

**DETERMINANTS OF THE COLLABORATION BETWEEN TECHNICAL
VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS AND THE
INDUSTRY IN TRANS NZOIA COUNTY, KENYA**

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**A THESIS SUBMITTED TO THE SCHOOL OF EDUCATION IN PARTIAL
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DECLARATION

Declaration by the Candidate

This thesis is my original work and has never been presented for the award of an academic degree in any other university and should not be copied, or reproduced in any format without written authority from the author and/or University of Eldoret.

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DEDICATION

This work is dedicated to my beloved family for their unwavering support, encouragement, and understanding throughout this academic journey.

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ABSTRACT

The disconnect between Technical and Vocational Education and Training (TVET) institutions and industry remains a significant challenge in Kenya, limiting the capacity of graduates to meet labor market expectations. In Trans Nzoia County, the gap in effective collaboration between TVET institutions and industries undermines efforts toward skills development, economic growth, and workforce alignment. The purpose of this study was to investigate the determinants of collaboration between TVET institutions and industries in the region. Specifically, the objectives were: to investigate the influence of institutional capacity on TVET–industry collaboration, to determine the influence of industry demand on TVET–industry collaboration; and to examine the influence of alignment of interests on TVET–industry collaboration. A mixed-methods research design was employed, grounded in the pragmatic research paradigm. The study targeted TVET trainers, principals, and industry representatives, comprising a total population of 394. A sample size of 178 respondents was determined using Krejcie and Morgan’s formula and selected using proportionate sampling. Data were collected through questionnaires (for trainers) and semi-structured interviews (for principals and industry representatives). Instrument validity was ensured through expert review and pilot testing, while reliability was established using Cronbach’s Alpha, yielding coefficients above the 0.70 threshold. Quantitative data were analyzed using descriptive statistics with SPSS, while qualitative data were subjected to thematic analysis. Ethical considerations included informed consent, confidentiality, voluntary participation, and clearance from relevant bodies, including NACOSTI and the University of Eldoret Research Ethics Office. The findings revealed that institutional capacity is constrained by inadequate infrastructure, weak governance structures, and limited industry linkages, though staff competency and quality assurance systems were acknowledged. Industries’ demand was present but not matched by proactive collaboration or investment, and poor communication further inhibited coordination. Regarding alignment of interests, the study found that shared goals enhanced curriculum relevance, joint research, and internship success, though misalignment hindered deeper engagement. The study concluded that institutional limitations, passive industry involvement, and misaligned priorities weaken collaboration. The study therefore recommended there is a need of infrastructure improvement, proactive industry engagement, and structured alignment mechanisms through joint curriculum development, industry forums, and regulatory oversight. Government incentives could further stimulate sustained partnerships. The findings from the study will provide valuable data to policymakers, TVET administrators, and industry stakeholders on strategies to strengthen collaboration between TVET institutions and the industry for improved skills development and employability in Trans Nzoia County.

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ACRONYMS AND ABBREVIATIONS

ASQA	Australian Skills Quality Authority
ICT	Information and Communication Technology
ILO	International Labour Organization
KNQA	Kenya National Qualifications Authority
MoE	Ministry of Education
MoU	Memorandum of Understandings
NABPTEX	National Board for Professional and Technician Examinations
NACOSTI	National Council for Science, Technology and Innovation
NBTE	National Board for Technical Education
NDP	National Development Plan
NITA	National Industrial Training Authority
QCTO	Quality Council for Trades and Occupations
SERI	Sectoral vocational education and training commissions
SETA	Sector Education and Training Authorities
SPSS	Statistical Package for Social Sciences
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VPET	Vocational and Professional Education and Training
WIOA	Workforce Innovation and Opportunity Act

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the introduction which sets the stage for the research by providing an overview of the study. It creates a foundation for understanding the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya, and establishes the context for the subsequent sections of the research. The sections include; background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, scope of the study, limitations of the study, assumptions of the study, theoretical framework, conceptual framework and operational definition of key terms.

1.2 Background of the study

Collaboration between Technical and Vocational Education and Training (TVET) institutions and industries is widely recognized as a critical driver of skills development, economic growth, and improved livelihoods. Effective partnerships ensure that training programs are responsive to labor market demands, producing graduates with the relevant competencies, qualifications, and practical experience needed in today's dynamic workforce. As global economies shift toward knowledge- and skill-based development models, TVET-industry collaboration has become increasingly essential in bridging the gap between education and employment.

Globally, many countries have invested in strengthening TVET systems through collaborative frameworks that integrate curriculum development, work-based learning, and research initiatives. For instance, the incorporation of internships, apprenticeships, and cooperative education programs has been successful in countries like Germany, Australia, and Malaysia, where strong industry linkages contribute to high employment outcomes for graduates (James & Reddy, 2020; Smith et al., 2019). These collaborations also enhance innovation through joint research and professional development initiatives, ensuring educators and industry professionals remain up-to-date with emerging technologies and workforce trends (Brown & Taylor, 2018; Klerkx & Leeuwis, 2019). International organizations such as UNESCO-UNEVOC and the World Bank have supported such partnerships, highlighting their impact on workforce productivity and national competitiveness.

In Africa, there has been a growing recognition of the role TVET plays in addressing unemployment, poverty, and socio-economic disparities. Countries across the continent have implemented reforms to strengthen the linkage between training institutions and industry. These include the development of industry-relevant curricula, establishment of advisory boards, and expansion of workplace-based learning opportunities. Despite these efforts, challenges such as limited institutional capacity, outdated infrastructure, and low industry engagement persist. Contextual factors—like the predominance of the informal sector, technological disruptions, and gender inequalities—add further complexity to collaborative efforts across the continent (Miheso-O'Connor & Bagire, 2015).

In Kenya, the government has prioritized TVET sector reforms through policy instruments such as the TVET Act of 2013, which advocates for industry linkages, quality assurance, and recognition of prior learning. Research has shown that aligning TVET programs with market needs improves employability and drives industrial growth (Kariuki et al., 2018; Otunga, 2017). However, despite the national framework encouraging partnerships, many TVET institutions continue to struggle with operationalizing effective collaborations due to systemic, institutional, and contextual constraints.

Trans Nzoia County has 33 TVET institutions with 23100 students (MoE, 2024) presents a unique setting characterized by a diverse economic base in agriculture, agro-processing, construction, and trade. These sectors rely heavily on skilled technical labor, making effective collaboration between local TVET institutions and industry not only beneficial but essential for sustainable development. However, little empirical research exists on how such collaborations function within this localized context. A few studies suggests that collaboration between Technical and Vocational Education and Training (TVET) institutions and the industry remains limited due to disparities in institutional capacity, misalignment of training curricula with market needs, and inadequate stakeholder engagement(Odhiambo & Wanyama, 2024). The findings revealed that while industries recognize the potential of TVET graduates, most institutions lack modern equipment, skilled trainers, and structured internship frameworks to support industry-based learning (Koech & Chepkonga, 2022). Furthermore, the absence of sustainable partnerships and

policy support from both county and national governments hinders effective cooperation between TVET institutions and employers (Mutai et al., 2023). This study, therefore, seeks to address this gap by examining the determinants of collaboration in Trans Nzoia County, focusing on three key areas: institutional capacity, industry demand, and alignment of interests.

1.3 Statement of the problem

Despite the growing emphasis on strengthening collaboration between Technical and Vocational Education and Training (TVET) institutions and industry, the effectiveness of these partnerships remains limited and inconsistent, particularly in many regions of Kenya, including Trans Nzoia County. Although the government, through frameworks such as the TVET Act of 2013 and Kenya Vision 2030, has advocated for stronger linkages to enhance the relevance and responsiveness of training programs, many institutions continue to operate in isolation from industry needs (Kariuki et al., 2018; Otunga, 2017). This has resulted in a persistent mismatch between the skills imparted to trainees and the competencies demanded by employers, thereby contributing to high youth unemployment rates despite increased TVET enrollment (KNBS, 2022).

Emerging evidence shows that while TVET institutions acknowledge the importance of industry collaboration, significant barriers such as limited institutional capacity, outdated curricula, weak alignment of stakeholder interests, and lack of formal engagement frameworks hinder effective partnerships (Muthima & Nyang'au, 2019; UNESCO-

UNEVOC, 2020). Additionally, the absence of localized studies examining the specific determinants that influence collaboration, especially in rural or agriculturally driven counties like Trans Nzoia, has left a gap in the development of tailored strategies that address unique regional dynamics. Studies often focus on national-level policy without capturing the practical realities faced by institutions and industries on the ground (Wafula & Simiyu, 2021).

Consequently, many TVET graduates from Trans Nzoia County continue to face challenges in securing employment due to inadequate exposure to real-world industry environments and insufficient practical skills. If this gap between training and employment persists, it undermines the core objectives of the TVET system, including enhancing employability, supporting industrial growth, and fostering socio-economic development. There is therefore a pressing need to investigate the specific factors that determine the nature and effectiveness of TVET-industry collaboration in Trans Nzoia County to inform more context-relevant and sustainable interventions.

1.4 Purpose of the study

The purpose of the study was to examine the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya.

1.5 Objectives of the study

The objectives of the study were to;

1. To assess the influence of institutional capacity on TVET–industry collaboration in Trans Nzoia County.
2. To determine the influence of industry demand on TVET–industry collaboration in Trans Nzoia County.
3. To examine the influence of alignment of interests on TVET–industry collaboration in Trans Nzoia County.

1.6 Research Questions

The study was guided by the following research questions

1. Does Institutional Capacity influence collaboration between TVET institutions and industries in Trans Nzoia County?
2. To what extent does Industry’s Demand influence collaboration between TVET institutions and industries in Trans Nzoia County?
3. How does the alignment of interests between TVET institutions and industry stakeholders influence TVET–industry collaboration in Trans Nzoia County?

1.7 Significance of the study

The findings from this study will be significant to various stakeholders within the Technical and Vocational Education and Training (TVET) sector, including institutional administrators, instructors, and industry partners. The results will provide a clearer

understanding of the key determinants that influence effective collaboration between TVET institutions and industries in Trans Nzoia County. In identifying factors such as institutional capacity, industry demand, and alignment of interests, the study will help institutional leaders develop targeted strategies to strengthen partnerships, improve training relevance, and enhance student employability through practical, industry-aligned learning experiences.

For policymakers, the study will offer valuable evidence to guide the formulation and implementation of policies aimed at fostering stronger linkages between the TVET sector and the labor market. Insights from the findings will support the development of frameworks that promote sustainable collaboration, curriculum reforms that reflect current industry trends, and funding mechanisms that build institutional capacity. Furthermore, the study will provide a basis for designing policies that encourage private sector participation in training and apprenticeship programs, ultimately contributing to national development goals related to skills enhancement and job creation.

From a research perspective, the study will contribute to the growing body of literature on TVET–industry collaboration, particularly within the Kenyan context. It will fill existing knowledge gaps by providing empirical data on how institutional and market-related factors interact to shape partnership effectiveness. The results will also serve as a reference point for future researchers interested in exploring vocational education linkages, labor market dynamics, and skills development strategies in both local and regional settings.

1.8 Justification for the Study

While numerous studies have emphasized the importance of collaboration between Technical and Vocational Education and Training (TVET) institutions and industry in improving graduate employability, there remains a significant gap in understanding the specific determinants that influence such collaborations in localized contexts. The current study distinguishes itself by focusing on Trans Nzoia County, Kenya—a region that has received limited scholarly attention in this field. In narrowing the geographical scope, the study generates context-specific insights that are often overlooked in broader national or international analyses. This localized perspective helps policymakers and stakeholders understand the unique structural, cultural, and economic dynamics that either facilitate or hinder effective collaboration in the region.

Unlike previous research that generally advocates for partnerships without detailing the underlying factors that sustain or weaken them, this study introduces a nuanced approach by investigating three key determinants: *institutional capacity*, *industry demand*, and *alignment of interests*. These variables have rarely been examined together in a single model, particularly within the Kenyan TVET landscape. By integrating them, the study provides a more holistic view of how both internal (institutional preparedness) and external (market demands and stakeholder alignment) forces shape collaboration outcomes. This adds a novel layer of understanding that can inform more targeted and effective policy interventions.

Additionally, the study is anchored in Institutional Theory by Meyer and Rowan (1977), which has not been widely applied in the context of TVET-industry collaboration in Kenya. The application of this theoretical lens allows for a deeper exploration of the symbolic and structural elements that influence how institutions respond to external pressures. Most existing literature focuses on practical or operational aspects of collaboration, such as internship programs or curriculum development. However, this study goes further by interrogating how legitimacy, conformity, and organizational behavior influence decision-making, program implementation, and long-term partnership sustainability. Further, no prior study has comprehensively examined the three determinants Institutional capacity, industry demand, and alignment of interests—within Trans Nzoia County. Moreover, the use of a mixed-methods approach and Institutional Theory rarely applied in similar Kenyan studies.

The findings of this study are uniquely tailored to the socio-economic and institutional realities of Trans Nzoia County, offering rich, context-specific insights that are critical for localized policy formulation. In grounding the investigation within the lived experiences and operational environments of both TVET institutions and industries in the county, the study enables policymakers, educators, and industry leaders to make evidence-based decisions that directly address regional challenges. These findings have the potential to inform the design of county-specific frameworks for TVET-industry collaboration, ensuring that strategies are not only nationally relevant but also regionally

adaptable. Consequently, the study serves as a valuable tool for developing policies that enhance workforce readiness, align training programs with local industry needs, and improve graduate employability within Trans Nzoia County.

1.9 Scope of the study

The study was centered on Trans Nzoia County. This region has its unique characteristics, industries, and economic activities that influence the collaboration between TVET institutions and industries. The study examined several key factors that influence collaboration between TVET institutions and industries. These factors include institutional capacity, industry demand and alignment of interests. Institutional capacity refers to the ability of TVET institutions to provide quality training and support effective industry partnerships. Industry demand focuses on the specific skills and workforce requirements of local industries.

Alignment of interests and regulations play a role in shaping the collaboration landscape. Through investigation of these factors, the study aims to identify the key drivers and barriers to collaboration in Trans Nzoia County. The study involved relevant stakeholders involved in the collaboration between TVET institutions and industries in Trans Nzoia County. This includes representatives from TVET institutions, industry employers, government agencies responsible for TVET education and industry development and

other relevant actors involved in the collaboration process. The study was conducted between the month of May and June 2024.

1.10 Limitations of the Study

The study acknowledged several limitations. First, geographically, focusing solely on Trans Nzoia County may have limited the generalizability of the study findings. TVET-institution-industry collaborations could be influenced by region-specific factors, such as economic development, industrial specialization, and infrastructure availability thus limiting the applicability of the research findings beyond Trans Nzoia County. Secondly, relying solely on self-reported data posed an inherent limitation. Self-reported data are subject to biases, such as social desirability bias, where respondents may provide answers they perceive as socially acceptable rather than accurate. In this study, stakeholders from TVET institutions and industry may overstate their collaboration efforts or underreport challenges they face, leading to a skewed understanding of the determinants of collaboration. Supplementing self-reported data with objective measures or triangulating data from multiple sources could enhance the validity and reliability of the study findings.

Moreover, the focused on specific aspects, namely institutional capacity, industry demand, and alignment of interests, may have overlooked other factors influencing collaboration between TVET institutions and industry. For instance, factors like regulatory environment, funding mechanisms, cultural norms, and historical relationships

could significantly impact collaboration dynamics but are not explicitly addressed in the research design. In narrowing the scope to specific aspects, the study may have failed to capture the full complexity of collaboration dynamics and overlook crucial determinants. Despite the limitations, efforts were made to gather reliable data from multiple sources in triangulation of interviews and questionnaires.

1.11 Assumptions of the study

The study was based on several key assumptions: First, the study assumes that collaboration between TVET institutions and industries is a desirable and beneficial endeavor. It assumed that collaborative efforts can lead to improved alignment between skills development and industry needs, enhanced employability of graduates, increased productivity in industries, and overall economic development. The study operates under the assumption that collaboration is an effective approach to address the skills gap and foster positive outcomes for both TVET institutions and industries. Secondly, the study assumed that both TVET institutions and industries are willing to engage in collaborative efforts. It assumed that stakeholders from both sectors recognize the value of collaboration and are motivated to actively participate in joint initiatives. The study assumed that there is a willingness to share resources, exchange knowledge, and work together to achieve common goals.

Thirdly, the study assumed that the identified factors, namely institutional capacity, industry's demand and alignment of Interests, geographic proximity, and perceptions and attitudes, are relevant to the collaboration between TVET institutions and industries in Trans Nzoia County. It assumed that these factors significantly influence the nature and extent of collaboration and that understanding their impact is crucial for enhancing collaboration outcomes. Further, the study assumed that the perceptions, attitudes, and experiences of key stakeholders, including TVET institution staff, industry representatives, and policymakers, are important in shaping collaboration dynamics. It assumed that stakeholders' perspectives provide valuable insights into the challenges, opportunities, and facilitators of collaboration. The study also assumes that capturing these perspectives contributes to a comprehensive understanding of the determinants of collaboration. Moreover, the study assumed that the findings and conclusions drawn from the research in Trans Nzoia County are contextually specific to that region. While the study's findings may have broader implications, the assumptions are primarily based on the specific characteristics, needs, and dynamics of Trans Nzoia County and may not be directly generalizable to other regions without considering the specific context.

1.12 Theoretical Framework

This study was anchored on Institutional Theory as developed by Meyer and Rowan (1977), which posits that organizations are shaped not only by efficiency and performance goals but also by social expectations and pressures from their environments. Institutions often adopt formal structures and practices not purely for technical

effectiveness, but to gain legitimacy in the eyes of external stakeholders such as governments, regulatory bodies, donors, and the public. This theoretical lens is justified analyzing TVET industry collaboration, where institutional legitimacy, compliance with national frameworks, and responsiveness to stakeholder demands heavily influence institutional behavior.

In relation to the first objective assessing how institutional capacity affects collaboration Institutional Theory helps explain why TVET institutions may adopt formal policies or structures that mimic those of better-resourced institutions, even if they lack the actual capacity to implement them effectively. This is driven by the need to appear competent and legitimate, as noted in the concept of ceremonial conformity. DiMaggio and Powell (1983) describe this behavior as mimetic isomorphism, where institutions copy successful models under conditions of uncertainty. In the Kenyan context, some TVET institutions may create industry partnership frameworks or develop competency-based curricula to appear progressive, even if actual collaboration remains weak or symbolic.

For the second objective, which explores the influence of industry demand on collaboration, coercive pressures become central. These include direct and indirect influences from industry, government policy, and funding agencies requiring institutions to align with labor market needs. TVET institutions often modify their programs to reflect current skill demands to avoid being perceived as outdated. As Scott, (2001) noted, failure to align with external expectations can damage an institution's reputation and reduce its ability to form meaningful partnerships or attract students and support.

