnerships. The TVET CIP Management Framework is a model developed to guide the administration and management of TVET college-industry partnerships in South Africa.

Figure 8.1 is a diagrammatic representation of the components for effective current partnerships. It simultaneously provides a strategy towards enhancing existing partnerships, and promoting future partnerships so that they are established on a solid foundation and are effectively supported to achieve all set goals in all identified areas of collaborations for the benefit of all partners involved. The central line of the model represents people and policies. The vertical line to the left of the centre represents the actions of sourcing and/or initiating partnerships, achieving clarity on the purpose of the partnerships, and engaging in maintaining and sustaining practices across the duration of the partnership. The vertical line on the right of the centre represents the policy guidelines that are necessary to formalise agreements, to effectively implement and roll out partnerships, and to monitor and evaluate them on an ongoing basis.
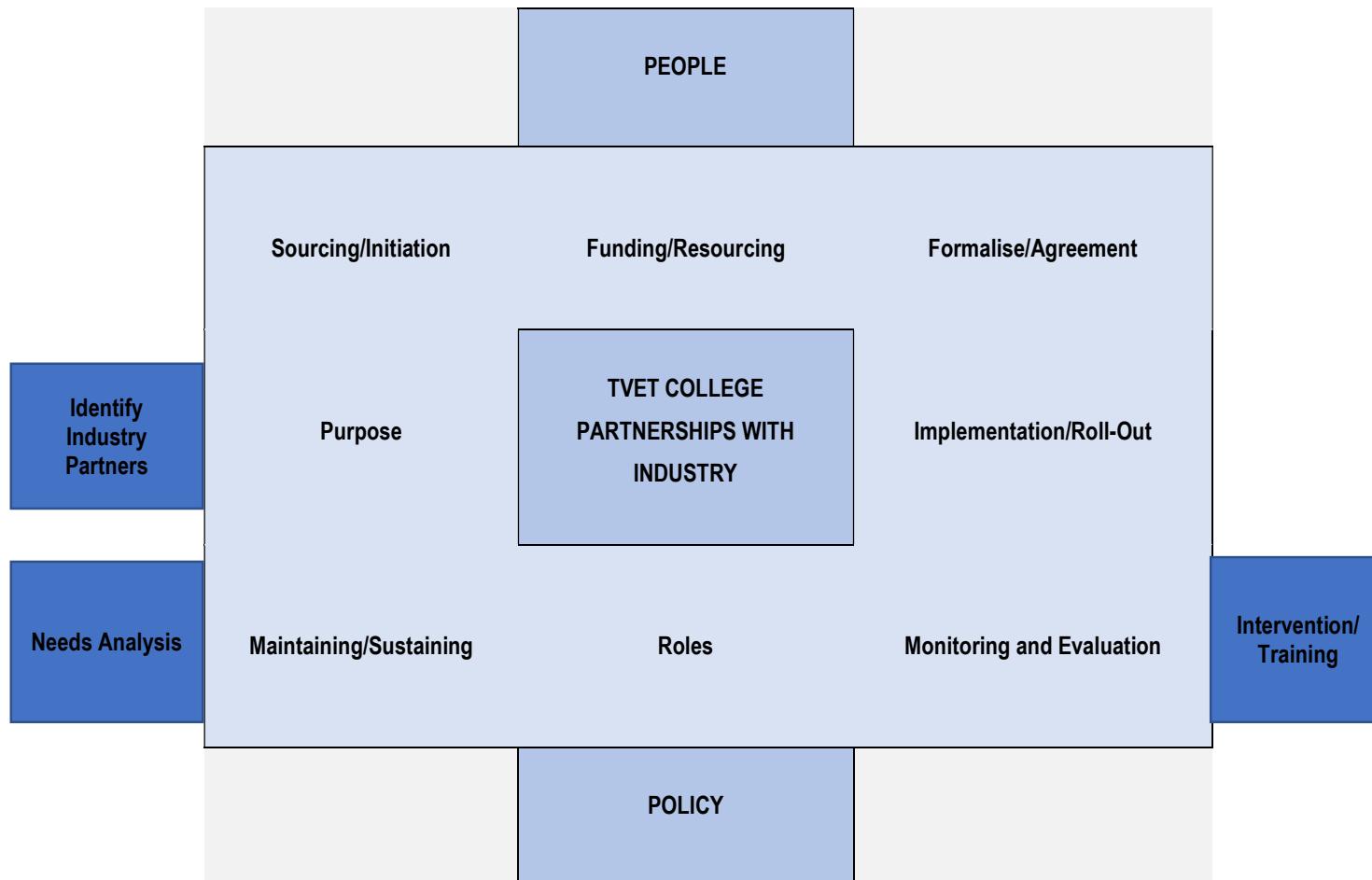
Figure 8.1: TVET College-Industry Partnerships (CIP) Management Framework

Adapted from Engel-Hills, P., Winberg, C. & Njengele, T. (2023). *TVET College Industry Partnerships. DHET/TVET Division. Technical Report 2.4.*
https://www.dhet.gov.za/SitePages/Reports.aspx [15 October 2023].

The first horizontal line connects the actions of initiating, finding resources and formalising, while the second horizontal line extends beyond the main square, suggesting that pre-partnership activities, such as the identification of potential partners, following which the clarification of the purpose of the partnership is essential. The final horizontal line similarly suggests pre-partnering activities, such as a needs analysis, understanding maintenance requirements, role clarification, as well as ongoing interventions and training that extend beyond the actual partnership.