The third objective—examining the alignment of interests between TVET and industry—is also illuminated by Institutional Theory. TVET institutions strive to align their goals with those of industry not just for practical benefits, but to maintain legitimacy and credibility. Boxenbaum and Jonsson (2008) argue that organizations often adopt globally accepted "best practices" even when those practices may not fit the local context. In Kenya, TVET institutions may adopt policies or partnership models that reflect international trends or government strategies (e.g., Vision 2030) to signal relevance, even if they lack internal capacity or contextual appropriateness.

In the Kenyan setting, Institutional Theory helps us understand the symbolic adoption of collaboration mechanisms. Muthima and Nyang'au (2019) found that many TVET institutions sign Memoranda of Understanding (MOUs) with industry partners to meet policy expectations rather than to drive genuine collaboration. These ceremonial agreements fulfill external expectations but often lack follow-through in implementation due to resource limitations or misaligned interests.

Institutional Theory also helps explain why training programs and curriculum design in TVET institutions may not fully align with practical needs. Meyer and Rowan (1977) note that institutions may "decouple" formal structures from actual practices—meaning TVET institutions may report offering industry-aligned programs while continuing outdated teaching methods. This discrepancy is often overlooked in policy evaluations but critically affects the success of collaboration.

Further, the theory sheds light on the influence of institutional myths—commonly held but unexamined beliefs about the benefits of TVET–industry partnerships. For instance, the idea that partnerships automatically enhance employability is widely accepted, yet studies (e.g., Oketch, 2016) show that without mutual investment and strategic alignment, such collaborations may yield minimal impact. Institutional Theory allows for a critical analysis of the assumptions underpinning collaboration strategies.

Lastly, normative pressures—shaped by professional associations, accreditation agencies like TVETA, and trainer networks—play a significant role in shaping collaboration. These bodies promote professional standards that encourage institutions to engage industry and adopt competency-based training models. As a result, even under-resourced TVET institutions feel obligated to meet these norms to retain accreditation and remain competitive, which may lead to strained or superficial partnerships if not accompanied by capacity-building efforts.

1.13 Conceptual Framework

This study was based on a conceptual framework. Figure 1.1 shows the conceptual framework

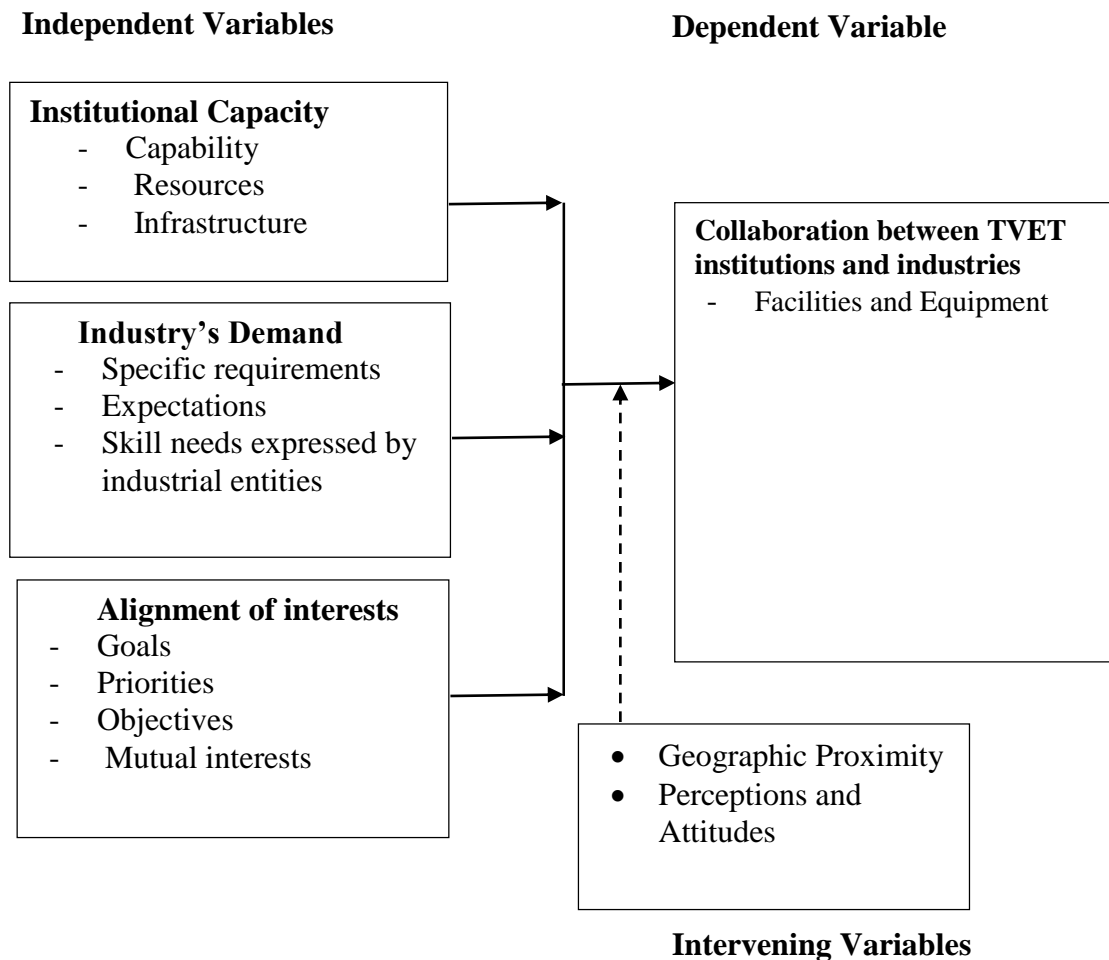


Figure 1.1 Conceptual Framework

(Source: Author, 2025)

The conceptual framework for this study illustrates how institutional capacity, industry demand, and alignment of interests influence the extent of collaboration between TVET institutions and industries in Trans Nzoia County. These independent variables are hypothesized to interact in shaping collaborative engagement, with each contributing uniquely to the strength, scope, and sustainability of partnerships.

Institutional capacity is expected to create the foundational environment that enables or constrains collaboration through resource availability, instructional strength, and readiness for industry engagement. Simultaneously, industry demand plays a critical role in signaling the skills and competencies needed from TVET graduates, shaping how institutions tailor their programs to meet labor market requirements. Alignment of interests facilitates mutual understanding and shared objectives, providing the relational cohesion necessary for long-term collaboration through joint initiatives such as curriculum co-design and applied research.

The dependent variable—collaboration between TVET institutions and industries—is conceived as the outcome of the synergy among the three determinants. The framework also recognizes the influence of intervening variables, specifically geographic proximity and stakeholder perceptions. Proximity affects logistical feasibility and frequency of interaction, while perceptions shape the level of trust and commitment. These variables can either strengthen or weaken the observed relationships. To minimize their confounding effect, the study purposively selected institutions and industries within reachable distances and integrated stakeholder engagement efforts during data collection.

1.14 Operational definition of key terms

The following operational definitions are provided to clarify key terms as they are used in this study.

Alignment of interest: Refers to the quantifiable and observable degree of harmonization and congruence between the goals, priorities, objectives, and mutual interests of TVET (Technical and Vocational Education and Training) institutions and industry stakeholders. Alignment can be on areas including curriculum relevance, workforce development and research and Development Collaboration.

Collaboration between TVET Institutions and Industries: For the purpose of this study, collaboration between TVET institutions and industries refers to the active and cooperative engagement between vocational education and training (TVET) institutions and industrial entities in Trans Nzoia County. It involves various forms of partnership, cooperation, and joint initiatives aimed at addressing the skills gap, enhancing the relevance of training programs, and promoting the transfer of knowledge and resources between the two sectors.

Institutional Capacity: Institutional capacity refers to the capability, resources, and infrastructure of TVET institutions in Trans Nzoia County to effectively deliver quality vocational education and training programs. It encompasses factors such as availability of qualified instructors, sufficient

physical facilities, up-to-date curriculum, adequate training equipment, administrative support, and financial resources.

Industry's Demand: Industry's demand refers to the specific requirements, expectations, and skill needs expressed by industrial entities operating in Trans Nzoia County. It includes the demand for skilled workers with particular technical competencies, knowledge of industry-specific practices, and the ability to meet the evolving needs of the industrial sector.

Job Market: Refers to the environment in which employers seek qualified workers and individuals seek employment, characterized by the demand and supply of labor, skill requirements, wage levels, and employment opportunities across various sectors. In this study, the job market refers specifically to the demand for technical and vocational skills by industries in Trans Nzoia County, which influences how TVET institutions align their training programs to meet current and future employment needs.

1.15 Chapter Summary

This chapter presented an overview of the study on the determinants of collaboration between Technical and Vocational Education and Training (TVET) institutions and industries in Trans Nzoia County, Kenya. It outlined the background of the study, emphasizing the importance of TVET–industry collaboration in addressing the skills gap and promoting economic growth. The statement of the problem highlighted the limited understanding of factors influencing such collaboration in the county, necessitating an investigation into institutional capacity, industry demand, and alignment of interests. The objectives and research questions were formulated to guide the study in examining the relationships between these determinants and the effectiveness of collaboration. The chapter also described the significance of the study, noting its potential to inform policy formulation, institutional decision-making, and practical interventions that enhance the relevance of TVET programs to labor market needs.

Furthermore, the chapter defined the scope of the study as focusing on TVET–industry collaboration within Trans Nzoia County and acknowledged limitations that may have affected the research. It outlined key assumptions, including the belief that collaboration between TVET institutions and industries is essential for addressing the skills gap. The theoretical framework was grounded in Institutional Theory, which explains how social norms, structures, and organizational practices shape collaboration outcomes. The conceptual framework demonstrated the relationships among institutional capacity, industry demand, alignment of interests, and intervening variables such as geographic

proximity and perceptions and attitudes. Lastly, operational definitions of key terms were provided to ensure conceptual clarity and consistency in measuring variables throughout the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of past studies from journals, books and other documents regarding the studies on the determinants of Collaboration between TVET institutions and industry. The thematic areas include institutional capacity, industry's demand, alignment of interests and their influence on collaboration between TVET institutions and Industry.

2.2 The concept of collaboration between TVET institutions and Industry

Collaboration between Technical and Vocational Education and Training (TVET) institutions and industry refers to the strategic interaction between training providers and employers aimed at bridging the gap between education and labor market needs. Such collaboration enhances the relevance of vocational education, ensures curriculum alignment with real-world requirements, and improves graduate employability. Globally, partnerships between education and industry are increasingly seen as essential for fostering responsive and sustainable skills ecosystems (UNESCO-UNEVOC, 2020). These collaborations may include joint curriculum development, industry attachments, dual training systems, technology sharing, and research partnerships.

Internationally, organizations such as UNESCO and the International Labour Organization (ILO) have emphasized the need for demand-driven TVET models where

industry engagement is central. For instance, UNESCO (2020) underscores that effective collaboration improves the adaptability of training institutions in meeting emerging technological demands and employer expectations. Similarly, the World Economic Forum (2023) emphasizes that closing skills mismatches requires active industry involvement in shaping training content and delivery mechanisms.

Across Africa, the push for stronger TVET-industry linkages is echoed in the African Union's Agenda 2063 and the Continental Education Strategy for Africa (CESA 2016–2025), which identify such collaboration as a key enabler of youth employability, innovation, and industrial competitiveness (African Union, 2015; AU, 2021). Empirical studies such as by Jonyo and Mwarari (2022) highlight how structured engagement between TVET institutions and employers in Nigeria and Rwanda led to more tailored skill training and improved graduate outcomes.

In Kenya, TVET-industry collaboration has become a cornerstone of national development efforts as articulated in the Kenya Vision 2030 and the TVET Act (2013). Government initiatives like the Competency-Based Education and Training (CBET) framework, sector skills councils, and industry liaison boards aim to institutionalize employer participation in training processes. The National Industrial Training Authority (NITA) and TVET Authority (TVETA) have played crucial roles in promoting workplace-based learning, apprenticeships, and industry certification. Recent studies have explored the dynamics of such collaborations. For example, Mulwa et al. (2021) observed that structured partnerships improved curriculum responsiveness, while

Kipkirui and Chepkemboi (2023) found that lack of industry incentives and institutional readiness often hinders effective engagement.

Other studies like those by Bitu and Wafula (2020) and Gudo and Olel (2022) have highlighted persistent challenges, including limited coordination frameworks, weak trust between stakeholders, and misaligned priorities. Nonetheless, the body of research continues to show that meaningful collaboration—when supported by policy, mutual commitment, and resources—can significantly enhance TVET effectiveness and contribute to economic transformation.

2.3 Influence of institutional capacity on collaboration between TVET institutions and industries

Industry demand remains a pivotal factor shaping collaboration between Technical and Vocational Education and Training (TVET) institutions and the labour market. As global economies transition toward automation and knowledge-driven productivity, industry expectations increasingly influence training priorities, skills acquisition, and curriculum adaptation in TVET institutions. Studies worldwide affirm that alignment with industry needs enhances graduate employability, strengthens institutional relevance, and fosters sustainable partnerships (UNESCO-UNEVOC, 2020; OECD, 2021). In Germany, Müller and Schweri (2022) investigated the responsiveness of dual vocational education systems to changing industrial demands. Their findings indicated that strong industry involvement in curriculum planning directly led to increased employment rates of graduates, showing

that industry-informed curriculum designs are more adaptive to technological shifts. Similarly, in South Korea, Choi and Lee (2021) found that industry feedback mechanisms significantly influenced the revision of training modules, particularly in engineering and ICT sectors. Their interpretation pointed to a robust feedback loop where labour market analytics were systematically used to re-skill youth for evolving job profiles. In Australia, Wilson and Hargreaves (2020) reported that industry-led training hubs promoted greater apprenticeship placement and upskilling, especially in construction and green technologies. The study attributed this success to structured industry forecasting and collaborative planning. In the United States, Karp and Hughes (2023) emphasized the critical role of regional economic data in aligning TVET offerings with industry needs, noting that industry sectors with high growth projections were more likely to attract investment in TVET partnerships. The researchers interpreted this as a shift toward demand-driven education systems rather than institution-led supply models. Lastly, a global study by the International Labour Organization (ILO, 2022) revealed that countries with established industry participation frameworks in TVET governance witnessed lower youth unemployment rates. The study highlighted institutional inertia as a major barrier in regions where industry voices were weak or ignored in curriculum review processes.

In developed countries, attention has turned to sector-specific skills and their integration into national vocational training strategies. In Canada, Tremblay and LeBlanc (2022) examined how construction and digital tech employers influenced provincial TVET curricula. Their findings showed that when industries were involved in certifying skills

and competencies, program quality and job readiness improved markedly. In the UK, a study by Stevenson et al. (2021) found that employer boards had a significant say in shaping TVET outcomes, particularly in health and manufacturing sectors. The interpretation was that shared governance models led to trust and better alignment of output with economic demand. In Norway, Johansen and Helgøy (2020) focused on maritime training and found that strong policy support for industry partnerships ensured regular updating of equipment and training standards. They attributed Norway's high training-to-employment transition rate to sustained industry-led quality assurance practices. Japan's case, as explored by Sato and Nakamura (2021), showed that technological industries drove innovation in TVET institutions by sponsoring research labs and exchange programs, enhancing graduates' digital competencies. Finally, in Finland, Koskinen and Virtanen (2023) examined green energy sectors and discovered that industry-funded scholarships and internships influenced TVET specialization trends, leading to a surge in eco-technical certifications.

Middle-income economies have increasingly adopted policies that reflect a growing awareness of the importance of industry demand in shaping TVET. In Malaysia, Lim and Yusof (2020) observed that industries in smart manufacturing and automation provided real-time data to TVET boards, facilitating curriculum agility. Their interpretation emphasized the strategic use of labour market intelligence systems. In South Africa, Mokoena and Dube (2021) highlighted how mining and energy sectors influenced the structuring of TVET programs by setting competency thresholds and equipment

standards. Brazil's experience, documented by Oliveira and Santos (2022), found that agro-industrial employers were key players in determining rural TVET training modules. The findings suggested a regionalized model of training that closely followed economic activities. In Mexico, Garcia and Lopez (2021) investigated how automotive manufacturers in border regions shaped technical school offerings. The researchers concluded that industry-specific demand ensured continuous apprenticeship slots and on-the-job training. In Turkey, Kaya and Demir (2023) studied the textile sector and found that cluster-based industrial training zones helped synchronize skills delivery with factory production cycles, thereby improving placement rates and reducing graduate skill gaps.

In developing countries, although collaboration is often constrained by resource limitations, evidence shows increasing industry demand influence. In Ghana, Agyeman and Boateng (2022) found that construction and renewable energy companies demanded practical competencies, pushing institutions to revise outdated syllabi. Their interpretation showed that partnerships were more effective when supported by donor or government policy. In Rwanda, Nzabonimpa and Uwineza (2021) discovered that the ICT industry pushed for inclusion of coding and digital entrepreneurship in TVET, leading to a 40% increase in graduate self-employment. Ethiopia's experience, as described by Bekele and Tefera (2023), showed that agro-processing firms collaborated with regional polytechnics to tailor skills training to specific crop cycles. The study attributed improved rural employment to these demand-responsive interventions. In Nigeria, Olatunji and Afolayan (2020) found that industry associations in the oil and gas

sector participated in curriculum auditing, resulting in competency-based frameworks that improved employer satisfaction. Uganda's case, explored by Tumusiime and Namutebi (2021), reported that tourism and hospitality employers demanded greater focus on soft skills, prompting inclusion of customer service modules and language training in TVET programs.

In Kenya, literature on industry demand as a determinant of TVET-industry collaboration remains sparse and fragmented. While government policies such as the TVET Act (2013) and the Competency-Based Education and Training (CBET) framework advocate for industry-driven training, empirical studies that isolate industry demand as a variable of analysis are lacking. Muthoni and Gikonyo (2020) conducted a study in Nairobi County that noted low industry involvement in TVET decision-making, attributing the gap to lack of formal communication channels and weak incentives. Similarly, Nyang'au and Kimeli (2022) examined a sample of technical institutions in Central Kenya and found that industry engagement was reactive rather than strategic, often occurring only during industrial attachment placements. Omwenga and Otieno (2023) studied engineering programs in Kisumu and observed that many institutions still used outdated equipment and lacked partnerships for technology transfer, leading to a mismatch between training and job requirements. In Uasin Gishu, Rotich and Kiptanui (2021) explored agribusiness training and found that industries were not regularly consulted during curriculum development. Lastly, Wambua and Mumo (2023) in a national policy review noted that while the government promotes industry linkages, few counties had local mechanisms to

collect labour market data, resulting in policy-practice disconnects. These studies indicate a glaring gap in understanding how industry demand directly shapes TVET-institutional partnerships in specific counties like Trans Nzoia, making this study both timely and necessary.