8.3.1 Components of the TVET CIP Management Framework

As visually represented in Figure 8.1, the framework comprises several key components which collectively contribute to successful partnership engagements. These components can be broadly classified into three main categories.

8.3.2 Classification of the components of the CIP framework

8.3.2.1 People

This element emphasizes the critical role of individuals involved in the implementation, rollout, and maintenance of TVET College-Industry partnerships. The experience and relationships of these individuals are crucial for effective partnership management.

8.3.2.2 Policy and procedure

Clear and logical policies and procedures (based on activity theory and this empirical study) are the foundation of CIP Framework. effective partnership management and administration, and core to effective TVET college and industry collaboration.

8.3.2.3 Phases of the CIP Management Framework Life Cycle:

The CIP framework proposes eight key phases for life cycle of in partnership that describe its establishment, maintenance and growth. The eight phases in the partnership life cycle, as identified in the framework, are:

- **Initiating the partnership:** Before a partnership is established, potential partners need to be identified and approached by the TVET college, usually in collaboration with a national (e.g., SETA) or local authority (e.g., a municipality).
- **Establishing the purpose:** This phase involves all partners in discussions to clarify the purpose of the partnership and ensure that they are benefits for students, college and company.

- **Roles:** In the this phase the roles and responsibilities of the partners are clarified as specified.

- **Funding for partnerships:** This entails drawing up budgets and allocations to ensure that there is adequate funding and other resources, including student stipends, to implement the partnership activities.

- **Formalising the partnerships:** This phase entails the writing of formal agreements, such as MOUs, MOAs and SLAs.

- **Implementation:** This phase involves implementing the agreements, such as lecturer and/or student training, site visits, student placements, and other activities as stipulated in the agreement.

- **Monitoring and evaluation:** Once implementation takes place, there should be and ongoing monitoring and evaluating to check on progress and provide feedback for ongoing improvement.

- **Maintaining:** In this phase. managers continue to build and support the partnership through well-functioning channels of communication and regular interactions. It is also a phase for development and change (through feedback from monitoring and evaluation)/

8.3.3 How the CIP Management Framework strengthens partnerships

The TVET CIP Management Framework strengthens TVET college-industry partnerships by building on the good practices shared by research participants, such as engaging in pre-partnership discussions to clarify the purpose and benefits of the partnership. The CIP Framework also incorporates generally acknowledge principles of good public administration, such as clear policies and procedures to follow, enduring that there is role clarification, adequate support and training, and ongoing monitoring and evaluation. It extends conventional wisdom in public administration to place emphasis on the social dimension of partnership, such as need for good communication about all aspects of the partnerships and regular interactions, that have a social function, as well as a function related to planned outcomes of the partnership. The CIP Management Framework focuses on achieving outcomes collaborative and collegially to enhance students' skills and employability as well as contribute to the goals of both college and industry.

8.4 Recommendations

In this section recommendations are made for enhancing TVET college-industry partnerships. These recommendations are based on the findings of the environmental scan (Chapter Five), the survey/focus group interviews (Chapter Six) and the individual interviews (Chapter Seven). These recommendations are offer in key strategic areas identified by participants as likely to promote effective partnership management and administration.

8.4.1 Improving communication and collaboration

Recommendation 1: Implement strategies to foster more frequent, open, and effective communication between TVET colleges and industry partners.

The supporting evidence for this recommendation is that participants consistently highlighted poor communication as a significant challenge. The need for "regular engagement and communication" (Team 5) was emphasised by most teams as well as individual participants. For example, Participant G stated, "The frequency of meetings … is not frequent at all. I think that would be the space where we could engage and look at the things that are not working".

Recommendation 2: Establish mechanisms for structured collaboration and joint problem-solving between college and industry stakeholders.

Evidence in support of Recommendation 2 can be found in the contradiction analyses that revealed tensions arising from differing goals and a what Participant G called a "lack of synergy" between colleges and industry. Team 17 called for "collaborative initiatives" to address areas where partners were misaligned.

8.4.2 Clarifying roles and responsibilities

Recommendation 3: Clearly define and communicate the roles and responsibilities of all stakeholders involved in TVET-industry partnerships.

The supporting evidence comes from participants' emphasis on the importance of clearly defined roles in formal agreements. Participant A stated that agreements should specify "which partner is going to do what". The absence of role clarity contributed to partnerships "floundering" (Team 6).

8.4.3 Ensuring adequate resources and funding

Recommendation 4: Allocate sufficient financial, human, and operational resources to support the effective management and administration of TVET-industry partnerships.

Participants identified resource constraints and funding issues as significant challenges. Participant F pointed out "a lack of resources in their section". Several other individual participants and teams similarly stated the need for funding and team resources.

8.4.4 Implementing effective monitoring and evaluation

Recommendation 5: Establish and implement systematic monitoring and evaluation processes to assess the effectiveness of TVET-industry partnerships.

Participants highlighted a "lack of assessments to gauge their effectiveness" (Team 15), while Participant A mentioned that "none of the MOUs included assessments". Monitoring and evaluation were regarded by both individual participants and teams as important.

8.4.5 Formalising partnership agreements

Recommendation 6: Ensure that all partnerships are formalised through comprehensive agreements, such as MOUs, MOAs, or SLAs, that clearly outline the terms and conditions of the collaboration.

Participants and team emphasised the importance of formal agreements for guiding partnerships and ensuring accountability. As Participant A pointed out: "Each partnership [should be] concluded through a signed document ...."

8.5 Concluding reflection: contribution to knowledge

This study contributes to the management and administration of TVET college-industry partnerships, that is both empirically informed by its South African context, but which is also theoretically-informed by the concepts of activity theory. The study's originality lies in its theorisation of the challenges and opportunities evident in college-industry partnerships in the South African context, as well as its evidence-informed development of a novel approach, the CIP Framework for managing the challenges and maximising the opportunities.

Contribution to TVET: The quality of educational provision in the TVET sector is, to an extent, dependent on its industry partnerships. Industry partners, as the study shows contribute to student development, lecturer development, curriculum development and college development. By addressing how partnership management can be enhanced, the study makes a contribution to TVET provision.

Contextual contribution: The research provides a deeper understanding of the complexities of TVET-industry partnerships and their impact on various stakeholders, including students, lecturers, colleges, and industry partners. This is particularly relevant in South Africa, where international models of TVET-industry collaboration, such as the German model, are tempting

to introduce, but unlikely to be effective for addressing youth unemployment in under-developed areas of the country.

Contribution to public administration: By offering a structured framework (the TVET CIP Management Framework) to guide the administration of TVET college-industry partnerships, the study makes a contribution to public administration knowledge and practice.

The contribution to knowledge in public administration is in its activity theory-based analysis of TVET college-industry partnerships that identified underlying contradictions and tensions, as well as areas for regeneration and growth. The CIP Framework includes novel concepts, such as the social dimension of partnerships, arising from the research study, to develop an instrument for enhancing the efficacy and efficiency of college-industry collaboration.

The contribution that this study makes to public administration practice is the development of a practical framework to enhance the management of college-industry partnerships. The CIP framework thus provides a novel approach to managing TVET college-industry partnerships, addressing the gaps in current practices by research participants and offering a process, that builds on locally effective forms of collaboration across differences. The CIP Management Framework is based on the activity theory analysis and well as the empirical research findings. The CIP Framework has the potential to improve the effectiveness of these partnerships, leading to better outcomes for students, colleges, and industry, and contributing to national development goals.

8.6 Future research

While this study focused on proposing a framework to promote TVET college-industry partnerships management and administration in South Africa, through the use of activity theory, several contradictions surfaced: the location of businesses versus the sites of TVET colleges; the programmes offered at the colleges versus the market needs addressed by industry; the number of placements possible in industry versus the number of students to be placed; delays in payment of student stipends versus ability of host employers to provide payments; and the college's need for sustainability and expansion of partnerships versus industrial challenges following COVID-19 (coupled with electricity instability or load-shedding). Through the adoption of the proposed CIP framework in this study, some of these contradictions could be addressed in the area of partnership management and administration. However, there is a need to conduct further research on the contradictions inherent in the TVET activity system with a view to resolving challenges with a direct impact on the TVET curriculum and the modes of curriculum delivery.

8.7 Reflections

In reflecting on this study, the challenge of insufficient industry partners was one of the most resounding findings. Some colleges are now moving beyond the boundaries of the catchment area of the institution to seek partnerships in more urban industrialised areas. This is solving some immediate needs; but only time will tell if this is a sustainable solution for effective college-industry partnerships across the country. Another option adopted by colleges was to source more partners amongst government departments. Where there are challenges within a particular partnership that cannot be easily or quickly overcome, the suggestion given by participants was that "the college then move students from one partner to another" (Team 19).

Funding was the most frequently stated challenge, and the management solutions offered included that "SETAs must prioritise internships at colleges and that private funders should be recruited" (Team 10). It also appears that the establishment of more SETA offices would contribute to solving many of the funding and other challenges.

Several colleges suggested that "SETAs should be hosted within the premises of the College to improve working relations and ensure that some challenges are dealt with at an early stage"; and, at the end of the continuum, there was the suggestion that "offices for all SETAs should be in all colleges" (Team 18). Hence, while there is a justifiable call for more funding to meet the demands of the TVET sector about WIL, such as grants for all students for placement opportunities, a lot could be achieved in the interim by refining the efficiencies in the system to facilitate optimal use of existing funding.

The challenge of curriculum relevance has driven some colleges to embark on curriculum renewal to "respond to the needs of the market" (Team 2). To do this effectively, the "involvement of Business/Industry in curriculum development is essential" (Team 21). Of note is that computer literacy was extracted as one generic outcome that "should be in the curriculum of every qualification" (Team 5)' and it is anticipated that workplaces could contribute significantly to closing this gap.

A generic recommendation to all challenges was that proper planning and regular communication are needed to focus on long-term benefits for the TVET and industry partners so that they work together to find ways to overcome the hurdles and weaknesses in the system. It is on record that participants would welcome an intervention by the Department of Higher Education and Training (DHET) to assist TVET colleges in responding effectively to the growing need for work placements.

8.8 Conclusion

Based on the findings emanating from the data presented in this study, together with the implication of findings, this chapter presented recommendations for practice and contributions to new knowledge. This chapter recommended a framework,

Having studied the multifaceted landscape of TVET college-industry partnerships through the lens of Activity Theory, this thesis offered recommendations for practice and contributions to new knowledge. In particular, the study developed the TVET College-Industry Partnerships (CIP) Management Framework, to strengthen the management and administration of TVET college-industry partnerships. The application of Activity Theory was instrumental in revealing the complex interplay of subjects, objects, tools, rules, community, and division of labour within partnerships, showing not only their inherent contradictions but also many opportunities for improvement and development. This research shows that effective partnership-building is not a collection of isolated practices but an evolving activity system, where intentional interventions, guided by a deep understanding of the interwoven elements, can foster transformative outcomes for students, colleges, and industry partners alike. By illuminating the dynamic nature of collaborations and providing a framework for their systematic improvement, this study offers a way to initiate, support and develop sustainable and mutually beneficial TVET-industry partnerships, ultimately contributing to a more skilled workforce and robust economic growth.