2.4 The influence of industry's demand on collaboration between TVET institutions

The influence of industry's demand on collaboration between TVET institutions and industries is a vital aspect to explore, as it determines the alignment of training programs with the evolving needs of the labor market. Globally, industries' demand for a skilled workforce is continually evolving due to technological advancements, market trends, and globalization. Collaboration between TVET institutions and industries is essential to ensure that the skills of graduates are aligned with the needs of the labor market. According to a study by Grollmann and Rauner (2020), effective collaboration allows TVET institutions to stay abreast of industry developments, incorporate relevant technologies, and equip graduates with the necessary skills to meet industry demand. This collaborative approach is crucial for the competitiveness and growth of industries in a globalized economy.

A study by Casas-Pardo et al. (2020) explored the role of industry's demand in driving collaboration in the Spanish TVET system. The findings emphasized that collaboration was driven by industry's demand for specific skills and competencies, with TVET

institutions adapting their programs to meet those needs. In another study, Stijnen et al. (2021) examined the influence of industry's demand on collaboration between TVET institutions and industries in the Netherlands. The research highlighted that industry's demand for skilled workers was a key driver of collaboration, with TVET institutions focusing on developing programs that aligned with industry needs to ensure graduate employability. Furthermore, a study by Ziderman et al. (2018) investigated the global perspective of collaboration between TVET institutions and industries in a comparative analysis of different countries. The research highlighted that industry's demand played a central role in driving collaboration, with TVET systems adapting to meet the changing needs of industries and labor markets.

In Africa, the demand for skilled labor is a pressing issue for sustainable economic development. The African Union's Continental Education Strategy for Africa (CESA) emphasizes the need to align TVET programs with industry demands to address the skills gap. A study by Ololube (2020) highlighted the importance of collaboration between TVET institutions and industries in Africa to enhance employability and promote entrepreneurship. It emphasized that TVET programs must be designed based on industry needs and requirements to ensure graduates have the requisite skills to contribute to economic growth. A study by Muleta et al. (2021) examined the role of industry's demand in driving collaboration in the Ethiopian TVET system. The findings highlighted the importance of close collaboration between TVET institutions and industries to ensure

that training programs align with industry needs and produce graduates with relevant skills. The study emphasized the need for ongoing dialogue and engagement between the two stakeholders to stay responsive to changing industry demands.

Another study by Akoojee et al. (2019) explored the influence of industry's demand on collaboration in the South African TVET sector. The research highlighted that industry's demand for specific skills and competencies played a critical role in shaping collaboration efforts. It emphasized the importance of engaging with industries through partnerships, internships, and work-integrated learning programs to address the skills needs and enhance graduate employability. In addition, the African Union's Agenda 2063 places a strong emphasis on industry-driven TVET programs to support economic development and job creation across the continent. The African continent is rich in natural resources and presents numerous opportunities for industrial growth. Collaboration between TVET institutions and industries is seen as a means to harness these opportunities and develop a skilled workforce that meets the demands of emerging sectors.

In Kenya, collaboration between TVET institutions and industries is gaining prominence as a strategy to address the country's skills gap and enhance competitiveness. The Kenyan government has implemented various initiatives to promote collaboration, such as the establishment of sectoral advisory committees and the integration of apprenticeship

programs into TVET curricula. A study by Ooko (2019) examined the influence of industry demand on collaboration in Kenya's TVET sector and emphasized the need for close collaboration between industries and TVET institutions to ensure the relevance and quality of training programs. The study highlighted the importance of regular industry engagement to identify emerging skills requirements and foster effective collaboration.

Recent studies have explored the Kenyan perspective of collaboration between TVET institutions and industries. For example, a study by Masibo and Indoshi (2019) examined the influence of industry's demand on collaboration in the Kenyan TVET sector. The research highlighted that industry's demand for specific skills and competencies was a crucial driver of collaboration. It emphasized the need for regular engagement between TVET institutions and industries to identify emerging skills requirements and ensure the relevance and quality of training programs.

In Kenya, the government has taken proactive steps to promote collaboration between TVET institutions and industries. The establishment of sectoral advisory committees, as outlined in the Technical and Vocational Education and Training (TVET) Act of 2013, facilitates dialogue and partnership between industries and TVET institutions. These committees bring together industry representatives and TVET stakeholders to identify industry needs, align training programs, and provide input into curriculum development. Furthermore, the integration of apprenticeship programs into TVET curricula in Kenya demonstrates the government's commitment to meeting industry demands. By providing

students with hands-on experience and exposure to real-world industry settings, apprenticeships enhance the employability of graduates and foster collaboration between TVET institutions and industries.

2.5 The influence of alignment of interests on collaboration between TVET institutions and industries

Alignment of interests on collaboration between TVET institutions and industries refers to the extent to which their mutual goals, priorities, and objectives are harmonized and congruent. It is a fundamental concept that profoundly affects the nature and effectiveness of their partnerships. Recent research and studies have highlighted the significance of this alignment. A growing body of research suggests that when the interests and objectives of these two entities are closely aligned, collaboration tends to be more effective and beneficial for both parties. For instance, a study by Durak and Saracaloğlu (2020) demonstrated that a strong alignment of interests between TVET institutions and industry partners results in more responsive and industry-relevant curricula.

This alignment ensures that the skills and knowledge taught in TVET programs directly address the needs of the job market, making graduates more employable. Similarly, research by Adovor et al. (2019) found that collaborative efforts between TVET institutions and industry stakeholders are more fruitful when there is a shared commitment to workforce development. Such collaboration often leads to the design of

training programs, apprenticeships, and internships that produce graduates with skills tailored to industry demands. Moreover, joint research and development initiatives between TVET institutions and industry benefit significantly from alignment of interests. A recent report from the World Bank (2021) highlights that when common research goals align with industry challenges, these partnerships yield innovations and solutions that are directly applicable in real-world settings. This not only advances the respective industries but also enhances the reputation and relevance of TVET institutions.

In practical terms, effective communication and information sharing mechanisms are crucial for successful collaboration. A high degree of alignment fosters an environment where information flows freely between TVET institutions and industry partners. This is supported by research conducted by Rani et al. (2018), which emphasized that alignment encourages transparent communication and ensures that both parties are well-informed about each other's needs and priorities. Durak and Saracaloğlu (2020) demonstrated that when interests align closely, TVET programs become more responsive to industry needs, resulting in curricula that equip graduates with skills that are directly relevant to the job market. This not only enhances graduate employability but also strengthens the relationship between TVET institutions and industries. Moreover, Adovor et al. (2019) found that collaboration thrives when there is a shared commitment to workforce development. When TVET institutions tailor their programs to address industry-specific skill gaps, it results in graduates who are better prepared to meet industry demands.

Furthermore, research by the World Bank (2021) emphasizes that alignment of interests significantly boosts the success of joint research and development initiatives, leading to practical innovations that benefit both TVET institutions and industries. Effective communication and information sharing mechanisms, as highlighted by Rani et al. (2018), are facilitated in an environment of alignment, ensuring that both parties are well-informed and can work collaboratively to achieve common goals. In conclusion, the alignment of interests is a critical factor that not only enhances the quality of TVET programs and graduate employability but also fosters innovation and effective communication within collaborations between TVET institutions and industries.

Germany serves as a prominent example of a country where alignment of interests has significantly shaped collaboration between TVET institutions and industry. The German dual apprenticeship system is renowned for its success in aligning TVET curricula with industry needs. Firms actively engage with TVET institutions to develop curriculum content, ensuring that students are equipped with the precise skills required by the job market (Busemeyer & Trampusch, 2012). This alignment has resulted in a highly skilled and adaptable workforce, benefiting industries such as manufacturing and engineering.

In Singapore, the Institute of Technical Education (ITE) and Polytechnics have closely aligned their programs with industry needs, particularly in sectors like information technology and healthcare. Collaboration is driven by initiatives such as the SkillsFuture Earn and Learn Program, where TVET students work with industry partners while

pursuing their studies. This alignment has not only led to a better-prepared workforce but has also fueled the country's economic development (Ministry of Education Singapore, 2021).

Switzerland is another notable case where alignment of interests has been pivotal. The Swiss Vocational Education and Training (VET) system ensures that TVET programs directly respond to industry requirements. Close collaboration with industry associations has led to the development of apprenticeship programs that produce graduates with specialized skills in areas like banking, watchmaking, and hospitality (Dolata, 2018). This alignment has contributed to Switzerland's global competitiveness and low youth unemployment rate. In Japan, TVET institutions and industries have long-standing partnerships that prioritize alignment. The country's focus on producing a skilled workforce for its manufacturing and technology sectors is well-documented. Industry associations work closely with TVET institutions to design programs that prepare students for the demands of companies like Toyota and Sony. This alignment has played a significant role in Japan's global industrial leadership (Iwasaki, 2020).

In Africa, the influence of alignment of interests on collaboration between TVET (Technical and Vocational Education and Training) institutions and industries is gaining recognition as a crucial factor in enhancing the effectiveness of vocational education and workforce development. Several African countries have been making efforts to align their TVET systems with industry needs, with notable case examples:

South Africa has been actively working on aligning TVET programs with industry requirements. The South African Qualifications Authority (SAQA) has been instrumental in this process, facilitating the development of qualifications and curricula that are relevant to industry demands (SAQA, 2020). The collaboration between TVET colleges and industries, especially in sectors such as engineering and agriculture, has led to the creation of programs that equip students with skills needed for the job market. In Rwanda, the government has emphasized the importance of aligning TVET programs with industry needs as part of its broader Vision 2050 goals for economic development. Initiatives like the Rwanda Polytechnic and partnerships with local and international industries are aimed at ensuring TVET graduates are well-prepared to meet the country's growing workforce demands (Rwanda Polytechnic, 2021). The alignment of interests in Rwanda serves as a model for skills development on the African continent.

Nigeria is also making strides in aligning TVET with industry interests. The National Board for Technical Education (NBTE) has worked to improve the relevance of TVET programs by engaging industry stakeholders in curriculum development (NBTE, 2021). Collaborations with industries in areas such as oil and gas, manufacturing, and technology have helped produce job-ready graduates who meet industry requirements.

In Ghana, the Council for Technical and Vocational Education and Training (COTVET) has taken steps to align TVET programs with industry needs. COTVET collaborates with industry associations to ensure that training programs match the evolving demands of

sectors like agriculture and manufacturing (COTVET, 2021). This alignment enhances graduates' prospects in the job market. Kenya has seen efforts to align TVET institutions with industries through initiatives like the Kenya Technical Trainers College (KTTC). KTTC has established partnerships with industries to offer training programs that directly address skill gaps in sectors such as construction and automotive engineering (KTTC, 2021). This alignment is vital for improving employability and supporting Kenya's industrial growth.

2.6 Research Gaps

This study aimed to address several gaps in the existing literature on the influence of collaboration between TVET institutions and industries. First, there is a limited amount of research that specifically focuses on the context of Trans Nzoia County, Kenya. While there have been studies conducted on collaboration between TVET institutions and industries in Kenya, there is a scarcity of research that explores this topic within the specific geographical context of Trans Nzoia County. Therefore, this study sought to contribute valuable insights into the determinants of collaboration in this particular region, providing a more localized perspective on the subject. In the existing body of literature on collaboration between training colleges and industry, certain gaps and limitations can be observed in several studies. One such gap is the limited focus on specific industries. For instance, Smith et al. (2020) conducted a study that primarily examined collaboration between training colleges and the manufacturing sector. While

this study provided valuable data into the dynamics of collaboration within the manufacturing industry, it failed to explore collaboration in other sectors, such as healthcare, technology, or agriculture. Consequently, the study did not exhaust potential variations in collaboration practices and challenges across diverse industries.

Another significant gap in the literature relates to geographical restrictions. Johnson and Brown (2019) conducted a regional study, investigating collaboration between training colleges and industries in a specific city. While this study provided valuable insights into the local context and dynamics, it overlooked the potential variations in collaboration practices and needs that might exist in other regions. As a result, the findings might not be applicable to other areas where industries and training colleges may have distinct priorities and requirements. Furthermore, some studies lack a comprehensive consideration of the diverse stakeholders involved in collaboration between training colleges and industry. For instance, Thompson et al. (2021) focused solely on the perspectives of training colleges and industries, neglecting the viewpoints of other crucial stakeholders, such as government policymakers, local communities, and relevant professional associations. The omission of these stakeholders' perspectives hinders a holistic understanding of the collaborative ecosystem and may lead to incomplete conclusions and recommendations.

While there is a growing body of literature on the influence of alignment of interests on collaboration between TVET (Technical and Vocational Education and Training)

institutions and industries, several notable gaps persist, offering opportunities for further research and exploration. Much of the existing literature focuses on case studies from developed countries like Germany, Switzerland, and Singapore. There is a need for research that delves into the unique challenges and opportunities faced by TVET institutions and industries in developing regions, where socio-economic, cultural, and infrastructural factors can significantly impact alignment and collaboration. Further, while studies often highlight the short-term benefits of alignment, there is a dearth of research that investigates the long-term consequences. Assessing how sustained alignment affects workforce development, industry growth, and economic stability over extended periods would provide valuable insights.

2.7 Summary of literature review

The literature reviewed provided a comprehensive analysis of previous studies and research conducted on the topic of collaboration between TVET institutions and industries. The review encompasses both global and regional perspectives, with a specific focus on the global perspective, Africa and Kenya. It examines the key factors that influence collaboration, including institutional capacity, industry's demand and alignment of interests. The review highlights the importance of collaboration between TVET institutions and industries in addressing the skills gap, promoting workforce development, and enhancing economic growth. It emphasizes the need for strong

partnerships and mutual engagement between the two sectors to ensure the relevance and quality of TVET programs.

Regarding institutional capacity, the review identifies governance structures, leadership, resources, and staff expertise as critical elements that facilitate collaboration. It emphasizes the significance of effective management and organizational structures in nurturing collaboration between TVET institutions and industries. The influence of industry's demand on collaboration is explored, emphasizing the need for TVET programs to align with industry needs and requirements. The review emphasizes the role of industry engagement in curriculum development, practical training opportunities, and employment prospects for TVET graduates.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section illustrates research methodology together with the research design which guides the entire study. It also has the research paradigm, study area together with the target population including the sample size and sampling procedures that was followed in order to attain the representative sample. Moreover, the chapter describes the instruments that were adopted for collection of data for the study together with their validity and reliability. Furthermore, data collection procedures including setting the boundaries for the study are discussed as well as the data analysis to be used keeping in mind the design of the study. Considering the sensitivity of the subject under study, due attention is paid to ethical issues and confidentiality aspects in relation to the respondents.

3.2 The study Area

The study area was Trans Nzoia County, located in North Rift Region of Kenya. Trans Nzoia County is known for its significant presence of Technical and Vocational Education and Training (TVET) institutions, as well as various industries. It is a region with diverse economic activities and a growing industrial sector. Trans Nzoia County hosts 33 TVET institutions, including a national Polytechnic, technical and vocational colleges, and training centers, which play a crucial role in equipping individuals with practical skills for employment (County Director TVET Trans-Nzoia County, 2023).

These institutions offer a range of training programs in fields such as agriculture, engineering, business, and information technology. In terms of industries, Trans Nzoia County is home to a variety of sectors. The agricultural sector is prominent, with the county being a major producer of maize, wheat, and other crops. Additionally, there are industries related to food processing, manufacturing, construction, and services. The county also has the potential for further industrial growth and diversification. The significance of choosing Trans Nzoia County as the study area lies in its unique context for investigating collaboration between TVET institutions and industries. The county's combination of TVET institutions and diverse industries provides an ideal setting to examine the determinants of collaboration between these two entities

3.3 Research Design

This study adopted a mixed-methods approach, combining both qualitative and quantitative methods. This approach provided a comprehensive understanding of the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya. The qualitative component of the research involved interviews with key stakeholders from TVET institutions and industries. These interviews allowed for a deeper exploration of participants' perspectives, experiences, and insights regarding collaboration. The interviews were semi-structured, allowing for flexibility while ensuring that key topics related to collaboration are covered. Qualitative data analysis

techniques, such as thematic analysis, were employed to identify recurring themes and patterns in the interview data.

The quantitative component of the research involved the use of questionnaires administered to trainers from TVET institutions. The questionnaire was designed based on the research objectives and gathered quantitative data on various aspects of collaboration, including perceived benefits, challenges, and the determinants of collaboration. The questionnaire responses were analyzed using statistical methods, such as descriptive statistics and inferential analysis, to identify trends, associations, and significant relationships among variables. The qualitative and quantitative data collected in this study were integrated to provide a comprehensive analysis of the determinants of collaboration between TVET institutions and industries. The findings from the qualitative interviews helped to provide a rich, contextual understanding of collaboration dynamics, while the quantitative survey data provided numerical data and statistical evidence. The integration of these data sources facilitated a deeper understanding of the factors at play and help triangulate the findings for robust conclusions.

3.4 Research Paradigm

This study adopted the pragmatic paradigm as its research approach. The pragmatic paradigm is a philosophical framework that emphasizes practicality, problem-solving, and the application of knowledge to real-world situations. It is particularly suitable for

this study because it focuses on understanding and addressing practical issues related to collaboration between TVET institutions and industries. The pragmatic paradigm guides the research process in several ways. Firstly, it aligns with the research objectives, which are centered around understanding the determinants of collaboration between TVET institutions and industries in Trans Nzoia County. In adopting the pragmatic paradigm, the study aimed to bridge the gap between theory and practice, providing evidence-based insights that have practical implications for improving collaboration efforts.

Secondly, the study utilized a mixed-methods research design, incorporating both quantitative and qualitative data collection methods. The pragmatic paradigm supports the use of mixed-methods research as it allows for a more comprehensive and well-rounded examination of the research problem. The quantitative data from the questionnaire provided statistical evidence, while the qualitative data from the interviews offered in-depth perspectives and contextualized information. Moreover, the pragmatic paradigm emphasizes the application of research findings to real-world situations. In this study, the aim was to provide practical recommendations for enhancing collaboration between TVET institutions and industries in Trans Nzoia County. Furthermore, the pragmatic paradigm encourages the involvement of stakeholders throughout the research process. This study engaged with key stakeholders, including representatives from TVET institutions and industries. In involving stakeholders, the study ensured that their

perspectives and needs are considered in the research, enhancing the relevance and impact of the findings.

3.5. Target Population

The target population for this study consisted of two primary groups: TVET institutions and industries operating in Trans Nzoia County. Trans Nzoia County has five sub counties; Endebess, Cherangany, Kiminini, Saboti and Kwanza. The first group is the 33 institutions, includes various technical and vocational training centers, polytechnics, and other educational establishments that offer specialized training programs. These institutions play a vital role in equipping individuals with practical skills and knowledge required for employment. Representatives from different institutions in Trans Nzoia County were selected to participate in the study. These representatives included administrators, trainers, instructors, and other relevant personnel who have direct involvement in or knowledge of collaboration efforts with industries.

The second group, industries, encompasses the diverse sectors of economic activity present in Trans Nzoia County. This includes well-established industries as well as emerging sectors. Industries in the county range from agriculture and food processing to manufacturing, construction, and services such as Such as Kenya Seed Company Limited, Kitale millers, Kapsara Tea Factory, Kitale National Museum. To capture a comprehensive view of collaboration between the institutions and industries,

representatives from a variety of industries were targeted. This included industry managers, human resource personnel and other key stakeholders who can provide insights into their experiences and perspectives on collaboration with TVET institutions.

Table 3.1 Target Population

Sub county	No. of TVET institutions	Number of Trainers	Principals	No. of Industries	Industry representatives
Endebess	3	51	1	5	5
Cherangany	11	48	1	6	6
Kiminini	8	62	1	4	4
Saboti	8	154	1	7	7
Kwanza	3	18	1	6	6
Total	33	333	5	28	28

3.6 Sample size and sampling procedures

According to Creswell (2013) the sample size of a particular research relies on what the researcher requires to understand, the purpose of the investigation, what is valuable, integrity of the research and use of locally available resources and time. In this study, Stratified sampling technique was used to divide the county into 5 sub counties (Endebes, Saboti, Kiminini, Cherangany and Kwanza) and each of them forms a stratum. The sample size for this study was based on Krejcie and Morgan (1970) sample size determination formula as cited by Kasomo (2001). The formula is given as:

$$n = \frac{X^2 * N * P(1 - P)}{(ME^2 * (N - 1)) + (X^2 * P * (1 - P))}$$

Where;

n=Sample size

X²=Chi Square for the specified confidence level at 1 degree of freedom= (3.841)

from tables

N=Population size

P=Population proportion

ME=Desired margin of error (expressed as a proportion=0.05)

$$=3.841 \times 394 \times 0.5 (1-0.5) / 0.05 \times 0.05 (394-1) + 3.841 \times 0.5 (1-0.5) = 178$$

Using the formula, a total of 178 respondents were selected. Further, the sample size as per each category were selected by the use of proportionate sampling where the largest quota of the target population had the largest share of the sample as presented in Table 3.2.

Table 3.2 Sample size

Quota	Target population	Sample size	Sampling criteria
Trainers in TVET institutions	333	150	Proportionate sampling
Principals	33	15	Proportionate sampling
Industries representatives	28	13	Proportionate sampling

Total	394	178
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3.7 Research instruments

The research instruments for this study included questionnaires and interviews. These instruments were used to collect data from principals and trainers from TVET institutions and representatives from industries in Trans Nzoia County, Kenya, regarding the determinants of collaboration between them.

3.7.1 Questionnaire

Questionnaire was developed to gather quantitative data on various aspects of collaboration. The questionnaire was designed based on the research objectives and the literature review findings. It included both closed-ended questions (such as multiple-choice or Likert scale questions) and open-ended questions to capture a range of information. The questionnaire was administered to trainers from TVET institutions. The questionnaires provided quantitative data into participants' perceptions, experiences, and attitudes towards collaboration, as well as information on specific the determinants of collaboration.

3.7.2 Interviews:

Interviews were conducted with Principals from TVET institutions and industries representatives. The interviews were semi-structured, allowing for flexibility in exploring

participants' perspectives, experiences, and insights regarding collaboration. The interview questions were developed based on the research objectives and informed by the survey results. The interviews examined deeper into participants' narratives, allowing for a rich understanding of their experiences, challenges, and perceptions of collaboration. The interview provided qualitative insights and help uncover information on the determinants of collaboration between TVET institutions and industries.

3.8 Validity and reliability of research instruments

Ensuring the validity and reliability of research instruments is crucial for obtaining accurate and trustworthy data. In this study, measures were taken to enhance the validity and reliability of the survey questionnaire and the interview protocol.

3.8.1 Validity

Validity refers to the degree to which a research instrument or study accurately measures the concept it is intended to assess. It determines whether the results genuinely reflect the underlying constructs or variables of interest. In this study, validity was ensured through careful development and evaluation of the research instruments, including the questionnaire and interview schedule. The instruments were designed after an extensive review of relevant literature and established frameworks guiding collaboration between TVET institutions and industry. This process helped to ensure content validity, as the items comprehensively covered all relevant themes, dimensions, and variables associated

with the determinants of TVET–industry collaboration. To further enhance content validity, experts and departmental supervisors reviewed the instruments to confirm their adequacy, clarity, and relevance in addressing the research objectives. Additionally, construct validity was ensured by aligning each item in the questionnaire and interview guide with the theoretical constructs underpinning the study, ensuring that the instruments measured what they were intended to measure. A pilot study involving 10% of the target sample was conducted to test the clarity, comprehensibility, and applicability of the questions. Feedback from the pilot participants was used to refine and adjust the instruments, thereby enhancing both their content and construct validity before full-scale data collection.

3.8.2 Reliability

Validity refers to the extent to which a research instrument or study accurately measures the concept it is designed to assess. It ensures that the findings truly represent the variables or constructs under investigation. In this study, several forms of validity were established to enhance the accuracy and credibility of the research instruments. Content validity was ensured by developing the questionnaire and interview guide based on an extensive review of relevant literature and established frameworks on TVET industry collaboration. This process guaranteed that all critical dimensions and variables related to the determinants of collaboration were adequately represented. To further strengthen content validity, experts in the field, including departmental supervisors and professionals

familiar with TVET and industry linkages, reviewed the instruments and provided feedback on their comprehensiveness and relevance. Face validity was addressed by evaluating the clarity, language, and presentation of the questions to ensure they were easily understood by respondents and appropriately captured the intended meaning. This was achieved through expert review and preliminary feedback from selected participants. Construct validity was established by aligning the questionnaire items with theoretical constructs derived from prior studies and conceptual models of institutional capacity, industry demand, and alignment of interests. Additionally, a pilot study involving 10% of the sample population was conducted to assess the clarity, consistency, and interpretability of the items. Feedback from the pilot study was used to refine, modify, and validate the final instruments, ensuring that they were conceptually sound, reliable, and contextually appropriate for the target population in Trans Nzoia County.

3.9 Data Analysis

The data analysis process for this study involved a combination of qualitative and quantitative analysis techniques. The specific methods used depended on the nature of the data collected through questionnaires and interviews. The following steps outline the general approach to data analysis: The collected data, including questionnaires responses and interview transcripts, were organized and prepared for analysis. This involves entering questionnaire data into statistical package for social sciences (SPSS), program and ensuring the data is properly labeled and anonymized to protect participant confidentiality. The qualitative data from the interviews was analyzed using thematic

analysis. This involves systematically identifying, organizing, and interpreting patterns, themes, and categories within the interview data. The analysis process involved coding the data, identifying recurring themes, and exploring relationships between different themes. The quantitative data from the questionnaire was analyzed using appropriate statistical methods. This may include descriptive statistics, such as frequencies, percentages, means, and standard deviations, to summarize the survey responses. A summary of data analysis techniques is presented in Table 3.3.

Table 3.3 Summary of Data Analysis Techniques

Objective	Independent Variable	Dependent Variable	Analysis Method
To investigate the influence of Institutional Capacity on collaboration between TVET institutions and industries in Trans Nzoia County	Institutional Capacity	Collaboration between TVET institutions and industries	Descriptive statistics
To determine the influence of Industry's Demand on collaboration between TVET institutions and industries in Trans Nzoia County	Industry's Demand	Collaboration between TVET institutions and industries	Descriptive statistics
To examine the influence of alignment of Interests on collaboration between TVET institutions and industries in Trans Nzoia County	Alignment of interests	Collaboration between TVET institutions and industries	Descriptive statistics

3.10 Ethical considerations

Ethical considerations play a crucial role in research, and this study on the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya, adhered to ethical principles to protect the rights and well-being of participants. The following ethical considerations were taken into account: Prior to data collection, informed consent obtained from all participants. They provided with comprehensive information about the study purpose, procedures, potential risks and benefits, their rights

as participants, and the voluntary nature of their participation. Participants had the right to ask questions, clarify any concerns, and freely decide whether or not to participate. Written consent was obtained from participants, and anonymity and confidentiality was be assured. Participants' identities and personal information were kept strictly confidential. Any data collected was stored securely and accessed only by authorized researchers. Identifying information was removed or anonymized during data analysis and reporting to ensure participant confidentiality. Participants' privacy was respected throughout the study. Data collection was conducted in private settings to ensure participants feel comfortable and have the freedom to express their opinions and experiences without external influence. Participation in the study was entirely voluntary, and participants had the right to withdraw at any time without facing any consequences or negative repercussions.

The study strived to minimize any potential harm or discomfort to participants. Sensitivity was exercised when discussing sensitive topics, and participants were assured of their right to decline answering any questions that they find uncomfortable. The researcher adhered to ethical guidelines and professional integrity. This included treating participants with respect, maintain objectivity, and avoid any form of exploitation or bias. The study obtained necessary research approvals and ethical clearance from relevant institutional review boards or ethics committees to ensure compliance with ethical standards and guidelines. Clearance was obtained from University of Eldoret Post

graduate school, National Commission for Science Technology and Innovations (NACOSTI), County Director of Education, County Commissioner and the various selected officials in Trans Nzoia County. The study promoted transparency by clearly documenting the research methodology, data collection procedures, and analysis techniques employed. The findings were reported accurately, and efforts were made to disseminate the results in a manner that is accessible, understandable, and beneficial to both the academic community and relevant stakeholders.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents data analysis, presentations and discussions on the findings on the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya. The objectives of the study were; to investigate the influence of Institutional Capacity on collaboration between TVET institutions and industries, to determine the influence of Industry's Demand on collaboration between TVET institutions and industries and to examine the influence of alignment of interests on collaboration between TVET institutions and industries.

4.2 Response rate

In this study, a total of 147 out of 150 questionnaires were duly filled and returned by respondents giving a return rate of 98% which was considered adequate to provide reliable information on the determinants of collaboration between TVET institutions and industries in Trans Nzoia County. In addition, 10 principals 8 industry representatives were interviewed. A high response rate is often desirable as it can enhance the representativeness and reliability of the data collected. According to Bhebhe, S., & Mupfiga, E. (2022), response rates in organizational research average around 35% to 40%, though higher rates are preferable for minimizing non-response bias and ensuring the validity of the study's findings. Akkari, A., & Maleq, K. (2021) emphasize the

importance of using multiple methods and reminders to increase response rates, as a low response rate can lead to biased results if the non-respondents differ significantly from those who participated. Therefore, the use of triangulation in this study increased the reliability of the findings.

4.3 Reliability Testing

After the pilot test, all the items used were proven to show reliability with Cronbach alpha values over 0.7. Institutional Capacity had 8 items and a Cronbach alpha value of 0.864, Industry's Demand had 8 items and a Cronbach alpha value of 0.910 was obtained. Alignment of interests had 8 items with Cronbach alpha value of 0.864 and dependent variable had 4 items with a Cronbach Alpha of 0.810. Therefore, the items had a Cronbach's Alpha ranging from 0.810 and 0.910 which was more than 0.7 as recommended. This indicates that the tool is dependable and therefore deemed fit for collection of data as indicated in table 4.1.

Table 4.1 Cronbach's Reliability Test

Variables	Reliability Statistics	
	Scale Reliability Coefficient (α)	N of Items in the scale
Institutional Capacity	.864	8
Industry's Demand	.910	8
Alignment of Interests	.868	8
Dependent Variable	.810	4

Source: Pilot Data, 2024

4.4 Demographic information

4.4.1 Gender of respondents

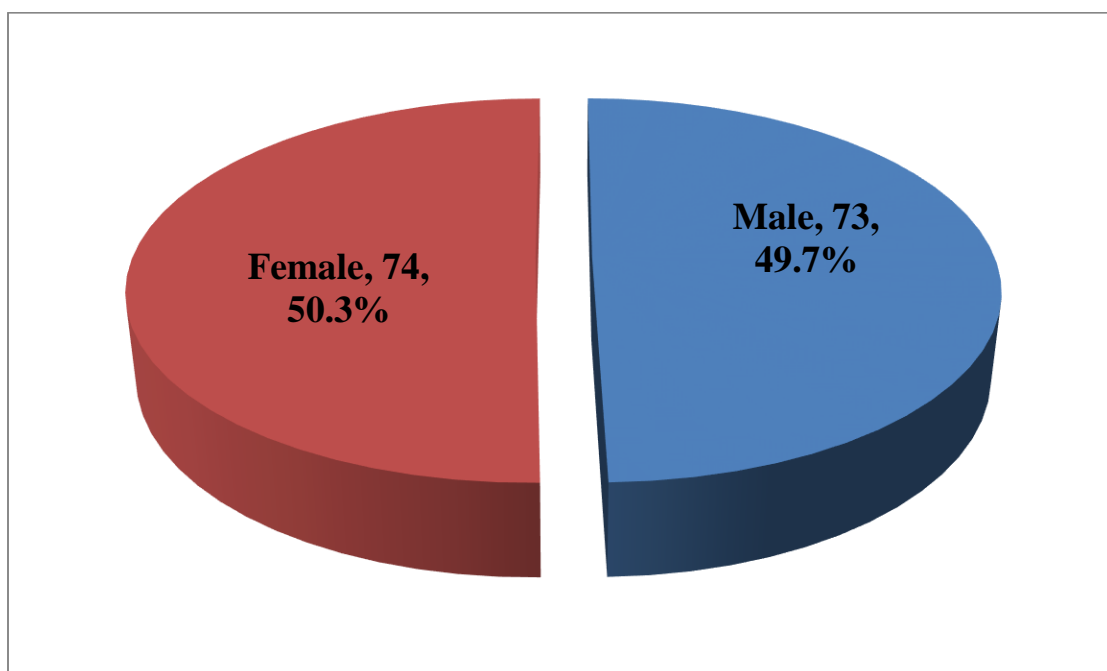


Figure 4.1 Gender of respondents

The majority of the respondents, 74 (50.3%), were female, while 73 (49.7%) were male.

This near-equal distribution of gender provides a balanced representation of both male and female perspectives in the study. This gender balance strengthens the credibility and generalizability of the study's conclusions, as it indicates that the observed patterns and insights are not limited to a specific gender group but rather representative of the broader population involved in TVET-industry collaborations in the Trans Nzoia County

4.4.2 Age bracket

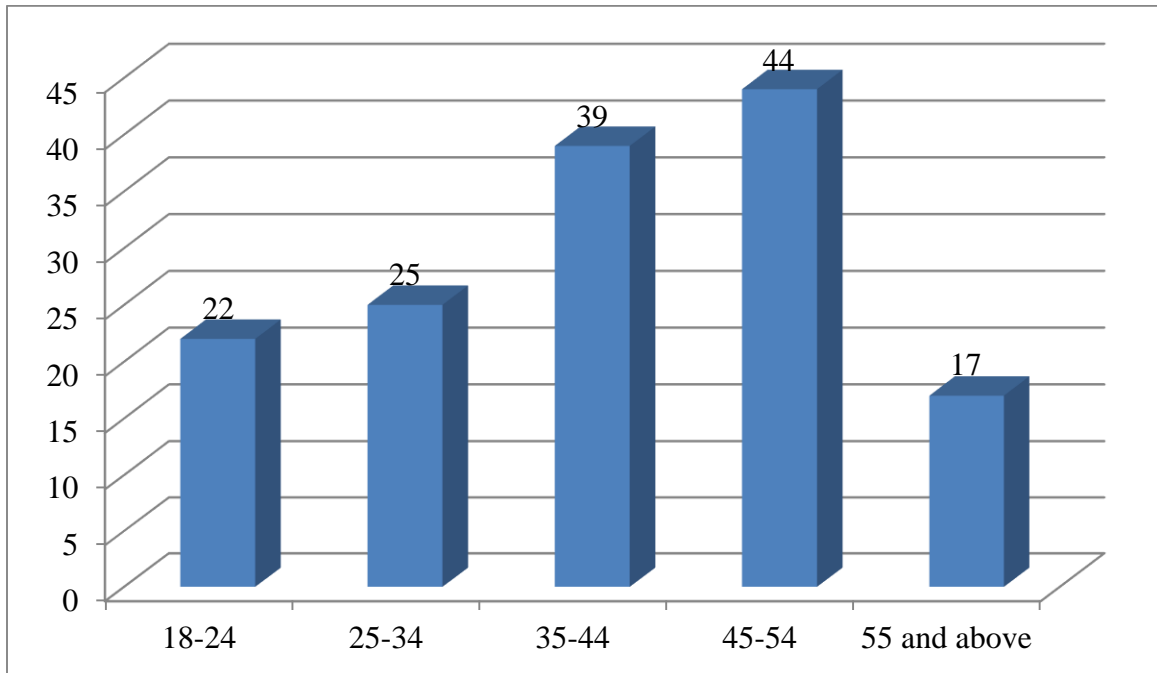


Figure 4.2 Age bracket

Regarding age, the largest group of respondents, 44 (29.9%), were aged 45-54 years, followed by 39 (26.5%) who were aged 35-44 years. Respondents aged 25-34 years comprised 25 (17.0%), and those aged 18-24 years accounted for 22 (15.0%). The smallest group was respondents aged 55 and above, with 17 (11.6%). This distribution indicates that most respondents are in the 35-54 age range, with the largest single age group being 45-54 years. This provides a valuable counterpoint by incorporating the views and insights of individuals who may be more recently engaged with or directly

affected by TVET-industry collaborations. This age diversity within the sample enhances the study's ability to capture a comprehensive understanding of the phenomenon, as it allows for the exploration of potential generational differences or emerging trends in the dynamics of these collaborative efforts.