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APPENDICES

APPENDIX A: ETHICS CLEARANCE AND PERMISSIONS

The copy of the ethics clearance certificate is attached below:

P.O. Box 1906 • **Bellville 7535 South Africa** •**Tel: +27 21 4603291** • **Email: fbmsethics@cput.ac.za Symphony Road Bellville 7535**

Office of the Chairperson Research Ethics Committee	FACULTY: **BUSINESS AND MANAGEMENT SCIENCES**

The Faculty's Research Ethics Committee (FREC) on **20 October 2020**, ethics **Approval** was granted to **Tuletu Nongauza-Njengele (219483140)** for a research activity **Doctor of Public Administration** at Cape Peninsula University of Technology.

Title of dissertation/thesis/project:	**A framework to promote TVET college-industry partnerships management and administration in South Africa** Lead Supervisor (s): Dr S. E. Cronje / A/Prof J. Nduna

Comments:

Decision: APPROVED

	17 November 2020
Signed: Chairperson: Research Ethics Committee	**Date**

Clearance Certificate No | 2020FOBREC832

Enquiries: Ms R Pillay; Tel: (012) 312-5093; e-mail: Pillay.R@dhet.gov.za

Mrs T Nongauza-Njengele
No. 4 Tugela Avenue
Greenfields
EAST LONDON
5201

                                              By e-mail: Tuletu715@yahoo.co.uk

                              Dear Mrs Nongauza-Njengele

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING COLLEGES: A FRAMEWORK TO PROMOTE TVET COLLEGE-INDUSTRY PARTNERSHIPS MANAGEMENT AND ADMINISTRATION IN SOUTH AFRICA

I acknowledge receipt of your request for permission to conduct research in Technical and Vocational Education and Training (TVET) Colleges on the topic: "A framework to promote TVET college-industry partnerships management and administration in South Africa".

The Department of Higher Education and Training (the Department) has evaluated your request and it is my pleasure to inform you that your request for permission to conduct the above research has been granted.

As part of your research, it is noted that you would collect data through surveys with:

- 50 TVET College Principals;
- 50 TVET College Deputy Principals (Partnerships); and
- 50 TVET College Placement Officers.

You would also undertake interviews with:

- 50 TVET College Principals;
- 50 TVET College Deputy Principals; and
- 50 TVET College Placement Officers.

You are advised to obtain further permission from the participants before commencing with your study. You are also requested to attach the following documents when communicating with participants:

Higher Education and Training • Hoër Onderwys en Opleiding • Imundvo Lephakeme Nekucecesha • Ifundo Ephakemeko Nebandulo IMfundo Ephakeme Nokuqeqesha • IMfundo ePhakamileyo noQeqesho • Dyondzo ya le Henhla na Vuleteri • Pfunzo ya Ntha na Vhugudisi Thuto ya Godimo le Tlhahlo • Thuto e Phahameng le Thupelo • Thuto e Kgolwane le Katiso

1. Copy of this letter from the Department;
2. Copy of the "completed application form" to conduct research; and
3. Ethics Clearance Certificate from the Cape Peninsula University of Technology.

The topic of your research is of great interest to the Department. It will therefore be appreciated if you could share the findings of your research with the Department upon completion of your research.

I wish you all of the best in your research study.

Yours sincerely

N Gasa

           Ms N Gasa

Deputy Director-General
Date: 25 February 2021

APPENDIX B: A STRUCTURED SURVEY INTERVIEW GUIDES AND AN INFORMED CONSENT LETTER

APPENDIX B1: Interview Survey

Topic: A framework to promote TVET college-industry partnerships management andadministration in South Africa

• Interviewer: Tuletu Nongauza-Njengele

• Interviewee: Principal; DP Principal managing partnerships; Placement / LearnershipsOfficers in TVET Colleges and Industry Representatives.

• Opening remarks: This study is part of the Department of Higher Education and Training(DHET) Research Project that has been commissioned to the University of Western Cape

(UWC). The UWC has partnered with a number of universities including the Cape PeninsulaUniversity of Technology (CPUT) to undertake parts of this project (see Appendix C attached).

▪ Main Research Question

The main question addressed is: What framework can be generated/modelled to promoteTVET-industry partnerships management and administration?

▪ Sub-questions

1. To what extent have South African TVET Colleges succeeded in TVET-industrypartnerships management and administration?

2. How have the TVET-Industry partnerships been established, maintained and sustainedover the past 3 years?

3. What has been the outcome of the TVET-Industry partnership management andadministration over the past 3 years?

4. How can TVET college-industry partnerships management and administration beimproved and promoted?

1. Email *

_____

SCTIOM A: RLIIMARY AM BIORAICAL IMFORATIOM

2.   **1**. A**1**A: For how long have you been working in your institution?

_____
_____
_____
_____
_____

3.   **2**. A**1**B: For how long have you been working with TVET-Industry partnerships?

_____
_____
_____
_____
_____

4.   **3**. A**1**C: What is your contribution to the management and administration of partnerships?