4.4.3 Educational Background

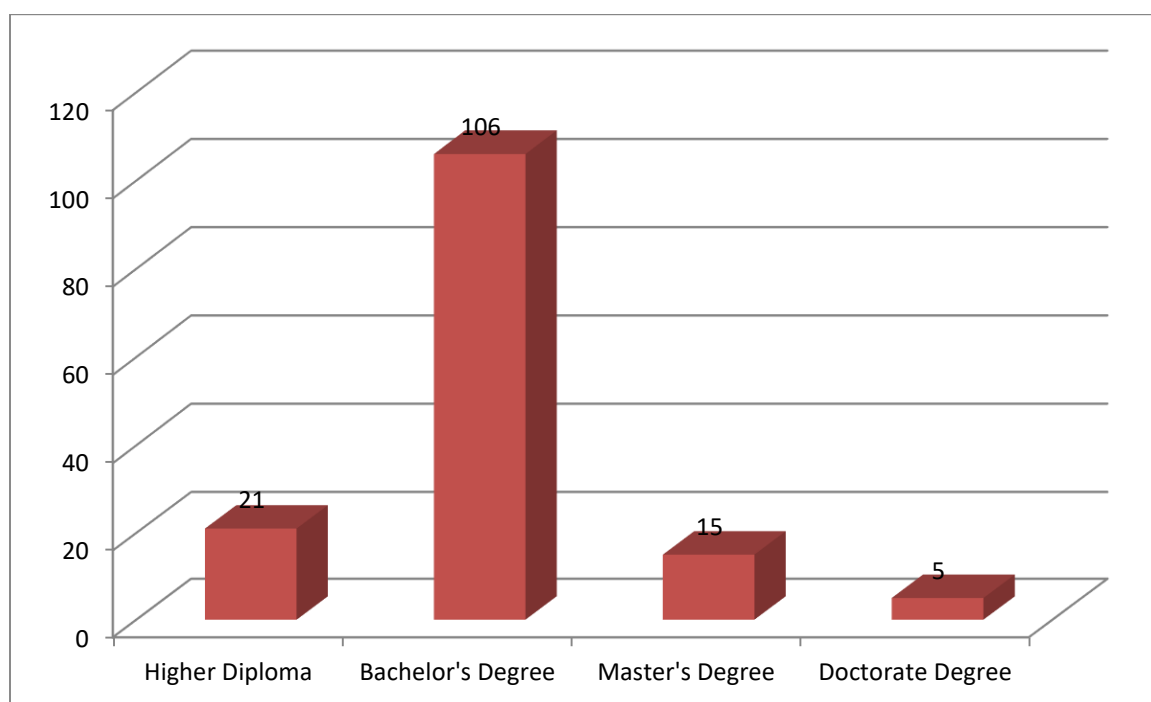


Figure 4.3 Educational Background

In terms of educational background, the majority of respondents, 106 (72.1%), held a Bachelor's Degree. This was followed by 21 respondents (14.2%) with a Higher Diploma, 15 (10.2%) with a Master's Degree, and 5 (3.5%) holding a Doctorate Degree. This

shows that the respondents are highly educated, with a significant majority having at least a Bachelor's Degree. These individuals may bring additional expertise, research skills, and a more comprehensive understanding of the theoretical and practical aspects of TVET-industry collaborations, which can enrich the insights and recommendations generated by the study. The also suggests that the study has incorporated the perspectives of individuals who may be more directly involved in the implementation and day-to-day operations of TVET-industry collaborative initiatives, potentially offering valuable practical experience to complement the more academically-oriented viewpoints.

4.4.4 Work Experience in TVET or Industry

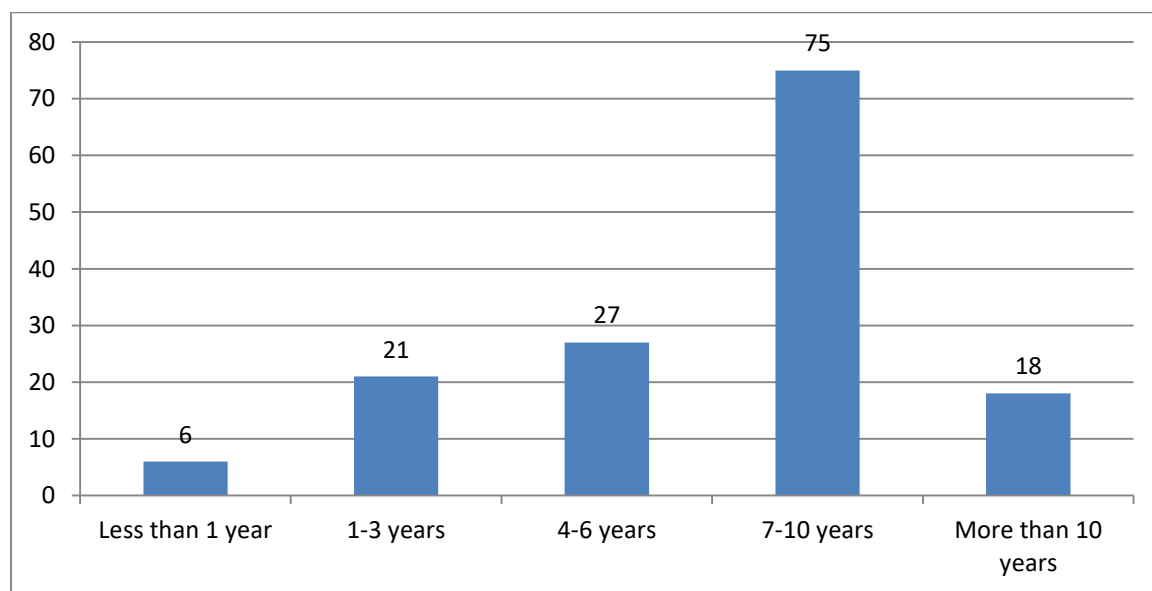


Figure 4.4 Work Experience in TVET or Industry

Regarding work experience in TVET or the industry, the majority of respondents, 75 (51.1%), reported having 7-10 years of experience. This was followed by 27 respondents (18.3%) with 4-6 years of experience, and 21 respondents (14.2%) with 1-3 years. The group with more than 10 years of experience included 18 respondents (12.3%), while the least experienced group, with less than 1 year, comprised 6 respondents (4.1%). This distribution highlights that most respondents have considerable work experience, with the majority having 7-10 years. The predominance of respondents with 7-10 years of experience indicates that the study's findings are likely to be heavily influenced by the perspectives of seasoned professionals who have navigated the complexities of these partnerships over an extended period. This can provide valuable insights into the long-term trends, established practices, and entrenched challenges that shape the effectiveness and sustainability of TVET-industry collaborations.

4.5: Institutional Capacity and collaboration between TVET institutions and industries

The first objective of this study was to examine Institutional Capacity and collaboration between TVET institutions and industries. Respondents were requested to rate their agreement or disagreement on the statements in a likert scale. Table 4.2 shows the results.

Table 4.2 Institutional Capacity and collaboration between TVET institutions and industries

Statement	SD		D		U		A		SA	
	F	%	F	%	F	%	F	%	F	%
The TVET institutions in Trans Nzoia County have adequate resources and facilities to support collaboration with industries.	65	44.2	38	25.9	7	4.8	22	15.0	15	10.2
The TVET institutions in Trans Nzoia County have strong leadership and governance structures that promote collaboration with industries.	39	26.5	60	40.8	5	3.4	18	12.2	25	17.0
The TVET institutions in Trans Nzoia County have a well-established network and partnerships with industries.	42	28.6	66	44.9	6	4.1	13	8.8	20	13.6
The TVET institutions in Trans Nzoia County have a culture of innovation and responsiveness to industry needs.	58	39.5	41	27.9	8	5.4	17	11.6	23	15.6
The TVET institutions in Trans Nzoia County have skilled and competent staff who can effectively engage with industries.	20	13.6	18	12.2	7	4.8	70	47.6	32	21.8
The TVET institutions in Trans Nzoia County have a strong commitment to continuous improvement and quality assurance.	16	10.9	24	16.3	6	4.1	67	45.6	34	23.1
The TVET institutions in Trans Nzoia County have mechanisms in place to regularly assess and address the needs of industries.	14	9.5	21	14.3	4	2.7	68	46.3	40	27.2
The TVET institutions in Trans Nzoia County have a favorable reputation among industries for collaboration.	12	8.2	19	12.9	5	3.4	66	44.9	45	30.6

From table 4.2, majority of the respondents, 65 (44.2%), strongly disagreed that TVET institutions have adequate resources and facilities to support collaboration with industries, while 38 (25.9%) disagreed, 22 (15.0%) agreed, and 15 (10.2%) strongly agreed, with 7 (4.8%) undecided. This implies a significant proportion (70.1%) of respondents believe that TVET institutions lack adequate resources, suggesting a critical area for improvement. This finding aligns with previous studies, such as one by Bhebhe, S., & Mupfiga, E. (2022), which emphasized the importance of sufficient resources in fostering effective collaboration between educational institutions and industries.

Similarly, when asked about the strength of leadership and governance structures in promoting collaboration, 60 (40.8%) of respondents disagreed, followed by 39 (26.5%) who strongly disagreed. A smaller percentage, 25 (17.0%), strongly agreed, and 18 (12.2%) agreed, with 5 (3.4%) undecided. This implies that a majority (67.3%) of respondents view the leadership and governance structures as inadequate, indicating a need for enhanced governance to support collaborative efforts. This suggests a need for enhanced governance frameworks to better facilitate and support these collaborative efforts. As noted by Fernandez (2021), effective governance structures are crucial for enabling successful partnerships and knowledge exchange between educational institutions and industry stakeholders. When these governance mechanisms are lacking or insufficient, it can undermine the coordination, decision-making, and overall effectiveness of collaborative initiatives.

Furthermore, 66 (44.9%) of respondents disagreed that TVET institutions have well-established networks and partnerships with industries, with 42 (28.6%) strongly disagreeing, 20 (13.6%) strongly agreed, and 13 (8.8%) agreed, while 6 (4.1%) were undecided. This finding implies that a significant proportion (73.5%) of respondents perceive a lack of strong industry partnerships, suggesting an area for strategic development to enhance industry collaboration. This concurs with the findings presented by Lim (2022), who noted that the development of strategic industry partnerships is a crucial area for TVET providers to focus on in order to enhance collaboration and responsiveness to evolving industry needs. The lack of strong industry partnerships, as highlighted by the majority of respondents, suggests an important area for strategic development and investment. As Fernandez (2021) emphasizes, fostering robust and long-term collaborations between TVET institutions and local industries is essential for ensuring the relevance and effectiveness of vocational training programs.

Moreover, the perception of a culture of innovation and responsiveness to industry needs is also low, with 58 (39.5%) of respondents strongly disagreeing and 41 (27.9%) disagreeing. A smaller number, 23 (15.6%), strongly agreed, and 17 (11.6%) agreed, while 8 (5.4%) were undecided. This implies that a substantial majority (67.4%) of respondents feel there is a lack of innovation and responsiveness, highlighting the need for a more adaptive and innovative approach to meet industry demands. This suggests a

critical area that requires a more adaptive and innovative approach to ensure the relevance and effectiveness of vocational training.

As highlighted by Bhatt (2021), the pace of technological change and shifting industry needs necessitates a TVET system that is agile, responsive, and capable of quickly adapting to emerging trends and skill requirements. When TVET institutions struggle to innovate and maintain responsiveness, it can lead to a mismatch between the skills of graduates and the needs of employers, undermining the employability of the talent pool.

Additionally, the competency of staff in engaging with industries was viewed positively by some, with 70 (47.6%) agreeing and 32 (21.8%) strongly agreeing. However, 20 (13.6%) strongly disagreed and 18 (12.2%) disagreed, with 7 (4.8%) undecided. This indicates a majority (69.4%) of respondents believe that TVET institutions have skilled and competent staff, though there remains a notable minority with contrary views, suggesting potential areas for further staff development. However, the presence of a notable minority with contrary views suggests that there may be potential areas for further staff development and capacity-building. This finding aligns with the observations made by Patil (2021), who emphasized the importance of investing in the continuous professional development of TVET faculty to ensure they are equipped with the latest industry knowledge, pedagogical approaches, and emerging technologies. Khatri (2020) further highlights the need for TVET providers to engage in regular dialogue with

industry partners to better understand evolving skill demands and ensure that their staff are adequately prepared to deliver training that is responsive to the needs of the local job market. This collaborative approach can help to identify gaps in staff knowledge and skills, and inform the development of targeted professional development programs. Moreover, Sangwan (2022) emphasizes the importance of building a culture of innovation within TVET institutions, which can empower staff to explore new teaching methodologies, incorporate emerging technologies, and adapt their practices to meet the changing demands of the industry

Furthermore, 67 (45.6%) of respondents agreed that there is a strong commitment to continuous improvement and quality assurance, with 34 (23.1%) strongly agreeing. Conversely, 24 (16.3%) disagreed, and 16 (10.9%) strongly disagreed, while 6 (4.1%) were undecided. This implies that a majority (68.7%) of respondents recognize the commitment to quality improvement, which is essential for maintaining high standards in educational and collaborative practices. This recognition of the focus on quality enhancement is a critical factor for maintaining high standards in both educational and collaborative practices. The emphasis on quality improvement aligns with the observations made by industry experts, who have highlighted the importance of continuous quality assurance mechanisms in TVET institutions. As noted by Narayanan, (2020), the implementation of robust quality management systems can help TVET providers ensure the relevance, effectiveness, and impact of their training programs.

Moreover, 68 (46.3%) of respondents agreed that mechanisms are in place to assess and address industry needs, and 40 (27.2%) strongly agreed. In contrast, 21 (14.3%) disagreed, and 14 (9.5%) strongly disagreed, with 4 (2.7%) undecided. This indicates that a majority (73.5%) of respondents believe that effective mechanisms exist, highlighting the positive steps taken towards addressing industry requirements. This indicates that positive steps have been taken to align TVET offerings with the evolving needs of the local job market. As noted by Brest (2019), the development of effective feedback loops and collaborative platforms between TVET institutions and industry partners is crucial for ensuring the relevance and responsiveness of vocational training.

Additionally, the reputation of TVET institutions among industries for collaboration was viewed favorably by 66 (44.9%) of respondents who agreed, and 45 (30.6%) who strongly agreed. However, 19 (12.9%) disagreed and 12 (8.2%) strongly disagreed, with 5 (3.4%) undecided. This implies a majority (75.5%) of respondents perceive a favorable reputation, suggesting that TVET institutions are recognized positively for their collaborative efforts with industries. This suggests that these institutions are recognized positively for their collaborative efforts with industries. As highlighted by Situma (2019), the reputation and public perception of TVET institutions are critical factors in their ability to attract students, secure industry partnerships, and demonstrate the value of vocational education. The positive perception among the majority of respondents

suggests that TVET providers have been successful in building strong collaborative relationships with local industries and showcasing the relevance and quality of their training programs.

On interview with the principal's one of the participants made the following points;

“The level of institutional capacity is a crucial factor that can greatly impact the success of collaboration efforts between TVET institutions and industries. In my experience, TVET institutions with strong institutional capacity are better positioned to forge effective and sustainable partnerships with industry.

Firstly, the availability of adequate resources, both financial and human, is key. TVET institutions need to have the resources to invest in the infrastructure, equipment, and facilities required to provide industry-relevant training. They also need to have qualified and experienced faculty who can design and deliver training programs that meet industry needs. Without this foundational capacity, it becomes challenging to engage with industry in a meaningful way.

Secondly, the institutional leadership and governance structures play a vital role. TVET institutions with clear strategic vision, strong leadership, and effective decision-making processes are better able to identify industry needs, align their programs, and mobilize resources for collaboration. Institutions with flexible and responsive governance structures can also more easily adapt to the evolving demands of industry.

Thirdly, the strength of the TVET institution's industry networks and partnerships is crucial. TVET institutions that have already established strong relationships with industry players, understand their needs, and have a track record of successful collaborations are in a much better position to scale up and deepen these partnerships. Building these industry connections takes time and resources, but it is a crucial element of institutional capacity.

Finally, the TVET institution's capacity for monitoring, evaluation, and continuous improvement is also important. Institutions that can gather feedback from industry, track the outcomes of their collaboration efforts, and make data-driven decisions to enhance their programs are more likely to sustain long-term partnerships.

Based on the above comments the principal implies that the foundational capacity of a TVET institution, in terms of its resources, infrastructure, and qualified faculty, is a critical precursor for effective industry collaboration. Without the necessary physical and human resources to deliver industry-relevant training, TVET institutions will struggle to engage with industry partners in a meaningful and sustainable manner. Further, the principal emphasizes the importance of strong institutional leadership, governance, and strategic vision in facilitating collaboration. TVET institutions with clear goals, responsive decision-making, and the ability to adapt to industry needs are better positioned to identify opportunities for partnership and mobilize resources accordingly. Furthermore, the principal suggests that the strength of a TVET institution's industry networks and existing partnerships is a crucial aspect of its institutional capacity. Institutions that have already established trusted relationships with industry and have a track record of successful collaborations are more likely to scale up and deepen these partnerships in the future. The principal also highlights the significance of a TVET institution's capacity for monitoring, evaluation, and continuous improvement. The ability to gather feedback from industry, track the outcomes of collaborative efforts, and make data-driven decisions to enhance programs is essential for sustaining long-term partnerships with industry.

4.6 Industry's Demand and Collaboration Between TVET Institutions and Industries

The second objective of this study was to determine the influence of Industry's Demand on collaboration between TVET institutions and industries in Trans Nzoia County. Respondents were requested to rate their agreement or disagreement on the statements in a likert scale. Table 4.3 shows the results.

Table 4.3 Industry's Demand and Collaboration Between TVET Institutions and Industries

Statement	SD		D		U		A		SA	
	F	%	F	%	F	%	F	%	F	%
The industries in Trans Nzoia County express a strong demand for collaboration with TVET institutions.	13	8.8	22	15.0	5	3.4	70	47.6	37	25.2
The industries in Trans Nzoia County actively seek partnerships and engagement with TVET institutions.	67	45.6	32	21.8	6	4.1	18	12.2	24	16.3
The industries in Trans Nzoia County value the contributions and expertise of TVET institutions.	15	10.2	20	13.6	7	4.8	65	44.2	40	27.2
The industries in Trans Nzoia County provide sufficient opportunities for TVET institutions to participate in collaborative projects.	17	11.6	23	15.6	8	5.4	68	46.3	31	21.1
The industries in Trans Nzoia County are willing to invest resources and time in collaborative initiatives with TVET institutions.	66	44.9	36	24.5	7	4.8	20	13.6	18	12.2
The industries in Trans Nzoia	34	23.1	67	45.6	5	3.4	25	17.0	16	10.9

County regularly communicate their needs and expectations to TVET institutions.	14	9.5	21	14.3	6	4.1	68	46.3	38	25.9
The industries in Trans Nzoia County recognize the importance of aligning their demands with the curriculum and programs offered by TVET institutions.	45	30.6	66	44.9	5	3.4	19	12.9	12	8.2
The industries in Trans Nzoia County provide feedback and support to TVET institutions to enhance collaboration.										

The majority of the respondents, 70 (47.6%), agreed that industries express a strong demand for collaboration with TVET institutions, 37 (25.2%) strongly agreed. Conversely, 22 (15.0%) disagreed, and 13 (8.8%) strongly disagreed, with 5 (3.4%) undecided. This implies that a significant proportion (72.8%) of respondents perceive a strong demand for collaboration from industries, highlighting a positive inclination towards partnerships. This finding is consistent with studies like that of Ochieng et al. (2018), which noted that industry demand is crucial for effective collaboration with educational institutions.

Similarly, a majority of the respondents, 67 (45.6%), strongly disagreed that industries actively seek partnerships with TVET institutions, followed by 32 (21.8%) who disagreed. Further, 24 (16.3%) strongly agreed, and 18 (12.2%) agreed, with 6 (4.1%) undecided. This indicates that a substantial majority (67.4%) of respondents believe that industries are not actively seeking partnerships, suggesting a gap in proactive engagement that needs to be addressed. This implies a potential gap in proactive engagement between

industries and TVET providers that needs to be addressed. As highlighted by the International Labour Organization (ILO, 2020), strong industry-TVET partnerships are crucial for ensuring the relevance and responsiveness of vocational training. When industries actively engage with TVET institutions, they can provide valuable insights into their skill requirements, facilitate the development of industry-aligned curricula, and offer opportunities for work-based learning and placement of graduates.

Furthermore, 65 (44.2%) of respondents agreed that industries value the contributions and expertise of TVET institutions, with 40 (27.2%) strongly agreeing. However, 20 (13.6%) disagreed, and 15 (10.2%) strongly disagreed, with 7 (4.8%) undecided. This finding implies that a significant majority (71.4%) of respondents feel that industries value TVET contributions, indicating a positive recognition of TVET expertise. This suggests a positive recognition of TVET expertise by industry stakeholders. Similarly, Rowe and Zegwaard (2022) highlighted the perceived value of TVET by industry partners is a key indicator of the effectiveness and relevance of vocational education and training programs. When industries recognize and appreciate the expertise and contributions of TVET providers, it facilitates the development of stronger and more productive partnerships.

Moreover, 68 (46.3%) of respondents agreed that industries provide sufficient opportunities for TVET institutions to participate in collaborative projects, while 31

(21.1%) strongly agreed. On the other hand, 23 (15.6%) disagreed, and 17 (11.6%) strongly disagreed, with 8 (5.4%) undecided. This implies that a substantial proportion (67.4%) of respondents believe there are sufficient collaborative opportunities, highlighting an area of strength in industry-TVET partnerships. This highlights an area of strength in the existing industry-TVET partnerships. As noted by Tymon (2019), effective collaboration between TVET providers and industry partners is crucial for ensuring the relevance and responsiveness of vocational education programs. When such collaborative opportunities are perceived as sufficient, it suggests that the existing mechanisms and platforms for industry-TVET engagement are functioning well.

Additionally, 66 (44.9%) of respondents strongly disagreed that industries are willing to invest resources and time in collaborative initiatives with TVET institutions, and 36 (24.5%) disagreed. Additionally, 20 (13.6%) agreed, and 18 (12.2%) strongly agreed, with 7 (4.8%) undecided. This finding suggests that a significant majority (69.4%) of respondents perceive a lack of willingness from industries to invest in collaborations, indicating a critical area for improvement. This suggests a critical area for improvement in the industry-TVET partnership landscape. As highlighted by Neuenschwander and Nägele (2020), the willingness of industry partners to invest in collaborative initiatives with TVET providers is a crucial factor in strengthening the industry-TVET interface and ensuring the relevance of vocational education programs. When a significant proportion of respondents perceive a lack of industry investment in such collaborations, it points to a

potential mismatch between the expectations and commitments of TVET institutions and their industry counterparts.

Furthermore, 67 (45.6%) of respondents disagreed that industries regularly communicate their needs and expectations to TVET institutions, followed by 34 (23.1%) who strongly disagreed, 25 (17.0%) agreed, and 16 (10.9%) strongly agreed, with 5 (3.4%) undecided. This indicates that a substantial majority (68.7%) of respondents believe there is inadequate communication from industries, underscoring the need for better communication channels. This aligns with the insights provided by Hogan, Chamorro Premuzic, and Kaiser (2021), who emphasize the critical role of effective communication in building successful partnerships and collaboration. Effective communication is a cornerstone of any successful partnership, as it enables the exchange of information, the alignment of expectations, and the identification of shared goals. In the context of industry-TVET partnerships, the perception of inadequate communication from industries suggests that TVET institutions may be facing challenges in obtaining timely and relevant information about industry needs, skill gaps, and emerging trends.

Moreover, 68 (46.3%) of respondents agreed that industries recognize the importance of aligning their demands with the curriculum and programs offered by TVET institutions, while 38 (25.9%) strongly agreed. However, 21 (14.3%) disagreed, and 14 (9.5%) strongly disagreed, with 6 (4.1%) undecided. This implies that a majority (72.2%) of respondents feel that industries acknowledge the importance of alignment, indicating a

positive understanding of curriculum relevance. This finding implies a positive understanding among industries regarding the relevance of TVET curriculum content, as highlighted by Akpomujere (2019). Akpomujere (2019) emphasizes the importance of aligning TVET curricula with industry requirements to ensure the relevance and employability of TVET graduates. When a majority of respondents perceive that industries acknowledge the significance of this alignment, it suggests a collaborative mindset and a shared recognition of the need to bridge the gap between the skills taught in TVET institutions and the competencies required in the workplace.

Similarly, 66 (44.9%) of respondents disagreed that industries provide feedback and support to TVET institutions to enhance collaboration, followed by 45 (30.6%) who strongly disagreed, 19 (12.9%) agreed, and 12 (8.2%) strongly agreed, with 5 (3.4%) undecided. This implies that a significant majority (75.5%) of respondents perceive a lack of feedback and support from industries, suggesting an area that requires significant attention to improve collaboration. A similar finding by Coward et al. (2022) emphasize the critical role of effective feedback and support mechanisms in building successful partnerships between industries and technical and vocational education and training (TVET) institutions. The perception of a substantial lack of feedback and support from industries, suggests that TVET institutions may be struggling to obtain the necessary guidance, resources, and engagement from their industry counterparts.

On interview with the principals, one of the participants said;

The level of industry demand is a significant factor that directly influences the willingness of TVET institutions to engage in collaborative initiatives with industries. In my experience, the stronger the industry demand for skilled workers, the more motivated and responsive TVET institutions are to forge meaningful partnerships.

When industry demand is high, TVET institutions recognize the imperative to align their training programs and graduate competencies with the evolving needs of employers. This creates a strong incentive for TVET institutions to proactively engage with industries to understand their specific skill requirements, identify skills gaps, and design collaborative programs to address these gaps.

Equally, in situations where industry demand is low, TVET institutions may be less inclined to prioritize industry collaboration. They may be more focused on maintaining their existing programs and graduating students without a clear understanding of industry needs. The lack of immediate market pressure reduces the impetus for TVET institutions to invest time and resources in developing new collaborative initiatives.

However, it is important to note that even in periods of low industry demand, TVET institutions should still recognize the long-term value of building strong industry partnerships. Maintaining these connections can help TVET institutions anticipate and prepare for future changes in industry needs, ensuring that their graduates remain competitive and employable.

Additionally, TVET institutions with a strong institutional capacity, as discussed in the previous response, are better equipped to engage with industry regardless of the current level of demand. These institutions can leverage their resources, industry networks, and data-driven decision-making to identify opportunities for collaboration and develop sustainable partnership models.

The principal's response to the question on how the level of industry demand influences the willingness of TVET institutions to engage in collaborative initiatives with industries provides several key insights and implications for the study. Firstly, the response suggests that there is a direct correlation between the level of industry demand and the motivation of TVET institutions to actively pursue collaborative efforts. When industry demand for skilled workers is high, TVET institutions recognize the urgency to align their training

programs and graduate competencies with the evolving needs of employers. This creates a strong incentive for TVET institutions to proactively engage with industries, understand their skill requirements, and design collaborative programs to address these gaps.

On the other hand, the principal implies that during periods of low industry demand, TVET institutions may be less inclined to prioritize industry collaboration. They may be more focused on maintaining their existing programs and graduating students without a clear understanding of the current industry needs. The lack of immediate market pressure reduces the impetus for TVET institutions to invest time and resources in developing new collaborative initiatives.

However, the principal also highlights the importance of TVET institutions recognizing the long-term value of building strong industry partnerships, even in times of low demand. Maintaining these connections can help TVET institutions anticipate and prepare for future changes in industry needs, ensuring that their graduates remain competitive and employable. Furthermore, the response suggests that TVET institutions with a strong institutional capacity, as discussed in the previous response, are better equipped to engage with industry regardless of the current level of demand. These institutions can leverage their resources, industry networks, and data-driven decision-making to identify opportunities for collaboration and develop sustainable partnership models.

The implications of this response for the study are significant. It stresses the need for researchers to consider the fluctuations in industry demand as a key factor that can influence the willingness and motivation of TVET institutions to engage in collaborative initiatives. Additionally, the response highlights the importance of TVET institutions adopting a long-term, proactive approach to industry collaboration, even during periods of low demand. The study could investigate strategies and best practices that enable TVET institutions to maintain and strengthen their industry partnerships, ensuring the continuous relevance and responsiveness of their training programs.

In the same vein, during an interview with the industries representatives, one of the participants said:

In my experience, there is a direct correlation between the level of industry demand and the motivation for TVET institutions to forge stronger partnerships. When industry demand for skilled graduates is high, TVET institutions recognize the importance of aligning their programs and curriculum to the evolving needs of the job market. This heightens their willingness to actively engage with industry players to understand the specific skills and competencies that are in high demand. By doing so, TVET institutions can ensure that their programs produce graduates who are well-equipped to meet the needs of the industry, making them more attractive and employable.

Moreover, when industry demand is low, TVET institutions may feel less compelled to prioritize collaborative initiatives with industry. They may be more focused on maintaining enrollment numbers and ensuring the financial viability of their institutions, rather than proactively seeking to align their offerings with the industry's needs. In such cases, the willingness to engage in collaborative activities may be dampened, as the perceived benefits and urgency for such partnerships may be less apparent.

It is also important to note that the level of industry demand can vary across different sectors and regions. TVET institutions that operate in areas with a thriving industry landscape and high demand for skilled workers are more likely

to be proactive in establishing and sustaining collaborative initiatives with industry partners. These institutions understand the value of such partnerships in enhancing the employability of their graduates and maintaining their relevance within the local and regional job market.

The key points raised in the response highlight important factors that the study should consider in order to gain a comprehensive understanding of the determinants of collaboration. Firstly, the industry representative's emphasis on the direct correlation between the level of industry demand and the motivation for TVET institutions to engage in collaborative initiatives aligns with the study's focus on understanding the factors that drive or hinder such partnerships. This insight suggests that the study should closely examine the current and projected industry demand for skilled graduates within the Trans Nzoia County context, as this is likely to be a significant determinant of the willingness and commitment of TVET institutions to collaborate with industry partners.

The representative's explanation of how high industry demand encourages TVET institutions to align their programs and curriculum to meet the evolving needs of the job market provides important context. This dynamic can shed light on the strategies, incentives, and institutional priorities that shape the decision-making processes of TVET institutions when it comes to collaborating with industry. Understanding these underlying factors can help the study identify targeted interventions or policy recommendations to foster more effective and sustainable TVET-industry partnerships.

The industry representative's acknowledgment of the potential variation in industry demand across different sectors and regions within the county further highlights the need for the study to capture a nuanced and context-specific understanding of the collaborative landscape. This observation suggests that the study should explore the unique characteristics and dynamics of different industries and geographic areas within Trans Nzoia County, as these factors may influence the willingness and ability of TVET institutions to engage in collaborative initiatives.

4.7 Alignment of Interests and Collaboration Between TVET Institutions and Industries

The third objective of this study was to examine the influence of alignment of interests on collaboration between TVET institutions and industries in Trans Nzoia County. Respondents were requested to rate their agreement or disagreement on the statements in a likert scale. Table 4.4 shows the results.

Table 4.4 Alignment of interests and Collaboration Between TVET Institutions and Industries

Statement	SD		D		U		A		SA	
	F	%	F	%	F	%	F	%	F	%
The alignment of interests between TVET institutions and industry significantly enhances the quality of TVET programs.	12	8.2	19	12.9	4	2.7	66	44.9	46	31.3
Collaboration between TVET institutions and industry is more effective when their interests are closely aligned.	15	10.2	20	13.6	7	4.8	68	46.3	37	25.2
When interests are aligned TVET graduates are better prepared to meet industry needs.	18	12.2	22	15.0	6	4.1	65	44.2	36	24.5
Joint research projects are more successful when there is a high degree of alignment of interests between TVET institutions and industry.	14	9.5	21	14.3	5	3.4	68	46.3	39	26.5
TVET institutions that prioritize aligning their curriculum with industry requirements tend to have stronger industry partnerships.	16	10.9	24	16.3	7	4.8	67	45.6	33	22.4
A lack of alignment in interests	17	11.6	23	15.6	8	5.4	66	44.9	33	22.4

can hinder the development of internship and apprenticeship programs between TVET institutions and industry.											
The extent to which TVET institutions and industry invest resources in alignment efforts correlates with the level of collaboration achieved.	20	13.6	18	12.2	7	4.8	65	44.2	37	25.2	
Effective communication and information sharing are more likely to occur when there is a high level of alignment between TVET institutions and industry.	13	8.8	22	15.0	5	3.4	68	46.3	39	26.5	

A majority of the respondents, 66 (44.9%), agreed that the alignment of interests between TVET institutions and industry significantly enhances the quality of TVET programs, while 46 (31.3%) strongly agreed. Conversely, 19 (12.9%) disagreed, and 12 (8.2%) strongly disagreed, with 4 (2.7%) undecided. This implies that a significant proportion (76.2%) of respondents perceive that alignment enhances program quality, highlighting the importance of aligning interests to improve TVET outcomes. This finding aligns with studies like that of Mwangi et al. (2019), which emphasized the positive impact of aligned interests on educational quality.

Similarly, a majority of the respondents, 68 (46.3%), agreed that collaboration between TVET institutions and industry is more effective when their interests are closely aligned, followed by 37 (25.2%) who strongly agreed, 20 (13.6%) disagreed, and 15 (10.2%) strongly disagreed, with 7 (4.8%) undecided. This indicates that a substantial majority (71.5%) of respondents believe that aligned interests lead to more effective collaboration,

suggesting a need for ongoing efforts to align institutional and industry goals. This finding concurs with the work of Smith (2021), who noted that when stakeholders have shared objectives and incentives, it facilitates greater cooperation and joint problem-solving.

Furthermore, 65 (44.2%) of respondents agreed that when interests are aligned, TVET graduates are better prepared to meet industry needs, with 36 (24.5%) strongly agreeing. However, 22 (15.0%) disagreed, and 18 (12.2%) strongly disagreed, with 6 (4.1%) undecided. This finding implies that a significant majority (68.7%) of respondents feel that alignment improves graduate preparedness, underscoring the importance of aligning educational programs with industry requirements. This emphasizes the importance of ongoing efforts to align educational curricula and objectives with the evolving needs of employers and industry. This aligns with research by Kimson (2021), who emphasized that when there is strong alignment between the goals and priorities of academic programs and industry partners, graduates are better equipped with the relevant competencies to contribute effectively in their respective fields.

Moreover, 68 (46.3%) of respondents agreed that joint research projects are more successful when there is a high degree of alignment of interests between TVET institutions and industry, while 39 (26.5%) strongly agreed. On the other hand, 21 (14.3%) disagreed, and 14 (9.5%) strongly disagreed, with 5 (3.4%) undecided. This implies that a substantial proportion (72.8%) of respondents believe that aligned interests

enhance the success of joint research projects, highlighting the value of collaboration in research. This highlights the significant value of collaborative research efforts when there is a shared understanding of goals and priorities. When stakeholders from different institutions or sectors have aligned interests, it facilitates more productive coordination, resource-sharing, and the co-creation of innovative solutions. This alignment helps to overcome potential roadblocks that can arise from conflicting agendas or incentives, enabling researchers to focus their efforts on addressing complex challenges more effectively. As noted by Johnson (2020), this alignment of interests is a critical factor in driving the success of collaborative research initiatives. Echoing this sentiment, Wilson (2022) emphasizes that by continuously working to ensure that the objectives and motivations of academic and industry partners are well-synchronized, organizations can unlock the full potential of joint research projects, leading to meaningful advancements and impactful outcomes.

Additionally, 67 (45.6%) of respondents agreed that TVET institutions that prioritize aligning their curriculum with industry requirements tend to have stronger industry partnerships, with 33 (22.4%) strongly agreeing. However, 24 (16.3%) disagreed, and 16 (10.9%) strongly disagreed, with 7 (4.8%) undecided. This finding suggests that a significant majority (68.0%) of respondents perceive that curriculum alignment strengthens partnerships, indicating a critical strategy for enhancing collaboration. This indicates that a critical strategy for enhancing cross-sector collaboration is to ensure that

educational programs and curricula are closely aligned with the evolving needs and requirements of industry. When academic curricula are designed in close consultation with industry stakeholders, it helps to bridge the gap between the knowledge and skills acquired by students and the competencies sought by employers. This alignment fosters a more seamless transition for graduates entering the workforce and enables organizations to benefit from a talent pool that is better prepared to contribute to their specific needs.

This finding concurs with Sharma (2021) who noted that curriculum alignment is a key driver of successful partnerships, as it demonstrates a commitment to addressing the skills gap and producing graduates who are poised for success in their respective fields.

Furthermore, 66 (44.9%) of respondents agreed that a lack of alignment in interests can hinder the development of internship and apprenticeship programs, followed by 33 (22.4%) who strongly agreed. Conversely, 23 (15.6%) disagreed, and 17 (11.6%) strongly disagreed, with 8 (5.4%) undecided. This indicates that a substantial majority (67.3%) of respondents believe that misalignment hinders program development, underscoring the importance of interest alignment for successful internships and apprenticeships. This emphasizes the importance of building aligned interests for these critical workforce development initiatives to thrive. When there is a lack of synchronization between the objectives and priorities of academic institutions and industry partners, it can create barriers to designing and implementing effective experiential learning programs. Misaligned interests can lead to disconnects in the skills

and knowledge being taught, the real-world challenges being addressed, and the overall value proposition for both students and employers. As highlighted by Gupta (2022), aligning the interests of all stakeholders involved in internships and apprenticeships is essential for ensuring these programs effectively prepare students for successful transitions into the workforce.

Moreover, 65 (44.2%) of respondents agreed that the extent to which TVET institutions and industry invest resources in alignment efforts correlates with the level of collaboration achieved, while 37 (25.2%) strongly agreed. However, 18 (12.2%) disagreed, and 20 (13.6%) strongly disagreed, with 7 (4.8%) undecided. This implies that a significant majority (69.4%) of respondents perceive a correlation between resource investment and collaboration, highlighting the need for resource allocation to support alignment efforts. This highlights the need for organizations to allocate sufficient resources to support alignment efforts between academic institutions and industry partners. When stakeholders dedicate the necessary time, funding, and other resources towards building stronger alignment between their respective goals and priorities, it can catalyze more productive and impactful collaborations. Adequate resource allocation enables the development of shared strategies, the exchange of knowledge and expertise, and the co-creation of innovative solutions to complex challenges. This finding is similar with the finding by Ramirez (2021), who established that resource investment is crucial

for overcoming potential barriers to alignment, such as differing organizational cultures, communication gaps, and mismatched incentive structures.