_____
_____
_____
_____
_____

<center>**SCTIOM B1: VALUATIOM OF TVT-IMUSTRY ARTMRSIS**</center>

IMTROUCTIOM: This section deals with issues of evaluation. It is aimed at evaluating the extent to which the TVET-industry partnership management and administration in South African TVET Colleges has succeeded in its mandate. It will answer the first sub-question of the study, namely: _To what xtnt hav South Arιan TVET Colls suιιdd n TVET-ndustry partnrshps manamnt and admnstraton_?

5. **4**. B**1**A: Has your institution established partnerships with industry in the last three years?

_____

_____

_____

_____

_____

6. **5**. B**1**B: If yes: Which industries /companies has your institution partnered with?

_____

_____

_____

_____

_____

7. **6**. B**1**C: If no: What is stopping your institution from establishing industry partnerships?

_____

_____

_____

_____

_____

8. **7**. B**1**: To what extent are the current industry partnerships effective? State reasonsfor your answer.

_____

_____

_____

_____

_____

SCTIOM B2: XAIMATIOM OF SUSTAIMABILITY OF TVT-IMUSTRY ARTMRSIS

IMTROUCTIOM: This section deals with issues of sustainability. It is aimed at examining how the TVET-Industry partnerships have been established, maintained and sustained over the past 3 years. It will answer the second sub-question of the study, namely: *How hav th TVET-Industry partnrshps bn stablshd, mantand and sustand ovr th past 3 yars*?

SCTIOM B2: ART 2: STABLIS

9.   **1**. B**2**A: How did you initiate partnerships with your partners?

_____

_____

_____

_____

_____

10.   **2**. B**2**B: Which processes did you follow to establish partnerships?

_____

_____

_____

_____

_____

11.   **3**. B**2**C: How do you know that a partnership has been established correctly?

_____

_____

_____

_____

_____

SCTIOM B2: ART 3: AIMTAIM

This is a continuation of B2:

12. **1**. B**2**: What measures have you put in place to ensure that your partnerships arewell maintained?

_____

_____

_____

_____

_____

13. **2**. B**2**: How do these partnerships work?

_____

_____

_____

_____

_____

14. **3**. B**2**F: What are elements of good practice in TVET-College-Industry partnerships management?

_____

_____

_____

_____

_____

SCTIOM B2: ART 4: SUSTAIM

This is a continuation of B2:

15. **4**. B**2**: What measures have you put in place to sustain partnerships during implementation?

_____

_____

_____

_____

_____

16. **5**. B**2**: How do you measure the performance of partnerships?

_____

_____

_____

_____

_____

SCTIOM B3: OUTCOS OF ARTMRSIS

IMTROUCTIOM: This section deals with issues of outcomes. It is aimed at gaining insights into the outcomes of the TVET-Industry partnership, management and administration. It will answer the third sub-question of the study, namely: _What has bn th outom o th TVET-Industry partnrshp manamnt and admnstraton ovr th past_ 3 _yars_?

17. **1**. B**3**A: Which sector/s (type of business/es) has/have been advanced by your partnerships?

_____

_____

_____

_____

18.   **2**. B**3**B: How has that sector / those sectors (type of business/es) been advanced?

19.   **3**. B**3**C: How has your institution been advanced by your partnerships?

20.   **4**. B**3**: What are challenges presented by these partnerships?

21.   **5**. B**3**: What can be done to address those challenges?

SCTIOM C: IROVMT OF ARTMRSIS

IMTROUCTIOM: This section deals with issues of improvement of partnerships. It is aimed at gaining insights into the extent to which TVET-Industry partnerships, management and administration can be improved and promoted. It will answer the fourth sub-question of the study, namely: *How an TVET oll-ndustry partnrshps manamnt and admnstrato b mprovd and promotd*?

22.　　**1**. C**1**A: How can existing partnerships be improved?

_____

_____

_____

_____

_____

23.　　**2**. C**1**B: What suggestions do you have to ensure effective partnerships management and administration

_____

_____

_____

_____

_____

24.　　**3**. C**2**C: Are new partnerships needed?

_____

_____

_____

_____

_____

25.   **4**. C**2**: If yes, which partnership categories? If no, give reasons why new partnerships are not needed?

_____

_____

_____

_____

_____

SCTIOM : R-VALUATIOM OF **TVT-MUSTRY ARTMRSS**

This section seeks to evaluate TVET-Industry partnerships, with the aim of developing "A framework to promote TVET college-industry partnerships management and administration in South Africa".

Instructions:

Please choose an answer from the options where applicable.

26.   .**1**. Indicate the age group that you fall into

Mark only one oval.

◯ 18-24 years

◯ 25-34 years

◯ 35-55 years

◯ 56-64 years

27.   .**2**. Educational level

Mark only one oval.

○ Diploma

○ Degree

○ Honours

○ Masters

○ PhD

28.   .**3**. For how long have you been an administrator, working with partnerships?

Mark only one oval.

○ 1-2 years

○ 3-5 years

○ 6-10 years

○ 11-15 years

○ > 16 years

29.   .**4**. What is your portfolio or function in the institution?

Mark only one oval.

○ College Principal

○ DP-Managing Partnerships

○ Placement Officer

○ Learnership Officer

○ Industry Representative

SCTION : VALUATION OF TVT-INUSTRY ARTMRSIS

INTROUCTION: This section deals with issues of evaluation. It is aimed at evaluating the extent to which the TVET-industry partnership management and administration in South African TVET Colleges has succeeded in its mandate. It will answer the first sub-question of the study, namely: *To what xtnt hav South Aran TVET Colls sudd n TVET-ndustry partnrshps manamnt and admnstrato*

Please classify and indicate the industry partner, duration of partnership and who initiatedthe partnership for each partnership category.

artnerships for student development

Please classify the industry partner and duration of partnership for each partnership category.