Finally, 68 (46.3%) of respondents agreed that effective communication and information sharing are more likely to occur when there is a high level of alignment between TVET institutions and industry, followed by 39 (26.5%) who strongly agreed. Conversely, 22 (15.0%) disagreed, and 13 (8.8%) strongly disagreed, with 5 (3.4%) undecided. This finding suggests that a substantial majority (72.8%) of respondents believe that alignment enhances communication, emphasizing the importance of aligning interests for effective information exchange. This emphasizes the importance of aligning the goals and priorities of stakeholders for effective cross-sector collaboration. When partners have a shared understanding of objectives and a mutual commitment to success, it facilitates more open and transparent communication. This aligned interest helps to overcome potential communication barriers that can arise from differing institutional cultures, priorities, or incentive structures. With clear and consistent communication channels, collaborators are better equipped to share knowledge, coordinate activities, and address challenges in a timely and effective manner. As highlighted by Sharma (2022), this alignment of interests is a critical factor in enabling the seamless flow of information and ideas between academic and industry partners.

On interview with the principals one of the participants respondent as follows;

When there is a clear convergence of goals and priorities between the two stakeholders, it creates an enabling environment for effective and mutually beneficial partnerships to thrive. In my experience, TVET institutions that are able to clearly understand and align their training programs and graduate competencies with the specific skills demands and business needs of local industries are more likely to establish successful collaborative partnerships. This alignment ensures that the knowledge and skills imparted to TVET students are directly relevant and applicable to the current and future workforce requirements of the industries in the region.

Further, when there is a disconnect between the interests and priorities of TVET institutions and industries, it can hinder the development of meaningful collaborations. For instance, if TVET institutions are focused on delivering theoretical, academic-oriented programs that do not address the practical, industry-specific skills needed by employers, it becomes challenging to establish effective partnerships.

Moreover, the alignment of interests can extend beyond just the skills and competencies required by industries. It can also encompass shared priorities around innovation, technology adoption, and addressing emerging market trends. When TVET institutions and industries can identify and collaborate on these mutually beneficial areas, it can lead to the co-creation of industry-relevant training programs, joint research and development projects, and the establishment of technology transfer mechanisms.

Based on this response, the principal emphasizes that TVET institutions which are able to clearly understand and align their training programs and graduate competencies with the specific skill demands and business needs of local industries are more likely to establish successful collaborative initiatives. This alignment ensures that the knowledge and skills imparted to TVET students are directly relevant and applicable to the current and future workforce requirements of the industries in the region. The response also emphasizes the challenges that arise when there is a disconnect between the interests and priorities of TVET institutions and industries. If TVET institutions are focused on delivering

theoretical, academic-oriented programs that do not address the practical, industry-specific skills needed by employers, it becomes difficult to establish effective partnerships. This suggests that researchers should explore the existing misalignments between TVET institutions and industries in Trans Nzoia County and investigate the strategies that can be employed to bridge these gaps.

Furthermore, the principal highlights that the alignment of interests can extend beyond just the skills and competencies required by industries. It can also encompass shared priorities around innovation, technology adoption, and addressing emerging market trends. When TVET institutions and industries can identify and collaborate on these mutually beneficial areas, it can lead to the co-creation of industry-relevant training programs, joint research and development projects, and the establishment of technology transfer mechanisms. This broader perspective on the alignment of interests provides valuable insights for researchers to explore the multifaceted nature of TVET-industry collaborations in the context of Trans Nzoia County.

4.8 Elements of Collaboration between TVET Institutions and Industries

The purpose of the study was to examine the determinants of collaboration between TVET institutions and industries in Trans Nzoia County, Kenya Respondents were

requested to rate their agreement or disagreement on the statements in a likert scale.

Table 4.5 shows the results.

Table 4.5 Elements of Collaboration between TVET Institutions and Industries

Statement	SD		D		U		A		SA	
	F	%	F	%	F	%	F	%	F	%
TVET institutions in Trans Nzoia County frequently engage with local industries to align their curriculum with industry needs.	43	29.3	68	46.3	5	3.4	12	8.2	19	12.9
There is effective communication and feedback mechanisms between TVET institutions and industries in Trans Nzoia County	70	47.6	33	22.4	6	4.1	15	10.2	23	15.6
Collaborative projects and internships are regularly facilitated by TVET institutions in partnership with local industries.	36	24.5	72	49.0	5	3.4	14	9.5	20	13.6
TVET institutions and industries in Trans Nzoia County share resources such as equipment and expertise to enhance training programs.	69	46.9	36	24.5	7	4.8	13	8.8	22	15.0

Firstly, the results in the table show that a majority of respondents, 68 (46.3%), disagreed that TVET institutions in Trans Nzoia County frequently engage with local industries to align their curriculum with industry needs, while 43 (29.3%) strongly disagreed with this statement. On the other hand, 19 (12.9%) of the respondents strongly agreed, and 12 (8.2%) agreed, with only 5 (3.4%) remaining undecided. This implies that a significant

portion of respondents, 111 (75.6%), believe that there is insufficient engagement between TVET institutions and local industries to ensure curriculum alignment, highlighting a gap that could impact the relevance of the training provided. This highlights a critical gap that could negatively impact the relevance and effectiveness of the training provided to students.

When TVET institutions do not actively engage with local industry partners to align their curricula and training programs, it can result in a disconnect between the skills and knowledge being taught and the actual competencies required by employers. This can limit the employability of TVET graduates and hinder their ability to seamlessly transition into the workforce. As noted by Patel (2021), building stronger partnerships and continuous dialogue between TVET providers and local industries is essential for ensuring the curriculum remains relevant and responsive to industry needs. By bridging this engagement gap, stakeholders can work together to develop training programs that equip students with the skills and expertise that are in high demand within the local job market. Addressing this challenge should be a priority for both TVET institutions and local industries, as improving curriculum alignment can lead to more effective workforce development, enhanced employment opportunities for graduates, and the cultivation of a talent pool that is better equipped to drive economic growth and innovation within the community.

Similarly, when asked about the effectiveness of communication and feedback mechanisms between TVET institutions and industries, a substantial majority of respondents, 70 (47.6%), strongly disagreed that effective communication exists, while 33 (22.4%) disagreed. In contrast, 23 (15.6%) of the respondents strongly agreed, 15 (10.2%) agreed, and 6 (4.1%) were undecided. These results suggest that 103 (70%) of respondents perceive the communication and feedback mechanisms as inadequate, which may hinder the ability to respond to industry needs and adapt training programs accordingly. This finding indicates a critical gap that may hinder the ability of TVET providers to effectively respond to industry needs and adapt their training programs accordingly. Effective communication and feedback loops are essential for TVET institutions to stay informed about the evolving skills requirements, technological advancements, and changing business needs within the local job market. When these feedback mechanisms are insufficient, it becomes challenging for TVET providers to ensure their curricula and training offerings remain relevant and aligned with the needs of employers. As highlighted by Sharma (2022), building robust communication channels and feedback mechanisms between TVET institutions and local industries is a crucial step in enhancing the responsiveness and adaptability of training programs.

Further analysis reveals that the majority of respondents, 72 (49.0%), disagreed that collaborative projects and internships are regularly facilitated by TVET institutions in partnership with local industries. This was followed by 36 (24.5%) who strongly

disagreed with the statement. Conversely, 20 (13.6%) of respondents strongly agreed, and 14 (9.5%) agreed, with only 5 (3.4%) remaining undecided. The findings imply that 108 (73.5%) of respondents feel that there is a lack of regular facilitation of collaborative projects and internships, which are crucial for hands-on experience and skill development. This is a concerning gap, as these types of experiential learning opportunities are crucial for students to gain hands-on experience and develop the skills needed to thrive in the workforce. Collaborative projects and internships provide TVET students with the chance to apply their theoretical knowledge in real-world settings, under the guidance and mentorship of industry professionals. These immersive learning experiences allow students to develop critical thinking, problem-solving, and technical skills that are highly valued by employers. When there is a lack of these opportunities, it can limit the ability of TVET institutions to adequately prepare their students for the demands of the job market. As noted by Gupta (2021), strong industry-TVET partnerships that facilitate regular collaborative projects and internships are essential for bridging the skills gap and ensuring the relevance of vocational training. By working to address this gap identified by the majority of respondents, stakeholders can enhance the practical relevance of TVET programs and better equip graduates with the competencies required by local industries.

Moreover, the findings show that a considerable proportion of respondents, 69 (46.9%), strongly disagreed that TVET institutions and industries in Trans Nzoia County share

resources such as equipment and expertise to enhance training programs. Additionally, 36 (24.5%) disagreed with this statement, while 22 (15.0%) strongly agreed, 13 (8.8%) agreed, and 7 (4.8%) were undecided. This indicates that 105 (71.4%) of respondents feel that resource-sharing between TVET institutions and industries is lacking, which could limit the quality and effectiveness of the training provided. This suggests a critical gap that could potentially limit the quality and effectiveness of the training provided to TVET students. Effective collaboration and resource-sharing between TVET institutions and industry partners is crucial for ensuring that training programs are well-equipped with the latest technologies, equipment, and industry-relevant learning resources. When this type of resource-sharing is lacking, it can prevent TVET providers from keeping pace with the rapid technological advancements and evolving skill requirements within the job market. As highlighted by Sharma (2020), the pooling of resources, expertise, and infrastructure between TVET institutions and industries enables the development of more robust and industry-aligned training programs. This collaborative approach allows for the utilization of state-of-the-art facilities, exposure to cutting-edge technologies, and the incorporation of real-world case studies and projects into the curriculum.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter has a summary of the research findings, conclusions, recommendations and suggestions for further research based on the analysis of information that was collected. The section is sub-divided into four sections, namely, summary of research findings, conclusions, recommendations and suggestions for further research. These divisions were informed by the purpose of the study and the results.

5.2 Summary of findings

5.2.1 Institutional capacity and collaboration between TVET institutions and industries

The first objective of the study explored the institutional capacity of TVET institutions and their level of collaboration with industries. The findings reveal that a majority of respondents expressed concern over the inadequacy of resources and facilities available in TVET institutions to support effective collaboration. Similarly, leadership and governance structures were generally perceived as weak, suggesting a need for more robust institutional leadership to drive and sustain industry partnerships. Respondents also indicated that networks and partnerships between TVET institutions and industries were limited, which undermines the potential for mutually beneficial collaborations.

Additionally, there was a general view that TVET institutions lacked sufficient innovation and responsiveness to meet evolving industry demands.

On a more positive note, the competency of staff in engaging with industry stakeholders was recognized, with many respondents affirming that TVET institutions have well-trained and capable personnel. There was also a strong indication of commitment to continuous improvement and quality assurance practices within these institutions. Furthermore, mechanisms to assess and respond to industry needs were acknowledged to exist, and many respondents viewed TVET institutions as having a favorable reputation among industry players, pointing to a level of trust and recognition already established.

5.2.2 Industry demand and collaboration between TVET institutions and industries

The second objective sought to examine how industry demand influences collaboration between TVET institutions and industries. The findings revealed that most respondents perceived a strong demand for collaboration from the industrial sector, indicating a general recognition of the value of partnerships. However, despite this perceived demand, respondents also noted that industries were not sufficiently proactive in initiating or seeking out collaborative relationships with TVET institutions, pointing to a disconnect between interest and action. Furthermore, many respondents acknowledged that industries appreciate the expertise and contributions of TVET institutions, and they believed there were ample opportunities for collaboration. Nonetheless, concerns were

raised regarding the limited willingness of industries to invest in such collaborative efforts.

Communication from industries was also reported to be inadequate, which hampers effective coordination and the development of mutually beneficial initiatives. Encouragingly, there was agreement that industries recognize the importance of aligning their workforce needs with the training provided by TVET programs. However, a notable challenge identified was the lack of consistent feedback and support from industries, suggesting that while alignment is acknowledged in principle, it is not fully supported in practice. These findings highlight the need for more structured and proactive engagement strategies from industries to strengthen collaboration with TVET institutions..

5.2.3 Alignment of interests and collaboration between TVET institutions and industries

The third objective focused on assessing the influence of alignment of interests on the collaboration between TVET institutions and industries. The findings indicate that a majority of respondents agreed that when the interests of both parties are well-aligned, the quality of TVET programs improves significantly. They also noted that collaboration becomes more effective under such alignment, as shared goals help streamline efforts and foster mutual understanding. Respondents further observed that aligning interests enhances the readiness of TVET graduates to meet industry expectations, particularly by ensuring that the skills taught are directly applicable to workplace demands. Joint

research initiatives were also reported to benefit from aligned interests, with respondents indicating that such alignment contributes to the success and relevance of collaborative projects.

In addition, curriculum alignment was seen as a critical factor in strengthening partnerships, as it ensures that TVET training remains responsive to industry trends and technological advancements. However, misalignment between institutional and industry priorities was identified as a barrier, especially in the development of internship and apprenticeship programs, which require close cooperation. The study also highlighted the link between resource investment and the level of collaboration achieved, suggesting that alignment of interests is more likely to occur and yield results when both parties commit adequate resources. Finally, respondents emphasized that alignment fosters better communication and information sharing, underscoring its importance as a foundational element for sustainable and effective collaboration.

5.2.4 Key Determinants Identified in the Study

The study identified several key determinants that influence the effectiveness and sustainability of collaboration between TVET institutions and industries in Trans Nzoia County. Among the most significant was institutional infrastructure, which includes the availability of physical facilities, learning equipment, and technological tools. The adequacy of these resources was found to be critical in facilitating hands-on training and industry-relevant skill development. The competency of staff within TVET institutions

also emerged as a strong determinant, with findings showing that well-trained personnel enhance the institutions' ability to engage meaningfully with industry stakeholders and implement relevant training programs.

Another vital determinant identified was industry responsiveness, which refers to how actively and consistently industries initiate and support collaborative efforts with TVET institutions. A lack of initiative and feedback from industry players was highlighted as a constraint, despite a general acknowledgment of the importance of collaboration. Additionally, the alignment of mutual interests between TVET institutions and industries was underscored as foundational to successful collaboration, particularly in terms of curriculum development, joint research, and workforce preparation.

5.3 Conclusions

Based on the findings, this study made the following conclusions; firstly, regarding the institutional capacity and collaboration between TVET institutions and industries, the study concludes that there are significant challenges that need to be addressed. A substantial proportion of respondents believe that TVET institutions lack adequate resources and facilities necessary for effective collaboration with industries. Furthermore, the study highlights the inadequacy of leadership and governance structures, which are crucial for building and sustaining collaborative efforts. The lack of well-established networks and partnerships with industries is also a significant concern, indicating a need for strategic development in this area. Although the competency of staff within TVET

institutions was generally viewed positively, there remains a necessity for ongoing staff development to meet the dynamic needs of industry collaboration. Additionally, while there is a recognized commitment to continuous improvement and quality assurance, the findings suggest that innovation and responsiveness to industry needs are areas that require significant enhancement. Overall, the study emphasizes the importance of strengthening institutional capacity to improve the alignment of TVET programs with industry demands.

Secondly, in terms of industry demand and its influence on collaboration with TVET institutions, the study concludes that there is a positive inclination towards partnerships from the industry, as indicated by the perceived strong demand for collaboration. However, this demand is not matched by proactive engagement, with many respondents noting that industries are not actively seeking partnerships. This gap between demand and action highlights a critical area for improvement, where industries need to be more proactive in engaging with TVET institutions. Despite this, industries are seen to value the contributions and expertise of TVET institutions, and there is recognition of the importance of aligning industry needs with the curriculum offered by these institutions. Nevertheless, the study also reveals a perceived lack of willingness from industries to invest resources and time in collaborative initiatives, as well as inadequate communication between industries and TVET institutions. These findings suggest that, while there is a foundation for collaboration, there is a need for industries to take a more active role in supporting and investing in these partnerships to ensure mutual benefits.

Third, concerning the alignment of interests between TVET institutions and industries, the study concludes that this alignment is crucial for the success of collaboration. A significant majority of respondents believe that aligning interests enhances the quality of TVET programs, improves graduate preparedness, and leads to more effective joint research projects. Moreover, alignment is seen as a key factor in strengthening industry partnerships and facilitating the development of internship and apprenticeship programs. The study also finds that effective communication and information sharing are more likely when there is a high degree of alignment, further emphasizing the importance of shared goals and interests. The correlation between resource investment in alignment efforts and the level of collaboration achieved emphasizes the need for both TVET institutions and industries to commit resources towards building this alignment. In conclusion, the study emphasizes that aligning the interests of TVET institutions and industries is vital for enhancing the effectiveness and sustainability of their collaboration, ultimately leading to better outcomes for both parties.

5.4 Recommendations

Based on the findings from the objectives of the study, the following recommendations are proposed to strengthen collaboration between TVET institutions and industries:

- i) There is a need to enhance the institutional capacity of TVET institutions by improving infrastructure, facilities, and governance structures. The Ministry of Education, in partnership with county governments and development

partners, should prioritize funding and upgrading of training facilities. This should be done through a phased approach, starting with institutions demonstrating the greatest resource gaps. TVET institution leadership should also be trained on strategic partnership development and governance practices to better coordinate with industry stakeholders. National regulatory agencies such as the Technical and Vocational Education and Training Authority (TVETA) should oversee implementation and monitor progress annually.

- ii) There is a need for industries to take a more proactive role in initiating partnerships with TVET institutions. Industry associations such as the Kenya Association of Manufacturers (KAM) and the Federation of Kenyan Employers (FKE), in collaboration with the Ministry of Industrialization and the Ministry of Education, should organize quarterly forums and sector-based meetings where industries can express workforce needs and explore collaboration opportunities. Industries should also be encouraged to create dedicated liaison offices or focal points to streamline communication with TVET institutions and offer structured mentorship or internship programs.
- iii) There is a need to ensure that the goals and expectations of TVET institutions and industries are mutually aligned. Curriculum review panels should include industry representatives to ensure that training content matches real-world requirements. This alignment process should be institutionalized and coordinated by TVETA and Curriculum Development Assessment and

Certification Council (CDACC), with input from industry stakeholders and TVET administrators at least once every two years. Furthermore, incentives such as tax rebates or recognition awards could be introduced by the government to motivate industries to invest in aligned research, innovation, and apprenticeship programs.

5.5 Suggestions for further studies

Based on the scope and limitations of this study, notable gaps remain for further examination. Therefore this study recommends the following areas for further study;

1. There is a need to explore the impact of industry-specific training programs on the employability of TVET graduates in different sectors.
2. There is a need to investigate the role of government policies and incentives in building stronger collaborations between TVET institutions and industries.
3. There is a need to assess the effectiveness of communication strategies between TVET institutions and industries in aligning curriculum with market needs.
4. There is a need to examine the long-term outcomes of TVET-industry collaborations on economic growth and workforce development in the region.
5. There is a need to study the barriers to innovation within TVET institutions and how these can be overcome to enhance industry partnerships.

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APPENDICES

Appendix I: Letter of Introduction

Chepkwony Ezekiel Kiprop

P. O Box 1125-30100, Eldoret.

Dear Sir/Madam,

I am a postgraduate student at University of Eldoret, pursuing Master of Education in Technology Education (Electrical and Electronics Technology). It's a requirement for the course to carry out a research. I am thus currently soliciting for information on the topic ***“Collaboration between Technical and Vocational and Training Institutions And Industries in Trans Nzoia County, Kenya.”***. Your institution has been selected for data collection. I am kindly requesting for your permission to collect data in your TVET institution in the month of October 2023. This research is purely academic and any information provided shall be treated with confidentiality.

Kindly do not indicate your name on the questionnaire.

Yours faithfully,

Chepkwony Ezekiel Kiprop

SEDU/TED/M/008/22

Appendix II: Informed Consent

I Am Chepkwony Ezekiel Kiprop., a Masters student at University of Eldoret conducting a study, as part of the requirements for the Master of Education in Technology Education (Electrical and Electronics Technology). The Study is entitled, *“Determinants of Collaboration between Technical and Vocational and Training Institutions And Industry in Trans Nzoia County, Kenya.”*. .” The information procreated will be shared with stakeholders to ensure decent interventions are made so that TVET graduates remain relevant, innovative and marketable. During the research, you have the rights to:

- i. Participate voluntarily, withdraw at any time and not to be coerced.
- ii. Understand the procedures of the Study and reasonably know what to expect.
- iii. Understand the nature of the Study, what it proposes and its likely impact.
- iv. Ask questions during the research, contacts are provided below.
- v. Obtain a copy of the results of the research, contacts are provided below.
- vi. Have your privacy respected, the information you provide will be kept strictly confidential and used for the purpose of this Study only.
- vii. To know the benefits that will be accrued to you by the Study.

Since the Study is of great importance, kindly participate by filling the attached questionnaire and give your responses with as much honesty as possible. Thank you so much.

I have carefully read and agreed to the above provisions of the research.

Kindly do not indicate your name on the questionnaire.

RESEARCHER’S

SIGNATURE:.....DATE:.....

PARTICIPANT’S

SIGNATURE:.....DATE:.....

Yours sincerely,

Chepkwony Ezekiel Kiprop
 SEDU/TED/M/008/22
 Email : chpkwonezekiel@gmail.com
 Cell phone : 0702 831 733

Appendix III: Questionnaire for Trainers

Section A: Demographic Characteristics:

Please indicate the following information by selecting the appropriate option:

1. Gender:
 - Male
 - Female
2. Age:
 - 18-24
 - 25-34
 - 35-44
 - 45-54
 - 55 and above
3. Educational Background:
 - Secondary School
 - Diploma/Certificate
 - Bachelor's Degree
 - Master's Degree
 - Doctorate Degree
4. Work Experience in TVET or Industry:
 - Less than 1 year
 - 1-3 years

4-6 years []

7-10 years []

More than 10 years []

Section B: Institutional Capacity and collaboration between TVET institutions and industries

Using a likert scale where SD = strongly disagree, D= disagree, U= Undecided, A= agree SA= strongly agree. Please show to what extent you agree or disagree with the following statements on the influence of Institutional Capacity and collaboration between TVET institutions and industries

Statement	SD	D	U	A	SA
The TVET institutions in Trans Nzoia County have adequate resources and facilities to support collaboration with industries.					
The TVET institutions in Trans Nzoia County have strong leadership and governance structures that promote collaboration with industries.					
The TVET institutions in Trans Nzoia County have a well-established network and partnerships with industries.					
The TVET institutions in Trans Nzoia County have a culture of innovation and responsiveness to industry needs.					
The TVET institutions in Trans Nzoia County have skilled and					

competent staff who can effectively engage with industries.					
The TVET institutions in Trans Nzoia County have a strong commitment to continuous improvement and quality assurance.					
The TVET institutions in Trans Nzoia County have mechanisms in place to regularly assess and address the needs of industries.					
The TVET institutions in Trans Nzoia County have a favorable reputation among industries for collaboration.					

Section C: Industry's Demand and collaboration between TVET institutions and industries

Using a likert scale where SD = strongly disagree, D= disagree, U= Undecided, A= agree SA= strongly agree. Please show to what extent you agree or disagree with the following statements on the influence of Industry's Demand and collaboration between TVET institutions and industries

Statement	SD	D	U	A	SA
The industries in Trans Nzoia County express a strong demand for collaboration with TVET institutions.					
The industries in Trans Nzoia County actively seek partnerships and engagement with TVET institutions.					
The industries in Trans Nzoia County value the contributions and					

expertise of TVET institutions.					
The industries in Trans Nzoia County provide sufficient opportunities for TVET institutions to participate in collaborative projects.					
The industries in Trans Nzoia County are willing to invest resources and time in collaborative initiatives with TVET institutions.					
The industries in Trans Nzoia County regularly communicate their needs and expectations to TVET institutions.					
The industries in Trans Nzoia County recognize the importance of aligning their demands with the curriculum and programs offered by TVET institutions.					
The industries in Trans Nzoia County provide feedback and support to TVET institutions to enhance collaboration.					

Section D: Alignment of interests and collaboration between TVET institutions and industries

Using a likert scale where SD = strongly disagree, D= disagree, U= Undecided, A= agree SA= strongly agree. Please show to what extent you agree or disagree with the following statements on the influence of alignment of interests and collaboration between TVET institutions and industries

Statement	SD	D	U	A	SA
The alignment of interests between TVET institutions and industry significantly enhances the quality of TVET programs.					
Collaboration between TVET institutions and industry is more effective when their interests are closely aligned.					
When interests are aligned, TVET graduates are better prepared to meet industry needs.					
Joint research projects are more successful when there is a high degree of alignment of interests between TVET institutions and industry.					
TVET institutions that prioritize aligning their curriculum with industry requirements tend to have stronger industry partnerships.					
A lack of alignment in interests can hinder the development of internship and apprenticeship programs between TVET institutions and industry.					
The extent to which TVET institutions and industry invest resources in alignment efforts correlates with the level of collaboration achieved.					

Section E: Elements of collaboration between TVET institutions and industries

Using a likert scale where SD = strongly disagree, D= disagree, U= Undecided, A= agree SA= strongly agree. Please show to what extent you agree or disagree with the following statements on the Elements of collaboration between TVET institutions and industries

Statement	SD	D	U	A	SA
1. TVET institutions in Trans Nzoia County frequently engage with local industries to align their curriculum with industry needs.					
2. There is effective communication and feedback mechanisms between TVET institutions and industries in Trans Nzoia County.					
3. Collaborative projects and internships are regularly facilitated by TVET institutions in partnership with local industries.					
4. TVET institutions and industries in Trans Nzoia County share resources, such as equipment and expertise, to enhance training programs.					

Thank you for taking time to respond to this questionnaire

Appendix IV: Interview Schedule for Principals

1. How would you describe your institution's capacity—such as staffing, infrastructure, and management systems—in supporting collaboration with industry partners?

.....
.....

2. What challenges does your institution face in establishing and maintaining sustainable partnerships with industry due to internal limitations (e.g., funding, equipment, governance)?

.....
.....

3. In your view, how does industry demand for specific skills influence your institution's training programs and collaboration strategies?

.....
.....

4. How responsive is your institution to changing market or industry demands, and what factors hinder or support this responsiveness?

.....
.....

5. To what extent do you think your institution and local industries share common goals or expectations when it comes to training and workforce preparation?

.....
.....

6. Can you share examples of how misalignment or alignment of goals with industry partners has either supported or undermined collaboration efforts?

.....
.....

Appendix V: Interview Schedule for Industries Representatives

1. Based on your experience, how would you assess the capacity of local TVET institutions to meet your organization's technical or workforce needs?

.....
.....

2. What institutional gaps (e.g., in equipment, staff skills, or administrative processes) have you observed that affect your willingness to collaborate with TVET institutions?

.....
.....

3. How do you communicate your organization's skill needs or workforce demands to TVET institutions, and how effectively do they respond?

.....
.....

4. To what extent do you believe TVET institutions in Trans Nzoia County are aligned with the current and emerging demands of your industry?

.....
.....

5. Do you feel that your organization and TVET institutions share common goals or interests when it comes to workforce development? Please explain.

.....
.....

6. Can you describe a time when alignment (or misalignment) of interests influenced the success or failure of a collaborative effort with a TVET institution?

.....
.....

Appendix VI: Tvet Institutions

TVET Institution		Population	
		Trainers	Principals/Managers
1. Andersen VTC	Endebess	4	1
2. Chorlim VTC	Endebess	6	1
3. Endebess TTI*	Endebess	41	1
		51	3
4. Cherang'any TVC*	Cherangany	9	1
5. Kipsngori VTC	cherangany	3	1
6. Kapchepsir VTC	Cherangany	3	1
7. Kapchepsir VTC	cherangany	6	1
8. Kapkarwa VTC	cherangany	3	1
9. Sinyerere VTC	cherangany	3	1
10. Sitatunga VTC	Cherangany	4	1
11. St. Joseph's Makutano VTC	Cherangany	5	1
12. Top Suwerwa VTC	Cherangany	3	1
13. Twiga VTC	Cherangany	4	1
14. St. Joseph VTC- Kaplamai	Cherangany	5	1
		48	11
15. Chalicha VTC	Kiminini	4	1
16. Kiminini TVC*	Kiminini	12	1
17. Waitaluk VTC	Kiminini	9	1
18. Kiminini VTC	Kiminini,,	5	1
19. Mitoto SA VTC for the visually impaired	Kiminini	4	1
20. Matunda VTC	Kiminini	7	1
21. Sikhendu VTC	Kiminini	12	1
22. Machungwa VTC	Kiminini	9	1
		62	8
23. Kitale VTC	Saboti	2	1
24. The Kitale NP*	Saboti	127	1
25. Kitale VTC	Saboti	5	1
26. Matisi VTC	Saboti	3	1
27. Mukuha VTC	Saboti	4	1
28. Muroki VTC	Saboti	7	1
29. Sango VTC	Saboti	3	1
30. Section Six VTC	Saboti	3	1
		154	8
31. Koros VTC	Kwanza	8	1
32. Kwanza VTC	Kwanza	4	1
33. Kapomboi VTC	Kwanza	6	1
		18	3
		333	33

Key: NP- National Polytechnic, TVC- Technical and Vocational College, TTI- Technical Training Institute, VTC- Vocational and Technical Centres

Source: (County Director TVET Trans-Nzoia County, 2023)

APPENDIX VII: Research Authorization Letters



P.O. Box 1125-30100,
ELDORET, Kenya
Tel: 0774 249552
Fax No. +254-(0)53-206311 Ext 2232

School of Education Department of Technology Education

Our Ref: UOE/B/TED/PGR/065

DATE: 9th May, 2024

The Executive Secretary,
National Council for Science, Technology & Innovation
P.O.BOX 30623-00100,
NAIROBI.

Dear Sir/Madam,

**SUBJECT: RESEARCH PERMIT FOR CHEPKWONY EZEKIEL KIPROP -
SEDU/TED/M/008/22**

This is to confirm that the above named student has done course work of his Master of Education in Technology Education: Electrical and Electronics Technology Option.

He is currently preparing for his field research work on the thesis entitled: *"Determinants of Collaboration between Technical and Vocational Education and Training Institutions and Industry in Trans Nzoia County, Kenya.*

He successfully presented his proposal on **21st March, 2024** and has been approved by the university.

Any assistance accorded to him to facilitate successful conduct of the research and the publication will be highly appreciated.

Yours faithfully,

**HEAD
DEPARTMENT OF TECHNOLOGY
EDUCATION
UNIVERSITY OF ELDORET
P.O. BOX 1125-30100, ELDORET**

**DR. ISAAC NANGENDO
HOD, TECHNOLOGY EDUCATION**





REPUBLIC OF KENYA



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 362645

Date of Issue: 28/May/2024

RESEARCH LICENSE



This is to Certify that Mr.. Ezekiel Kiprop Chepkwony of University of Eldoret, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Transzoia on the topic: DETERMINANTS OF COLLABORATION BETWEEN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS AND INDUSTRY IN TRANS NZOIA COUNTY, KENYA for the period ending : 28/May/2025.

License No: NACOSTI/P/24/35965

362645

Applicant Identification Number

Walter

Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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See overleaf for conditions



OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND NATIONAL ADMINISTRATION

Telegrams:
 Telephone : 054-30020
 E-mail: cctransnzoiacounty@yahoo.com
 When replying please quote our Ref

COUNTY COMMISSIONER
 TRANS NZOIA COUNTY
 P.O. BOX 11-30200
 KITALE

31st May, 2024

Ref. No: TNZC/CONF/ED.12/2VOLV/170

All Deputy County Commissioners
TRANS NZOIA COUNTY

RE: RESEARCH AUTHORIZATION

This is to inform you that **Mr. Ezekiel Kiprop Chepkwony** of University of Eldoret has been authorized by **National Commission for Science, Technology and Innovation** to carry out research on "**Determinants of Collaboration between Technical and Vocational Education and Training Institutions and Industry**" in Trans Nzola County for the period ending **28th May, 2025**.

Kindly accord him the necessary assistance that he may require.

BEATRICE LUKOKO
FOR: COUNTY COMMISSIONER
TRANS NZOIA COUNTY

C.C.

1. County Director of Education
TRANS NZOIA COUNTY
2. County Secretary
COUNTY GOVERNMENT OF TRANS NZOIA



REPUBLIC OF KENYA
Ministry of Education
State Department of Early Learning and Basic Education

Telegrams:
 Telephone: Kitale 054-31653 – 30200
 Fax: 054-31109
 Email: transnzociacde@gmail.com
 When replying please quote:

County Director of Education
 Trans Nzoia
 P.O. Box 2024 – 30200
 KITALE.

Ref. No. TNZ/CNT/CDE/RE.GEN.I/VOL.III/58

Date: 4th June, 2024


TO WHOM IT MAY CONCERN

RE: RESEACH AUTHORIZATION -EZEKIEL KIPROP CHEPKWONY

This office acknowledges receipt of a letter on the above subject **Ref. 362645** dated **28th May, 2024**.

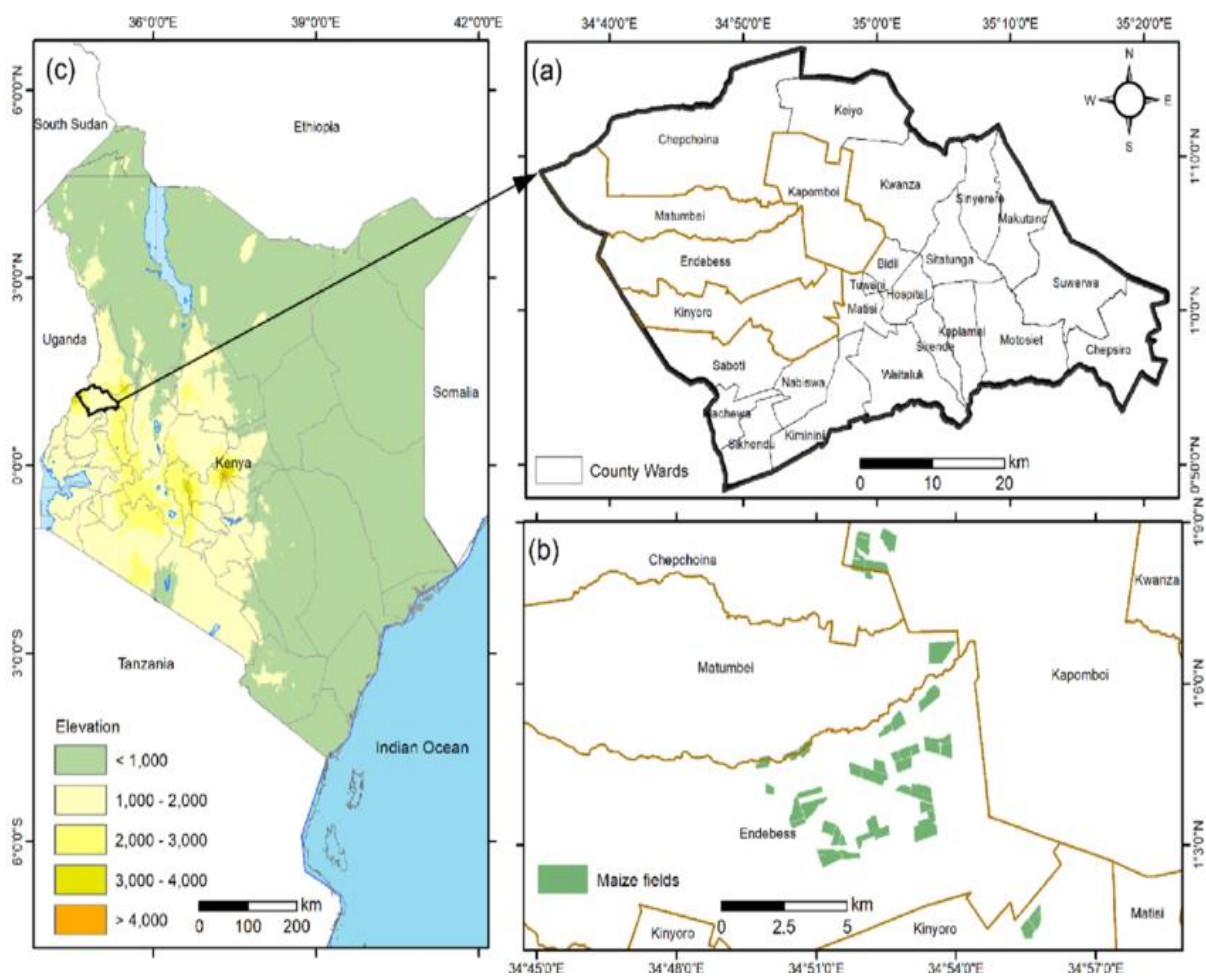
Ezekiel Kiprop Chepkwony of University of Eldoret has been authorized to carry out research on "**Determinants of Collaboration between Technical and Vocational Education and Training institutions and Industry in Trans-Nzoia County**" for the period ending **28th May, 2025**.

The purpose of the letter is to request you to accord him the necessary assistance.


PAMELA AKELLO, HSC
COUNTY DIRECTOR OF EDUCATION
TRANS NZOIA

COUNTY DIRECTOR OF EDUCATION
 TRANS - NZOIA COUNTY
 P. O. Box 2024 - 30200,
 KITALE.

APPENDIX VIII: Map of the Study Area



Source: Official Kenya administrative boundary data (ward/constituency GIS) from

IEBC/KNBS

APPENDIX IX: Similarity Report



University of Eldoret Certificate of Plagiarism Check for Thesis

Author Name	Chepkwony Ezekiel Kiprop SEDU/TED/ M/008/22
Course of Study	Type here...
Name of Guide	Type here...
Department	Type here...
Acceptable Maximum Limit	Type here... <input type="text"/>
Submitted By	similarity@uoeld.ac.ke
Paper Title	DETERMINANTS OF THE COLLABORATION BETWEEN TECHNICAL VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS AND THE INDUSTRY IN TRANS NZOIA COUNTY, KENYA
Similarity	9%
Paper ID	4623292
Total Pages	140
Submission Date	2025-11-04 21:09:26

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Signature of Guide



Head of the Department

Director of Post Graduate Studies

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