30.　**1**.**1** Partnerships for student development - who initiated the partnership

_____

31.　**1**.**1** Partnerships for student development - start date of partnership

_____

Example: January 7, 2019

32.　**1**.**1** Partnerships for student development - end date of partnership

_____

Example: January 7, 2019

33.　**1**.**1** Partnerships for student development - who initiated the partnership

_____

34.　1.2 artnerships for lecturer developmentt - Industry Partner

_____

35.   **1**.**2** Partnerships for lecturer development- start date of partnership

_____

Example: January 7, 2019

36.   **1**.**2** Partnerships for lecturer development - end date of partnership

_____

Example: January 7, 2019

37.   **1**.**2** Partnerships for lecturer development - who initiated the partnership

_____

38.   1.3 artnerships for programme development - Industry Partner

_____

39.   **1**.**3** Partnerships for programme development - start date of partnership

_____

Example: January 7, 2019

40.   **1**.**3** Partnerships for programme development - end date of partnership

_____

Example: January 7, 2019

41.   **1**.**3** Partnerships for programme development - who initiated the partnership

_____

42.   1.4 artnerships for institutional development - Industry Partner

_____

43. **1.4 Partnerships for institutional development - start date of**

_____

Example: January 7, 2019

44. **1.4 Partnerships for institutional development - end date of**

_____

Example: January 7, 2019

45. **1.4 Partnerships for institutional development - who initiated the partnership**

_____

46. **1.5 Any other industry partnership category - Industry Partner**

_____

47. **1**.5 Any other industry partnership category - start date of partnership

_____

Example: January 7, 2019

48. **1**.5 Any other industry partnership category - end date of partnership

_____

Example: January 7, 2019

49. **1**.5 Any other industry partnership category - who initiated the partnership

_____

50. **1.6 ention Any other industry partnership category - Industry Partner**

_____

51.   1.6 Any other industry partnership category - start date of

_____

Example: January 7, 2019

52.   1.6 Any other industry partnership category - end date of

_____

Example: January 7, 2019

53.   1.6 Any other industry partnership category - who initiated the partnership

_____

2: rocess

 Please select the option which applicable to you.

The partnerships went through the following processes:

54.   2.1 We held meetings to discuss the vision and mission of the partnership

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Never

55.   **2.2 We defined the rules for the**

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Never

56.   **2**.**3** We set out the roles of each partner

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Neve

57.   **2**.**4** We set out the responsibilities of all partners

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Neve

58. **2.5 We signed a memorandum of agreement**

Mark only one oval.

- ( ) All of the time
- ( ) Very often
- ( ) Sometimes
- ( ) Rarely
- ( ) Neve

59. **2**.6 We implemented our planned activities together as partners

Mark only one oval.

- ( ) All of the time
- ( ) Very often
- ( ) Sometimes
- ( ) Rarely
- ( ) Neve

60. **2.7** We monitored the progress through communication

Mark only one oval.

- ( ) All of the time
- ( ) Very often
- ( ) Sometimes
- ( ) Rarely
- ( ) Neve

61. **2.8 We monitored progress through**

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Never

62. **2**.9 We evaluated the results of the partnership

Mark only one oval.

◯ All of the time

◯ Very often

◯ Sometimes

◯ Rarely

◯ Never

3: aintenance of partnerships

My institution has maintained the partnership through:

63. **3.1** Meetings

Mark only one oval.

◯ Excellent

◯ Good

◯ Fair

◯ Poor

◯ Not good at all

64. **3.2 Workshops**

Mark only one oval.

◯ Excellent

◯ Good

◯ Fair

◯ Poor

◯ Not good at all

65. **3.3** Special Events

Mark only one oval.

◯ Excellent

◯ Good

◯ Fair

◯ Poor

◯ Not good at all

66. **3.4** Other (Please specify)

_____

_____

_____

_____

_____

67.   **4 (i) The measures mentioned in B3 have**

Mark only one oval.

    ◯ Excellent

    ◯ Good

    ◯ Fair

    ◯ Poor

    ◯ Not good at all

68.   **4 (ii) Please motivate your response in number B4(i)**

_____

_____

_____

_____

_____

SCTIOM F: IROVMT OF ARTMRSS

IMTROUCTIOM: This section deals with issues of improvement of partnerships. It is aimed at gaining insights into the extent to which TVET-Industry partnerships, management and administration can be improved and promoted. It will answer the fourth sub-question of the study, namely: *How an TVET oll-ndustry partnrshps manamnt and admnstrato b mprovd and promotd?*

F1: Suggestions for improvement of TVT college-industry partnership(s)

y suggestion(s) for improving the TVT college-industry partnership(s) relate to:

69.   F**1.1 Better**

Mark only one oval.

○ Strongly agree

○ Agree

○ Slightly agree

○ Strongly Disagree

○ Disagree

○ Strongly

   disagree   ○

70.   F**1.2** Formalization of partnership

Mark only one oval.

○ Strongly agree

○ Agree

○ Slightly agree

○ Strongly Disagree

○ Disagree

○ Strongly

○ disagree

71.   F**1.3** Increased stakeholder participation

Mark only one oval.

- ◯ Strongly agree
- ◯ Agree
- ◯ Slightly agree
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Strongly
- ◯ disagree

72.   F**1.4**Clear roles and responsibilities of partners

Mark only one oval.

- ◯ Strongly agree
- ◯ Agree
- ◯ Slightly agree
- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Strongly
- ◯ disagree

73. F**1.5** Clear and mutual beneficial partnerships

Mark only one oval.

○ Strongly agree

○ Agree

○ Slightly agree

○ Strongly Disagree

○ Disagree

○ Strongly

○ disagree

74. F**1.6** Proper monitoring and evaluation of the partnership

Mark only one oval.

○ Strongly agree

○ Agree

○ Slightly agree

○ Strongly Disagree

○ Disagree

○ Strongly

○ disagree

75. F**1.7** Other: (Please specify)

_____

_____

_____

_____

_____

_____

Thank you so much for completing this survey.

Google Forms

QUESTIONNAIRE

This questionnaire seeks to evaluate TVET-Industry partnerships, with the aim of developing "A framework to promote TVET college-industry partnerships management and administration in South Africa".

Instructions

Please answer all the questions by **circling or crossing** where applicable

SECTION A: PRELIMINARY AND BIOGRAPHICAL INFORMATION

1. Indicate the age group that you fall into

18-24 years	25-34 years	35-55 years	56-64years

2. Educational level

Diploma	Degree	Honours	Masters	PhD

3. For how long have you been an administrator, working with partnerships?

1-2 years	3-5 years	6-10 years	11-15 years	> 16 years

4. What is your portfolio or function in the institution?

College Principal	DP-Managing Partnerships	Placement Officer	Learnership Officer	Industry Representative

SECTION B1: EVALUATION OF TVET-INDUSTRY PARTNERSHIP

INTRODUCTION: This section deals with issues of evaluation. It is aimed at evaluating the extent to which the TVET-industry partnership management and administration in South African TVET Colleges has succeeded in its mandate. It will answer the first sub-question of the study, namely: ***To what extent have South African TVET Colleges succeeded in TVET-industry partnerships management and administration?***

B1: How can you classify the existing industry partnerships?

NO.	Partnership Category	Industry Partner	Duration of partnership
B1.1	Partnerships for student development		….. …. … To … … …
B1.2	Partnerships for lecturer development		….. …. … To … … …
B1.3	Partnerships for programme development		….. …. … To … … …
B1.4	Partnerships for institutional development		….. …. … To … … …
B1.5	Any other industry partnership category		….. …. … To … … …
B1.6	Any other industry partnership category		….. …. … To … … …

B2. In each partnership and in each category, please indicate who initiated the partnership.

No.	Partnership Category	Industry Partner	Who initiated the Partnership
B2.1	Partnerships for student development		
B2.2	Partnerships for lecturer development		
B2.3	Partnerships for programme development		
B2.4	Partnerships for institutional development		
B2.5	Partnerships for regional and national development		
B2.6	Any other industry partnership category		

B3: Processes

The partnerships went through the following processes:		All of the time	Very often Often	Sometimes	Rarely	Never
B3.1	We held meetings to discuss the vision					

	and mission of the partnership					
B3.2	We defined the rules for the partnership					
B3.3	We set out the roles of each partner					
B3.4	We set out the responsibilities of all partners					
B3.5	We signed a memorandum of agreement					
B3.6	We implemented our planned activities together as partners					
B3.7	We monitored the progress through communication					
B3.8	We monitored progress through feedback					
B3.9	We evaluated the results of the partnership					

B4: Maintenance of partnerships

My institution has maintained the partnership through:		Excellent	Good	Fair	Poor	Not good at all
B4.1	Meetings					
B4.2	Workshops					
B4.3	Special Events					

D. Other (Please

specify)……………………………………………………………………………

B5 (i) The measures mentioned in B4 have worked:

Excellent	Good	Fair	Poor	Not good at all

B5 (ii) Please motivate your response in number B5 (i)

………………………………………………………………………………………………
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SECTION C: IMPROVEMENT OF PARTNERSHIPS

INTRODUCTION: This section deals with issues of improvement of partnerships. It is aimed at gaining insights into the extent to which TVET-Industry partnerships, management and administration can be improved and promoted. It will answer the fourth sub-question of the study, namely: *How can TVET college-industry partnerships management and administration be improved and promoted?*

C1: Suggestions for improvement of TVET college-industry partnership(s)

My suggestion(s) for improving the TVET college-industry partnership(s) relate to:	Strongly agree	Agree	Slightly agree	Disagree	Strongly disagree
C1.1 Better communication					
C1.2 Formalization of partnership					
C1.3 Increased stakeholder participation					
C1.4 Clear roles and responsibilities of partners					
C1.5 Clear and mutual beneficial partnerships					
C1.6 Proper monitoring and evaluation of the partnership					

Other: (Please specify)

………………………………………………………………………..

……………………………………………………………………………………………

……

Thank you so much for completing this questionnaire.

APPENDIX C: A SEMI-STRUCTURED INDIVIDUAL INTERVIEW INSTRUMENT AND AN INFORMED CONSENT LETTER

INDIVIDUAL INTERVIEW QUESTIONS

Thank you for making time to attend the interview. Kindly note the following:

- Kindly be reminded to email me the signed consent form (if you haven't already done so)
- Also note that the interview will be audio recorded (if on Teams, with cameras switched off);
- The interview will take between 30 – 45 minutes;
- To protect your confidentiality, I will be calling you "Participant B, C, D, Etc"
- In your deliberations, try not to mention the college name (just say "the college", also don't give the name of company's or people – refer to them as "the partner", or "a colleague" or my line manager, etc.
- I will begin the interview by reminding you about each of the above, but we will only start recording on A below.

A. IDENTIFYING THE ACTIVITY SYSTEM

1. Please tell me a bit about your role/responsibilities regarding college partnerships?
   - Prompt: Do you have other duties at the college? What are they?
2. What kind of partnerships do you manage/support?
   - Prompt: Are all the partnerships based on finding placements? Any other purposes or arrangements between the college and the partners? (e.g., training?}
3. Are you provided with any resources for managing partnerships?
   - Prompt: Financial? Travel budget? Administrative assistance? Meeting venues?
4. How do you and the partners allocate tasks/activities?
   - Prompt: Do the partners visit the college? Have they been invited? What do you think their impressions were? Why?
   - Prompt: Have you visited any of the partners/businesses? What were your impressions?
   - Prompt: are there MoUs to guide partners?
5. Has there been any assessment of partnerships in your experience?
   - Prompt: Are the partnerships effective?/Why/Why not?
6. Do you think that there are additional potential partners in the area?
   - Prompt: Have these businesses been approached? Are there businesses further afield? Are online internships possible?

B. IDENTIFYING THE CHALLENGES

7. In your experience, what have been the main challenges in managing partnerships?

    - Prompt: could you give an example of things that went wrong?

8. What do you think might have caused the college and the business/industry partners to experience challenges?

    - Prompt: E.g., different purposes (education vs productivity/profits)?

C. THE ORIGIN OF THE CHALLENGES

9. How long have the current partnerships been in existence?

    - Prompt: More than 5 years? Very recent? Did you establish them? Were they started by someone else or before you joined the college?

10. Do you know whether there were challenges with partnerships in the past?

    - Prompt: What kind of difficulties? Could you be specific? When was this?

11. Have there been recent challenges?

    - Have things become more better or more difficult (e.g., the economy?)

D. THE WAY FORWARD

12. What would you like to change about the current management/administration of partnerships?

    - Prompt: Would you like more partnerships? Different kinds of partnerships? Different ways for business management of partnerships?

13. What is your vision for partnerships and their management going forward?

    - Prompt: Use your imagination!

14. Would you like to add anything else about partnerships?

The end of the interview:

Thank you Participant B (etc.) for your time and for sharing your views on managing partnerships, that is highly appreciated.

SIGNED INFORMED CONCERNT FORM (FOR C009 and C011).pdf

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Dear Research Participant,

You are kindly invited to participate in a research study being conducted by Ms Tuletu Njengele. The findings of this study will contribute towards her Doctor of Philosophy degree in Public Administration, as well as scholarly publications related to the thesis. You were selected as a participant in this study because of your knowledge and experience in the management and administration of TVE college-industry partnerships.

Below is some information of the study.

Title of the research: A Framework to Promote TVET College-Industry Partnerships Management and Administration In South Africa.

Why is this research important?
Partnerships are key to the success of TVET colleges and the employability of TVET graduates. Studying current practices in partnership building is basis from which enhancements can be made.

Benefits of this research
Because this study is part of a larger DHET research project on TVET colleges, it is expected that the findings of the study will contribute to the enhancement of TVET college-industry partnerships. It is hoped that all participants will benefit from the interview as some of the questions may trigger a different way of viewing their roles in TVET college-industry partnerships management and administration.

Procedures
As a participant you are invited to be interviewed on the topic of the management of TVET college-industry partnerships. The interview will be audio-recorded.

Right to withdraw/ voluntary
Your participation in the interview is voluntary and you have the right to withdraw from the interview at any time.

Confidentiality and anonymity
The researcher will not reveal your name, your institution's name or department's name. You will be Participant A, Participant B, etc. The names of colleges and departments will be anonymised, e.g., College A, Department 1. The audio data will be transcribed and anonymised (i.e., you will not be identifiable in the data). You will be provided with an opportunity to read and correct any errors on the transcript.

Potential risks, discomforts or inconveniences
Your participation is highly appreciated; the researcher will do her best to ensure that risks, discomforts and inconveniences are minimised.

What will happen to the data when the study is completed?
Only anonymised data will be stored by the CPUT library under secure conditions in compliance with POPIA. The audio-recordings will be destroyed on completion of the thesis.

Kindly complete the table below before participating in the research.

Statement	Tick the appropriate column	
	Yes	No
1. I understand the purpose of the research.		
2. I understand that I will be audio recorded.		
3. I volunteer to take part in the research.		
4. I know that I can withdraw at any time.		
5. I understand that there will not be any form of discrimination against me as a result of my participation or non-participation.		
6. Comment:		

Please sign the consent form. You will be given a copy of this form on request.

Signature of participant	Date

Researchers

	Name:	Surname:	Contact details:
1.	Tuletu	Njengele	Email: TNjengele@bccollege.co.za Cell No. 074 887 7802

Contact person: Professor Penelope Engel-Hills (Co-supervisor)	
Contact number: 082 200 6813	Email: engelhillsp@cput.ac.za

APPENDIX D:

The database for TVET college officials managing partnerships is attached below:

APPENDIX D: A DATA OF TVET COLLEGE OFFICIALS MANAGING PARTNERSHIPS

COLLEGE NAME	PORTFOLIO	TITLE	NAME/INITIAL & SURNAME	PHONE NO.	E-MAIL ADDRESS	CELL NUMBER	NO. OF PARTNERSHIPS	PARTNERSHIPS FOR STUDENT DEV	PARTNERSHIPS FOR INST.DEV	PARTNERSHIPS FOR REGIONAL DEV